CAAN SOUVINER 2014

16th Anniversary

Civil Aviation Authority of Nepal (CAAN)

31st December 2014

Rukum Salley

Civil aviation Authority of Nepal
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The Prime Minister

KATHMANDU
NEPAL

Message

It gives me immense pleasure to learn that Civil Aviation Authority of Nepal (CAAN) is going to publish a Souvenir to on its 16th Anniversary. On this occassion, I would like to express my hearty greetings and best wishes to Civil Aviation Authority of Nepal (CAAN) family.

After the adaptation of open sky policy in the country, necessity of an efficient regulatory body in the aviation sector was realized and CAAN came into existence. Since its establishment, CAAN has been working for the smooth operation of growing domestic and international airlines from both government and private sectors.

Today aviation is the symbol of national progress and prosperity. The life of almost everyone in our country is touched by the aviation industry in one way or the other. In this regard, CAAN has excel its efforts to ensure the safety on skies by strengthening its regulatory capacities. Adaptation and execution of universal safety rules or making aviation related Nepalese laws and by laws, compatible with universal laws and norm will provide an opportunity to win the confidence of passengers.

The Government of Nepal is ever committed to developing aviation infrastructure and inducing aviation attuned environment in the country. It is my earnest desire to see CAAN rising with each passing day and transform itself into one of the leading aviation organizations across the globe.

I wish all the best for the CAAN's Souvenir.

Jaya Nepal !

Sushil Koirala

26th December 2014.

(Sushil Koirala)

Deepak Chandra Amatya
Minister
Ministry of Culture, Tourism & Civil Aviation
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Government of Nepal
Ministry of Culture, Tourism & Civil Aviation
Singh Durbar, Kathmandu

Message

Personally and on behalf of the Ministry of Culture, Tourism and Civil Aviation of the Government of Nepal it is my pleasure, indeed, to extend heartfelt congratulations to the Civil Aviation Authority of Nepal (CAAN) on its 16th Anniversary.

Civil Aviation Authority of Nepal is the entity responsible for the safety and security of civil aviation in Nepal. Civil Aviation and Tourism are quite interrelated. The development of a safe and secure civil aviation opens up the avenue of tourism development. Nepal is, therefore, ever committed for developing her civil aviation sector for which she has been taking up the steps to increase the level of safety.

We appreciate the immense contribution made by CAAN for the development and expansion of civil aviation in Nepal. In addition, it is gratifying to see that CAAN is geared towards coping with emerging challenges facing civil aviation sub-sector. We believe the celebration of anniversary is also an opportunity for CAAN to reflect upon its past performance and seek for any possibility of improvement to set improved course of action ahead.

The effort of CAAN in carrying out all of its duties is upto the mark in true sense. But it is equally true that the effort of Civil Aviation Authority of Nepal or the ministry is not enough; everybody should contribute from his part for building up a safe and secure civil aviation. Therefore I would like to take this opportunity to urge all the stakeholders to cooperate with CAAN in its every effort. I am hopeful that the Authority will also forge a collaborative partnership at governmental, local and industrial level to ensure homogeneous application of safety and operations standards of airports and travel.

Finally, I wish CAAN all the success in its endeavor.

DCAmatya

Deepak Chandra Amatya
Minster
Ministry of Culture, Tourism and Civil Aviation

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Message

I am really pleased to extend my heartfelt congratulations to the Civil Aviation Authority of Nepal (CAAN) on its 16th anniversary. It is also a matter of delight that the 16th issue of the CAAN Souvenir magazine is being published to mark this day which is very auspicious for the aviation fraternity.

Due to its dynamic, high-tech and basically international character, civil aviation is fast changing into a large global industry with an acute need of proactive approaches in working methods and decisions. Similarly, this sector demands focus in technological development and a razor sharp competitiveness. In this process, collaborative efforts and sharing of knowledge and ideas among all concerned are a must. We believe the celebration of anniversary is also an opportunity for CAAN to seek for any possibility of improvement through sharing of knowledge and set improved course of action ahead in congruence to the rapidly changing global aviation.

The efforts put by CAAN in keeping pace with the changing environments of technological development and service standards by deploying skilled manpower, modern equipment, sufficient finance and proper procedures is really commendable. I am sure, the newly commenced airport-projects at Pokhara and Bhairahawa will lead the civil aviation sector to greater heights of service and success.

I wish to express my best wishes to CAAN on the occasion of its Anniversary.

December 2014

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(Suresh Man Shrestha)
Secretary

International Civil Aviation Organization | Organisation de l'aviation civile internationale | Organización de Aviación Civil Internacional | Международная организация гражданской авиации | منظمة الطيران المدني الدولي | 国际民用航空组织

Message from the Regional Director of the International Civil Aviation Organization, Asia and Pacific

on the 16th Anniversary of Civil Aviation Authority of Nepal

I am very pleased to learn that the Civil Aviation Authority of Nepal is observing its sixteenth anniversary on 31 December 2014.

On behalf of the ICAO Regional Office, Bangkok, please accept our congratulations. We will continue its commitment to support and work with CAA Nepal for strengthening international aviation security and safety levels, enhancing capacity and efficiency and promoting sustainable air transport.

Please accept my best wishes and assurance of our cooperation at all times.

Arun Mishra
Regional Director
International Civil Aviation Organization
Asia and Pacific Office

19th December 2014

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Message from Director General of CAAN

I have the pleasure in presenting this special Souvenir to our distinguished readers on the occasion of the 16th anniversary of the establishment of the Civil Aviation Authority of Nepal (CAAN).

CAAN has a great enthusiasm to serve in the interest of people through aviation sector development. We believe that with a strong adherence to ICAO and state policy in enhancing aviation safety and a continued effort in maintaining the physical facilities, regularity instruments and productive human resources, CAAN has emerged as one of the fast growing and leading institutions of the country.

CAAN has given utmost priority to safety and security and has been concentrating on activities that will enhance the capabilities and improve the infrastructure needed for the purpose. It is quite obvious that the aim of safety and security can be achieved if there are proper infrastructure, and modern equipment with strong human capability, sufficient finance and proper procedures. As CAAN has multifarious obligations in a high tech, liability prone and internationally influenced field of aviation, it cannot solely meet the emerging needs of infrastructure development and maintenance. Hence, we invite aviation partners, both government and non-government, to co-operate intensively in infrastructure development and introduction of modern technology in order to reiterate the significance of civil aviation.

Finally, I hope that CAAN will always succeed to enhance the level of safety in aviation and also indoctrinate safety awareness among the stakeholders of civil aviation with its activities. I would like to congratulate all related to aviation and thank you for your keen interest and valuable participation on this auspicious CAAN day.

Er. Ratish Chandra Lal Suman
Director General

EDITIORIAL NOTES

Yet again we have reached the time of retrospections and resolutions. In a festive mood, we are celebrating our 16th anniversary. We are bidding adieu to the year 2014 and opening up arms for the New Year 2015.On this remarkable day, we have published 'CAAN Souvenir 2014' for sharing of knowledge, ideas and opinions among all.

In retrospection of the turbulence in our aviation sector over the past, we must acknowledge that the future is fluid unlike the frozen past. It flows as per our shifting and changing daily decisions and the present events.It can be shaped up in accordance to our determination. Sometimes the difference between a happy successful outcome and a dismal failure is only a slight shift in perception. Considering this fact, we have realized that past evidences have renewed the calls for stricter scrutiny and commitment to address the situation. Moving ahead with our unfaltering efforts, we are sure to smoothen up our journey to safer aviation.

Resolution is the first step to achievement. We know that opportunities originate from challenges. We thus resolve to transform all the challenges into opportune events and emerge stronger and safer in the days to come. We are hopeful that the year ahead will not only meet our expectations, but surpass them.

Finally, I, together with the Publication Committee, would like to express sincere gratitude to the writers and contributors as well as everybody providing their valuable suggestion and support to this souvenir.

Wish you all a very happy and prosperous new year!!!

Patron

Er. Ratish Chandra Lal Suman

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Publication of Accurate Aeronautical Data

Rajesh Raj Dali

Fomer Director General, CAAN

Introduction

International Civil Aviation Organization (ICAO) has published Annexes as Standard and Recommended Practices under the Chicago Convention. Annex 15 Aeronautical Information Service (AIS), together with Annexes 4 (Aeronautical Charts), 11 (Air Traffic Services), 14 (Aerodromes) as well as ICAO Documents 9674 (World Geodetic System — 1984 (WGS-84) Manual, 8126 (AIS Manual), 8168 (PANS OPS) and other supporting materials spell out the requirement for member states to develop and establish a process to ensure that the aeronautical data, provided by the aerodrome operators for the publication either in the Aeronautical Information Publication (AIP), Notice to Airmen (NOTAM) or other official publication, is verified for its accuracy and integrity.

It is the quality of the information that made available to end-users (pilots, controllers and their support systems etc.) which determines the effectiveness of the data-chain in terms of safety, interoperability and as an enabler for the introduction of new concepts and technologies. There are various methods that can be used to originate process, collate, store and distribute aeronautical information within existing and evolving environments.

Thus the first prerequisite is to ensure that quality data is correctly originated, with originators being obliged to comply with appropriate standards published and regulated by Aeronautical Authority established by the States. This is particularly important because the quality of data cannot easily be improved post origination. Secondly, there are many chances for aeronautical information to become corrupted during the data process. This is mainly due to errors introduced at each transaction point through manual intervention or automated conversion between different data standards/ protocols. Finally, reinforcing the first two points, specific requirements regarding the “quality” of aeronautical data/information must be valid. In this context, “quality” should be taken to indicate the required accuracy, resolution, integrity and timeliness of each constituent part of the system. The quality system employed by Aeronautical Authority shall provide users with the necessary assurance and confidence. In addition, it requires traceability by the use of appropriate procedures during each stage of data production or data modification processes.

Purpose

It was assessed that a major reason for the loss of data integrity was the way in which aeronautical information was originated, processed, transmitted and delivered from the point of origination to application in an end-user system. So quality data required for the purpose of listing of aerodrome data; certification of the aerodromes; for design and develop flight procedures; for preparing maps and charts; for conducting safety evaluations; and for area navigation (RNAV), required navigation performance (RNP) and airborne computer based navigation systems, Aeronautical Authority should adopt a process of verification of aeronautical data which will enable Aerodrome Operator to meet their safety responsibilities.

The processed data after verification will be selected for quality assured and then shall be published in the AIP and other associated documents.

Requirements for Aerodrome Operators

Aerodrome operator shall need to provide accurate information of their aerodrome and environs according to the type of operation identified by aerodrome classification issued by the Aeronautical Authority. The publication will be beneficial for the aerodrome user to develop their confidence due to level of accuracy of information to reach prescribed safety standards and requirements. Aeronautical Authority should also issue guidance for the aerodrome operators regarding the process of aeronautical data considered as “Data Chain” with the following main stages:

a) Data Requirement
b) Data Origination and Association
c) Data Validation/Verification
d) Data Storage
e) Data Extraction and Compilation
f) Data/Information Promulgation
g) Alternative ‘Delivery’ of Data
h) Data Use

Data collection and control

The aerodrome operator should notify to Aeronautical Authority regarding any changes in the physical condition of the aerodrome due to accidents, incidents, constructions work, maintenance work, deviation from standards and new obstacles which is found during daily inspections and safety related reports from other sources that may affect the safety of aircraft operations.

During the collection of data at an aerodrome if any situation arises, which may have an immediate effect on the safety of aircraft operations then it will be reported in the first instance to Air Traffic Controller (ATC) by radio or telephone and then confirmation by NOTAM. In most cases aerodrome conditions or new obstacles that need to be reported immediately are detected during the daily serviceability inspections. The aerodrome operator shall notify the presence of obstacles to Aeronautical Authority with all data information, and shall control the erection of temporary and permanent structures in the vicinity of the aerodrome.

The following chart shows the organization involved in forwarding different aeronautical data to the end users. It is the responsibility of relevant technical services department of Aeronautical Authority, for ensuring the determination of aeronautical raw data which is required for promulgation by AIS. On receipt of the raw data, the relevant technical services must check, record, edit the data and to ensure that the aeronautical information/data relating to aerodrome is adequate, of required quality and timely for further action and processing, so that they can be released to the next intended user in a standard format. Raw aeronautical data containing positional information can originate from a number of different sources as follows:

En-route.

The surveyed positions of navigational aids and communication facilities are normally provided by the owner/operator (ATC) of the equipment.

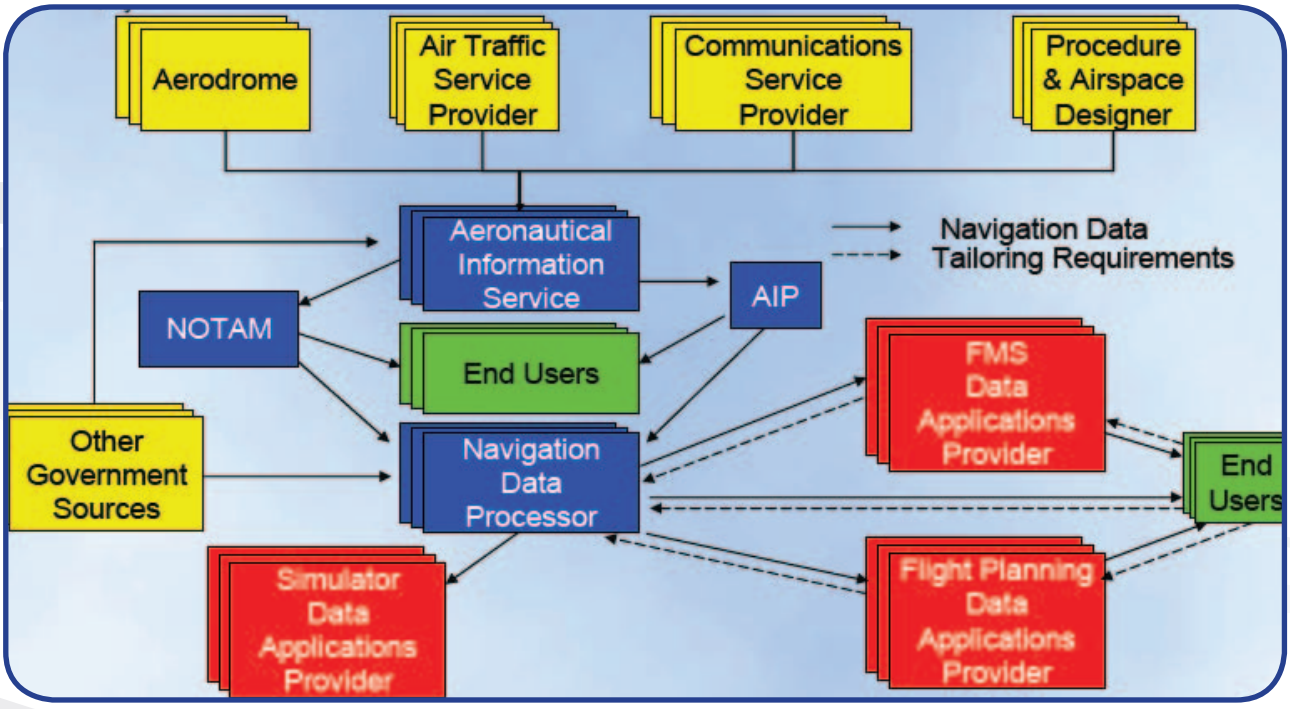
a) *SID, STAR, Instrument approach procedures.* The calculated positions are normally determined by the air traffic service provider responsible for the procedure, in coordination with the technical branch dealing with the procedure design.

b) *Aerodrome/heliport.* The surveyed positions of thresholds, gates, obstacles and navigational aids, etc. located at the aerodrome/heliport are normally provided by the owner or operator of the aerodrome/heliport.

c) *Airspace divisions and restrictions*. The declared positions are normally defined by Aeronautical Authority in coordination of military authorities and other government bodies.

Data Origination

The requirement for data origination for publication may have arisen because of the following factors:
- New Facility
- New Technology or Equipment
- New Procedure, Route or Area
- New Obstacle



- New Hazard
- Periodic
- New Concept or Criteria
- Legal

The word new means it also includes any revised or removed facilities, services, procedures and obstructions. Each of above factors may have a number of constituents which are as follows:

New Facility

- o New Aerodrome
- o New Runway
- o Runway Revision (e.g. Extension or Displaced Threshold)
- o New Terminal
- o New Taxiway
- o Revision of Movement Area

New Technology or Equipment

- o Multi Lateration System (MLAT)
- o Differential GPS (DGPS)
- o New Surveillance Equipment
- o New Precision Approach Equipment
- o New Navigational Aid

New Procedure, Route or Area

- o New Standard Instrument Departure (SID)
- o New Standard Instrument Arrival (STAR)
- o New Precision Approach Procedure
- o New Missed Approach Procedure (MAP)
- o New ATS Route
- o New Airspace Configuration

New Obstacle

- o New Building
- o New Structure
- o Natural Growth of Vegetation

New Hazard

- o New High Intensity Radio Transmission Area
- o New Danger Area
- o New Restricted Area
- o New Temporary Segregated Airspace (TSA)
- o New Activity

Periodic

- o Periodic requirement to check/update data

New Concept of Criteria

- o A-SGMCS
- o RNAV
- o New Geodetic Datum
- o New Accuracy/Resolution Requirements
- o Dynamic Airspace Management

Legal

- o Delegation of Airspace/ATS
- o Prohibition
- o International Treaties and Agreements

Types of Data

The following types of data have been listed for aeronautical data of an aerodrome:

(a) latitude and longitude of the aerodrome reference point in degrees, minutes and seconds;

(b) runways :—

- ➢ designation, dimensions and longitudinal slopes of each runway and associated stopways, clearways;
- ➢ elevation above mean sea level (AMSL) of each runway threshold; and
- ➢ coordinates of each runway threshold;

(c) dimensions of each runway strip and runway end safety area;

(d) depiction of each taxiway and apron area;

(e) coordinates of aircraft stands ;

(f) if available VOR check point radial and distance from the facility;

(g) detail of markings, signs and lighting;

(h) location of meteorological equipment and lighted windsocks;

(i) description of navigational aids; and

(j) location, height (AMSL and AGL) and description of any aerodrome significant obstacle i.e. any obstacle that intrudes into any of the aerodrome obstacle limitation surfaces.

(k) description of the :

- ❖ runway lighting for each runway;
- ❖ approach lighting for each runway;
- ❖ visual approach slope indicator system PAPI including the glide pathangle and threshold crossing height for each runway;
- ❖ circling guidance lights, lead in light system, runway end identification lights, runway alignment indicator lights;
- ❖ other movement area lighting, taxiway, apron floodlighting, reflectors;
- ❖ aerodrome beacon, hazard lights;
- ❖ lighting controls and limitations of use;
- ❖ emergency lighting and
- ❖ secondary power supply and for which facilities.

Data processing

The introduction of widespread automation through electronic storage will have more accuracy and will be free from errors. In order to ensure the continuous integrity of aeronautical data, it is essential that the data process is fully documented, mapped and understood. The establishment of this process is important as it identifies the key participants, inputs, processes and outputs that must be addressed in any regularized process. Any process is made up of three key elements namely Inputs, Actions and Outputs. Data originators (e.g., surveyors, ATS Personnel, service organizations, etc.) will initiate inputs to the process. The activities that are then performed in order to turn the inputs into the outputs will form actions associated with the process. The outputs of the process will be the products that meet the specific need of users for aeronautical data. These users may be human based or system based.

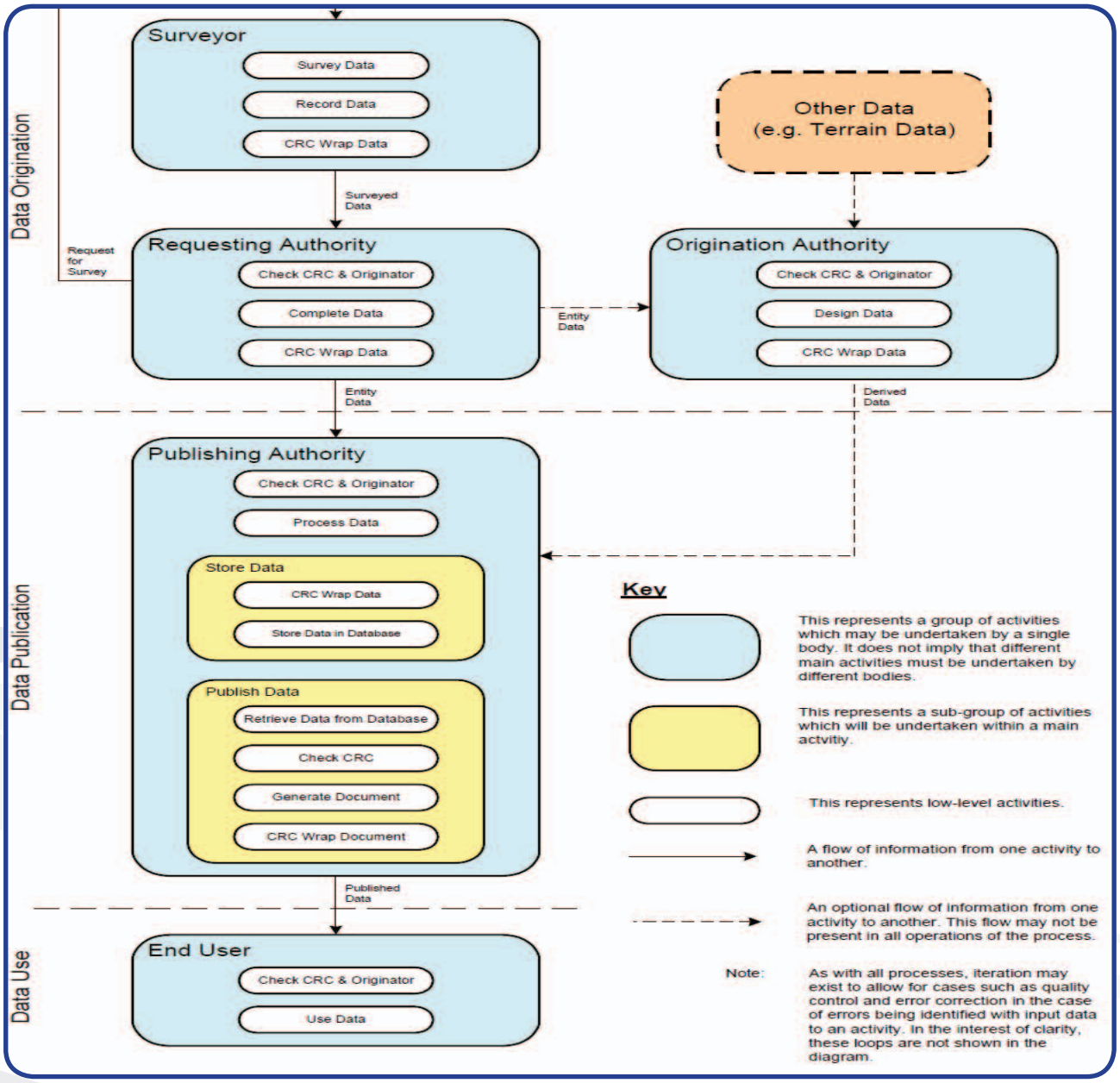
A pilot operating in accordance with the Visual Flight Rules (VFR) using information derived from an AIP, or a flight management system (FMS) using its integrated geospatial data, are examples for each type. The process of the data is given as follows:

a. Accredited companies should provide the survey data.

b. Data is stored in electronic media, preferably through use of standard worksheets which are used throughout the process.

c. Cyclic Redundancy Check (CRC) value be calculated in order to ensure that data being transferred electronically is received without distort. This activity is referred to as CRC wrapping.

d. Receiver of data shall conduct a CRC verification to ensure integrity of data.



e. Data is verified by the Survey Department for completeness and quality.

f. Data is transferred electronically to the publishing authority (i.e.AIS).

g. AIS shall process the data for storage in database.

h. AIS shall generate documents for publication when needed.

Data Integrity

The integrity of the data can be regarded as the degree of assurance that any data item retrieved from a storage system has not been corrupted or altered in any way since the original data entry or its latest authorized amendment. This integrity must be maintained throughout the data process from survey to data application. In respect to AIS, integrity must be maintained to the next intended user. Integrity is expressed in terms of the probability that a data item, retrieved from a storage system with no evidence of corruption, does not hold the same value as intended. For example, an integrity of 1×10^{-8} means that an undetected corruption can be expected in no more than one data item in every 100 000 000 data items processed. Loss of integrity does not necessarily mean loss of accuracy. However, a mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data which is known as cyclic redundancy check (CRC) shall be conducted for further verification. The protection of electronic aeronautical data while stored or in transit shall be totally monitored by the CRC.

a) *Critical data. 1×10^{-8}.*There is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.
b) *Essential data. 1×10^{-5}.* There is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.
c) *Routine data. 1×10^{-3}.* There is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

Verifying Accuracy

Appropriate survey methods shall be applied to qualify the accuracy and integrity of the data provided. Survey methodology shall be clearly demonstrated in the Survey Report and the most stringent survey accuracy shall apply for all the aerodromes.
The data about aerodromes is critical to the operation and for safety matters. The collection of these data through a combination of remotely sensed and field survey methods shall be used for the accuracy.
The survey monuments established in the aerodrome vicinity must meet all accuracy requirements and other criteria specified by Survey Department of the State and WGS-84 Manual. These documents assure accurate relativity between all surveyed points on an aerodrome.

Data Validation & Verification

Generally, the surveyor or consultant hired to collect the data will gather this information from the field measurements. While other values will require information from other sources such as record of drawings or interviews.
Due to the critical nature of some aerodrome features, it is required that the data be verified and validated by appropriate organization. The validation/verification could be achieved through Flight Check, Simulation, Calculation, Photogrammetry and Satellite Imagery. Typically, these features are those associated with the aerodrome's movement areas, navigational systems or those affecting navigable flight such as objects surrounding the aerodrome. Once the verification, validation and quality assurance of the safety critical data is completed, the Survey Department of the state will provide a complete final written analysis of their findings including approval or disapproval of the data. They will identify and list any discrepancies discovered relating to these specifications and decide on the usability of the data.

Verification

"Verification" is defined as the confirmation by examination and provision of objective evidence that the specified requirements are fulfilled. Verification is necessary to ensure the data set accurately represents the specifications and is uncorrupted. The verification process proves the data was properly collected.

Validation

"Validation" differs from "verification" in scale. The validation process identifies the aeronautical information submission was correctly developed as an input to the system. Validation is the confirmation by examination and provisions of objective evidence showing the data set meets the particular requirements of the intended use. The purpose of the validation process is to demonstrate the data set has sufficient overall integrity to satisfy the requirements for its intended application. Validation answers the questions "is the data reasonable when compared against known data" and "does it meet the identified need." Validation does not typically compare the data against photogrammetric analysis or review of the observational data.

Publication

Aeronautical information has, until recently, been published only in paper form. However the last few years have seen the introduction of electronic publications. Whilst the move to electronic publication brings benefits to both the service providers and users, it introduces another area of risk regarding integrity. These risks can be addressed by the same methods utilized for data transmission. ICAO is currently considering the use of electronic media as the primary means of providing aeronautical information and it is assumed that electronic publishing will become the international standard for data dissemination to the users, facilitating accurate, timely and consistent Aeronautical Information.
The publication of aeronautical data shall be published in the following logical steps:

a) Collecting the relevant aerodrome data (data input).
b) Determining the areas of data surveyed (data source).
c) Surveying the areas if required.
d) Listing the Aerodrome Facilities and Master Obstacle data.
e) Updating Aerodrome Manual
f) Producing plans and filtering obstacle data as required.
g) Processing the data report for their accuracy and integrity.
h) Publishing the data and information in official documents.
i) Distributing relevant data and information in theform of published documents.

References

- ICAO Annexes and Documents
- FAA Documents
- Euro Control Documents
- CAAN Documents
- New Zealand Civil Aviation Authority Documents
- Relevant Document of CAA UK

CAAN HEAD OFFICE

Necessity of Optimum Utilization of Capacity Development of CAAN Project

Mohan Adhikari

Former Acting Director General, CAAN

Sound legal basis and ideal organizational structure always happens to be the objective of any successful entity. The then Civil Aviation Department of Nepal founded in 1957 was the only Government entity to perform all aviation activities in the Nation for about four decades. As international air transport developed and became more complex over the past, it was realized that the entity under Government umbrella will not be able to meet all aviation related special characteristic effectively and efficiently. Consequently, the worldwide trend moved towards establishing autonomous and financially independent aviation entities. As Nepal couldn't remain immune to it, the then DCA was formally transformed into Civil Aviation Authority of Nepal (CAAN) on 31st December 1998.

CAAN, since its establishment, has been discharging the role of the Regulatory body of the State and also the service provider for both Aerodrome and Air Navigation Services (ANS). Combining service provision with aviation safety regulation often presents an inherent conflict of interest. As such, ICAO mandates that in those States where the State is the regulatory authority and services provider, requirements of the Chicago Convention will be met, and the public interest will be best served by a clear separation of authority and responsibility between the State operating agency and the State regulatory authority. The USOAP audit of Nepal conducted in 2009, inter-alia, identified this deficiency. CAAN, therefore, was seeking the contribution of a robust, neutral and renowned entity that could shoulder the responsibility of addressing pertinent issues, framing the necessary documents and segregating its role into regulator and service provider.

In the mean time, a loan agreement was made between the Civil Aviation Authority of Nepal (CAAN) and Asian Development Bank (ADB) on 25th May 2010. Through that agreement, the ADB agreed to provide loan to CAAN for the purpose of financing consulting services for the Capacity Development of the latter under Air Transport Capacity Enhancement Project (ADB Loan No: 2581 and Grant No: 0181Nepal (SF). Later, a contract was signed on 22nd December, 2011 between CAAN (client) and INECO (Ingenieria y Economia del Transporte SA), Spain in association with PROINTEC, Spain and ERMC (P) Ltd. Nepal collectively as Consultant.

The main objective of the project is to implement the 3-year capacity development plan prepared under the ADB's project preparatory technical assistance. It aims to address CAAN's deficiencies in the operation, staffing, and enhance its capability so as to efficiently administer, manage, operate, maintain and expand civil aviation infrastructure and services in Nepal. The project cost involves the sum of Euros 2,813791.30 NPR 17,527 957.48 and US$ 387,100.00. The project work started as scheduled. Under the scope of its services, 108 Tasks were identified. The major 6 components of the development plan include; Legal, Planning, Restructuring, Human Resources Development, Computerization and Management Information System.

It is being considered that the consultant is generous enough in performing the tasks as required by the client. For instance, under Legal component, the consultant was simply required to fulfill the provision of review, revise and propose amendments to current legislation. The client having realized that instead of reviewing and revising two existing Acts, requested the consultant to rewrite an integrated Civil Aviation Act, frame new Regulation based on that and make available their Nepali translated version as well. Though out of scope, the consultant accepted the daunting task without demanding any additional cost.

With the establishment of the project, 15 counterpart personnel representing various domains were nominated by CAAN with a view to contribute in the project proceedings. Under its obligation, the consultant is required not only to study the existing national provisions but also to take international references and customize those in our context. The document evidences show that the consultant has done an extensive job. In the course of preparing the document, they have studied not only the Asian countries but also some of the countries of Europe and South American continents. In the course of framing the document, consultant generally prepares the draft material and makes available to concerned personnel as deliberation material in advance. Interaction programs are then organized locally and prior to the draft final report with the involvement of international experts with a view to seek the participants' comments and suggestions for better outcome. The truth may be bitter. But in fact, the participation is not usually encouraging.

The reason is simple. All the concerned officials are engaged in their specified day to day job. Neither do they have enough time for the homework nor can they afford priority in attending the seminar / workshops organized by the consultant. Some even simply comment that the consultant as international expert should themselves be able to deliver the best product. Those hardly able to manage for partial participation, usually make comments on their respective domain simply with the aim to have their greater personal share compared to others. Though during the presentations some concerns and /or queries are obviously raised but in dearth of study as expected, the program usually is deprived of receiving solid feedback in its entirety.

Needless to mention, the role of both client and consultant is vital for the achievement of anticipated outcome. Moreover, it is also noteworthy that while looking for the solution of our existing as well as foreseeable future issues, we, particularly the client, opine as if, the completion of the project is a panacea. For instance, be it the issue of segregating the overlapped role between the Ministry and CAAN or segregating regulator and service provider function and their organizational structure or addressing the USOAP deficiencies including their subsequent validation missions or even the measure for release from EU black listing purpose etc, it is generally said that with the materialization of the project everything will be in place. But, the greater question here is, are we all concerned really serious for its anticipated deliverables? This is being realized lately that for such work of immense significance with huge investment, dedicated Nepalese counter parts must have been designated since the start of the project at least in the primary domain. But in reality, even after the transfer of a couple of coordinators in different area, their substitutes have been neither provided nor asked for.

The project activities thus seem limited in mere formalities. As regular process, the monthly Progress Reports of previous months required to be submitted by the 10th day of each current month and other reports as per the TOR requirements are being presented regularly. The interaction programs are conducted as deemed necessary. Apart from that, as scheduled, concise briefings of the reports are also presented to the high officials of CAAN along with applicable documents. Though the occulted hypothetical assumption, but the factor that makes the author worried is, so much so that:

- The client is under the impression that the international consultant with wide knowledge and experience in the subject matters, providing deliberation materials in advance, conducting interactions involving concerned personnel and international expert as deemed necessary and submitting bunch of prepared documents are but couple of indicators that it must be performing its task as anticipated.

- The consultant, on the other hand, perhaps has the assumption that providing deliberation materials in advance, request for the participation of all the concerned in the interactions, having their presence in the program, oftentimes with attendance as evidence, and absence of any comments/ suggestions or refuting in the submitted documents is construed as satisfactory acceptance of the client's performance.

Finally, the three year term of the consultant is nearing completion soon. However, the works to be performed are yet to take the final shape. At this juncture, before it is too late, it will be prudent to analyze whether the deliverables will be really as anticipated. Irrespective of how expert the consultant is, without joint effort and sincere feedback of the client, unilateral effort may be futile. So we have to make the optimum utilization of the limited time. God forbid that this should happen. But in case of befitting deliverables, the executing party will obviously be the greater sufferer and if so, nothing will be more deplorable than this to the entire Nepalese aviation community.

Wildlife Hazard at TIA and Its Management

Ramesh Man Joshi

Former Dy. Director General., CAAN

Wildlife strike hazard, even at controlled international airports around the world, is a frequently occurring phenomenon. Tribhuvan Intl. Airport (TIA) at Kathmandu is no exception. TIA is in need of improvement in many ways in order to enhance its image in the aviation circle. Proper management of the mitigation plan of wildlife hazard is definitely one of them.

Nepal, as a contracting State to the Convention on International Civil Aviation, has an obligation to ensure that the civil aviation activities under its jurisdiction are carried out in compliance with the Standards and Recommended Practices contained in the ICAO Annexes in order to maintain the required aviation standards and safety norms. Annex 14 Aerodromes-Volume I- prescribes ICAO Standard and Recommended Practices on "Wildlife Strike Hazard Reduction". It used to be "Bird Hazard Reduction" in the past. It states the requirements a contracting State is supposed to comply, such as, assessment the hazard, forwarding the information to ICAO, actions to be taken to minimize the likelihood of collision between wildlife and aircraft, action to be taken with regard to the garbage disposal dumps, land developments in the vicinity of the aerodromes, etc. ICAO Doc 9137 Airport Services Manual Part-3 (4th edition) 'Wildlife Control and Reduction' deals broadly with the issue of wildlife hazard at airports. It used to be a document concerned with 'bird' only before 2012.

A lot has happened in the past with regard to the bird hazard and reduction at TIA. Various measures taken by TIA in the past and the subsequent result on the hazard reduction have brought fruitful results, not to mention the kudos it has received in the international forum of experts. So much so regarding the bird hazard at TIA; Let us now concentrate a bit on the issue of wildlife other than birds at TIA. Wildlife, in generic sense, includes, besides bird, all four legged and two legged animals as well as reptiles, mammals and any other insects whose presence in an airport could pose a risk from aircraft safety view-point. Dog, monkey, rat, jackal, buffalo, insects, etc. have been found to pose threat to safety of aircraft at TIA in the past. Attempt is made to evaluate the hazard/collision risk at TIA from wildlife other than birds and identify some maladies to reduce the hazard to fight safety.

As per the CAAN Airport Certificate Regulation – 2061 (2004), an Aerodrome Manual requires to have a Wildlife Hazard Management System in place for any certified airport; TIA in this case. CAAN Advisory Circular (AC/AD-003/2012) provides guidance to aerodrome operator(s) and the requirements to be fulfilled under the Wildlife Hazard Management System.

TIA Aerodrome Manual (Fifth Edition 2011) has been expressive on the issue of not only on bird, but also on other wildlife hazard too for the management as well as reporting duties. General Manager together with other officials of TIA has been made accountable for the execution of duties related to the Wildlife Hazard Management.

Wildlife Scenario at TIA

Rats

At places where food items are stored or disposed openly, presence of rats is always a possibility. Such locations are rather evenly spread not only inside the airport but also in the immediate vicinity of TIA. Incidence of grounding of Nepal Airlines B-757 aircraft for five days in September, 2011 due to the presence of a rat still haunts us. Glue-mat was used in Hong Kong as well as Kathmandu to capture the rat then. Two days of cancellations of flight alone cost Rs. 13.2 Million to NAC. Installation of machines producing very high pitch sound is commonly used in places where they don't want rats to stay. Fumigation is the best method to kill the rats inside an aircraft or inside the burrows. In fumigation, gas cartridge, ignited from a burning fuse after placement in the aircraft or burrow, generate carbon monoxide. Care must be taken to plug all doors and burrow entrances with sod after placement of the cartridge. Gas cartridges are a general use, over-the –counter pesticide. As with all pesticides, it is critical to make sure the wildlife species you are treating is covered under the national regulations. Hanger area, in particular, must always be free from rats. Mouse traps, sticky solutions, rat poison are also effective to a great extent.

Monkey

All the rhesus monkeys in Pasupati jungle dwell in groups. Monkeys in one group do not mix up with other groups. A new group of monkeys, about 300 in number has been dwelling at TIA since last 8 years or so, probably as a result of protection of a large area in Pashupati Slesmantak Ban for a deer park. They have made airport their home and have been playing havoc at the airside (apron, run-

way, hangar area check-in hall, etc) looking for food and some playing venue, such as, antenna fittings. They must be displaced elsewhere with the consent of the Wildlife Conservation Department of the government of Nepal. A master plan for a long term infrastructural development of Pashupati area is already underway. CAAN /TIA shall make sure that not a single monkey from the Pashupati Area is free to enter TIA as a result. It demands meticulous planning on the part of Pashupati Area Development Trust (PADT), Wildlife Conservation Department and the ecology experts. Open disposal of garbage at TIA must be stopped, or properly managed. TIA must have a say on the recent decision of PADT to expand the deer sanctuary at Slesmantak Ban. Where will all the monkeys go then?
Killing of monkeys is banned in Nepal. They can only be resettled elsewhere. A temporary way to scare the rhesus monkey away is to have people dress up as langoor and go near them.

Jackle

As soon as the dusk falls, TIA, particularly the eastern barren land near Gothatar, used to be frequently visited by the jackals. The presence of jackals in the area is gradually decreasing, thanks to the fast growth of urbanization in and around Gothatar. Nevertheless, shooting them by the Hunters Squad at TIA is the only solution to scare them away.

Dog

Stray dogs too are frequently found inside the airside at TIA, particularly for food and loitering around. There are 30,000 stray dogs in Kathmandu Metropolis alone. All holes beneath the chain-link fence erected all around the airport must be kept maintained to prevent them from entering the airside. Planned killing of the bitches is one way to get rid of stray dogs, ultimately.

Buffalo

Even buffaloes were once found inside TIA in the past. This problem seems to be over now. In December 2007, one of the main wheels of Agni Air aircraft with 29 passengers, while landing at Gautam Buddha Airport, hit a blue bull on the runway. It (the bull) died then and nobody was injured. Thank god, the nose wheel did not hit the bull, or else, a major accident would have occurred.

Earthworms

Earthworms do not directly harm aviation activity as such. But then, they breed well beneath the uncut grass and seek and move to the heat in the warm surface of the runway and taxiway and die instantly. The smell thus created by the dead earthworms attracts birds immediately. Cutting the grass and sweeping the runway and taxiway as well as use of pesticides to control the earthworms are regularly conducted at TIA to alleviate the danger of bird strike with the aircraft besides shooting them or scaring away with the sound of siren.

Leopard

Leopards are often reported being seen at and around Gokarna, a place quite close to TIA. They might also be seen inside TIA anytime in future. TIA management, inclusive of Hunters Squad, should always be alert, just in case.

Wild Cat

Wild cats are often confronted around the airport area in Pokhara. Just a precautionary though for TIA.

Conclusion

A "Hunters Squad" is operational at TIA to inspect regularly any possible hazard to aircraft activity from the wildlife and take remedial action instantly, by shooting them, if need be. Continuity of this service is very important. Existing national level Airport Bird Control and Reduction Committee (ABCRC) should be retitled as Airport Wildlife Hazard Control and Reduction Committee (AWHCRC) for the obvious reason. No airport or aircraft type is immune from the hazard of wildlife strikes. Wildlife Hazard control and mitigation techniques is a dynamic field. New products and technology are continuously being developed. The following factors must be taken into consideration to solve this problem:

a) Reason for being at the airport;
b) Identification of the species of wildlife present. Differ ent species require different handling techniques;
c) Check if they are endangered species;
d) Identification of their habits, such as, feeding, loafing, nesting, etc;
e) The mitigation method should be target focused;
f) Cost of the mitigation measures; and thought for the probable public opinion /reaction. Sometimes it matters.
g) National regulations for the protection of wildlife.

Note: Specific training to the airport personnel is a must. For example, mammals could sometimes be identified by sign, such as, tracks, burrows, fecal material, etc. Only a trained person can identify them.

Basically the following five control strategies are considered to solve wildlife problem at airports:

a) Flight schedule modification;
b) Habitat modification and exclusion;
c) Repellant and harassment techniques;
d) Wildlife removal techniques;
e) Management of solid waste at the airport and in the neighborhood They should be integrated into Airport Wildlife Hazard Mitigation and Management Plan.
   All wildlife strikes or their presence at the airport must be recorded. TIA must have a 'zero tolerance' policy for wildlife presence at the airside.

Effective and Qualitative ANS & Aerodrome Service for Safe Operation of Civil Aviation through Aeronautical Information Service

Shishil Chitrakar

Director, CAAN

Civil Aviation Authority of Nepal (CAAN) was established in 1998 under Civil Aviation Authority Act, 2053 (1996), CAAN Act. The CAAN was established for safe, regular, standard and efficient operation of flights, air communication, air navigation and air transportation services for national and international flights. For achieving this goal CAAN performs many duties and functions mainly for Aerodrome and ANS services. In the Act so many duties and functions are mentioned, following are few examples.

i) To provide for communication and navigational aid equipments and other machines and instruments required for aerodrome, aerodrome area and air routes and places related thereof.

ii) To provide air traffic service, flight information service, alerting service, air traffic advisory service, air traffic control service, air navigation service and facilities, area control service, approach control service and aerodrome control service.

iii) To enforce and cause to be enforced, as per necessity the standards and recommendations (appendixes and documents) adopted by the International Civil Aviation Convention and ratified by Government of Nepal, and framed under that convention and decided by the International Civil Aviation Organization (I.C.A.O.)

In exercise of power conferred by Section 34 of the Nepal Civil Aviation Authority Act, 2053 (1996), Civil Aviation Authority of Nepal has made the "Civil Aviation Authority of Nepal, Civil Aviation Regulation, 2058 (2002) (second amendment) ". The definition and few provision describe in this rule are as follows.

Air Navigation Service: The services provided to air traffic during all phases of operations, including the air traffic management, communication-navigation and surveillance, meteorological for air navigation, search and rescue and aeronautical information service as well.

Service Provider: The service provide by airline operator, airport operator, air navigation service provider, aviation training organization, Aircraft repairing and maintenance organization that has received Permit and Certificate as per this Regulation.

Provision Regarding Air Traffic Service:

(1) The Air Traffic Service to be provided in Nepal shall be as per the standards specified in the Civil Aviation Requirements issued by the Authority.

(2) The responsibility of ensuring the service as per the standard pursuant to Sub-rule (1) shall be that of the chief of the concerned airport

(3) All pilots, during flight, should follow the instruction of the Air Traffic Controller.

(4) If any situation arises for not being able to comply with the instruction given by the Air Traffic Controller pursuant to Sub-rule (4) in view of the flight safety, the pilot shall inform the same to the Air Traffic Controller

(5) Any incident relating to the air traffic service or any notice or information affects or may affect the air safety should be provided to the Director General without any delay.

Provision Regarding Aeronautical Information Service:

(1) The notice and information relating to the civil aviation shall be published regularly through aeronautical information service in a format prescribed in the Annex and Manual.

In this context it will be better to review the duty mentioned in CAAN Act and provision mentioned in regulation. The duty of ATS is so ambiguous whereas there is something lacking or even the AIS and Aerodrome function are not appropriately defined in the Act. The Service provided by ANS and Aerodrome shall be on the basis of ICAO Annex and documents and the definition of ATS and AIS as per those are as follows.

Aeronautical information service (AIS): A service established within the defined area of coverage responsible for the provision of aeronautical information/data necessary for the safety, regularity and efficiency of air navigation.

AIS responsibilities and functions:

i) An aeronautical information service shall ensure that aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation

are made available in a form suitable for the operational requirements of the ATM community, including:

a) Those involved in flight operations, including flight crews, flight planning and flight simulators; and
b) The air traffic services unit responsible for flight information service and the services responsible for pre-flight information.

ii) An aeronautical information service shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of the State as well as those areas over the high seas in which the State is responsible for the provision of air traffic services. Aeronautical data and aeronautical information shall be provided as an Integrated Aeronautical Information Package.(Annex 15)

Air traffic service: A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service). (Annex 11)

As per Annex 15 it is clear that that this is a service "responsible for the provision of aeronautical information/ data necessary for the safety, regularity and efficiency of air navigation." whereas ATS is various service including flight information service, Alerting service, air traffic control service (area control service, approach control service or aerodrome control service) and hence we can say that these two functions(AIS and ATS) are separate function.

Aeronautical data: Determination and reporting of aerodrome-related aeronautical data shall be in accordance with the accuracy and integrity requirements set forth and must take into account the established quality system procedures. (Annex 14)

Information. The ATM community will depend extensively on the provision of timely, relevant, accurate, accredited and quality-assured information to collaborate and make informed decisions. Sharing information on a system-wide basis will allow the ATM community to conduct its business and operations in a safe and efficient manner. (Global Air Traffic Management Operational concept Doc 9854)

Effective and qualitative ANS and Aerodrome service through proper coordination between ANS and Aerodrome operator: The safe operation of flight operation will depend on the effective and qualitative ANS/Aerodrome service and it will highly depend on the proper coordination among Air Traffic service, Aerodrome operator (service) and Aeronautical information Service (AIS). Now it will better to give example of coordination matter between ATS, AIS and aerodrome operator and for safe operation of Air transportation.

1) Coordination between aeronautical information services and air traffic services authorities : To ensure that aeronautical information services units obtain information to enable them to provide up-to-date pre-flight information and to meet the need for in-flight information, arrangements shall be made between aeronautical information services and air traffic services authorities responsible for air traffic services to report to the responsible aeronautical information services unit, with a minimum of delay:

a) Information on aerodrome conditions;

b) The operational status of associated facilities, services and navigation aids within their area of responsibility;

c) The occurrence of volcanic activity observed by air traffic services personnel or reported by aircraft; and

d) Any other information considered to be of operational significance. (Annex 11)

2) Coordination between aeronautical information services and aerodrome

Authorities

(1) Before introducing changes to the air navigation system, due account shall be taken by the services responsible for such changes of the time needed by aeronautical information services for the preparation, production and issue of relevant material for promulgation.

(2) Of a particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the aeronautical information regulation and control (AIRAC) system, as specified in Annex 15.

(3) The aerodrome services responsible for the provision of raw aeronautical information/data to the aeronautical information services shall do that while taking into account accuracy and integrity requirements for aeronautical data as specified. (Annex 14)

CAAN Organization Structure/ Service group: The service provided by CAAN in the context of different annexes and proper function for safe operation of ANS and aerodrome operation, human resource plan, organization structure and CAAN employee's facility, Service and condition Regulation 2055 (amendment 2069) must be tied-up. At present organization structure within technical service the job for ATS, civil engineering, electrical engineering etc. are established but nothing is mentioned about AIS service. The service group (technical) should be distinguished as aerodrome and ANS service and sub group as civil engineering, electrical engineering etc. and ATS, CNS,AIS, SAR etc. respectively. Existing organization structure must be reviewed on the basis of services provided and hence appropriate functional separation as Aero-

drome and ANS service (As guidance by Annex for proper, effective, complete function to achieve organization goal) shou ld be clearly separated. Without proper coordination between all service providers we can't expect the complete service and better service. So in this matter clear demarcation between ANS service and Aerodrome service is essential and thus it is required to review the service/ sub group of service provider function and review the organization structure too for better performance of each function as guided by ICAO Annexes, Document, Manual etc.

Group	Sub Group	Notation
Civil Aviation	Air Traffic Services	T/CA/AT
Civil Aviation	Aviation Fire Services	T/CA/AF
Civil Aviation	Flight operation Services	T/CA/FO
Aeronautical Engineering		T/AE
Civil Engineering		T/CE
Electrical Engineering		T/EE
Mechanical Engineering		T/ME
Electro-Telecommunication		T/ET
Miscellaneous		T/Misc

(Source: CAAN organization structure)

Now it is better to focus on few provision and essentiality of AIS described in Aeronautical information Service Manual –Doc 8126(ICAO).

Purpose Of An Aeronautical Information Service (Ais)

i) The operator -must have available a variety of information concerning the air navigation facilities and services that may be expected to be used.

ii) The basic purpose of AIS is to provide information needed to ensure the safety, regularity and efficiency of civil aviation.

Resources/training

As with any other aeronautical service, adequate resources are essential to AIS. Highly skilled and competent staffs in sufficient number, suitable accommodation and necessary equipment are the prerequisites to expeditious provision of accurate information. Although the operation-environment in which AIS personnel work and the task they are required to perform may vary between States, there is a need to establish a common standard for the depth and scope of knowledge, skill and attitude which must be met by all AIS technical officers. .

Conclusion

The essential service- ANS and aerodrome must be effective and qualitative for safe operation of Air Transportation and for this role of AIS (Aeronautical Information service) should be reviewed with proper attention. The weakness/lapses of AIS will be lapses of Aerodrome/ATS service and hence we cannot expect high quality of service. In other words we may say ineffective Service causes the hazards for Civil Aviation operation. The business/ corporate plan must be focused on the basis of service (ANS/Aerodrome) required under the type of Service and classification of aerodrome. The Human resource planning of CAAN must be based on ICAO

Annexes, Doc, for each function to perform and of course the right man on right place should not be forgotten for overall safety of operation .These services and business plans must focus on the necessity of information service and its role as bridge of ATS, CNS And Aerodrome service for safe operation of Air Transportation.

References

- Civil Aviation Authority Act, 2053 (1996)
- Civil Aviation Regulation, 2058 (2002).
- Annex 11
- Annex 14(vol. i)
- Annex 15
- Organization structure
- CAAN employee's facility, Service and condition
- Regulation 2055(amendment 2069)
- Aeronautical information Service Manual –Doc 8126

TIA DRP Exercise-2014: An Awareness and Preparation for Disaster Response

Pilot Lt. Col. Man Bahadur Karki

Nepalese Army

Tribhuwan International Airport Civil Aviation Office (TIA CAO) organized four days joint event of "Tribhuwan International Airport Disaster Response Plan (TIA DRP) Exercise" from 15 to 18 September 2014 at Kathmandu, Nepal. In this TIA DRP exercise various national, international and United Nations stakeholders of the Disaster response had participated. The TIA DRP was developed in partnership with the disaster relevant stakeholders of Government of Nepal (GoN), private airlines, International Organization (IOs), the United States Army Corps of Engineers (USACE), Federal Aviation Administration (FAA) and University of British Columbia (UBC) in 2012. The TIA DRP was approved by National Civil Aviation Security Committee in February 2013[1].

The TIA DRP is a live document that has addressed the disaster related event at the Tribhuwan International Airport. This DRP is considered as one of the main chapters of Airport Emergency Plan (AEP). In the time of crisis, it will help respond to disaster in quick, effective and systematic way. Such exercise and event will also pave the way to increase awareness among the people working in the TIA Civil Aviation Office, domestic and international airlines operating from Nepal, security agencies (Nepalese Army, Nepal Police and Armed Police Force), humanitarian clusters (UN-OCHA, WFP, Nepal Red Cross Society) and other responding stakeholders to be aware of, prepare, communicate and discern their job responsibilities. More we work together, rehearse and participate in the mock exercise in the preparedness phase of disaster cycle, more we can mitigate loss of life, property and environment damage during the actual crisis.

There were approximately one hundred and twenty participants in this international event. Personnel from the Civil Aviation Authority of Nepal (CAAN), military personnel from Nepalese Army, US Militaries, personnel from various government ministries, offices, civil airline operators, Nepal Police, Armed Police Force, International Civil Aviation Organization (ICAO), Federal Administration Aviation (FAA), Nepal Red Cross (NRC), Office for the Coordination of Humanitarian Affairs (OCHA) and World Food Program (WFP) participated and shared their experiences, lesson learned and communicated very important inputs and suggestions to successfully complete the event. Moreover, the sharing and communication aided in the achievement of the scope of testing the plan, identifying gaps, familiarizing it with stakeholders, coordinating current and future requirements, and implementing regular exercise procedures.

In this earnest commitment of CAAN to upgrade Airport Emergency Plan (AEP) disaster response, national and international stakeholders participated to ensure the airport runs smoothly, efficiently and effectively before,

Participants of DRP Exercise

1. National Civil Aviation Security Committee is the highest Civil Aviation Security Committee which will be chaired by Hon'ble Minister for Culture, Tourism and Civil Aviation.

during and after the natural disaster. It has helped to aware, inform and unite all parties to ensure maximum coordination and action for preparation, planning and practice. The stakeholders' at least got an opportunity to sit together and discuss in the inevitable part of Mother Nature. To achieve the common goal of uniting and informing their roles, the event was a major success which we noticed on the last day of the event. The remarks and recommendations made by the groups and experts were highly laudable, valid and a vital asset for the nation. The suggestions and recommendations will also help to develop and improve present form of TIA DRP. The lesson learnt from international airport operations experiences of Haiti during Earthquake in 2010[2] and Tacloban airport, the Philippines after typhoon Haiyan in 2013[3] can be good examples or precedents to learn for our future operations in the mega scale disaster.

The event was very helpful and productive to garner valuable inputs from aforementioned organizations. This is going to help and reinforce the TIA DRP capacity to respond quickly and effectively in the time of need. The participants had ample chance to acquire TIA DRP information, test equipment and practice coordination among the agencies involved. Their very impressive and thoughtful remarks and suggestions will help to improve and revise the TIA DRP. Before this exercise, it was in the form of approved document but now some portion has been tested and participants got first hand information, knowledge, roles, responsibility of numerous stakeholders working in the disaster field and gravity of DRP to respond in the large scale earthquake real scenario.

The four days hybrid events of both Table Top Exercise (TTX) and Field Training Exercise (FTX) will also help to take some momentum on the TIA DRP amendment. The various gap observed, recommendations and best practices will give the TIA CAO to deal with the document and formulate in the better shape by incorporating those valid recommendations put forward during the last day session of the event. The observations and recommendations of moderator, Emergency Coordination Center (ECC), Airport Earthquake Operation Post (AEOP), Humanitarian Staging Area (HSA), Security Forces (SFs) and Geological Information System (GIS) experts will also contribute a lot to amend and improve the live document furthermore.

The engagement and continuous support from the United States Government in this endeavor is immense, commendable and a step ahead for the development of capacity of CAAN. This will for sure enhance the ever growing bilateral relations between the two countries. Similarly, the coordination, communication and collaboration of CAAN with other national and international humanitarian clusters i.e. WFP and UN OCHA are moving in a positive direction.

In addition to the above notes, Nepal's one and only one International Airport, i.e. Tribhuwan International Airport is considered as the lifeline to Nepal and gateway to the world. Anything that disturbs or causes hindrance on the TIA air operations including airfield operations is very sensitive that will have a strategic effect at the national and international level. Therefore, while making the efforts to mitigate the crisis in more collaborative and effective way, the TIA should integrate its plan to the National Disaster Response Framework (NDRF) at the earliest. Thus, top level coordination, effort integration and dissemination is very much important both at the TIA, CAAN level and at the Ministry of Home Affairs (MoHA) level to render relief and rescue operation in the more effective way. Similarly, other regional airports stretching from the East to West i.e. Chandragadhi, Biratnagar, Janakpur, Simara, Bharatpur, Bhairahawa, Nepalgunj and Dhangardhi airfields are also required to prepare for future emergency air operations as these are the alternate hubs.

To conclude, the Civil Aviation Authority of Nepal, TIA CAO has taken a step of proactive awareness and preparedness for possible events considering seismic vulnerability and addressing national and international concern based on the mega scale Earthquake. The involvement and active participation of various disaster relevant stakeholders, participants' enthusiasm and collaboration with various organizations during the exercise were very impressive and productive in terms of learning capacity and capability of man, machine and the medium (airfield). Inclusion of few more data of transport aircraft such as An-32, ATR-42/72, CN-235, C-295, C-27J etc. can be added in the appendix for throughput calculation, provision of joint mechanism for airspace management and airfield operations and development of Standard Operating Procedures (SOPs) for Humanitarian Staging Area (HAS) in the present TIA DRP as it will be beneficial for risk reduction and ultimately to contribute for Nepal Government's effort of making disaster resilient Nepal.

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2. *Port Au Prince International Airport had single runway similar to Tribhuwan International Airport. In this disaster Haiti's go Port Au Prince International Airport had single runway similar to Tribhuwan International Airport. In this disaster Haiti's government has estimated the death toll at 230,000 and says more bodies remain uncounted.*
3. *Tacloban's Daniel Z. Romualdez Airport had also single runway and limited parking space. As per the Philippine Na tional Disaster Risk Reduction and Management Council (NDRRMC) estimated 5,579 dead and 26,233 injured.*

The Golden Era of Civil Aviation……Performing your Duties in the Old Yet Cozy TIA

Birendra Kumar Singh

Former Joint Secretary, MOCTCA

Those were_the days of the Panchyat System, of the Kings ,Princes and of the Durbar wielding immense power, the PMs, Secretaries, and even the DGS creating power within their thumb and had the ability to not only transfer but to annul your long engaged career with the stroke of their pen….Yet, still those were the golden days when we, and the rest of the Civil Aviation Department staff be it ATC,ACO, technical Officers , Fire Officers, all worked at the old TIA Building crumbled together to ensure the landing and takeoff of every aircraft with utmost care and safety . It's not so that everything has changed; the endeavor and enthusiasm remains the same because safety and meticulously handling of the flight has remained to be of prime importance and will always be so in the field of aviation.

The Friendly Sky

Peeking into the old , hackneyed and even tattered and torn of the then TIA Building fondly known as Gaucher Bimansthal was itself a pride for the Nepalese especially for the then RNAC because before the dawn of the Multiparty Democratic System it was only the RNAC that flew the pride of the nation be it domestic flight or international. The Nepalese flag flew high into the mighty clouds and majestic Himalayas .Everyone were the friends of the nation be it a RNAC crew or a Civil Aviation staff working at the far flung remote country of Bajhang, Lukla, Simikot or to a hub station of Bhirahawa, or Biratnagar or even a technician. The army personnel that flew the Sky van, Avro, Helicopters too were equally friendly and gave a nod of belongingness, and were ready and willing to give a Scott free ride to and from Kathmandu. Those were the good old days where friendship in aviation was worth mentioning. Both the crew of RNAC and the good old army pilots were always willing and ever ready to bring in some food stuff into the remote stations they flew into for aviation staff working at the remote stations or the hub stations.

Working at the old TIA bring into my memory the days when civil aviation staffs who were engaged at the remote stations or at the hub stations had to receive their salary from TIA and this was the ripe time for the people asking favor from the people at TIA to arrange to send them the goods cheaply available at their remote stations ; the most famous being the leather stool available at RS 5 per piece from either Lamidanda or Tumlingtar, the Chickens from Dang available at the rate Rs.10 to Rs 15 per piece and apples from Jomsom. Thanks to the SSB which was the most effective and reliable radio to reach out for the aircraft ranging from helicopters to the Pilatus Porters for getting the weather reports of not only Kathmandu, but also the remote stations. The best part of the SSB radio was that it catered to the needs of the remote officers who were often in dire needs of essential goods or to receive their salary from the downtrodden war horse aka the good old TIA. This SSB and TIA have gone hand in hand to exhibit their pride in serving the Civil Aviation Department of Nepal. I salute You SSB and TIA for serving unflaggingly and withstanding the bad weather until the building was demolished to create a new TIA building that was inaugurated in 1990 by our late King Birendra.

Being a part of the batch ACO 001, proudly trained and groomed at TIA during my nostalgic days of daily wages , I can still recount those days when we clustered together in a single row with ACO staffs at the SSB, 8882 (International channel), 5512 (Domestic Aero mobile), and the FIC Channel inside a small room until it was finally handed over to ATC. I have cherished in my heart those RNAC OT days when we all had to perform our duties for a single RNAC flight to Delhi, Hong Kong, Bangkok, or to any destination including even Calcutta. I am still amused thinking how we all the duty people guffawed on all odd topics to while away our time waiting for the RNAC aircraft to make a landing during late odd hours. Going back home at late wee hour often was cumbersome both for us and people waiting back home. Those were the days when we all cuddled and bundled up together in the same room and most of us would not have the privilege of occupying a single room or even own a house of our own and the knock at the front door disturbed all the family. But nothing could be done except for having patience. The only thing we could do was to wait for the night to turn into the first ray of sunlight after which we could enter into the rented room. Again I vividly recollect the days when we had the joy of a time singing songs when everything was very silent and thus broke the doldrums of the late hours of duty. Besides working we did have the fun of our life time.

After the erection of the new TIA Building which was inaugurated with much fanfare by our Late King Birendra (whose sad demise still haunts all the peace loving Nepali), and the entry of the Multiparty system, the outburst of democracy shed its impact on the civil aviation

of Nepal. We have witnessed civil aviation introducing the Liberal Policy and thus paving way for the Private airlines to grace the Nepalese sky and more foreign airlines to enter. This has posed challenge to our very own national flag carrier the then RNAC. Of course, we have witnessed the influx of the tourists both incoming and outgoing from the new TIA that might have raised the revenue to some extent. But are we capable to handle the outgoing and incoming tourists when we have more than a single airlines landing at a time so that we can do something else that will definitely uplift our image to a higher level. The main question I personally always ask is: Does this TIA belong to Civil Aviation only or to all Nepalese? Don't immigration, custom, security, airlines, and all other associated offices working here at TIA have the prime responsibility to create a better image of TIA? So why not join force in making a better TIA? So instead of only having a blame game, let us join all join hands to make a better TIA one for all and all for one. Let us start now. I hope my reflection of the golden era of the then Gauchar TIA will manifest for all to gallop ahead for the future with better management enforcing safety, security, and above all a comfortable TIA to visit again and again…….

Air Traffic Service

Economic Regulation of Airports and ANSP

Shaligram Poudyal
Former Director of CAAN

Economic Regulation

In a competitive market, customers who are not satisfied with a service provider's price or level of service have the choice to switch to another service provider. But, choice is generally not an option in the natural monopoly sectors like electricity, water, railways & airports. Such a situation warrants state's intervention in the market exercising legislative and administrative controls over economic activities to ensure that service providers are efficient and consumers receive quality services for a reasonable price.

Government also imposes regulation to prevent monopoly profits and certain kinds of price discrimination. In the USA, the justification offered for the regulation of railways in the 19th century and the UTILITIES early in the 20th century was an attempt to prevent unjust discrimination and to ensure that consumers were charged "fair and reasonable" rates. Economic regulation is most sought in the natural monopoly sectors where private business entrepreneurs are involved.

Why Economic Regulation in Airports

With a few exceptions, airports are natural monopoly businesses. High initial fixed cost investment, long gestation period, requirement of a vast plain land plot, airspace barriers and uneconomical in scale are some of the barriers to enter competitors in a locality. Generally, airports below 5 million passengers are uneconomical. Thus it may be more efficient to allow only one airport to serve a city giving it a natural monopoly status. One of the areas that are most vulnerable to airport's monopolistic behavior is the setting of overall airport charges. When supply in a given market is dominated by a single provider, the question of regulatory intervention becomes a public concern. Therefore, International Civil Aviation Organization (ICAO) has advocated for the economic oversight of Airports as well as Air Navigation Service Providers (ANSP). ICAO's Policies on Charges for Airports and Air Navigation Services (Doc. 9082) states the main purposes of economic oversight as follows:

I. Minimize the risk of airports and ANSPs engaging in anti-competitive practices;

II. Ensure non-discrimination and transparency in the application of charges;

III. Ascertain that investments in capacity meet current and future demand; and

IV. Protect the interests of passengers and other end users.

Quality of Service Monitoring

Quality of service monitoring is a part of economic airports regulation. In monopoly business, users may suffer with low quality of services even in higher prices. Therefore, regulators have to focus on quality monitoring of terminal and aeronautical services. The main aim is to motivate airports deliver services in a way which replicates a competitive market. ICAO, in Doc. 9082 recommends: states, within their economic oversight responsibilities, ensure that providers develop and implement appropriate performance management systems that include safety, quality of service, productivity and cost-effectiveness.

Generally, service quality is monitored using subjective and objective measures. Subjective measures include surveys of Airlines, Passengers, Border Agencies, Ground Handling Agencies and Landside Operators. Objective measures focus on peak hour passengers & facilities, check-in facilities, security check, baggage handling system, FIDS, signage, announce system, cleanliness of floor & washrooms, sitting arrangements, ground handling services, runway taxiway & apron, aircraft parking Bays, cargo facilities , airport access facilities taxi, space for pick-up drop, car parking etc.

Economic Oversight Agencies in Different Countries

Economic oversight may take different forms from a light-handed approach such as the application of competition law to a more robust approach such as price-cap and rate of return regulation. States should exercise their economic oversight responsibilities clearly separated from the operation and provision of airports and air navigation services (Doc. 9082, Para 17). Different countries have made different arrangement for airport economic regulation and economic oversight. Here, we are discussing the worldwide practices in this regard taking some 13 countries from different continents viz. Asia, Oceania, Europe, Africa, North America and South America. This will also help us understand the concept more clearly.

Asia and Oceania

In China airports are grouped into three tiers, first, second and third class. Civil Aviation Administration of China in conjunction with central administration sets distinct price-cap for aeronautical charges and major non-aeronautical charges for each class of airports. Air Traffic Management Bureau sets prices for ANS charges. In Japan, Ministry of Land, Infrastructure, Transport and Tourism (MLIT) is responsible to set landing and

passenger charges in airports. The Civil Aviation Bureau of the MLIT regulates and sets ANS services charges. In India, Airport Economic Regulatory Authority (AERA) established in 2008 is responsible to regulate privatized airports and major airports under AAI. AERA adopts single till basis for price regulation. Presently Delhi & Mumbai airports are allowed 16% return on capital (ROI). AERA also monitors airport's performance standards. Other airports are regulated by Ministry of Civil Aviation. ANS charge is regulated by Airports Authority of India (AAI) under cost-plus fair rate of return basis.

In Australia, economic oversight of airports is the responsibility of Australia Competition and Consumer Commission (ACCC). ACCC monitors and publishes information relating to prices, costs, profits and service quality of aeronautical services and facilities and car parking at Australia's four largest airports and Air Services Australia, the Australian ANSP. From 2002, Australia adopted light handed regulation of airports which means intervene only when there is suspect of abusive of monopolistic behavior. Previously, there was CPI-X regulation. Australian airports are also subject to general competition law which includes access provisions making possible for a firm to access to essential infrastructure. New Zealand has used monitoring system since 1998 to regulate its three main international airports through information disclosure regulation. From 2008, Commerce Commission of New Zealand monitors airport performance such as financial statements, prices and quality performance measures. Government can also introduce a price cap regulation if an airport appears to be abusing its market position. The objective of this light-handed regulation is to make the airport operators behave as if they were regulated. Auckland International Airport Ltd operates under a dual-till approach. Airways New Zealand the ANSP self-regulates the returns from its services. But appeal against Airways New Zealand's charges to the Minister of Transport is possible.

Europe

In the United Kingdom, Civil Aviation Authority (CAA) is responsible for economic regulation of airports and ANSP. CAA assesses an airport's market power. If it finds any airport has, or is likely to acquire, substantial market power in a market that airport require to be licensed. CAA consults Competition Commission in setting price cap for five years with a single till approach. Price increase is to be based on (RPI-X)% formula where, RPI is Retail Price Index and X is efficiency or productivity factor. Price cap formula for Heathrow is RPI-1.5% which gives 5.35% net ROI. The theme is that airport financial performance must also rely on productivity gains. In France, Airport Consultative Committee, Minister of Transport and Minister of Economy are involved in the process of airport's economic oversight. Airports are required to enter into a contact for five years price cap on single till basis. But since 2009, charging principle is taking transition toward an "adjusted single-till" in which non-aeronautical real estate is not subjected to economic regulation. French Civil Aviation Administration DGAC/DTA conducts economic oversight of ANSP and regulates air navigation services charges. European Union has issued directives to make uniformity in charging system in airports with annual passenger traffic exceeding five million. Directives are based on ICAO Doc. 9082.

Africa

In South Africa, airports under Airport Company of South Africa Limited (ACSA) are regulated by the Regulating Committee (RC) under the Minister of Transport. RC regulates in two ways. Firstly, it limits aeronautical charges for each year of the permission period. Charges are determined for five years period, with a two-year overlap. Charges take into account the anticipated revenues of all activities of ACSA, whereby profits from non-aeronautical activities are used to subsidies aeronautical charges viz. 'single till' regulation. Secondly, it prescribes service standards at any or all of ACSA's airports. Airport charges are regulated through the use of a price cap formula, CPI-X, rate of inflation less an X-factor (efficiency factor). The X-factor is determined by applying the blocks methodology whereby each block of Airports Company South Africa's activities is identified, namely operating costs, depreciation, return on capital and taxation. From this revenue requirement the non-aeronautical revenues are subtracted to determine the aeronautical revenue requirement, which is divided by anticipated volumes to determine the level of the anticipated unit price increases. Charges of ANSP are also regulated by the Committee. In Senegal, aeronautical charges are set by the Government of Senegal. Agency for Air Navigation Safety in Africa & Madagascar (ASECNA) regulates and sets ANSP charges under the supervision of the Senegal Civil Aviation National Agency.

North and South America

In Canada, Transport Canada fixes airport charges operated by or on behalf of the Minister of Transport. These regulations are not applied to other Canadian airports. NAV CANADA is given right to impose charges on its ANS users. Users have right to appeal to Canadian Transportation Agency (CTA). In Mexico, Ministry of Communications and Transport is responsible for regulating airport services and possibly auxiliary services such as ramps, traffic, fuel supplying, aircraft food, cargo storage and security, maintenance and repair services for aircraft. All concession packages are subject to a form of price cap tariff regulation usually with a 5-year review. Mexico's 36 private airports operate under the dual-till and non-aeronautical activities are not subject to economic regulation. SENEAM the Mexican ANSP regulates and sets air navigation services charges.

In Brazil, ANAC, the National Civil Aviation Agency is responsible for establishing, controlling, monitoring and publishing the aeronautical charges. ANAC integrates efficiency and service quality factors when establishing airport charges. Three privatized airports are subject to a price-cap regulation. Brazilian airports operate under the hybrid-till, where non-aeronautical revenues are partially directed to lower aeronautical charges. In Peru All aeronautical revenues are regulated by OSITRAN, the Supervisory Agency for Investment in Public Transport Infrastructure. Lima Airport Partners S.R.L (LAP)., in addition to share a percentage of its revenues with the Gov-

ernment of Peru, is subject to a price-cap regulatory framework reviewed every five years. LAP operates under a dual-till regime. The General Directorate of Civil Aviation regulates and sets air navigation services charges.

Nepal's Position

In Nepal Civil Aviation Authority of Nepal (CAAN) proposes airport and ANS charges to the Ministry of Culture, Tourism & Civil Aviation (MoCTCA). MoCTCA approves the proposed charges as per the consent of the Ministry of Finance (MoF). In principle, rate of charges are fixed on cost recovery basis. Increment in charges is not based on any specific formula such as CPI-X etc. Accounting system is not detail to reflect the separate costs of aeronautical, non-aeronautical & ANS services as suggested by ICAO (Doc. 9082 Para 42-47, and 29-31 & Doc. 9562 Para 1.12). Such accounting system helps to calculate the cost of airport services.

Recently, Nepal is implementing massive plan of airport development. Two new international airports are to be built in Bhairhawa and Pokhara. Second International Airport (SIA) with full technical feasibility is also planned in Nijgadh. SIA may involve private investors under PPP model. Further, the annual passenger traffic in Tribhuvan International Airport may cross five million within few years. In this context we need to be prepared to establish proper mechanism for airport economic regulation and oversight.

Recently CAAN completed a Draft of Nepal Civil Aviation Act under Capacity Development of CAAN project.The draft Act provides economic regulatory power to CAAN. In Section 22 (cc) of the draft, CAAN is to exercise regulatory powers over fees, rates, and other economic remuneration to be charged by aerodromes and air navigation services. Section 23 (1) (a, b) states, CAAN may determine the fees and charges for publicly operated airports and shall prescribe the procedure for fixing fees and charges for privatized airports. Section 23 (2) (b) provides that the fees and charges to be levied for the provision of air navigation services pursuant to sub-section (1) should tend towards recovering the costs of operation. But the draft Act does not mention about service quality monitoring. Neither has it clearly mentioned the charging bases. It does not mention whether to base on single till, dual till, or hybrid till nor does it provide a price cap or price monitoring system for periodic aeronautical charge increment. However, charging basis for ANSP is mentioned as "cost recovery basis".

The draft Act should be further refurbished to make charging principles and monitoring system more specific. There should also be a legal provision of controlling airport abusing their market power in terms of rate of return, service quality and access right limitation. Our regulatory frame should be well defined on whether to adopt a tight price cap or just to be a light handed regulator with a monitoring role. Our charging principle should also be clear on whether to base on single till, dual-till or hybrid till. CAAN should also strengthen its economic oversight capability with well-versed professional manpower.

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TIA Slot Management During SAARC

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It's a matter of glory that SAARC Summit was held in Kathmandu from 26 – 27 November 2014 with grand success. Eventhough the main summit was held for two days only SAARC related aviation activities began from 24 November and ended in 28 November 2014. All aviation related persons know that Tribhuvan International Airport has single Runway including other topographical, physical,procedural and bay constraints. So it was a difficult task tohandle all International and Domestic flights during VVIP movements, where short period of normal operation time was available in between NOTAM (Notice to Air Man) periods. The NOTAM notified about the period during which all schedule flights might be delayed due to special VVIP movements. In order to solve the problem in such circumstances of constraint,Tribhuvan International Civil Aviation Office (TIACAO) conducted several meetings with International Airlines Operating Committee – Nepal (AOC-N) and Domestic Airlines Operator Association of Nepal (AOAN) and Helicopter operators for smooth handling of the VVIP movement by adjusting the scheduled flights as far as practicable.FinallyTIACAO, Operators and all related stakeholders agreed in following matters among the different meetings held:-

1) As TIA has to accommodate all SAARC VVIP inbound-outbound and other VVIP retreat flights during SAARC period and operate schedule flights as well,TIA to run 24 hours operation from 24 November to 28 November 2014 and arrange manpower to run 24 hours with extra duty,

2) All domestic airports to open their operation one hour earlier- from 5:30 am during above period,

3) Night facilities available airports atNepalgung, Biratnagar and Bhairahawa to extend their operation up to 22:00 pm,

4) International airlines to revise their schedule with reference to NOTAM periods during SAARC ,

5) All domestic airlines to arrange their flights avoiding NOTAM periods,

6) Helicopters to operate their flights from outside valley, for East sector from Bhakunde besi and west sector from Dhadingbesi except rescue operations.

7) TIACAO to publish general notice related to 24 hours operation at TIA,

8) TIACAOconducted meeting and coordinated with all related agencies and stakeholders to provide continuous airport service during these periods, such as Security,Customs,Immigration,Bank,Taxi,Restaurants,shops facilities.

In respect day wise,

- On 25 November 2014 most of international flights were affected by NOTAM than other days, so scheduled flights time of this day, revised pre plan of flight time and actual arrival and departure flight status are given in table (in next page).

- On 26 November 2014 there was no NOTAM and operation was normal except few parking problems,

- On 27 November 2014, VVIP Retreat program at Dhulikhel, there were different NOTAMperiods in the morning, in the afternoon and inthe evening for VVIP departures.So some flights were re-scheduled and thus all flights were operated smoothly.

- In the morning of 28 November 2014, VVIP departureNOTAM was enforced and operators avoided NOTAM period and operated all flights,

- In the above mentioned days a number of flights operated at periods other than NOTAM effective periods..

In conclusion, most of the International flights were operated as planned priorly. Only few flights were cancelled, such as Bhutan Airlines cancelled their flights (due poor load also), Jet Airways and Fly Dubai combined some of their flights, which did not affect the passenger transportation. TIACAO jointly worked with AOC-N, AOAN and helicopter operators and other airport agencies so as to carry smooth flights arrangement and handling of traffic and all other facilities with the cooperation of all related agencies, stakeholders and passengers.Tribhuvan International Airport was able to smoothly handle all VVIP movements and accommodate scheduled flights during SAARC summit at Kathmandu.

TRIBHUVAN INTERNATIONAL AIRPORT CIVIL AVIATION OFFICE
FLIGHT STATUS ON
25 November 2014 Tuesday

TIME IN LOCAL (NST)

Flight Number	A/C TYPE	Sector	S/ETA	S/ETD	R/ETA	R/ETD	ATA	ATD	REMARKS
THY726/727	A330	LTBA-VNKT-LTBA	0700	0830	0500	0745	0434	0801	Proponed up to 28 Nov 2014
JAI264/263	B738	VNKT-VIDP	242240	0845	0440	0540	0408	0819	Night stop flight
BTN771/772	A319	VQPR-VNKT-VQPR	0950	1030	-	-	Cancel	Cancel	
ABY0539/0530	A320	OMSJ-VNKT-OMSJ	0900	0940	0300	0340	0244	0434	Proponed
AIC213/214	A320	VIDP-VNKT-VIDP	0900	1000	-	-	1146	1309	Operated in-between NOTAM's period
ALK001	A333	VCBI-VNKT-VCBI	0930	1130	-	-	1014	1223	**VVIP Arrival**
KMF001	B767	OAKB-VNKT	1015	-	-	-	1101	N/S	**VVIP Arrival**
RNA416	B-757	WMKK-VNKT	1035		-	-	1716	-	ARR Delayed
CCA407/408	A319	ZULS-VNKT-ZULS	1110	1210	-	-	1216	1332	Operated in-between NOTAM's
CSN6067/6068	A319	ZGGG-VNKT-ZGGG	1120	1220	2400	0100	2330	0056	
QTR652/653	A320	OTBD-VNKT-OTBD	1130	1230	1230	1330	1226	1309	Operated in-between NOTAM's
JAI268/267	B738	VABB-VNKT-VABB	1115	1215	-	-	1127	1257	Operated in-between NOTAM's
DRK400/401	A319	VQPR-VNKT-VQPR	1145	1245	-	-	1134	1352	**VVIP Arrival**
SLK412/411	A320	WSSS-VNKT-WSSS	1205	1305	-	-	1155	1313	**VVIP Arrival**
CCA437/438	A319	ZUUU-VNKT-ZUUU	1220	1320	-	-	1210	1341	Operated in-between NOTAM's
MAS170/171	B737	WMKK-VNKT-WMKK	1230	1320	2355	0045	0011	0112	
ABY0531/0532	A320	OMSJ-VNKT-OMSJ	1245	1325	0400	0440	0345	0437	Proponed
THA319/320	B772	VTBS-VNKT-VTBS	1245	1350	1710	1810	1654	1819	
IGO031/032	A320	VIDP-VNKT-VIDP	1300	1400	-	-	1241	1348	
AIC251/252	A321	VIBN-VNKT-VIBN	1340	1425	-	-	1345	1509	
CES2583/2584	*B737*	*ZPPP-VNKT-ZPPP*	*1400*	*1500*	-	-	-	-	**Cancel= 26Oct 2014 - 30 Nov 2014**
XAX192/193	A333	WMKK-VNKT-WMKK	1400	1515	2100	2200	2059	2153	
BBC7O1/702	A310	VGHS-VNKT-VGHS	1410	1510	1615	1715	1604	1730	**VVIP Arrival**
JAI266/265	B738	VABB-VNKT-VABB	1420	1520	-	-	1329	1428	
FDB8573/8574	B738	OMDB-VNKT-OMDB	1420	1520	1815	1915	Cancel	Cancel	**combined with Next flight**
IFC52	B737	VERC-VNKT	1430	-			1439	N/S	**VVIP Arrival**
NUBRA	MI17.	VEGK-VNKT	0925	-			1043	N/S	4 Helicopters
AIC215/216	A321	VIDP-VNKT-VIDP	1455	1540	-	-	1526	1719	
QTR646/647	A320	OTBD-VNKT-OTBD	1510	1610	-	-	1519	1701	
AIC247/248	A 319	VECC- VNKT-VECC	1515	1605	-	-	Cancel	Cancel	Operated on 26 November
CES757/758	B737	ZPPP-VNKT-ZPPP	1520	1610	1720	1810	1727	1827	

Flight Number	A/C TYPE	Sector	S/ETA	S/ETD	R/ETA	R/ETD	ATA	ATD	REMARKS
PIA002	A320	OPRN-VNKT-OPKC	1530	1715	-	-			**VVIP Arrival**
JAI262/261	B738	VIDP-VNKT-VIDP	1530	1630	-	-	Cancel	Cancel	**Combined with Next flight**
ETD290/291	A320	OMAA-VNKT-OMAA	1550	1640	1720	1810	1722	1837	
FDB575/576	B738	OMDB-VNKT-OMDB	1600	1700	1710	1810	1710	1843	
BHA161/162	ATR42/72	VNKT-VIBN-VNKT	1700	1500	-	-	-	-	Canceled
JAI260/259	B738	VIDP-VNKT-VIDP	1700	1800	-	-	1705	1816	
SEJ045/046	B737	VIDP-VNKT-VIDP	1750	1850	-	-	1752	1851	
UBD593/594	ATR72/A310	VGHS-VNKT-VGHS	1815	1915	-	-	-	-	Flight canceled UFN(No flight)
OMA337/338	B737	OOMS-VNKT-OOMS	1835	1930	-	-	1815	1932	
QTR650/651	A320	OTBD-VNKT-OTBD	1940	2055	-	-	1928	2112	
XAX196/197	A333	WMKK-VNKT-WMKK	1945	2100	-	-	1948	2107	**TOP basis flight**
ETD292/293	A320	OMAA-VNKT-OMAA	1950	2040	-	-	1943	2103	
ABY0537/0538	A320	OMSJ-VNKT-OMSJ	2030	2110	-	-	2009	2115	
FDB573/574	B738	OMDB-VNKT-OMDB	2200	2255	-	-	2220	2352	
RNA409/410	B-757	VNKT-VHHH-VNKT	2200	1135	-	-	0844	1908	
CSN3067/3068	A319	ZGGG-VNKT-ZGGG	2210	2315	-	-	2204	2338	
HDA192/191	A330	VHHH-VNKT-VHHH	2220	2320	-	-	2211	2333	
MAS114/115	B737	WMKK-VNKT-WMKK	2250	2350	-	-	2253	0014	
RNA415	B-757	VNKT-WMKK	-	2330	-	-	-	2348	ONLY DEP
RNA239	B-757	VNKT-OTHH	-	2320	-	-	-	2342	ONLY DEP

Decode:-

LTBA	ISTANBUL, TURKEY	OTHH	HAMAD INT' AIRPORT, QATAR	A/C= AIRCRAFT
OMAA	ABU DHABI , UAE	VNKT	KATHMANDU, NEPAL	N/S = NIGHT STOP
OMDB	DUBAI, UAE	VHHH	HONKONG, CHINA	R = REVISED
OMSJ	SHARJAH, UAE	VIBN	VARANASI, INDIA	S/ETA = SCHEDULE ESTIMATE TIME OF ARRIVAL
OOMS	MUSCAT, OMAN	VIDP	DELHI, INDIA	S/ETD = SCHEDULE ESTIMATE TIME OF DEPARTURE
OPKC	KARACHI, PAKISTAN	VQPR	PARO, BHUTAN	ATA = ACTUAL TIME OF ARRIVAL
OTBD	DOHA, QATAR	VTBD/VTBS	BANGKOK, THAILAND	ATD = ACTUAL TIME OF DEPARTURE
OAKB	KABUL, AFGHANISTAN	VCBI	COLOMBO, SRI LANKA	ARR = ARRIVAL
OPRN	ISLAMABAD, PAKISTAN	VERC	RANCHI, INDIA	DEP = DEPARTURE
RKSI	INCHONG, SEOUL, S.KOREA	WMKK	KULALUMPUR, MALAYSIA	**TIME IN LOCAL (NST)**
VABB	MUMBAI, INDIA	ZGGG	GUANGHOU, CHINA	
VECC	KOLKATA, INDIA	ZPPP	KUNMIN ,CHINA	
VEBD	BAGDORA, INDIA	ZULS	LHASA, CHINA	
VGHS	DHAKA, BANGLADESH	ZUUU	CHENGDU, CHINA	

SOFIA- A Step Towards Effective CAAN Safety Oversight

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Background

Civil Aviation Authority of Nepal, despite several technical and resource constraints, has put aviation safety on top priority and several measures have been taken in this regard. In this direction, modern technology is one of the tools to efficiently manage safety oversight functions. Civil Aviation Authority of Nepal, with an objective of strengthening safety oversight activities agreed to implement SOFIA software in 2012 after signing license agreement between Director General of Civil Aviation Authority of Nepal and Executive Director of European Aviation Safety Agency (EASA) as part of cooperation between the two authorities.

SOFIA: An introduction

SOFIA stands for the abbreviation of "Safety Oversight Facilitated Integrated Application." It is developed for managing the safety oversight functions of a regulatory authority. The SOFIA Program as a whole was set up around the concept of expanding EASA's technical cooperation activities together with the supporting organizational aspects of regional organizations/authorities. The Program in its entirety is one of the means for EASA's International Cooperation Department to assist a regional safety oversight organization or a single civil aviation authority in reorganizing its processes and streamlining its technical tasks to be more efficient and effective. As effective safety oversight has its foundations in a strong, effective and well organized organization of the authority or regional organization tasked with the oversight responsibilities, the SOFIA Program was set up as a vital element to reach that objective.

The SOFIA application is essentially a database application specifically developed to be a Data Management and Surveillance & Oversight tool for a regional safety oversight organization or single civil aviation authority. It is web-based and in its initial version (V1.5) includes, in full or in part, the safety oversight management as described in the following ICAO's Annexes:

Annex 1 – Personnel Licensing
Annex 6 - Operation of aircraft
Annex 7 – Aircraft Nationality and Registration Marks
Annex 8 – Airworthiness of Aircraft

A basic module for examination results, inspections and reporting, as well as an alert and tracking and work-flow system are also part of the initial SOFIA application.

During 2013/2014 SOFIA was further developed and upgraded to version 2, which mainly changed the look and feel of the application as well as incorporating further advanced features and re-visited the licensing and inspection module.

The ICAO Annexes were used to provide guidance for the basic specification of SOFIA. It has already been recognized that even the current SOFIA version 2 is not all-encompassing. As a result a roadmap for further and future development will has to be established together with the selected contractor.

CAAN initiatives in SOFIA implementation

CAAN Flight Safety Standards Department has worked along with the SOFIA team from EASA towards the implementation of SOFIA from 2011 that witnessed several technical missions in this regard. The purpose of the SOFIA technical missions from EASA was to map the activities of CAAN Flight Safety Department, specifically in the personnel licensing, flight operations (inspection) and airworthiness surveillance.

After subsequent visits and series of interactions with the inspectors of Flight Safety Standards Department and higher officials of CAAN including the Director General, it is estimated that the implementation of SOFIA in the real work scenario will be started from the end of first quarter or early second quarter of 2015.

CAAN plan and status on SOFIA implementation

The CAAN has agreed with the EASA that the selected modules will be implemented in SOFIA as pilot project and AOC certification module has been chosen as the pilot module so that CAAN officers gain confidence and experience before other modules of airworthiness surveillance and personnel licensing are integrated in the system. Till date, the SOFIA software has been installed in the dedicated server and respective official of flight operations, airworthiness and personnel licensing have been trained on the system by the visiting SOFIA experts.

The processes for each area have been mapped and necessary checklists and procedures have been installed in the system taking into account the real work scenario. Since the change management takes time to adapt, where enough time is required for the concerned staffs to gain confidence and experience, it is expected to integrate the pilot licensing, aircraft maintenance licensing, continuing airworthiness and ATC licensing in descending order. Lately, CAAN has started to harmonize the format of various licenses to common standard and processes for the licensing have been standardized for all Annex 1 licenses issued by CAAN. With interaction among the concerned staffs of CAAN it has been agreed that flight crew licensing and maintenance engineer licences will be harmonized with EASA standard licenses which conforms to the ICAO Annex 1 requirement and medical certificate too will be adopted in EASA model.

It is noteworthy that the maintenance engineer licensing system has already been harmonized with the EASA structure to follow the South Asian Regional Initiative (SARI) model and CAAN has already issued CAAN 66 for applicant and the authority as well.

Logistic required

Since the SOFIA will run in web based approach, the essential components obviously include the internet connectivity. The hardware includes the server computer to support the SOFIA, computer, color scanner, color printer for each official using it. In the meantime a dedicated administrator will facilitate in the smooth operation of the system.

Future challenges

The SOFIA is entirely a computer based application and process flow will be electronic rather than current system of initiating a memo for each piece of job to be performed. The transition from paper based system to somewhat 'paperless' administration greatly requires the users to be willing to embrace the new environment. Lack of willingness on part of users to use the new system in place will put a question mark in the entire effort which seems remote since new generation workforce in CAAN are IT friendly and are already using the computer based various application either on line or off line. The uninterrupted availability and high speed of internet connection is also the most important prerequisite for the successful implementation of SOFIA.

Conclusion

In the context of issues raised by ICAO and EU onsite mission especially on the tracking, grading and recording of audit, inspection results, SOFIA is expected to be a tool that will ensure the efficient and effective safety oversight of CAAN. With current integration activities of CAAN in Annexes 1, 6, 7 and 8 in SOFIA regime, it will be appropriate to augment the additional activities of air navigation and aerodrome when future SOFIA versions are issued.

Crisis management workshop 2014 in Bhutan

Aviation Security Law: Development Appraisal

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Introduction

The sense of security keeps a great importance in the human life. It affects every facet of life whether a man is at home or in the profession or in any type of activities necessary to earn living, even to live at ease, in motion (flight or else). Today, civil aviation also has been a part of our life, business, etc. Like few other commercial activities, an airline embodies the national symbol of the nation whose flag it flies. Its existence, its routes, and all of its commercial activities are a product of national oversight and regulation. For some nations, aviation is a symbol of national aspiration of pride, prestige, and global penetration.

Now aviation for several decades, which so requires vigilance of law. For Professor Dr. Paul Stephen, it has been not easy to think of a modern life without the aviation. Civil aviation may be no more than a means of facilitation if it is so efficiently conducted as safe and secured air services. Otherwise, the result may be adverse. Hence, security has been a matter of concern for civil Dempsey, "Law is only one mechanism to achieve safe and secure skies." For, Dag Hammarskjold, "Freedom from fear' could be said to sum up the whole philosophy of human rights."

Recently, the volume of the aviation industry has taken a tremendous incremental trend. Risks also has been increased, may be, because of the attraction and vulnerability of the industry. Several incidents of unlawful interferences to the civil aviation have occurred in the past.

Keeping in view of these activities growing, it has been the need for the aviation world keep on developing the international air law instruments as to cope with such recurring events. We find new developments in the aviation security law, for terrorism has made the aviation as the safe haven since long. Here, because of some constraints, the study confines within the limitation. No more than major developments made, under the scope of ICAO, on the major security air law instruments come within the scope of the study discussed as under.

The Development of Two New Aviation Counter-Terrorism Instruments (Beijing, 2010)

1. Beijing Diplomatic Conference 2010:

The Beijing Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation 2010) and the Beijing Protocol 2010

It was found no more so effective to counter the recurring events of terrorism and acts of unlawful interference, however there were several efforts made to modernize the conventional air law security instruments. To this end, States were encouraged, on the auspicious of ICAO, to get prepared for new air law security instruments. Consequently, a Diplomatic Conference was held in Beijing which accomplished its task of adopting two new aviation counter-terrorism instruments: the Beijing Convention, replacing the Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation 1971 (known as the Montreal Convention), and the Beijing Protocol, amending the Convention for the Suppression of Unlawful Seizure of Aircraft 1970 (known as the Hague Convention). After a rigorous discussion the Conference reached to a compromise through voting in absence of consensus on the proposal, including new principal offenses (e.g., the transport offense), an exemption for the activities of armed forces, and a new Beijing Convention to replace the amended Montreal Convention and other aspect of the discussion as discussed below.

The new instruments update the existing conventions in light of the 9/11, 2001 terrorist attacks.

The Convention provides for key new offenses of using an aircraft as a weapon (such as occurred on September 11), using weapons of mass destruction or dangerous substances against, on, or from an aircraft, and transporting dangerous materials. The instruments also provide for new ancillary offenses, expanded jurisdiction, and strengthened extradition and mutual assistance regimes. These developments aim to ensure that a wider range of perpetrators can be brought to justice in aviation-related terrorist or proliferation activities than is currently possible. The instruments are part of a series of UN conventions aimed at combating international terrorism. The above discussion provides background on the development of these new instruments and describes their key provisions.

The Momentum for Review

The review was sparked by the September 11 attacks. There were many initiatives of reviewing the Montreal and Hague Conventions since 2007 before the Conference commenced in 2014. The Conference concluded that the existing international regime did not cover notable aspects of these attacks for instance, the use of an aircraft to cause death and destruction; other types of foreseeable terrorist acts, such as the use of weapons of mass destruction onboard, from, or against aircraft; and ancillary offenses, such as organizing or conspiring to commit such offenses.

Synopsis of the Amendments to the Montreal Convention 1971 and Hague Convention1970

a) New Major Offenses

The Beijing Convention includes several new principal offenses. The first criminalizes the use of a civil aircraft as a weapon to cause death, serious bodily injury, or serious damage to property or the environment as occurred in the September 11 attacks.

The second new offense criminalizes the releasing or discharging from a civil aircraft any biological, chemical, or nuclear ("BCN") weapon or explosive, radioactive or similar substances in a manner that is likely to cause death, serious bodily injury, or serious damage to property or the environment.

The third new offense is similar to the second, but specifically criminalizes the use of the same dangerous items against or on board a civil aircraft. In this scenario, the target is the actual aircraft and the persons on board, rather than anything outside the aircraft. This is a situation that has occurred with some frequency over the recent years.

A major development is the inclusion of a provision criminalizing the transport or proliferation of dangerous materials such as explosive or radioactive material, a BCN weapon, or source or special fissionable material if proof is shown of specific mental elements in relation to the transport or proliferation of each type of dangerous material. The provision makes an individual liable under this offense if the transport or proliferation of such materials knowing they will be used for a terrorist purpose. These requirements restrict the scope of the offenses to cover only transport connected with illicit proliferation or terrorism. The changes also preserve the rights of states parties to the (Nuclear Non-proliferation Treaty) NPT, ensuring that state officials are not prosecuted for transporting nuclear materials as permitted by the NPT.

For those not party to the NPT, the offense will apply, except that transport of source or special fissionable material is permitted if done pursuant to a safeguards agreement concluded with the International Atomic Energy Agency. This includes comprehensive, as well as voluntary or facility-specific, safeguards agreements.

The rationale for the transport offense is to deter and punish movement of materials of proliferation around the world by air into the hands of state or non-state actors in circumstances that would pose a threat to international peace and security. The offense parallels a similar transport offense contained in the 2005 Protocol to the Convention for the Suppression of Unlawful Acts.

Accordingly, transportation of these materials by sea or air is now an international criminal offense subject to the extradition or prosecution requirements of the Convention.

b) New Ancillary and Inchoate Offenses

The Beijing Convention and Protocol include several new auxiliary and embryonic offenses. They provide that it is an offense to directly or indirectly threaten to commit one or more of the principal offenses, or to organize or direct the commission of an offense.
These provisions are meant to harmonize recent UN counter-terrorism conventions.

In addition, the instruments include a fugitive's offense which criminalizes any assistance to persons evading investigation, prosecution, or punishment, knowing that he or she has committed one of the offenses or is wanted for prosecution or to serve a sentence. This crime is akin to an accessory after the fact offense known to many common law jurisdictions and will help restrict the movement of those seeking to flee states where they may face prosecution. The instruments also incorporate a conspiracy or association of an offense which criminalizes the planning of an offense in conjunction with others reflecting both the common law and civil law traditions. This is the first time a UN counter-terrorism convention has included such a provision. It is designed to allow enforcement officers to apprehend and prosecute offenders before terrorist attacks can be carried out.

c) Jurisdiction: Expansion

Both the Beijing Convention and Protocol include nationality of the offender as a mandatory ground for jurisdiction for states parties. This will help to expand the extra-territorial scope of the instruments and ensure that a greater number of states parties will have jurisdiction to prosecute or extradite known offenders. The instruments also include optional jurisdiction on the basis of nationality of the victims of offenses.

d) Activities of Armed Forces

The Beijing Convention and Protocol exclude from their scope the activities of armed forces during an

armed conflict. This provision was the most controversial aspect of the negotiations. However, if this conduct amounted to a violation of international humanitarian law (because it was not a legitimate military objective), then it could be prosecuted under that body of law.

e) Extradition Safeguards

The instruments include new provisions aimed at supporting extradition and mutual legal assistance obligations. In particular, none of the offenses can be considered a political offense in order to avoid these obligations. However, no state may be compelled to extradite a person or provide mutual legal assistance if there are substantial grounds to believe that it would lead to prosecution on discriminatory grounds.

f) Entry into Force

The Beijing Convention and Protocol will enter into force two months after the twenty-second ratification.

g) Implications

The adoption of the Convention and Protocol is a significant development in international counter-terrorism and aviation law. The new principal offenses combined with the ancillary offenses, expanded jurisdiction, and strengthened extradition and mutual assistance regimes will help to ensure that a range of individuals can be brought to justice for their role in terrorist or proliferation activities including those who participate before, during, and after such acts. If the instruments are widely accepted, they can help prevent a repetition of the September 11 attacks.

2. Montreal Diplomatic Conference 2014

On the auspicious of the ICAO, Diplomatic Conference adopted a Protocol on 4 April 2014 in Montreal to amend the Tokyo Convention1963 through an effort over four years to modernize the Convention.

a) Crux of the Protocol

(1) Expanding the jurisdiction over offences and acts committed on board aircraft from the State of Registration of the aircraft to:

- the State of the Operator (where the offence is committed on an aircraft leased without crew to a lessee whose principal place of business is, or who permanently resides, in that State), and
- the State of Landing (where the aircraft has its last point of take-off or next point of intended landing within its territory and the aircraft subsequently lands in its territory with the alleged offender still on board).

(2) Where the State of Registration, the State of the Operator, or the State of Landing has become aware that one or more of the other states are conducting an investigation, prosecution or judicial proceeding in respect of the same offence or act, that state will consult the other states with a view to coordinating their actions.

(3) The obligation of the above states to consult is without prejudice to the obligation of the contracting state to which the alleged offender has been delivered. Under the Convention, the aircraft commander is able to deliver the alleged offender to the competent authorities of a contracting state in which the aircraft lands. The contracting state to which the person is delivered is obliged to make a preliminary investigation into the alleged offence and then inform the other states, as well as the State of Nationality of the detained person, about whether it intends to exercise jurisdiction.

(4) Contracting states may establish in-flight security officers who are then deployed pursuant to bilateral or multilateral agreements between the contracting states to take reasonable preventive measures where those officers have reasonable grounds to believe such action is immediately necessary to protect the safety of the aircraft or the persons or property in the aircraft.

(5) The legal protection currently given to the aircraft commander, crew, passenger, and the owner or operator of the aircraft in respect of any action taken against the alleged offender is extended to the in-flight security officer.

(6) Each contracting state is encouraged to initiate appropriate criminal, administrative, or other forms of legal proceedings against any person who commits on board an aircraft an offence or act, and in particular, physical assault or a threat to commit such assault against crew or a refusal to follow a lawful instruction given by or on behalf of the aircraft commander for the purpose of protecting the safety of the aircraft or the persons or property in the aircraft.

(7) Each contracting state is able to legislate for appropriate measures to punish unruly and disruptive acts committed on board.

(8) Nothing in the Convention precludes any right to seek recovery of damages from a person disembarked or delivered pursuant to the Convention.

International Air Transport Association (IATA) has called on the governments of its member airlines to expedite ratification. Twenty two ratifications is the requirement to enable the Protocol to come into force and, where necessary, contracting states can pass legislation to implement these changes.

b) Critique to the Protocol

Beijing and Montreal Diplomatic Conferences gave the crucial products of aviation security law to the aviation world, which are commendable in contributing to the development of the aviation security law for safe, secure and regular flight operation. However, there are some rooms for improvements.

Despite the obvious success the Montreal Diplomatic Conference has enjoyed, for IATA, The Convention

does not set out clear, dissuasive penalties and there are difficulties of enforcement, application and consistency among States party. Further, there are rooms for improvement as shown differing views regarding:

- deterring unruly behavior,
- extension of jurisdiction and the empowering commander,
- scope of the definition of in-flight as 'door closed to door opened' but not just other way,
- definition of offences favouring airlines, recognizing a carrier's right of recourse against an unruly passenger for the costs arising from unruly behavior,
- inclusion of a termination provision to end the contract of carriage when such action is taken against a passenger,
- the issue regarding immunity-offering a much wider degree of deference in any review of pilot's decisions after the fact, particularly given the special constraints involved in judging a factual situation from behind a cockpit door, etc.

For Ruwantissa Abeyratne, there are some flaws in the Protocol such as:

- the fundamentally missing point between disembarkation and delivery of a person in the context of State involvement as shown obligatory (which seems optional);
- unruly passenger (set as during in-flight) but it may be in the check-in-counter too,
- Protocol's application to criminal offences which we fiend in it but it really applies to the offences against established panel law, etc.

Similar lapses were seen on an earlier occasion with the Beijing Conference of 2010 where several provisions in the Beijing Convention emerged even though the Convention was signed in line with such provisions which are inconsistently and haphazardly drafted.

Aviation history shows that the aviation security matter is concerned to all and one small event occurred in one part of the world may affect the world. This is why it is said that a subject of aviation law is that part of public international law which is concerned to all. Its standards should be observed uniformly and should not be derogated.

Conclusion

The above discussion reveals that the matter of aviation security has been a serious concern of all and it has been such a subject of aviation security law that it is struggling in the path of development. Here, the aviation community should go hand in hand for its improvement along with the spirit to update the law. Its present status and the trend of development show that there are still more rooms for improvement and it is yet to be done a lot in this regard. Mutual cooperation and understanding may help to this end as expressed in the Preamble of the Chicago Convention 1944.

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COSCAP STEERING COMMITTEE MEETING

Status of CEs of Nepalese Safety Oversight System and Associated LEIs

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Background

International Civil Aviation Organization (ICAO) plays the key role for setting up of the minimum standards needed for the operation of air transportation system throughout the world through its different annexes. Every contracting state has the obligation to comply with those standards for its air transportation services as mentioned in the ICAO annexes.

Nepal being the contracting state of ICAO is obliged to implement the ICAO SARPs. As per Section 5, Sub-section V of Nepal Civil Aviation Authority Act 1996, Civil Aviation Authority of Nepal (CAAN) is the responsible authority to enforce the implementation of ICAO SARPs on behalf of Nepal. ICAO under its USOAP Comprehensive System Approach Programme conducted an audit of Nepalese Safety Oversight System in 5-14 May 2009. Lots of Findings and Recommendations (F&Rs) were pointed out in the audit-report. Nepal had 57% (later modified as 53.9%) of Lack of Effective Implementation (LEI) whereas world average was 41%.

CAAN provided an action plan to ICAO, addressing the USOAP F&Rs and outlining specific actions with deadlines for the correction of the deficiencies identified. CAAN put several efforts to execute the Corrective Action Plan (CAP) as provided to ICAO with the focus in the documentation part. Finally, CAAN requested ICAO for the on-site validation of the corrective actions in order to close the findings.

In response to Nepalese request, ICAO conducted ICVM in Nepal from 10-16 July 2013 during which the USOAP CMA team assessed the implementation status of the recommendations proposed by ICAO after USOAP audit and the corrective actions documented by Nepal. As there was no progress in the area of Aircraft Accident and Incident Investigation (AIG), the scope of the ICAO Coordinated Validated Mission (ICVM) did not include it. ICVM identified SSC in the certification process of the issuance of Air Operator Certificate, recommending the revalidation of AOC Holders as per new AOCR.

The ICVM team reviewed the progress in resolving 342 PQs in the areas of LEG, ORG, PEL, OPS, AIR, ANS and AGA covering all critical elements of safety oversight system. Following this review, the status of 69 PQs was changed to 'satisfactory' and that of 1 PQ to 'not applicable', which resulted in an updated LEI of 45% whereas updated world average is now reduced to 39%.

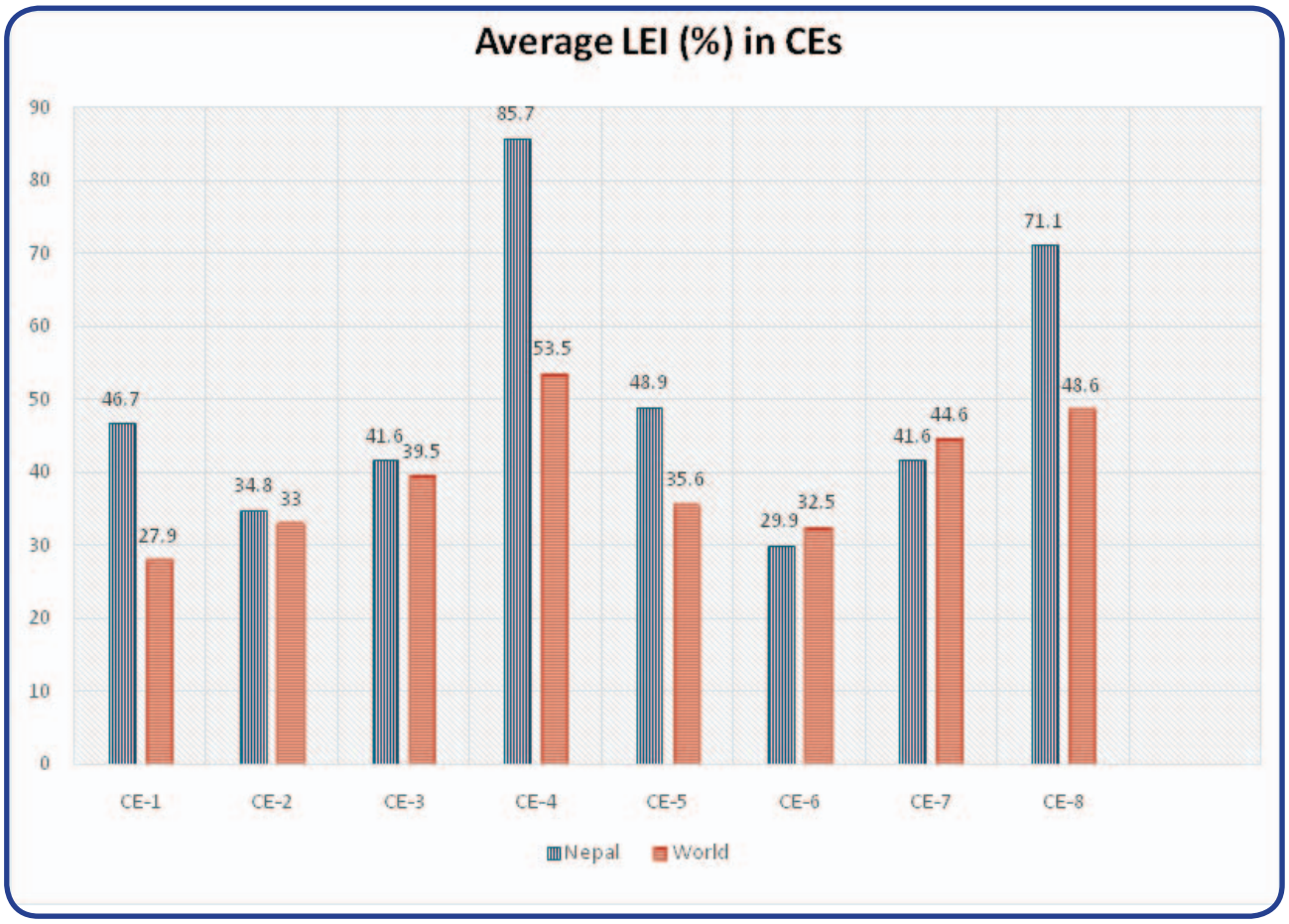
Factual Information and Analysis in Tabular Form

The table below shows how Nepal's LEIs percentages are differing from global averages. The table also gives some general picture about the most critical sub-areas within CEs that must be addressed urgently.

Table 1. Comparison of LEIs

Critical Element	LEI of Nepal After ICVM (%)	World Average LEI(%)	Major LEIs in CE's sub-areas (%)
CE1 Primary Aviation Legislation	46.7	27.9	1. Empowerment of CAA Inspec tors/ investigators - 66.67% 2. Establishment of CAA/ investigation authority- 66.67%
CE2 Specific Operating Regula-tions	34.8	33.0	1. Identification and Notification of Dif ferences - 88.89% 2. AIG Regulations - 72.72%
CE-3 Civil Aviation System and Safety Oversight Functions	41.6	39.5	1. Recruitment and staffing - 75%
CE-4 Qualification and Training of Technical Personnel	85.7	53.5	1. Training policy and programme - 97.37% 2. Training plan and records - 95.83%
CE-5 Procedures and Technical Guidance	48.9	35.6	1. Technical guidance for CAA staffs/Inspectors- 60%
CE-6 Licensing and Certification Obligations	29.9	32.5	1. Aircraft operations - 44.83%
CE-7 Surveillance Obligations	41.6	44.6	1. Flight operations - 66.67% 2. Airworthiness of aircraft -66.67%
CE-8 Resolution of Safety Concerns	71.1	48.6	1. Aircraft Accident Incident Reporting - 100% 2. Aerodrome and Ground Aids - 80%

Source: http://www.icao.int/safety/Pages/Map-Builder.aspx, 18:39 NST, November 18, 2014https://soa.icao.int/usoap/StateOptions.aspx, 19:00 NST, November 18, 2014



Activities of CAAN

CAAN has already done a lot of things in the legislation part, especially the revision of CAAN Civil Aviation Regulation 2002. Empowerment of CAA inspectors is guaranteed by new amendment in the regulation. Latest amendment to it also addresses the provisions of Chicago Convention like Articles 3 bis, 29, 32 and 83 bis. MOCTCA has also promulgated a new Civil Aviation (accident investigation) Regulation, 2071. CAAN is already in the process of developing new integrated civil aviation act and regulations.

There are a lot of USOAP findings in the ANS area. Major issues are concerning with the training plan and programme of inspectorate staffs, cross-utilization of the staffs, qualification of inspectorate staffs, etc. CAAN has developed training plan and programme and provided Safety Oversight Inspector Training to almost all of its Inspectorate Staffs. ANS Inspectorate Handbook has been amended to incorporate qualification of Inspectors. SMS Requirements has been developed in ATS.

Other major issues in ANS are Aviation Meteorological (MET) service delivery and oversight issues. There is no legal basis for providing aviation Meteorological Service by Department of Hydrology and Meteorology (DHM), CAAN has not delegated MET oversight function to DHM and many others. Steps have been taken to resolve these issues by arranging meetings with DHM officials, and DG level meeting has been planned for near future to pave way to resolve all these issues.Growing aircraft accidents in Nepal steered the global community to observe closely the Nepalese Aviation Systems' activities including both the service delivery and the oversight activities. In the meantime, ICVM raised questions in the safety oversight capability of CAAN over the activities of airline operators, and pointed out SSC in AOC certification or re-certification process. Showing the SSC in AOC re-validation process and CAAN's Oversight Capability, and several other safety lapses, EU banned Nepalese operators to fly in Europe in 5th December 2013, and issued travel advisory to its nationals not to fly in Nepalese air carriers which badly damaged the image of Nepalese aviation in the whole world. To get rid of this situation, lots of works have been done in the recent past. For instance, AOCR and FOI manuals have been amended, and AOC re-certification process has been started based on the new provision. CAAN has also amended FOR and developed Exemption Manual. SMS Requirements has been developed in Flight OPS.Thus, it is evident that numerous efforts have been done to close significant number of findings. In order to get rid of these

findings and SSC, it is must to wait the visit of ICAO for the evaluation of our actions in the future.

Conclusion

From above table, we can conclude that in CE-1 and CE-5, our LEIs are relatively higher than World Average LEIs. But in CE-4and CE-8, there is the very big gap between world average LEIs and our LEIs, and the situation is much more alarming. More focus needs to be given in these areas.

In CE-2 and CE-3, our LEIs are very close to World Average LEIs. The situation seems comparatively less alarming in these Critical Elements.

In CE-6 and CE-7, though our average LEIs are less than the World Average, ICAO has raised SSC in AOC certification/recertification issues and the global aviation communities are raising questions in the safety oversight capability of CAAN. Hence, for the betterment of Nepalese Aviation, the issues raised by global communities related to these CEs need to be addressed as immediately as possible.

Furthermore, to effectively carry out the safety oversight activities within the country, CAAN as a Civil Aviation Safety Authority shall proactively be involved in strengthening of all eight Critical Elements, and this could be effectively done by the executing the different activities like:

- Adoption of ICAO SARPs in national regulatory framework,
- Setting up of regulatory staff qualifications, trainings and experiences, and their empowerment
- Establishment of training plan and programmes including its effective implementation,
- Coordinated efforts by the safety oversight bodies to resolve the overall safety concerns,
- Clear separation between regulatory and service provider functions, etc.

Recommendations for Improvement

With the facts that are mentioned in the above table, it is essential for CAAN to put its significant efforts to reduce the gap between Global Average LEIs and Average Nepalese LEIs. Lots of things have already been done by CAAN after the ICVM and lots of things still remain to be executed. Some of the recommendations based on CEs are given below:

CE1. Primary aviation legislation

CAAN has already done a lot of things in the legislation part, and there are not much things remained alarming, except the establishment of Investigation Authority.

CE2. Specific operating regulations

a. ICAO has pointed out that the procedure for publishing differences to the ICAO Standards has not been effectively implemented in respect of all safety-related Annexes.

   To address this issue, all safety departments shall instruct their responsible staffs to find out the differences in our practice that deviate from ICAO Standards and publish them in AIP giving some deadline, and they should keep the record of such differences.

b. ICAO has pointed out that MET service delivery is not properly delegated to DHM.

   To address this issue, CAAN should promulgate Meteorological Standards of Nepal under the power conferred by Rule 82 of Civil Aviation Regulation, 2058 and delegate the safety oversight responsibility to DHM. CAAN needs to hold a DG level meeting to resolve the above issue as early as possible.

c. All safety departments have to develop the SOPs for the formulation, amendment and distribution of concerning regulatory materials including the CARs and they should keep the record of distribution safely. While developing such CARs, all safety departments should ensure that the ICAO Standards are adopted as far as practicable.

d. CAAN should develop a mechanism to effectively collect the safety data and should develop the safety database. Based on the safety data, ALOSP in ATS shall be established.

CE3. State civil aviation system and safety oversight functions

a. ICAO has pointed out that CAAN has the problem of recruitment and retention of the Inspectorate Staffs.

   CAAN should amend its regulations to include the provision for recruitment of qualified and experienced inspectors in the area of aircraft operations. CAAN should also make provisions of attractive financial incentives to its inspectorate staffs in order to resolve the retention issues.

b. Legal basis for the delivery of Aviation MET Service should be developed, by which DHM should be legally authorized to deliver the service.

c. There should be distinct separation between the regulatory and service provider functions of CAAN. Until the establishment of separate entities to perform these two functions separately, cross-utilization of staffs shall be controlled positively.

d.An effective safety oversight system over the functions under CAAN's responsibility should be established and executed to ensure the implementation of safety- related policies and procedures effectively.

e. SAR agreement should be done between the Kathmandu RCC and the RCCs of adjacent States. In this agreement, the provision should be made so that RCCs of either state should be authorized to provide assistance to each other.

CE4. Technical personnel qualification and training

a. CAAN has developed a training policy, periodic plan and programs for inspectorate staff. Developing such things is not enough to strengthen this critical element, rather a better management commitment is required to effectively implement such policies, plans and programmes.

b. Establish minimum qualification and experience requirements for Dangerous Goods Inspectorate staffs and all technical personnel in PEL and all ANS fields.

c. A system of database must be established for recording of the staff training.

CE5. Procedures and Technical Guidance

a. Nepal should establish and implement procedures for its participation in aircraft accident or serious incident investigation conducted by other States.

b.Nepal should establish a system for the planning and management of aircraft accident and incident investigations, including a list of required activities, assigned responsibilities, detailed action, procedures and checklists for the planning and conduct of various types of investigation, and the coordination between all those involved, as well as the liaison with other authorities.

c. Develop SMS Requirements for Airworthiness and Aviation Maintenance Organizations (AMOs.)

d. Quality Manual and SOP should be developed to introduce organized QMS in AIS.

e. ANS Inspectorate handbook should be amended to include Maps and Charts Inspection Checklist.

CE-6. Licensing and Certification Obligations

a. Ensure ATS service provider develops policy and procedures for the determination of capacity of ATS System.

b. Ensure ATS provider develops SMS Manual based on the guidelines of SMS Requirements 2010 and implements SMS in ATS with clearly determined the lines of safety accountability.

c.Develop acceptance manual of ATS Provider's SMS.

CE-7. Surveillance Obligations

a. Establish a formal surveillance plan on the Civil Aviation Academy.

b. Establish a surveillance policy and programme to ensure coordination among its different sections and divisions when conducting inspections and audits.

c.Ensure that the ATS provider develops the procedure for Safety Review as part of its SMS.

d. Issue of surveillance over Aviation MET activities can be finalized by arranging CAAN-DHM DG-level meeting, thereafter developing a legal basis for it.

CE-8. Resolution of Safety Concerns

a. Establish a mechanism/system with time frame for elimination of deficiencies identified by its inspectorate staff.

b. Develop and implement a mechanism for coordination with land-use authorities and other State authorities which is essential to ensure that aircraft safety is not compromised because of the public activities in the proximity of the airfield.

c.Take necessary steps if the deficiencies identified during the audit or inspection are not rectified in a timely manner.

d.Create conducive environment to promote reporting culture.

References

- ICAO USOAP Safety Oversight Audit Programme, Continuous Monitoring Approach (USOAP CMA) and State Obligation, Sanjiv Gautam, CAAN Souvenir 2012
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The Error Chain

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The pilots attempted to land in thick fog. The visibility was reduced to about 500 metres .The aircraft was too low as it approached the runway. Striking trees in the fog, it rolled upside down, impacted the ground, broke apart, and eventually came to rest 200 metres short of the runway in a wooded area.

It was a tragic day in the history of Poland (9th largest country of Europe) , when the VIP flight of Polish Air Force Tu-154 crashed on 10 April 2010, killing all 96 people on board . They included president and his wife, former president, the chief of the Polish General Staff, the president of the National Bank of Poland, Poland's deputy foreign minister, 18 members of the Polish parliament and high-ranking officials, They were en route from Warsaw(Poland) to Smolensk airport (Russia) to attend a special event of the anniversary of the massacre;

The accident had occurred on Russian soil, Russia was tasked by ICAO procedure with primary responsibility for investigation, Poland also set up its own committee to investigate the accident. Both the countries published the accident investigation report separately. Both the reports pointed that the main cause of the accident was the pilot error for descending too low without being able to see the ground. They found some deficiencies in the Polish air force safety management as well as in the performance of the Russian air traffic controllers and in the airport's lighting and approach area. The report indicated that the worst accident in Poland aviation history, in which a chain of events and errors can be, identified leading up to the crash. Pilot error, communications problems, fog, and airfield location, all contributed to this catastrophe.

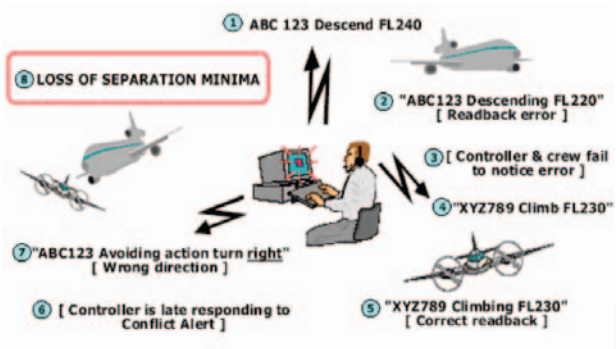
In aviation, a chain of events, also called the error chain, is a term referring to the concept that many contributing factors typically lead to an accident, rather than one single event. These contributing actions typically grow out from human factor-related mistakes and pilot error, rather than mechanical failure.

In our context, aviation accident is considerably greater. Nepalese aviation investigation reports have pointed out that almost all the causes of accident are human factors or pilot error.

Human factor has become increasingly popular in aviation industry for the safety of flights. Human error, rather than mechanical failure underlies 70-80% aviation accident and incident worldwide. Human error is often considered similar with pilot error, it will be unfair and incomplete if we blame the pilot error only is the main causes of human factor related accident and incident.

Human factor is concerned in maintenance practice and overall air traffic management. In aviation, human factors is dedicated to better understanding how humans can most safely and efficiently be integrated with the technology. That understanding is then translated into design, training, policies, or procedures to help humans perform better.

With the rapid development in technology, humans are ultimately responsible for ensuring the success and safety of the aviation industry. They must be knowledgeable, flexible, dedicated, and efficient while exercising good judgment. And aviation industry should increase their investments in training, equipment, and systems that have long-term implications.



The error chain is usually a series of small events that lead up the accident. By correcting one of those events, the accident might not have occurred. This is why a proactive safety program is important. Only after a complete and detailed investigation the error chain events become clear. The investigation team must have look beyond the words "pilot error" and discover all factors that might have created the accident.

A comprehensive investigation may find other issues not related to the accident, but could be a factor for another type of accident. It may find out training issues, incident related fatigue issues, maintenance issues, or ATC problems.

We do use "probable cause" as the event that created the accident. Example: Say PIC executed a landing with excessive speed and the pilot lost control and ran off the runway.

In the above scenario we find nothing wrong with the plane, but we discover the pilot was very fatigued and tired. The probable cause was an excessive airspeed and a failure to properly maintain control of the aircraft. Now, at that point we have to investigate further and try to discover why the pilot was fatigued. Maybe, the PIC was rushed, sick, a CRM issue, weather or ATC issues etc. Or, all of these little things became the error chain that lead to an irreversible error.

In this collected articles, I am trying to describe about human error which is the result of sequence of events that lead to in accident.

There are eleven clues for identifying the links in an Error Chain. It describes into two parts- operational and human factors. The presence of any one, or more, does not mean that an accident will occur. Rather, it indicates rising risk in the operation of an aircraft and that the pilot must maintain control through proper management of resources.

Operational Factor

1. Failure to Meet Targets

It means, failure of the flight to maintain identified targets. Targets include plans, procedures, established for the pilot.

2. Use of an undocumented procedure

It is the use of procedures to deal with abnormal or emergency conditions that are not prescribed in approved flight manuals or checklists.

3. Departure from Standard Operation Procedures (SOP)

This includes inadvertent departure from prescribed standard operating procedure. Well defined SOPs are the result of a synergistic approach to problem solving with the influence of time removed. As a result, in difficult situations, standard operating procedures represent an effective means of problem resolution without the sacrifice of time, which is often not available.

This is not to suggest that SOP's will resolve all problems. However, they are an effective starting point. Failure to follow SOP constitutes a link in the error chain and is an appropriate indicator of rising risk.

4. Violating Limitations

It means violation of defined minimum operating conditions either intentionally or unintentionally, as prescribed by regulations of more restrictive flight operations manuals or directives. This includes weather conditions, operating limitations, duty time limitations, system limitations, etc.

5. Lack of Proper Monitoring while Flying the Aircraft

Meaning, no one is monitoring the current state of progress of the flight. Flying the aircraft is the highest priority for the flight crew. If it is not being attended to, perhaps other important tasks are being overlooked as well.

6. No One Looking Out of the Aircraft:

Again, this is a matter of priority. Mid-air collisions are a result of the crew not maintaining a heads up discipline. With today's sophisticated electronic and fight management systems, it is easy to be tempted to keep one's head in the cockpit rather than maintaining a careful eye outside.

Human Factors

1. Incomplete Communications

Incomplete communications are the result of withheld information, ideas, opinions, suggestions, or questions and failure to seek resolution of misunderstandings, confusion, For example, if a crew member withholds information or fails to question another crew member about an area of concern, a link in the error chain exists.

2. Ambiguity

Ambiguity exists any time two or more independent sources of information do not agree. This can include instruments, people, manuals, senses, control that do not correspond with associated indicators, etc.

3. Unresolved Discrepancies

Failure to resolve conflicts of opinion, information, or changes in conditions form unresolved discrepancies.

4. Preoccupation or Distraction

Preoccupation is the focus of attention on any one item or event to the exclusion of all others. This may include any number of distractions that can draw attention away from the progress of a flight. Distractions can be the result of high workload brought about by the demands of flight within high-density traffic areas, inclement weather, or abnormal and emergency conditions. Distraction can also be the result of personal problems, inattention, complacency, or fatigue.

5. Confusion or Empty Feeling

It is a sense of uncertainty, anxiety, or bafflement

about a particular situation. It may be the result of falling behind the aircraft or lack of knowledge or experience. Perhaps it is caused by being pushed to the limit of one's ability or such as a headache, stomach discomfort, or nervous habit. Researchers suggest that these signals are symptomatic of uneasiness and should be trusted as indicators that all may not be right.

The presence of one or more of these clues means that an error chain might be in progress and that appropriate caution is advised. Recognition of the presence of error chain links provides a flight crew with the tools to appropriately manage risks associated with flight.

It is important to point out that identifying the presence of an error chain does not, in and of itself, eliminate the risk of a mishap. Instead, it serves as a warning to the crew that they must take appropriate action to manage the progress of the flight in the face of rising risk.

Additional Factors

In addition to the eleven clues of the error chain, we need to consider several other factors that may involve in accident. These factors are not considered part of the error chain, but are contributory to the causes of accidents. They can be used in conjunction with the error chain to help determine some of the additional human or operational factors involved in an accident. In addition here are five hazardous attitudes that we often find during accident investigation. These attitudes and their antidotes are important when considering the human side of flying.

Additional Factors involved in Accident

Complacency (Self-satisfaction)
Fatigue
Training
Experience
Peer Pressure

The Five Hazardous Attitudes

Anti-Authority -- "Don't tell me what to do"---- Obey the rules

Impulsivity-- "Do something quickly" ----Not so fast

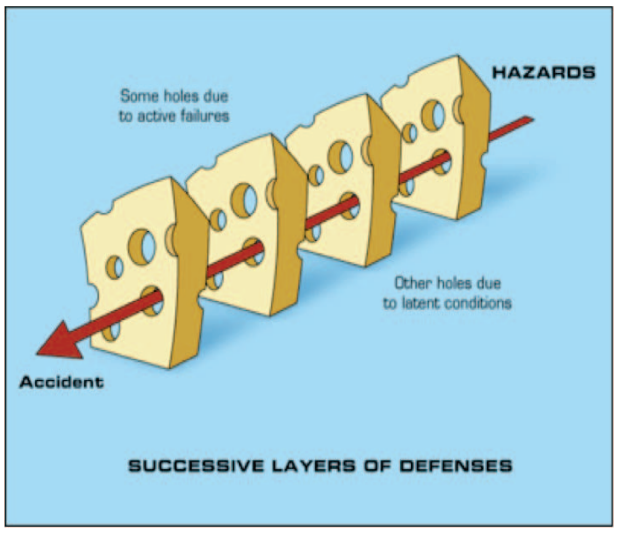
Invulnerability-- "It won't happen to me" ----It can and will happen to you

Macho --"I can do anything"---- You do not have super powers

Resignation-- "What's the use"---- Continue to work the problem

In the evaluation of any accident or incident, we should use all of the factors contained in the error chain and consider them in concert with the additional factors and the five hazardous attitudes.

Another well known study in the chain of events is Reason's "Swiss Cheese" model of human error, a sequential theory of accident causation. In this model



Reason describes four level of human failure each one influencing the next with active and latent failures. These includes,
1.Organizational influences.
2. Unsafe supervision.
3. Precondition for unsafe acts.
4. The unsafe acts of operators.

The Swiss cheese model of accident causation illustrates that, although many layers of defense lie between hazards and accidents, there are flaws in each layer that, if aligned, can allow the accident to occur.
After Reason's Swiss Cheese model, Shappell and Wiegmann (2000-2001) developed a comprehensive human error frame work – the Human Factors Analysis and Classification System (HFACS) that Reason's ideas were folded into the HFACS Framework, it includes 19 causal categories within Reason's four level of human failure. Drawing upon Reason's concept of latent and active failures, HFACS describes four levels of failure: 1) Unsafe Acts, 2) Preconditions for Unsafe Acts, 3) Unsafe Supervision, and 4) Organizational Influences. The following brief diagram will explain and make clear this HFACS.

Conclusion

In Nepalses Aviation , Human factor related accident rate is greater . It is clear that many contributing factors typically lead to an accident rather than one single cause. It is also true that all 100 percent error cannot be prevented but the error can be reduced by comprehensive and systematic way of investigtion and implementation of its findings.The accident investigation reporting system should be designed in the theoritical as well as practicle framework of human errors , in which safety professionals can reduce the aviation accident rate through systematic, data-driven investment strategies and objective evaluation of intervention programs.

References

- Shappell and Wiegmann's: Human Factors Analysis and Classification System.
- Reason J (1990): Human Error
- Related journals and website.

Proposed New RADAR, Bhatte Danda

"Safety and Security can not be compromised."

Burning Issues of Controllers

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If we say aviation we might have a picture of aerodromes or airports or aircrafts. Aviation industries don't exist without any aircraft movement. For each and every movement of aircraft we need air traffic controllers. So nobody can imagine aviation industry without Air Traffic Controllers.

This article is mainly based on a report named professional career for air traffic controllers guide; a research done by Grepecas ATC/TF3 ATS Professional Career Task Force and submitted to ICAO. The subjects included in the research and the issues raised by it are almost similar to our context. Thus the recommendations might be very useful for discussion. Among so many issues of Controllers; some are discussed here in brief.

Working hours, shifts

Work shift cycles should be based on having at least two consecutive days free per week. Work shifts that include night work should have a morning, afternoon, and night rotation system. Consecutive night shifts are not recommended. Shift systems should not include night work on the same day a morning shift ends. At least thirty hours of rest are recommended after working a night shift. With alternate shifts, there should be no more than three consecutive morning shifts per week.

Work and rest plan

Operational time and its resting periods should not exceed thirty-two hours a week. Each daytime shift or shift of intense activity should not exceed eight hours including rest time. At least twelve consecutive hours of rest should be provided for between shifts.

Operational controllers should spend no more than two consecutive hours at work and this period should be reduced to 90 minutes for controllers working in a radar environment. This operational time can be reduced according to the volume of traffic being handled. Controllers should have at least one hour for meals in the morning and evening shifts. Controllers working night shifts should have at least one hour of rest for every four hours of work.

Overtime

Overtime is defined as operational or non-operational work or a combination of the two performed outside regular working hours and will result in an increase in the controller's operational time. Overtime should be voluntary and should be resorted to only in special situations.

It should be ensured and provided for a sufficient number of personnel in light of the adverse effects of long working hours, considering human limitations. A combination of overtime and night shifts increases the risk of fatigue on the part of the controller because resting periods are reduced.

Vacation and Medical leave

Controllers should enjoy annual vacations of at least thirty working days, without counting holidays, and of which three weeks should be consecutive. When a psychologist certifies that a controller presents a high level of stress or tension that affects the performance of his/her duties, said controller may take medical leave without losing any of his/her labor rights.

Up-to-datedness and competence

Controllers involved in collateral tasks like training, supervision, administration and development of new systems must put in a certain number of hours of operational work to keep up-to date. The State should establish a minimum number of non-operational hours per category for controllers engaged in air traffic service-related jobs. The minimum number of operational hours should be as required for the volume of work involved in each position.

Remuneration

The remuneration in the air traffic control profession is justified by its requirements and responsibilities, and should not be limited to the practices of other organizations.

It should also reflect employment condition according to publication IS CO-88 of the International Labor Organization (ILO), in which air traffic controllers are included in the same category as aircraft pilots, vessel officers, and other similar professionals.

Professional security

In the course of their careers, air traffic controllers are constantly exposed to the risk of losing their licenses, medical qualifications or technical capacity. In order to avoid such risk, appropriate measures should be established in their benefit, such as: appropriate medical services, physical maintenance programs, psychological assistance programs, updating training, and refresher courses to help controllers maintain their health and required skills.

Inasmuch as the chances of air traffic controllers being re-employed by the civil service are very slim because of their specialization, the State should maintain and cover the cost of an insurance against license withdrawal.

Physical working conditions

It is very important for controllers to have an appropriate work environment and the necessary equipment and materials for the best possible performance of their duties. The workplace should offer safety and comfort, as well as protection against weather conditions. The design of the controller's physical work environment should be as optimum as possible in terms of decoration, lighting, temperature, noise level, visual display, and other requirements.

Controllers should be provided with appropriate equipment that will contribute to their ability to see and communicate with aircraft, their colleagues, other ATS units, maintenance personnel, and other aviation agencies or bodies.

Before implementing new technologies, controllers should be involved from their initial specifications to the operational stage. Mistakes and their consequences are largely the result of aspects related to system design (facilities, equipment, software, physical environment) and for that reason the system should be designed in such a way as to eliminate or minimize the possibility of error.

The design of the building housing the ATC workplace should be properly planned from the beginning to meet all system requirements as well as the controllers' obvious needs. The layout of the control rooms and booths should be designed to accommodate all the working staff and possible visitors, with sufficient room to avoid causing distraction and nuisance to controllers.

Psychological factors that affect the profession

The effects produced by air traffic control activities, such as stress, boredom, overconfidence, complacency, and fatigue should be kept in mind when designing or making modifications to the system .

Studies reveal the existence of problems of stress, fatigue, anxiety, and loss of motivation which affect the performance of controllers. Therefore, the means must be sought to prevent, diagnose, and control these manifestations. The intense and chronic stress to which air traffic controllers are exposed deteriorates their health and is manifested in conditions like high blood pressure, gastrointestinal problems, and nervous problems, among others. Thus the importance of implementing psychological, medical, nutritional, and physical conditioning programs to counteract the negative effects of stress is obvious.

The professional career of air traffic controllers is divided into two groups: operational and nonoperational.

Operational controllers

Operational work is defined as the performance of tasks through which the controller exercises in an operational environment. Operational work includes Aerodrome Control, Approach Control, Area Control, Radar Control, and Supervision.

Non-operational controllers

Non-operational work is described as the performance of those tasks i.e theoretical instructor, research, planning, etc. or we can say non-operational tasks include training, procedures, planning, and quality control, heading units, and heading different divisions and departments of ATS field and it can also include managerial task of different aviation discipline or areas prescribed by different Annexes and ICAO Docs.

If we say total service span of an ATC is thirty years he or she will be active/operational normally up to fifteen years, then what? Of course we may deploy them in non-operational or managerial field.

Another fact to mention is that in order to become operational or active, the controllers need to fulfill minimum medical requirements. There may be a slim chance that few of them might not be able to achieve those requirements, though they are organization's employee so they might be deployed in other relevant discipline.

So the organization must have such type of plan to utilize those human resources.

Safety in the Air Starts with Security on Ground.

The Systems Approach of Training Development

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Aviation industry being highly complex in nature is a system composed of many organizations, systems and sub-systems. For example an airline, which is a complex organization composed of personnel, aircraft, equipment, etc., is a system working with the goal of providing safe and efficient air transportation services to its clientele. Likewise, an air traffic services department, which is an organization comprising personnel, air traffic control equipment and infrastructure, international air safety requirements, etc. is a system working towards the goal of providing safe and efficient conduct of air traffic services. Similarly, an aviation training organization, which is an organization comprising personnel, training packages, infrastructures, training guidelines, etc., is a system working towards the goal of providing effective and efficient training courses for aviation personnel. Thus, any organized operation can be considered to be a system.

In simple words, a system is a set of interlinked and interrelated elements working together to achieve a common goal. This provides a convenient means for analysing the organization and defining performance problems accurately. The basic elements of a system are:

- inputs (e.g. personnel, equipment, financial resources, external regulations);
- process (e.g. procedures, structures and rules which ensure the internal mechanism for transformation of inputs into desired outputs);
- output (e.g. product or service which should meet the standard/goal of the syatem);
- feedback (e.g. a mechanism to measure the actual output against the desired output, the standard and give information to the system about any discrepancies).

In any system, feedback is taken as the important element because it provides information on deficiencies so that corrective action can be taken to meet the goal i.e. standard output. Besides feedback, process is another important element in service generating system. For example, the process of a training institute includes tasks like course development, training delivery, training support and administration, which are crucial for efficiency in the training process. Training process and operational process in aviation system are interrelated, and output of the training process is taken as input of the operational process. In aviation industry the ultimate goal is to provide safe and efficient air transportation services. And goal of each system or component of the industry is to yield the standard output through the operational process. Hence, maintaining efficiency in the training process is crucial for training institutions for the ultimate goal of aviation system.

International Civil Aviation Organization has adopted TRAINAIR PLUS programme for global aviation training which is a systematic approach in training and focuses on competency based material dependent trainings instead of the traditional instructors dependent trainings. The TRAINAIR programme is an effort of ICAO in benefiting the Civil Aviation Training Centres of the Developing World through international sharing of high quality standardized civil aviation course material and the effectiveness of the ITU/UNCTAD methodology. TRAINAIR is strongly supported by the UNDP Division of Global and Interregional Programmes (DGIP) through the project INT/87/012 during which the application of UNCTAD standards was carried out to suit civil aviation's particular applications. ICAO is enhancing the ability of TRAINAIR members to adopt Standardized Training Packages either by developing one's own STP or borrowing from other member training centers. There is also provision for upgrading the prevailing instructor dependent courses into material dependent and gradually adopting STPs. The STPs being well designed and validated though tests remain uniform in institutions and not vary due to change of instructors and always remain as the property of the training centre.

ICAO is conducting Global Aviation Training for empowering its TRAINAIR PLUS members by providing Training Developers Course (TDC) to produce Course Developers for the member training centers. It has also developed Training Development Guide (TDG) which is a guide to the development of training material in systematic manner. It also sets training standards, thus making it practical for course material to be shared between the participating TRAINAIR PLUS civil aviation training institutions. It requires good communication between Course Developers and both operational and training managers, and between different training teams. A standard form of presentation and a common terminology are prerequisites for successful international coop-

eration in training development and adaptation to local of conditions training materials. It also ensures that training managers are provided with appropriate information in order to manage the course development as well as training delivery process.

The focus of the TRAINAIR PLUS Programme is on enabling employees to perform tasks competently and not only to "learn about" or "understand" the subject matter. The STP preparation methodology is based on the application of systems engineering methodologies to the design of training curricula resulting in the development and implementation of structured performance competency-based training programmes. This approach known as the systems approach, consists of three principle stages: Analysis; Design and Production; and Evaluation, with feedback between each of the stages. In TRAINAIR PLUS methodology, these stages are broken down into seven steps as follows:

Stages	Steps
Stage 1 - Analysis	Step 1 – Preliminary Study
	Step 2 – Job Analysis
	Step 3 – Population Analysis
Stage 2 – Design and Production	Step 4 – Design of Curriculum
	Step 5 – Design of modules
	Step 6 – Production and Developmental Testing
Stage 3 – Evaluation	Step 7 – Validation and Revision

- In the first step, problem and its cause, the exact training solution, management actions in developing a training effective and provision of necessary resources are answered.
- In the second step, the job is analyzed systematically to determine the performance requirements of each task, and define the knowledge, skills and attitudes (K/S/As) required by employees to perform tasks at acceptable levels of competence.
- In the third step, information is gathered about the target population of future trainees that include identifying their knowledge and skill, educational background, preferred learning style and linguistic environments.
- In the fourth step, the design of curriculum is done through a process called sequencing, whereby subtasks in the form of intermediate objectives are grouped into training modules and put into a logical training sequence.
- In the fifth step, a detailed plan of training activities for each module is designed, which ensures that trainees will be capable of performing the end-of-module objective to standard level of competency required.
- In the sixth step, production of training material in its final format is prepared, and developmental testing is carried out to ensure that the training material is suitable and effective.
- In the seventh step, the first delivery of the complete STP is carefully monitored to determine that the trainees react in the expected way and achieve the end-of-module performance objectives. If any deficiencies are found during the validation delivery, the causes should be identified and action taken to rectify them.

The TRAINAIR PLUS Programme, the systems approach of aviation training focuses on the training development process to make the training most fit for the job in order to enhance effectiveness both in the training process and the operation process. There may be non training solutions as well for addressing the performance problem. If training is considered as the solution it must be suitable for acquiring the required skill and knowledge. The most suitable training solution is that which provides the required number of adequately trained personnel, at the lowest cost, in the most practical manner and in most the most acceptable time frame. Job analysis is the cornerstone of the TRAINAIR PLUS course development process. It ensures that the course to be developed will focus entirely on the needs of the job and will avoid the inclusion of superfluous, 'nice-to-know' information. At the end of the TRAINAIR PLUS course development process evaluation in the form of Developmental Testing is conducted to get feedback and find out deficiencies. The goal is to have a full set of well-produced, relevant material ready for the validation delivery of the course. Validation gives opportunities for further modifications to be made and finally produce the Standardized Training Package. Hence the systems approach of training adopted by ICAO is the most suitable for aviation trainings.

Reference

- ICAO TrainAir Plus Training Developers Guide (Doc. 9941)

ICAO-USOAP & Nepal's Stand

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Technological Innovations and Pro-active Environmental Measures are the major drivers for any global industry and are very important in particular to the dynamic aviation industry. In aviation, the work of ensuring optimum level of safety, security and efficiency in a rapidly changing environment is not an option but the compulsion which requires global co-operation. In such, Nepal (as International Civil Aviation Organization-ICAO Member State) not only has its obligations but needs more roles to play to ensure aviation safety, efficiency, reliability and sustainability.

ICAO USOAP

ICAO–USOAP (Universal Safety Oversight Audit Program) is the result of increased concern over the level of air safety worldwide. The reports in the early 1990s on the lack of implementation of ICAO standards and recommended practices (SARPs) by States prompted the inception of this program which aims to help States address their safety needs by reducing accident rates and balancing the rapid increase in traffic and public safety rights. It was started as a voluntary program to access the safety oversight capability of States in the fields of personnel licensing and training, aircraft operations and airworthiness (Annexes 1, 6 & 8) in 1996.

Director General of Civil Aviation (DGCA) conference in Montréal on November 1997, attended by more than 150 countries & other many international organizations decided to develop a global strategy on safety oversight in compliance with Chicago Convention and State regulations to audit each Contracting State's conformance with ICAO standards and adherence to recommended practices, related procedures, guidance materials, and relevant industry practices in general use which 32nd General Assembly of ICAO approved in 1998, the transformation of the program into one of the mandatory auditing of the safety oversight functions took place from January 1999 with the establishment of safety oversight audit unit within the operation and airworthiness section in the air navigation bureau of ICAO. Effective from 1st January 2004, Annex 11, 13 & 14 were also covered in the approach which inflated the resources requirement resulting in lengthy and expensive proposition. So system approach for the conduct of audit was purposed focusing both on oversight capability of States and the safety oversight critical elements. It was designed to cover all safety related annexes thus providing a more objective & cost effective approach. In system approach, implementation of annex provision and status of differences is determined before the audit mission, through a series of tools and relevant reports with the review of state's legislation, regulations, documentations and organization. The final assessment of the organization and the remaining critical elements of a safety oversight is made on-site, this validates the organization, procedures and process established to help the state fulfill its safety oversight obligations. And audits are tailored to the level of activity and complexity of aviation activities in each state. All contracting states are audited at least once in 6 year period by core audit staff from ICAO Headquarters complemented with regional office and state seconded staff. ICAO's policy is such that USOAP of Annexes 1, 6 & 8 will be continued and expansion areas of Annexes 11, 13 & 14 will be conducted as a whole in system approach. Second cycle of audit was conducted from January 2005 until December, 2010. Following successful implementation of ICAO USOAP Comprehensive Systems Approach (CSA), the 37th session of the Assembly adopted resolution A37-5, formalizing the evolution of the USOAP to a Continuous Monitoring Approach (CMA). The activities under the CMA framework include, among others, the ICAO Coordinated Validation Mission (ICVM).

Nepal's Stand

During the 2nd cycle of audit, ICAO USOAP CSA carried its audit in Nepal from 5th of May 2009 to 14th of May 2009, which had outlined its findings and recommendations under following headings:

- Legislation & Regulations
- Organization
- Personnel licensing & training
- Aircraft Operations, Certification & Supervision
- Airworthiness of Aircraft
- Aircraft Accident & Incident Investigation
- Air Navigation Services & Aerodromes.

In brief, following were the findings of the audit and recommendations were given for every finding.

Legislation and Regulation

On part of Legislation & Regulations, report concludes that Civil Aviation Act 1959, the Civil Aviation Authority Act 1996 & the Supporting regulations and rules "Civil Aviation Rules 2002" adopted by the government has not kept pace with the evolution of civil aviation system in Nepal and does not address all the articles of convention on ICAO (Chicago Convention) & legal

instruments ratified by Nepal as well as related safety oversight obligations. CAAN's civil aviation requirements do not fully meet corresponding provisions of Annexes to the Chicago Convention.

Organization

On part of Organization, Nepal has neither established procedures for co-operation nor designated focal point to co-ordinate ICAO matters. There is no distinct separation of responsibilities between the regulatory and service provider function in civil aviation system. There is huge shortage of appropriate human resources and no specific established plan for recruitment. CAAN has neither established training policy nor developed training programs.

Personnal Licensing and Training

On the parts of Personnel licensing & training, personnel licensing documents, medical certificates, etc are not provided to license holder. No language proficiency has been established. No designated medical examiner has completed medical examiner requirement.

On part of Aircraft Operations, Certification & Supervision, there are deficiencies and or confusions on SOPs & training Programs for the flight crews. AOC & Air Transport License issuing procedures are not both complete and consistent nor in conformance with annex 6.

Airworthiness of Aircraft

On part of Airworthiness of Aircraft, FORs (flight operation requirements), NCAR (Nepalese Civil aviation requirements) & CAR (Civil Aviation Requirements) are not consistent to each other. In addition they do not meet ICAO Annexes requirements. No system to ensure receipt, control and distribution of technical documentation is there. No compliance with the established procedures is found.

Aircraft Accident and Incident Investigation

On part of Aircraft Accident & Incident Investigation, neither the Nepalese legislation on the above matter is in accordance to Annex 13 to the Chicago Convention nor has Nepal established detailed regulation addressing all of its provisions. No established minimum qualification and experience for the investigator or job description is there. No plan and procedure has been established for various types of accidents or incidents.

Air Navigation Services

On parts of Air Navigation Services, Long term CNS equipment un-serviceability are prevailing including some basic and minor ones such as ATIS, Primary I.Com., VHF radio facilities. There is no Letter of agreement between CAAN & Department of Hydrology & Meteorology, no calibration of meteorological equipment since installation, no SMS, no establishments or regulations of state safety program, no Runway safety program etc.

Aerodrome

On part of Aerodrome, Based on the type of aircraft operating (CAT - E) at TIACAO, Firefighting service category is not maintained. RESA (Runway End Safety Areas) at Kathmandu is not in accordance to ICAO Annex. ICAO Bird Strike Information System (IBIS) has not been implemented. Emergency operation centre is not facilitated. No issuance of guidance materials and procedures to aerodrome operators was found.

Nepal had provided an action plan to ICAO, addressing the USOAP findings and recommendations (F&Rs) and outlining specific actions and deadlines for the correction of the deficiencies identified. On 19 January 2012, Nepal signed a Memorandum of Understanding (MOU) with ICAO regarding the USOAP CMA, also agreed to an ICVM, which was concluded from 10-16 July 2013. This evaluated the status of implementation of the latest corrective action plan of the state on the USOAP F&Rs.

The USOAP audit of the civil aviation system of Nepal of 2009 generated an overall LEI (lack of effective implementation) of 53.9 % for eight critical elements (CEs) of the state.

Nepal had categorically agreed on the report findings and acknowledged it in writing. To address those bulk of deficiencies and lapses, Nepal had proposed in each and every part its commitment of corrective action plan with the name of implementing agency (which is CAAN itself in major share with others like Department of Hydrology & Meteorology, concerned ministry, Nepal Government) and had purposed an aggressive or progressive dead line for its implementation which was certainly a very positive step toward the State's safety oversight obligation. It was encouraging to note that majority of the implementation should have been completed by the end of 2010 with very few to be completed before the end of June 2013. But, implementation part was not promising as planned or expected; this was very much challenging especially at a time of political instability creating frequent changes in the aviation leadership of the State.

As such, the ICVM of 10-16 July 2013 (which did not include Aircraft Accident and Incident Investigation) reviewed the country progress in resolving deficiencies/ issues outlined in 2009 audit findings and concluded that despite significant efforts and achievements in many areas, overall LEI was revealed as 45 % which is slightly higher than the world average, meaning Nepal's performance was lower than world average. Based on the finding of this ICVM and evidence presented by the state, the ICAO SSC validation committee confirmed an SSC (significant safety concern) that was identified by ICVM team in the area of OPS concerning the certification process for the issuance of air operator certificates to international air operators.
Further to A37-5, the council (ICAO) considered during its 195th & 197th session, a mechanism for sharing of unresolved SSCs with the public commencing in January 2014. Thus Nepal was Red Flagged in ICAO's web site

for no significant improvement on audit's SSC findings. ICAO in its (public) web site mentions that "A significant safety concern does not necessarily indicate a particular safety deficiency in the air navigation service provider, airlines (air operators), aircrafts or aerodrome but rather indicates that the state is not providing sufficient safety oversight to ensure the effective implementation of applicable ICAO standards."This fact might be the single most important reason for EU Commission to include Nepal in its safety list banning all the airlines from Nepal to operate in EU member states (of which the list comes on10 April 2014). This almost coincided with the fact of the arrival of MA60 aircraft in Nepal (on 27 April 2014) for national flag carrier-Nepal Airlines Corporation. As per the information, MA-60 aircraft received its type certificate from Civil Aviation Administration of China in 2000 and is not certified for use in USA and the European Union.

In the aftermath of this situation, Nepal has eagerly been endeavoring to address the deficiencies indicated by ICVM along with other major reforms in the aviation industry. Recently as revealed by CAAN management, it has chosen to seek expert support/advise from Asia pacific regional office by the end of this year or by early 2015 and based on the advice of the expert to invite ICAO ICVM team to assess the present status of the country so as to ask ICAO and or EU for considerations to be made on state's safety status based on our sincere efforts to strengthen the aviation safety. This will take almost 1 year for our stand to be clear or be addressed in public eyes.

Conclusion

So these situations show where exactly, we (Nepal) stand. Nepal as an ICAO Contracting State, in one hand, must always be pro-active for its obligations at home while contributing for global front, on the other shouldn't hesitate to seek support / assistance in the areas where we lack in resources like capital or expertise or technology, instead of simply postponing plans citing one or another hurdle. Once again these challenges can be converted into unique opportunities and proved as historical milestone in establishing Nepal as a country for regional model of aviation excellence. Pro-active vision & mission, along with appropriate strategies and actions are the need of the hour. CAAN as the regulator and the service provider for the Air Transportation in the country, a rare opportunity to be explored, needs more transparency and accountability for more public trust and support. "Just Culture" which has proved to be a significant tool in many parts of developed world is yet to be legally accepted by Nepal to encourage individuals and organizations to actively come up and involve in aviation safety enhancement. "Just culture" could be the major tool in micro level to complement ICAO-USOAP in Macro level for global aviation safety.
Based upon the progress of corrective actions, ICAO & other donor agencies will co-operate with Nepal. In addition, National & International aviation industry investors will decide their continuity / withdrawal of and/or future investment on their business in Nepal. More importantly growth and progress of aviation industry will largely depend on these corrective actions and so does the fate of much awaited second international airport.

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ICAO Head Office Montreal, Canada

Civil Aviation Security, Some Features of Japan

Khageshwor Aryal
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I still remember the moment when I was addressing the Closing Ceremony of Seminar on Aviation Security, 2013 at JICA Yokohama Centre in Japan. The Ceremony Hall was well decorated and looked like high level conference hall. There were high level personalities from Ministry of Land, Infrastructure and Tourism (MLIT), Japan Civil Aviation Bureau (JCAB), Aviation Security Business Centre (ASBC) and Japan International Cooperative Agency (JICA) together with the participants from eleven different countries. They welcomed and gave remarks about Seminar. In that closing ceremony I had to speak few words on behalf of the participants. Master of Ceremony Mr. Mikami Kenta called me at the Stage to deliver the speech. I stood up in front of all high level officials and participants. When I started to give speech, I remembered my country. The situation made me emotional. I made remarks on aviation security course appreciating contribution of Japanese people and their culture that made me excited. I also highlighted my home land as country of Mt. Everest, birth place of Lord Buddha, place of diverse flora and fauna by the time. All of them present at the programme congratulated me for the speech. I felt proud of it.

At about 5 o' clock in the morning on 14th January 2014, I stepped at the Narita Airport with sunrise. I have visited many countries but it was my special visit because it was a visit to the world famous country Japan. I was there to participate in Japan Government's Fellowship Programme, Seminar on Aviation Security, 2013. Japan is an island nation in the Pacific Ocean in the coast off East Asia. It is one of the developed and beautiful countries. There are more than 6800 islands with in the country. Russia, China and the republic of Korea are neighboring countries of it. Every type of transportation from bicycles to the Shinkansen (bullet train) which is the fastest trains on the earth, are available there. Road transportation, water transportation and air transportation are highly developed and advanced. Japan is a leading country in technology. There was JICA desk to receive participants from different countries. I registered my name on the Desk. They took me to JICA Yokohama Centre in Yokohama City by bus with participants of different countries. On the way I was spellbound viewing the physical development of the country. Everything on the road was so systematic. There was spacious parking with facilities, toilets, tea-coffee shop, and vending machine at every interval. Some part of the road was under sea. There were artistic and very long various types of bridges everywhere. Yokohama city was also newly built and known as port city. Most part of the training was conducted at the Training Centre. The briefing started on the same day. The centre was with full facilities like accommodation, fooding and training. There were 16 participants from 11 countries including Nepal.

First part of the training was theoretical and second part was field visit and practical. There was a programme to visit different airports at different locations. During Airport Visit, we observed the facilities and system of Narita Airport, Haneda Airport, Kansai Airport, Hiroshima Airport, Kobe Airport and Chofu airport. Japan is the land where huge construction like airports and cities in land are barely seen owing to the abundance of water. Thus, Japan has developed manmade island for such purpose. Kansai, Kobe Airport and some other airports look as if floating in the sea.

Separation of regulator and service provider is being hot issue in our country. Process for separating those two functions of Civil Aviation Authority of Nepal is moving ahead. Administration System of airport in Japan may be relevant in this regard. There are 97 airports currently operating in Japan. Among them four(4) Airport run by Corporation, twenty(20) airports run by MLIT, sixty five(65) airports run by municipality and eight(8) airport are run by ministry of defense or US Armed Force. (Source: Ministry of Land, Infrastructure and Tourism (MLIT), Japan).

Regarding aviation security, the system is quite different than in that in our country. All screeners of X-ray machines are from private sector but they have valid license. Ladies security staffs frisk male passengers also. A simple but effective liquid checker machine that can be applicable in our country drew my attention. In every airport liquid checker machines are found. Regarding cost of security equipment, different policy was adopted. Fifty percent of the total cost was borne by the user with view that airlines operators make money from the facility and rest of 50 percent of the cost was borne by the Japan Government. This policy seems quite realistic.

There was beautiful tour schedule from Haneda Airport to Kyoto Ancient city via Hiroshima. Every step was exciting and amazing. We took flight to Hiroshima Airport from Haneda Airport. The aircraft was Dream liner Boeing 787. It was also my first experience in dream liner aircraft. Then we went to Hiroshima Memorial Park. Famous cities Hiroshima and Nagashaki were destroyed on 6 August, 1945 from atomic bombing by United States. It was a strategic place from security viewpoint. The whole

city had collapsed on 8:15 am within minutes. Hiroshima is one the memorable places which reflects terrible scenario of Second World War. Inside the museum, wreckage of the world war was systematically placed in an effort to reflect view of war and scary results from it.

Later on, we set course to Kyoto City. It is an ancient city in Japan. From the early morning weather changed drastically and deteriorated. Our programme was day tour in Kyoto City. There was rain and snow fall but we started our journey with umbrella. By the time historical castle, temple and place were full of thick snow. We walked around Kyoto playing with snow, showering with rain.

For the first time I rode on bullet train (Shinkanshen). The first sector was Hiroshima to Kyoto and the second sector was Kyoto to Yokohama. It is the world's fastest train having speed 300 km per hour. It was more deluxe than Dreamliner aircraft. The snow fall was continuous that could be seen from train's window. We could see the pile of snow all over the land. All buildings and infrastructures and land were buried under the snow. It was difficult even to identify where we were. We changed from bullet train to local train at Yokohama but the rail was blocked by snow nearby our station. We got off there. But the outside environment was very bad. Heavy snowfall, rain and wind made me afraid. There was no transportation and I was almost lost where I was standing up. I was feeling difficult to be there even one more minute. At last, our coordinator succeeded in finding out local city bus. Then I took a long deep breath feeling safe. At about 8 o' clock in the evening I could reach at the Centre.

The next day I had to present action plan based on country report presented before. During the class, our instructor advised us to select one candidate to deliver speech on closing ceremony. My participant friends and Japanese officials decided that I should be the representative for the same.

From the training, I learned aviation system of Japan. We shared information about various practices of aviation security from participant's countries. On top of that, I learned laborious quality of Japanese people, honest characteristic and simplicity of them. High degree of courteousness has made them rich rather than their physical development. Their smiling faces have added beauty with neatness and cleanliness of the county. Mount Fuji, Cherry blossoms flower, rich cultures also have made Japan very famous in the world.

WINNER TEAM (FOOTBALL)

Training, Trainee and Subject-Matter

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TRAINING, Trainee and Subject-mattering is any attempt to improve current or future employee performance by increasing an employee's ability to perform through learning, usually by changing the employee's attitude or increasing his or her skill and knowledge. In other words, it is the acquisition of knowledge, skill and competencies that are related to specific useful competencies. Training has specific goals of improving one's capacities, productivity and performance.

Most of the trainings are taken as a learning process by the national and international organizations to increase their productivity. So the purpose of training is to impart knowledge, develop skill and change attitude by learning. For example, TRAINAIR PLUS programme is a key element in ICAO's strategies to achieve the training goal. The TRAINAIR PLUS programme provides its 191 member state with support for new and existing aviation training centers through the provision of technical expertise. The ICAO TRAINAIR PLUS develops and shares high quality standardized aviation training materials for the benefit of all members.

Training methods are also categorized on the basis of training, trainee and subject-matter so that employees would learn easily. Thus training methods may be adopted as per organizational needs i.e. lecture, conference, group discussion, exercise, case study, role play, workshop etc. Training is not only learning process but also determining factors of an organization to meet the target people. Each and every person or organization must focus on training, trainee and subject-matters. If three things i.e. training, trainee and subject-matter are not in accordance with the nature of an organization, whole training process will be unsuccessful. Due to training, the organization can be protected from all risks of downfall. Now-a-days, trainings are based on materials specially prepared for delivery through the use of technology-assisted program and capable of being followed in any location appropriately equipped with the required technology (ICAO, TDG-12, 2011).

The history is witness that the training was started from England in 1948 as a staff College. In England, pre-service training is provided to the civil servant from the staff College before entering the job. In France, training is provided to the civil servant from the Ecole National administration (ENA) and Center for Higher Administration Studies (CHAS). In America, there is no separate training center for the civil servant though so many famous institutions has been established as a Staff College such as Maxwell Graduate School of Citizenship and Public Affairs, Syracuse University, Harvard School of public Administration, Institute of Public Administration etc. Civil servant gets the training opportunities recommended by Hoover Commission and Civil Service commission.

In India, National Academy of Administration provides two types of training to the civil servant namely pre-service training and on the job training recommended by Indian Administration Service-IAS. In the beginning, this type of training was provided through the Indian Administration Service Training school Delhi and Indian Administration Service Staff College Simala.

In Nepal, the history of the training started from the 2013 BS with the Administration Reform Commission recommended by Tank Prasad Acharya. In 2015 BS, Institute of Public Administration was established for the civil servant to provide training opportunities. Institute of Public Administration was recognized as a Public Administration in 2017 BS and the name of the Pubic Administration was also changed into Department of Public Administration. In 2026 BS, Center for Economic Development & Administration (CEDA) was established as a training center assistance of Nepal Government, Tribhuvan University and American Ford Foundation with three parties' agreement. In 2039 BS, Nepal Administration Academy or Staff College was established as a main stream for the civil servant. Most of the administrative and management training has been conducted by the Staff College for Government and non government staff.

Training program consist of a number of courses conducted to meet a specific national or international training needs. Most of the Civil aviation Training Institutions conduct training programmes for a wide range of sector needs, some training programmes may include complimentary on-the-job training (ICAO,TDG-15, 2011).

In spite of the establishment of different types of training institutes in Nepal, Civil Aviation Academy under the Civil Aviation Authority of Nepal (CAAN) is also the main training institute for the Civil Aviation and Airlines Staffs. In 1975, Civil Aviation Training Center or present name Civil Aviation Academy was established to aid in the safe, effective, reliable and economic air transportation in Nepal. Most of the different types of professional trainings have been conducted through CAA for different services, groups and sub-groups.

In current year-2071/72, CAA has published for the first time in the history of CAAN. Now, CAA has been conducting different types of vocational and professional trainings by their own programme calendar. Induction training has also been started since 2071/72 for the newly recruited staffs such as Engineers, Administrators, and Accountants etc. New customized or on demand training will also be conducted as soon as possible such as Fire Fighting Orientation Course for all Nepalese people.

Though the number of trainings conducted by CAA is more, the aim, mission and vision of the CAAN have not been completed as yet. Trainings are taken only as a means of promotion, earning and self satisfaction. CAAN has not taken considerable benefit with the trained personnel for the organizational development.

Training is not only the learning process but also never ending process because it provides great opportunities to those who engage in the related works. Everybody has to keep on learning from womb to tomb for their living. It is true that some people will learn more and others will learn less according to their own capacity but training is compulsory subject-matter for human life as a person cannot live life systematically without proper training or learning process.

Most of the trainings are considered as medium of earning and promotion by the employees in Nepal as is also the case with Civil Aviation staffs. So it is not proper for organization and themselves. Organization cannot be successful without effort of all staffs together with the management. Therefore CAAN has to move ahead and organize such trainings that would increase the organization's productivity and make it strong in the financial and non financial sector.

A trainee is commonly known as an individual taking part in training within an organization after having jobs from Institution and organizations. There are different types of Trainees to the government and non government organization such as pre-entry trainee-before job, pre service trainee-recommended by organization, in service trainee-after job entry, general and special trainee-requirement of the organization, training of trainers-to make an instructor for delivery the training material as per evaluating the trainee's need.

Many trainees are able to take advantage of their contact network from the training program and climb the corporate ladder and become key individuals in many companies. Government and non-government organization will provide different types of training to their personnel as required organizational goals. Organization has to hire their employees as trainees who will contribute to the production of goods and service in the competitive market.

CAAN also has to select its personnel to provide training opportunities as per their contribution to the official work. CAAN has published a training directive to regulate the internal and external training for their personnel but it has not been successful properly due to intervention by the politics, management and trade union. These types of irregularities should not be allowed to enter into the organization. CAAN is being smoothly run as public Enterprises in Nepal and its revenue has also contributed to the Nepal Government. Tourism sector has been growing by virtue of Civil Aviation service due to which employment opportunity has also increased. CAAN service is not only high tech and worldwide but also dignified. So policy or decision maker has to be sincere to maintain its dignity or importance.

A subject-matter is chosen when developing materials about a topic as per the training-necessity. Subject-matters are interrelated with training and trainee of the organization. When a fresh or new comer candidate enters the job, organization trains that person as a trainee so that better competencies and performances can be extracted out. In the organization, training should be provided as an opportunity to the trainee on the basis of his capacities, working efficiency and contribution in the organization. Obviously, training is provided to the trainee in accordance to the organizational needs taking into consideration the overall result it would yield in keeping the balance in their administrative and managerial environment.

Subject-matter can play significant role in the training and trainee due to its dignity. A significant number of companies have failed as a result of not selecting the suitable subject-matter. When assessing applicants at the training institute, not only the individual subject-matter but also the combination of subject, training and trainees should be taken into account. Suitable subject matter is the beginning of positive results a trainee will deliver in the actual workfield.

Subject-Matter-Experts have to be competent regarding the training based material so that training would be accomplished successfully. When combination of training, trainee and subject-matter are consistent with the organizational goal, all missions or vision of training will be successful as required. Subject-matter-expert is a highly experienced person in a given operational field who can provide authoritative technical inputs during course development. Thus contribution can be via discussions, interviewers, or working alongside the Course Developers. Creative Subject-Matter-Experts can make excellent Course Developers after training in the TRAINAIR PLUS methodology (ICAO, TDG-15, 2011) .

Training Course has to be designed by any self- contained, material dependent, validated standardized training package. In general terms, a course can be considered to be a coherent sequence of training activities concerning a specific job (e.g. Basic Aerodrome Rescue and Fire Fighting Course (Basic-ARFF) leading to a common goal. Thus type of course should also be designed by training specialist who has completed the Training

Developer Course and who has the proven skill to carry out the training package. Course Designer should become a creative mind so that course delivery will be handled by the regular instruction.

An instructor who has completed formal training in instructional techniques and who has responsibility to deliver a subject-matter to trainees on the basis of designed courses should be involved in training. The essential for instructors are the ability to motivate the trainees, master of the subject, training environment, training materials or aids and class room and so on.

Conclusion

Training institute should be ensuring that the preparation of training material is such that training program will be effective in the training for the trainee. It should also justify the need for resources for training development. The required resources should be available when needed and used effectively as per organizational goal. Bottleneck situation should be identified and appropriate corrective action should be taken so that the goal of the institution will be accomplished.

There is no need of personal interest and pressure to change the good attitude so that training institute will be conducted their training program without hesitation. It should also be identified that what exactly is the problem of companies and what training is expected to solve by the training. So the actions to be taken by management to develop solutions through training solution and the process of ensuring the effectiveness of its training material should be based on the systematic analysis of job and its component tasks.

Organizational management should realize that each form is not only useful during analysis but will also be used in preparation of training. Any organized operation can be considered to be a system, a set of interrelated elements, to achieve a common goal. Thus types of citation will provide a convenient means for analyzing the organization and defining performance problems accurately. All training institutions such as Civil Aviation Academy must consider the inputs-process-output-feedback cycle to accomplish the object of training, trainee and subject-matter.

FIRE EMERGENCY EXERCISE

The Main motto of Aviation Service is Safe, regular and efficient flow of air traffic.

Turbulence and Its Effect in Flying

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Turbulence is air movement that normally cannot be seen. It may occur when the sky appears to be clear and can occur unexpectedly. It can be created by any number of different conditions, including atmospheric pressures, jet stream, mountain waves, cold or warm founts or thunderstorms.

Different intensity of turbulent and crew communications.

Light Turbulence
Briefly causes slight erratic changes in altitude and attitude, causing slightrapid somewhat rhythmic bumpiness without noticeable changes in altitude or attitude.

Occupants of the aircraft may feel a slight strain against seat helps. During tea/coffee service, it can be shaking but doesn't splash out of cups, carts can be manoeuvred.

Response
Seat belt sign shall be on. Pilot in command or designated crew member shall notify to cabin crew including the effect and expected during it. The cabin crew shall make standard public address (PA) announcement and shall perform visual check of seats belts of passengers,

Level of compliance
discourage movement about the cabin. Cabin crew shall visually check to ensure passengers are seated with seat belt fastened. Make second announcement if necessary service can be continued with caution.

Moderate turbulence
Similar to light turbulence, but has greater intensity. Changeinaltitude/attitude occurs. Aircraft remains in control and variations indicates in indicated air speed causing rapid bumps or jolts without obvious changes in altitude or attitude. Occupants of the aircraft feel definite straining against seat belts. Service may be difficult.

Response
Seat belt sign shall be on. Pilot in command or designated crew shall make PA announcement requesting passengers to return to seats and ensure all seats belts are fastened and notify to cabin crew that moderate turbulence is in effect and its expected duration. It shall ensure that the cockpit PA is clearly heard in the cabin.

Level of compliance
Cabin crew shall visually check passenger seat belts, reinforce with additional PA as required. Service shall be discontinued and cabin crew shall sit down and fasten seat belts.

Severe Turbulence
Large and abrupt changes in altitude/attitude. Large variation occurs inindicated airspeed. Aircraft may be temporarily out of control. Occupants of the aircraft are forced violently against seat belts. Service and walking in the cabin becomes impossible.

Response
Seat belt sign shall be on. Pilot in command or designated crew shall make PA announcement instructing passengers and cabin crew to be seated, followed by interphone to cabin crew instructing cabin crew to sit down immediately and secure nearest seat belts.

Level of compliance
Cabin crew shall not attempt cabin walk through. Make PA announcement as necessary for passenger seat belts compliance. Remain seated until advised by cockpit crew or when seat belt sign is turned off.

Clear Air Turbulence

Clear air turbulence normally known as CAT which has several notable problems. Main features of CAT are as follows.

1. It cannot always be foreseen so there is no warning.
2. It is usually felt at its mildest in the flight deck and is generally more severe in the aft section of the aircraft.
3. Aircraft weather radars can't detect it.
4. It is common at high altitude, where cruising airline suddenly enter turbulent area.

Causes of Cat Are Mainly

1. Thermals – Sun heat makes warm air masses rise and cold ones sink.

2. Jet streams - Fast, high-altitude air currents shift, the air nearby.

3. Mountains - Air passes over mountains and causes turbulence as it flows above the air on the other side.

4. Wake turbulence - Near the ground a passing plane or helicopter sets up small, chaotic air currents, or

Microbursts - A Storm Or A Passing Aircraft Stirs Up A Strong Downdraft Close To The Ground.

Turbulence is the leading cause of injury in on fatal accidents.

1. Studies and industry records show that, in non-fatal accidents, inflight turbulence is the leading cause of serious and minor injuries to passenger and cabin crew.

2. The reports indicate that injured passengers were not wearing seat belts at the time of injury. The majority of reported injuries occurred while the seat belts sign was turned on.

3. Clear-air turbulence, often are unexpected and sudden in its onset, also accounts for a significant number of injuries. In reports of such cases, the seat belt sign was frequently not illuminated when turbulence occurred.

4. Cabin Crew injury is a significant safety issue. Injury to cabin crew presents special concerns. As the most important safety resource in the cabin of an aircraft, their safety is essential to ensure they are able to respond to emergency situations. Cabin crews normally are frequently engaged in service or safety related duties while seat belt sign is illuminated.

5. Airlines Industry voluntary actions to improve seat belt use are seen as key to injury reduction. It is identified areas for voluntary action to improve passenger seat belt compliance when seat belt signs are illuminated and emphasized seat belt use at all times while seated.

Turbulence is the leading cause of in-flight injuries. There are countless reports of occupants who were seriously injured while moving about the passenger cabin when clear air turbulence is encountered.

Solutions

1. Turbulence encounters should be recognized as potentially hazardous by all.

2. Passengers should be educated.

3. Crew members maintain a state of readiness.

4. SOP (Standard Operating Procedures) authorize and encourage decisions to avoid.

5. Speed dissemination of reported turbulence to other aircraft.

6. Regular pre-flight, in flight weather, upper wind, significant weather briefing system to flight crew by the airlines shall be maintained as guided by ICAO, Annex-3.

BAJURA AIRPORT

Aviation Environment in Nepal: Legal Provisions

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Background

Environment Protection is one of the three adopted strategic objectives of ICAO Council. In this regard, ICAO has been taking seriously the challenge of improving the environmental performance of aviation. In 2004, ICAO adopted three major environmental goals, to:

a. limit or reduce the number of people affected by significant aircraft noise;
b. limit or reduce the impact of aviation emissions on local air quality; and
c. limit or reduce the impact of aviation greenhouse gas emissions (GHG) on the global climate.

International Protocols and Standards

Airports are regulated in accordance with ICAO standards including safety related issues. States shall establish a State safety programme, in order to achieve an acceptable level of safety in civil aviation (ICAO 2001). Nepal, a signatory (29 June 1960) to the Chicago Convention 1947 and the Convention of Montreal of 1999, is obliged for the formulation and development of various legal instruments of international civil aviation in harmonization with the international norms and standards (ICAO 2012). It is, therefore, expected that Nepal ratifies/accedes to such international instruments.

Kyoto Protocol, 1997

The Kyoto Protocol linked to the UNFCCC aims to stabilize greenhouse gases in the atmosphere and distinguishes in its legal bindings between developed and developing nations. Moreover, the 36th Session of the Assembly underscored the need for ICAO and the aviation community to continue to cooperate with United Nations organizations involved in policy-making on global climate, the UNFCCC. At COP 3 in 1997, Parties adopted the Kyoto Protocol, which in Article 2.2 states that Annex I Parties are to pursue limitation or reduction of GHG emissions from aviation and marine bunker fuels, working through the ICAO and the IMO, respectively.

UNFCCC and ICAO Thirty Fourth Session, 2011

As a specialized UN agency responsible for international aviation matters, ICAO has been working actively towards developing global solutions to address GHG emissions from international aviation. The ICAO Assembly Resolution A37-19 is a clear demonstration of the willingness of ICAO and its member States to take concrete steps towards addressing CO_2 emissions from international aviation. This submission (ICAO) describes the main outcome from the 37th Session of the ICAO Assembly on international aviation and climate change, and further progress being achieved on actions requested by the Assembly in four key areas: 1) States' action plans and assistance to States, 2) sustainable alternative fuels for aviation, 3) market-based measures, and 4) global aspirational goals. ICAO's positions and perspectives to the work related to Green Climate Fund are also presented.

ICAO ANNEX 16, 2008

Internationally binding environmental standards for aircrafts are delineated in Annex 16 to the Convention on International Aviation volume II. Annex 16 consists of Volume I and II, dealing with aircraft noise and aircraft engine emissions, respectively.

Aircraft shall be so designed and constructed as to prevent the intentional discharge into the atmosphere of liquid fuel from the fuel nozzle manifolds resulting from the process of engine shutdown following normal flight or ground operations (Part II Chapter 2 of Annex 16, Volume II). Emissions certification shall be granted by the certificating authority on the basis of satisfactory evidence that the engine complies with requirements which are at least equal to the stringency of the provisions of Volume II of this Annex (Part III Chapter 1 of Annex 16 Volume II).

National Legal Provisions

Some of the aviation related environment legal instruments are briefly described in the following sub headings below:

Interim Constitution of Nepal, 2063 BS (2006)

The Interim Constitution of Nepal has prioritized the human rights and protection of environment by mentioning in the Article of the constitution. Article 16 (1) of the Interim Constitution asserts that every person shall have the right to live in a healthy environment. Similarly, Article 35 (5) asserts that the State shall make such arrangements as may be required to keep the environment clean. The State shall give priority to the prevention of adverse impacts in the environment from physical development activities, by increasing the awareness of the general public about environmental cleanliness.

Environment Protection Act, 2053 BS (1997) and Environment Protection Rules, 2054 BS (1997)

Nepal has enacted a comprehensive and umbrella type environmental act, the Environment Protection Act (EPA) 1997, and followed by Environmental Protection Regulation 1997 and as amended (1999, 2007, 2009 and 2010) which is now enforced through appropriate regulatory measures. Section 3 of the Act requires the proponent to conduct an IEE and EIA in relation to the prescribed proposals. Section 4 of the Act prohibits implementation of development proposals without prior approval of the concerned agencies or Ministry of Environment (MoSTE) as specified by the Act. Section 5 of the Act provides that all the IEE / EIA of the development proposals should be presented to the concerned agencies for approval. Under section 7 of the Act, industries or any others development projects owners are required not to discharge, emit or dispose waste, sound, radiation or any such acts which will cause pollution or to allow pollution to be caused in a manner which is likely to have significant adverse impacts on the environment or to harm human life or public health. Rule 12 of EPR stipulates that the proponent is obliged to follow the terms of conditions set by concerned agencies or MoSTE in the approval letter during project implementation and operation. Rule 13 provides that the concerned agency to be responsible for the project monitoring. In case of aviation sector,

- Extension of the areas of the existing airports requires Initial Environment Examination (IEE).
- Establishment and development of new airports requires Environmental Impact Assessment (EIA).

Relevant Legal Practices

Civil Aviation Act, 1956

in pursuant to clause 3 of the act Government of Nepal may frame rules to implement the purpose of act. GoN may also frame rules for environmental protection regarding control of aircraft noise and emission as well as environmental pollution caused by the operation of aircraft.

Civil Aviation Authority of Nepal Act, 2053 BS (1996)

Among various functions, duties and powers of CAAN pursuant to clause 5 of the act, one is to control the sound of aircraft and to restrict pollution in the air and the environment to be caused by the operation of aircraft.

Civil Aviation Rules, 2058 BS (2002)

in pursuant to clause 78 makes some provisions for environmental pollution regarding to solid waste management and airfield operation pollution. Besides, it entails that nobody shall fly or operate beyond the pollution tolerance limit as prescribed by the CAAN, to make minimum effect of pollution in cultural heritage, airspace and environment whereof the authority may determine different fees from time to time to each landing and takeoff for the sustainable environment in the airport. The boundary range of three kilometres is set for the airport vicinity at which no person shall allow to store and dump solid wastes openly around.

NOC, Petroleum Products Quality Control Regulation, 2064 BS (2008)

The activities regarding ATF quality control will be conducted as determined by an accredited Aviation Quality Control and Aviation Operation Manual. The cleaning and operation of storage tanks and refuellers should be conducted as determined by the accredited Aviation Quality Control and Aviation Operation Manual.

CAAN Airport Service Charge Regulation, 2067 BS (2011)

As per the regulation, CAAN can charge on sales of Aviation Turbine Fuel as per the rates mentioned in the annex 6 of the regulation. There are 22 headings under which CAAN generates revenue from aeronautical and non-aeronautical incomes.

Conclusion and Recommendations

There should initiations for the issuance the regulations, manuals/directives regarding aviation environment and efforts to educate all the stakeholders concerned to avoid/minimize the impacts. Some of the recommended steps are:

- Noise monitoring and emission inventory preparation should be initiated.
- Environment Management department/unit should be established.
- Studies/Researches and discussions regarding the aviation environmental issues should be motivated and given priority.

State of Air Transport 2014

1. Introduction

Maheswor Bhakta Shrestha
Dy. Team Leader, Capacity Development of CAAN

Air transport industry, that started a century ago, has played a major role in world economic activity. The demand for air travel, expected to reach 3.3 billion passengers in 2014, has helped transform economic opportunities for millions of people. Growing connectivity stimulates economies. And healthy economies demand greater connectivity. It's a virtuous circle.

Nepal has six decades long civil aviation history, although an aircraft was first seen in Nepalese sky in 1947. Due to the mountainous topography and located over 500 kilometers away from the nearest sea, the people of Nepal rely very much on the provision of air transport to enjoy the freedom of movement as a gift of democracy. No wonder, many of the Nepalese living as close as Pokhara valley saw an airplane before they could ride a bike or any motor vehicle. Some 6 million air passengers travelled to/ from and within Nepal in 2013 and the number is increasing every year. Aviation's ability to drive growth and generate jobs is well recognized.

2. Economic Benefits of Air Transport

Aviation's global connectivity now spans 16,161 city-pairs, which is nearly double the number in 1994. Air transport is set to generate even more economic growth, employment, and cultural and educational opportunities. Air transport is adding value for consumers, to the wider economy and to governments:

- Aviation provides the only worldwide transportation system which makes it essential for global business and tourism,
- Aviation transports more than 3.3 billion people annually and 35% of inter-regional exports of goods by value,
- Over 40% of international tourists travel by air,
- Employment supported by aviation has reached some 58 million jobs worldwide and $2.4 trillion in economic activity globally. "In 20 years' time we can expect aviation to be supporting around 105 million jobs and $6 trillion in GDP," said Tony Tyler of IATA.
- The first century of air travel has taken 65 billion passengers to the sky. The next 65 billion will fly in just the next 20 years," added Tyler.
- Aviation is a catalyst for economic growth. Airline revenues now total 1% of global GDP as airlines will transport 3.3 billion people and $6.8 trillion worth of goods this year.
- The industry will facilitate $621 billion in tourism spending.
- Airlines expect to earn a net profit of $18.0 billion in 2014, up from 6.1 billion in 2012 and $10.6 billion last year. The current profit forecast is built on expected global GDP growth in 2014 of 2.8% and growth in world trade of 3.6%.
- In spite of only 5.4% return on investment, airlines are making investment worth some $150 billion for 1,400 new fuel-efficient aircraft this year to improve 1.7% in fuel efficiency.

Aviation globally supports $3.5 trillion in economic activity and 33 million jobs. In the US, that means $1.2 trillion dollars a year – over 5 percent of the US GDP – and more than 10 million jobs. Aviation acts as a catalyst for economic growth in China - and elsewhere across the region. Governments in Singapore and South Korea have built strong economies on global connectivity. The expansion that we are seeing in the Middle East is the result of a similar strategic approach.

3. Social Benefits of Air Transport

Innovation made aviation safer, greener and more efficient. And aviation made the world better— with connectivity driving both economic and social progress.

- Aviation broadens people's leisure and cultural experiences via wide choice / affordable access to destinations across the globe,
- Improves living standards and alleviates pov erty through tourism,
- Only means of transportation to remote areas promoting social inclusion,
- Contributes to sustainable development by:
  - Facilitating tourism and trade
  - Generating economic growth

- o Creating jobs
- o Increasing tax revenue
- o Fosters the conservation of protected areas

❖ Facilitates the delivery of emergency, humanitarian and relief materials

❖ Swift delivery of medical supplies, organs for transplantation, life saving rescue.

Air Transport Efficiency

✓ Airlines occupancy rates of 80.4% expected in 2014 (from 76% in 2006) is better than those of road and rail.

✓ Air transport entirely covers its infrastructure costs,

➢ The world airlines are a net contributor to national treasury through taxation worth $121 billion in 2014, up from $113 in 2013.

➢ Modern aircrafts achieve fuel efficiency; expect to improve 1.7% in 2014 per ATK (1.9% per RTK) driven by 1,400 new fuel-efficient aircraft replacing old ones.

➢ Airfares, after adjusting for inflation and before surcharges and taxes, are expected to fall by 3.5% in 2014 compared with the previous year.

➢ Real freight rates are expected to fall by 4.0% this year. Airlines are working towards reducing shipping times by 48 hours from the current average of 6.5 days before 2020.

➢ Overall passenger growth is expected at3.3 billion in 2014 (5.9% up over 2013)

➢ Employees are extremely productive, generat ing gross value added (company level equiva lent to GDP) of $100,540 per employee while the unit labor cost is $58.580.

4 Air Traffic Forecast

a) Global Scenario

ICAO's Traffic and Market Outlook indicates that world travel in terms of RPKs (revenue passenger kilometers) has grown by 5% year after year since 1980.

The aviation industry continually adapts to market forces. The main forces are fuel prices, economic growth & development, environmental regulations, infrastructure, market liberalization, airplane capabilities, other modes of transport, business models, and emerging markets. Fuel is now the largest component of airline cost structure. This fact has spurred manufacturers to produce more fuel- efficient airplanes, and encourage airlines to optimize other cost and revenue centers to maintain profitability in the face of high fuel prices. Otherkey drivers of growth in air travel demand are Gross domestic product (GDP), Population, Labor force composition, International trade (as a share of GDP), new technology, Quality of service (e.g. new nonstop city pairs, greater frequencies), Travel attractiveness, Industry competitiveness, Openness of air services and domestic airline regulation.

Airports Council International has analyzed world passenger traffic growth since 2005. There is a gradual decline in annual growth rates since 2007, when the growth was 5.7%, which gradually declined in subsequent years to 4.6% in 2010, when passenger number reached 5.2 billion. Theyexpect world air passenger number to reach 6.4 billion in 2015 and to cross 9 billion by 2025. This indicates the future growth projection of 4% per annum till 2015 and 3.6% per annum during 2015 to 20125.

Airbus' global market forecast for 2013-2032 anticipates air passenger traffic to grow at about 4.7% annually and will double in 15 years.

Economic growth, as measured by gross domestic product (GDP), is a primary contributor to aviation industry growth. Boeing Company forecast global GDP to rise 3.2 percent over the next 20 years, which will drive passenger traffic to grow 5.0 percent annually and cargo traffic to grow 4.7 percent annually till 2033. Trends in passenger traffic growth are similar to those of GDP.

World passenger traffic in terms of RPK (revenue passenger kms.) increased by 4.9% to 5.4 trillion RPKs in 2012. It is expected to increase by 4.8, 5.9 and 6.3 % in

2013, 2014 and 2015, respectively, according to ICAO.

Asia/Pacific is the largest market of all the six ICAO regions with 30 per cent of world traffic with 1,633 billions RPKs. The airlines of this Region posted last year a 6.4 per cent increase over 2011.

Emerging markets will grow faster than established markets. Traffic in Asia Pacific region is growing faster at 6.3 percent, (China at 6.6%), the Middle East at 6.4 percent, while Europe and North America markets will be below the trend at 3.9 percent and 2.9 percent respectively.

Passenger traffic within China will be the largest travel market, expected to grow at 6.9 percent annually. Traffic to and from Middle East and Asia Pacific (excluding China), and within Latin America will be among the fastest to grow.

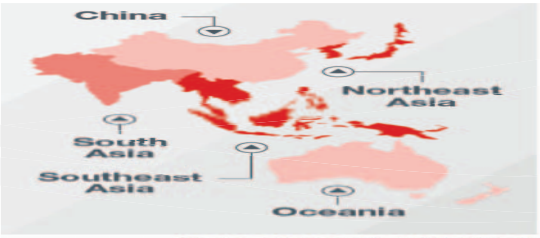
IATA released its first 20-year passenger growth forecast, projecting that passenger numbers are expected to reach 7.3 billion by 2034. That represents a 4.1% average annual growth in demand for air connectivity that will result in more than a doubling of the 3.3 billion passengers expected to travel this year.

Air Cargo Forecast: Boeing predicts global air cargo traffic will double within 20 years, enjoying annual growth of 4.7% per annum as international trade picks up after a long period of stagnation. In 2014, cargo traffic has grown 4.4% from January to July. There is strong sign of a recovery as airfreight traffic continues to strengthen after several years of stagnation. The Boeing report resented in its biennial World Air Cargo Forecast released at an industry expo in Seoul recently predicted cargo traffic between Asian and North America, as well as Asia and Europe would continue to dominate the market, although the fastest growth would be in intra-Asian and China domestic volumes.

World air cargo market (FTK) declined in 2012 by -1.1% over 2011. ICAO forecast world schedule freight to grow at an average annual rate of 5.3% over the next 20 years.

b) Asia Pacific

From China and India to Philippines and Indonesia, the fast growing middle class are looking to spend their cash by spreading their wings, leading to a boom in Asia-Pacific region's tourism sector. International tourism arrivals in Asia Pacific grew an annual 6% to 248 million last year, the strongest of any region worldwide, according to UN World Tourism Organizaion.



Asia Pacific economies continue to have strong growth. In 2013, regional GDP rose 4.8 percent, driven both by the region's fast-growing emerging economies and recovery from the global recession of the mature economies. Passenger traffic grew 3.9 percent, slightly faster than capacity growth at 3.7 percent. Despite high oil prices and fluctuating currency valuations, Asia Pacific airlines are estimated to have earned a net profit of $3.0 billion in 2013 and are forecast to earn $3.7 billion in 2014.

The structure of the Asia Pacific airline industry is changing as regulations liberalize and carriers expand beyond national boundaries. The air travel will grow as low-cost carriers (LCC) reduce fares and open new markets following liberalization. Improved affordability and accessibility will stimulate demand for air travel in established markets and meet the emerging travel needs of the growing middle class. IATA has reported passenger traffic growth of 6.8% in Asia Pacific region during January- July 2014 relative to 5.8% growth in total market.

Continued economic growth is expected in the region over the next 20 years, with GDP averaging 4.4 percent growth annually, Asia Pacific is set to become the largest air travel market in the world. In 2033, about 48 percent of global traffic will be to, from, or within the Asia Pacific region. More than 100 million new passengers are projected to enter the market annually.

Air cargo also plays a crucial role, transporting goods over difficult terrain and vast stretches of ocean. The region's air cargo is forecast to grow 5.5 percent per year.

c) SOUTH ASIA

South Asian air travel is expected to grow 8.6 percent per year over the next 20 years, as per the Boeing's economic forecast. Domestic, regional, and interregional travel to the Middle East and Southeast Asia will be the largest flows.

South Asia's demographics are favorable to air transportation growth. The region's population totaled 1.6 billion in 2013, and a growing share of this population is entering the workforce. The region's real GDP is forecast to grow an average 6.5 percent per year through 2033.

d) INDIA

The 2014 election result raised optimism in India's economy. If current economic policy liberalization, market reform, and investment trends continue, India's economy is projected to become the world's fourth largest. Reform of foreign direct investment rules in 2012 allowed foreign airlines to acquire up to 49 percent of an Indian airline. Abu Dhabi's Etihad Airways promptly acquired 24 percent of Jet Airways.

Air India joined Star Alliance in June 2014 and the increased global connectivity could boost Air India's

revenue by 5 to 6 percent.Tata Group also moved swiftly to partner with foreign airlines: Air Asia and SIA. Both links are structured as joint ventures. Air Asia started India operations in June 2014; the venture with SIA, named Vistara, is expected to launch in the near future.

Indian Civil Aviation recently eased regulation of the Indian aviation market. A new startup airline (Air Costa) was approved in 2013 and several new operators gained Air Operators Permits and No Objection Certificates in 2014.Also helpful is the expansion in 2014 of the visa-on-arrival program from 11 countries to 180, offering 30-day visas at 26 ports of entry. Taxation reforms are under consideration, including rationalization of aviation fuel taxes, reduction of taxes on maintenance, repair and overhaul, and reduction of duties on engine spare parts.

India's air travel market has expanded at fast speed and looks set to continue to swell as the fast growing middle class spends its money. Air travel penetration in India still small in global terms, with 0.07 annual trip per capita against0.3 in China and 2.49 in United States. High disposable income, an expanding middle-class and rapid urbanization has made India one of the world's fastest growing aviation markets, where passenger numbers are expected to grow more than 75% in the next 6 years to exceed 217 million. International Monetary Fund expects India's GDP growth at 5.6% in 2014 and 6.4% in 2015. So, there is huge latent demand for air travel.

e) Nepal's Airline Market

Nepal's economy and tourism business is picking up after the Peace Accord of 2006 and the subsequent elections of 2008 and 2013, which have improved the political stability ensuring investor's confidence, attracting foreign direct investment in hydro projects, hotels, airlines, airports, highways etc. In the past 44 years, population has increased 2.5 times, GDP by 20 times in USD terms and GDP per capita to US$ 730 from $ 79 in 2070.

Nepal is considered a virgin land for investment in areas where there is comparative advantage like energy, aviation, tourism and agriculture sectors. Since it is difficult for banks in Nepal to make a huge investment, foreign investment companies like Dolma Fund of UK, Proparco Group- a French Development Financial institution, International Finance Corporation (IFC), European Investment Bank and others are helping private sector investments, while Asian Development Bank, EU, World Bank, OPEC fund and others are helping the public sector in funding the infrastructure development in Nepal.

Economic Status of Nepa

Particulars	Basis	1970	2014
Papulation	Million	11	27.8
GDP	Billion $	1	20
GDP/Capita	US$	79	730 Nepal's

Some major infrastructure projects influencing air travel & tourism growth in Nepal are:

- Super highways like Kathmandu- Tarai Fast Track (1 to 1.4 billion), Tunnel Road to Hetauda Rs35 billion),
- International regional airports at Bhairawa ($97 m)& Pokhara ($245m), and Second International Airport (SIA) at Nijghad Bara ($600m),
- 900 MW Upper Karnali Hydro with GMR (1.4b), Upper Tamakoshi III, Pancheswor, Upper Marshyangdi, Rs.104 billion Arun III 900MW with Sutlaj ($1.4b), Rs.10.2 billion Kaveli A project to be funded by IFC and other hydro power projects,
- $400 million FDI by Reliance group in cement factory,
- International chain hotel projects in Kathmandu, like 221 rooms five star deluxe Marriot international in Naxal, 108 rooms 10 storied Fairfield in Thamel, 208 rooms Sheraton Kathmandu in Kantipath, 175 deluxe rooms Alaft Kathmandu Thamel Starwood hotel at Chhayadevi complex etc. are strong positive factors for tourism promotion.

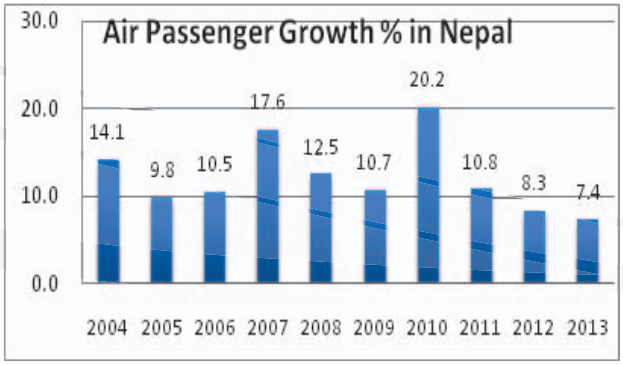
As these projects materialize within few years, there will be enormous demand for air travel and the need for direct air links to main tourism generating countries.

The government of Nepal has committed to create an investment friendly political as well as legal ambience in the country. Consequently, Malaysian government has shown interest in the expansion and modernization of Kathmandu's Tribhuvan International Airport, Kathmandu- Tarai Fast track road and second international airport at Nijgadh, Bara, which is said to be a milestone for the tourism sector development in Nepal.

5. Size of Airline Market in Nepal

a) Size & Growth Rates

Nepal's air travel market is growing fast. During the last



decade to 2013, international airline passenger traffic in Nepal has increased 2.75 time, from 1.14 million in 2004 to 3.14 million passengers in 2013. This indicates the robust double- digit growth of 11.9% per annum. In recent years, the rate of growth has declined to around 7.4%, thus indicating the need for a concerted effort by the airlines of Nepal to open new markets and uplift the growth rates.

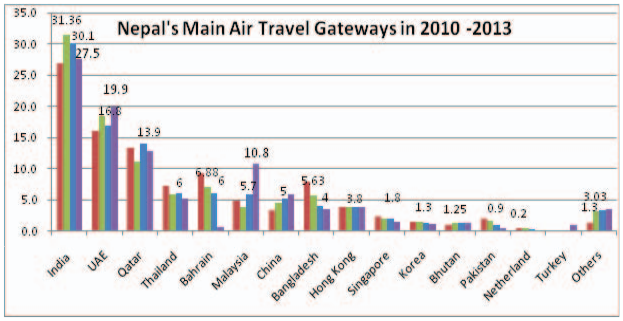
In the air cargo front, the throughput at Tribhuvan International Airport (TIA) has increased from 12,802 tons to 17,498 tons in 2013, with a 3.5% average annual growth rate.

b) Present Route Traffic

Until June 2014, Civil Aviation Authority has issued air operator certificates to46 airlines including 5 Nepali airlines to operate international flights from and to Nepal. In 2014 (summer and winter schedule) some 25 airlinesare connecting Kathmandu to 23 cities in Asia and Europe as presented in the accompanying map.These 25 airlinesperformed an average of 275 flights per week during summer schedule and 279 flights in winter schedule effective from 26 October 2014, thereby producing some 52,000 air seats and 1,045 toms of cargo capacity per week.

Nepal's main air travel gateways in the past 4 years till 2013, in terms of passenger movement, are India, UAE, Qatar, Thailand, Bahrain, Malaysia, China, Bangladesh, Hong Kong, Singapore, Korea, Bhutan, Pakistan, the Netherlands, Turkey and others (chart below):

About one third of the 3.14 million passengers to and from Nepal traveled via India (mainly Delhi), followed by UAE, Qatar, Thailand, Malaysia etc. In 2013, the share of India declined to 27.5%, while that of UAE and Malaysia increased to 19.9% and 10.8% respectively. Similarly, the share of Thailand, Bahrain, Bangladesh and Pakistan gateways are declining progressively. New airlines from Malaysia and Turkey are making inroads in the airline market share.



The top 10 routes that carry about 80% of passenger to/ from Nepal are listed below. Delhi is the single largest route carrying 24.4% of traffic, followed by Doha (12%), Bangkok (7.1%), Sharjah (6.6%), Bahrain (6.5%), Dubai (5.9%), Abu Dhabi (4.5%), Kuala Lumpur (4.2%), Dhaka (4%) etc.

Top 10 Air Travel Gateways from Nepal

SN.	Route/ Passenger	2013	Share	2011	Share
1	Delhi	766,961	24.4	724,314	26.8
2	Doha	376,299	12.0	267,248	9.9
3	Bangkok	221,438	7.1	176,793	6.5
4	Sharjah	205,935	6.6	193,309	7.2
5	Bahrain	204,985	6.5	186,338	6.9
6	Dubai	184,334	5.9	191,445	7.1
7	Abu Dhabi	140,129	4.5	123,555	4.6
8	Kuala Lumpur	132,992	4.2	74,236	2.7
9	Dhaka	124,396	4.0	141,795	5.2
10	Hong Kong	112,679	3.6	107,307	3.9
	Sub Total	2,470,148	78.7	2186,340	80.97
	Others	670,154	21.3	513,687	19.1
	Total	3140,302	100.0	2,700,027	100

In 2013, some 26 international airlines, including 2 from Nepal, served Kathmandu's Tribhuvan International Airport (TIA), connecting 23 destinations/ routes abroad. Among them the top 10 international routes are Delhi, Doha, Bangkok, Sharjah, Bahrain, Dubai, Abu Dhabi, Kuala Lumpur, Dhaka and Hong Kong.

Declining Foreign Component: The increasing number of Nepalese travelers abroad and the slow growth of foreign tourists arriving in Nepal has rendered the proportion of foreign travelers declining in the overall air passenger volume. The foreign component was more than half of total air passengers, but it gradually declined to 46.6% in 2007 and only 39.4% in 2013.

6. Some Issues in Air Transport

a) Environment

Air travel has an environmental impact, and the industry is committed to reducing its carbon footprint. In 2009, the industry agreed to 1.5% annual fuel efficiency improvement to 2020.

Airlines' environmental performance continues to improve. They expect to use 271 billion liters of fuel in 2014 and emit 722 million tonnes of carbon. Fuel efficiency is expected to improve 1.7% in 2014 per ATK (and 1.9% per RTK) driven by 1,400 new fuel-efficient aircraft replacing the old ones.

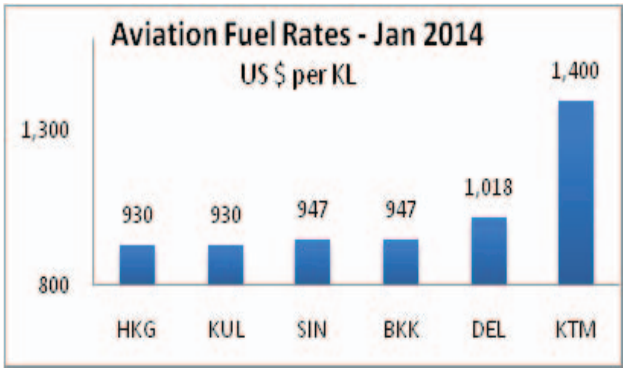
Airline industry is working hard to address the 2% of global man-made emissions that it produces. Airlines, airports, air navigation service providers and manufacturers have made commitments to improve fuel efficiency, cap net emissions and cut net emission by half by 2050 compared to 2005.

b) Aviation Fuel Price

Oil prices at $120 per barrel remain high for the third year in a row and are a potential impediment to air transport growth. Aviation stakeholders should continue to improve fuel efficiency by deploying more

fuel efficient aeroplanes and engines, raising load factors on flights or improving operational efficiencies. Fuel bill is now the single largest component of airline cost, despite improving fuel efficiency of new technology jets.

Aviation fuel bonded rate at Kathmandu is one of the highest in the South East Asia region, due to high government taxation. So, the airlines based at Kathmandu have the least competitive advantage and the airfare from Kathmandu tends to be relatively higher in the region. In order to promote aviation as an essential means of transport, tourism and trade promotion in the landlocked situation of Nepal, the government has to recognize the socio-economic value the aviation and lessen the burden of taxation to this industry.



Aviation fuel rate for domestic airlines in Nepal is still higher with duty paid, causing the biggest worry for the airlines and highest fuel surcharge for the air travellers.

c) Air Safety

Safety is the number one priority in the airline industry.Aviation had its safest year ever in 2013. And efforts continue for further improvements.

Figure 3. Global accident rate and trend, 2009-2013

ICAO reports, aviation safety has improved by 10% in 2013, with90 air accidents (9 fatal) on scheduled air services. The number of fatalities worldwide dropped to 173 fatalities, from 388 in 2012, a decrease of 53 per cent. The global accident rate has gradually decreased from 4.2 to 2.8 accidents per million schedule departures during 2011 to 2013.

Aviation safety has become a major concern in Nepal after the ICAO Coordinated Validation Mission (ICVM) pointed out deficiencies in Nepal's aviation safety oversight capabilities in 2009. Since then, Civil Aviation Authority of Nepal (CAAN) has taken several corrective measures to address the deficiencies, but the three fatal air accidents in 2010 and two each in 2011, 2012 and 2013 and one in 2014 have their grave consequences, as ICAO placed the Significant Safety Concern (SSC) tag on Nepal's aviation sector and Aviation Safety Committee of European Commission put the airlines of Nepal on its safety list since December 5, 2013.

Date	*Aircraft*	*Reg.Mark*	*Operator*	*Place*	*Fatality*
24.8.2010	DO-228	9N-AHE	Agni Air	Makwanpur	14
7.11.2010	AS 350	9N-AIX	Fishtail Air	Amadablam	2
15.12.2010	DHC-6	9N-AFX	Tara Air	Okhaldhunga	22
25.09.2011	B1900D	9N-AEK	Buddha Air	Kotdanda,	19
18.10.2011	BN2T	RAN 49	Nepal Army	Baglung	6
15.5.2012	DO 228	9N- AHA	Agni Air	Jomsom	15
28.9. 2012	DO 228	9N- AHR	Sita Air	Bhaktapur	19
19.6.2013	Heli		Fishtail Air	Humla	1
2.10.2013	Ultralite	9N-AJY	Avia Club Ne	Pokhara	2
16.2.2014	DHC-6		Nepal Airline	Arghakhanchi	18

CAAN must enhance its overall capacity to address the SSC before inviting ICAO for final audit, suggests an aviation expert hired by CAAN in November 2014. CAAN is taking measures to improve on pilot training & licensing, revalidation of air operator certificates and accident investigation. A team from EASA (European Aviation Safety Agency) is invited to provide aircraft maintenance training to domestic airlines in December 2014, while CAAN is also installing safety oversight facilitated integrated application, new EASA IT software to reorganize its process and streamline its technical tasks.

Meanwhile, a series of technical trainings have already started since November 2014 with Spanish SENASA experts to enhance the capability of safety inspectors in the analysis of ATM Safety Events and its relationship with safety management system, Audit techniques and practices in air navigation, ATM safety assessment etc. under the Capacity Development of CAAN project. More trainings are taking place to enhance the capacity of CAAN in its new structure of separating Regulatory and Service provider functions soon.

References

- IATA & ICAO reports,
- Airbus & Boeing forecasts,
- Press news reports,
- TIA Flight Ops. etc.

Terminal Management and Customer Service at TIA

Suneeta Siwakoti Bhardwaj

Sr. Fire Officer , CAAN

THE only international airport Tribhuvan International Airport (TIA) at Kathmandu connects Nepal with the countries of Europe, South Asia and East Asia. In today's context TIA deals with more than 40 international flights with at least 500 arrivals and departures daily. As the only gateway to the country of Himalayas TIA is one of the first impressions an international visitor will have and the last impression they will have when leaving. This impression should convey the better aspects and inspirations. Many tourists visit Nepal for a few days only; therefore they want to best use every travelhour. In TIA, both on arrival or departure, these tourists experience sheer lack of efficientservices in every step. Many of them have to spend an hour waiting for baggage andimmigration processing. So, airport services and immigration in the TIA have almostalways underperformed. This underperformance is a serious marketing bottleneck forNepal's tourism. So, now we need proper institutional and managerial improvement, as well as development ofprofessionalism although it has remained as a bigchallenge ever.

TIA, the only international airport was built in the early 1950s, now it welcomes approximately 500,000 international tourists annually.

Actually, it has been four decades that this infrastructure has been withstanding the day to day up growing passengers till the date.

Recently, one of the famous travel websites named Guide to Sleeping in Airports ranked the Tribhuvan International Airport as the world's third worst airport, saying that the airport resembled a "bus station in an impoverished neighborhood".

Similarly, Skytrax, which also scales air travel and airport services worldwide on the basis of customer review, also rated TIA at just 3.7 out of 10.

The airports are ranked and rated in the terms of the levels of comfort, convenience, cleanliness and customer service. As we are ranked low, it proves thatwe fail to provide all of above mentioned services to our customers.

What made our only International airport rank third worst airports in the world?

1. Unmanaged customer service.
2. Lack of sanitation.
3. Insufficient infrastructure.
4. Crowded terminals.
5. Long ques.
6. Limited seating facilities.
7. Unfriendly immigration and custom officers.
8. Bathrooms without soaps.
9. Smelly toilets.
10. Filthy smoking rooms.
11. Lack of air conditioners
12. X-ray machines and haphazard screening of baggage.

These were those determining factors in ranking TIA as the third worst airport in the world.

And now let's focus on those reasons which make any airport the best airport and here are those points upon which we are showing negligence or we are lacking to provide. We have to mark them positively as our requirements on forth coming days.

So, these are the top reasons that make the best Airports:

1. Quick and hassle free Immigration.
2. Free Wi-Fi
3. Co-coordinating and charming staffs with good spoken English.
4. Spacious and bright corridor
5. Easy and Affordable access to the main road, hotels etc.
6. Free computers
7. Medical services
8. Cleanliness, Availability of water, tissue paper and soaps in Toilet.
9. Availability of Dustbins and Ashtrays
10. Air conditioning facility.
11. Clean and shiny counters and Desks.
12. Cleanliness of floors and ceilings.
13. Fast displays and notice board services.
14. Child play rooms.
15. Adequate resting lounges and sitting facility.
16. Clean smoking areas.
17. Special facilities to cater elderly and physically challenged people.

The above mentioned reasons are the basic need of airport to be facilitated with. Along with these infrastructures there should also be the manual and daily operating procedures so that they could be applied in day to day operation for the inspection and maintenance.

Providing Quality Service at Airports

Quality service management plays a significant role to attract passengers as well as to make it world class airport. Airport provides Service not the products. Quality service does not directly come from top management; it should involve everyone. Staffs must be driven to achieve the common mission of the organization. As it is well known, each airport consists of multi-agency environment and each agency is involved directly or indirectly in extending passenger facilitation through their own business. Therefore, Customer Service Chain involves many Governments and non-Governmental Agencies. That's why Quality service management must be coordinated with every organizations / agencies working at the airports.

The quality Service is achieved when Service Delivery consistently meets and exceeds Customer Satisfaction. Quality service involves looking into Hardware (infrastructure) and software (People/service).

The following things are to be considered for providing quality service

a. Setting performance standards.
b. Passenger feed back as a source of service measurement.
c. Monitor compliments and complaints ratio from feedback.
d. Controlling and improving the quality.
e. Campaign to create awareness among all agencies.
f. Training and development.
g. Award and incentives.

Airport Terminal welcomes the passengers and transfers them between ground transportation and the facilities that allow them to board and disembark from airport. Within the terminal, passengers purchase tickets, transfer their luggage and go through security.

And so the Airport terminal Management is supposed to ensure smooth and effective functioning of Terminal Operation in general. Duty terminal Manager is responsible for managing the Terminal Operation by adopting Quality Service Management so as to meet the Users expectations. The Duty Terminal Manager should ensure the smooth processing of Arrival, Departure, transit and also needs to monitor each process and the people and agencies involved.

All service providers at Airport must emphasize on two basic things and they are FACE (Flexible, Attentive, Courteous and Efficient) and GST(Greet, Smile and Thank) behavior.

There is also a strong need to lay down very specific Performance Standards and Targets to achieve goals and targets to become World Class Airport. It is pertinent to mention here that no airport can meet Passengers Satisfaction until and unless their performance Standards are laid down and the Targets are set keeping in view the smooth terminal operation.

Only providing the quality service may not work all the time, the provided services are to be tested, measured and maintained frequently to know the productivity level of our airport operation, to know whether our service level is meeting passengers expectation or not, to indentify the problematic areas within the airport and to achieve the highest level of objective through limited resources.

Providing Customer Serviceat Airports

While safety and security are always top priorities at any airport, customer care is not far behind as dedicated public services staff tackle the needs of thousands of travelers who pass through the airport each day. For the provision of effective customer service the airport should provide public service representatives and public service booths to assist customers with questions and concerns regarding ground transportation, airline services, other inquiries and special needs. If possible, it is also good to provide interpreting and translating services for a variety of Languages in the public area of terminal.

Customer service management is one of the most essential components of the terminal operation and management. Terminal management has to look after the Customer service in addition to their day to day responsibility of terminal operation.

In actual sense, having a product and not marketing it is almost as good as not having one. Therefore the airport operators must showcase the various facilities and services of their airports to attract more passengers. The staffs deployed in the terminal management should have good communication skills so as to please even the most unsatisfied passenger/ visitor. He/ She should maintain harmonious relations with all the agencies at the airport because it is a known fact that at the airports various agencies are working like Airlines, Immigration, Customs, Security, Banks, etc. The terminal manager who has been deployed must be capable of handling all kinds of situation and crises that may occur during his shift. Apart from these, to provide the quality customer service the following points should be attended much more frequently:

a. Monitor customer feedback.
b. Address customer/visitors inquiries.
c. Provide assistance to customers/visitors.

d. Provide extra assistance to the customers/ visi tors who are physically challenged and also the customer information center and customer service counters may provide wheel chairs and strollers for them.
e. Make Flights and Public Announcement at the air port where the exigency of the situations so de mands.

Facilitating the passengers/visitors with information systems

Information is the most essential & desired part of Passenger / Visitor facilitation to be at any Airports. When a Passenger / Visitor reaches such a Public place his/ her first priority is to know immediately the Current status of Schedule of his / her journey. This information is conveyed to the Passengers by way of Audio, Video gadgets. Timely and precise information received by the passengers makes their journey / visit to the airport comfortable.

Information Display systems are the heart of every airport, providing vital information to passengers, visitors, airport operators and other consumers across the terminal and other locations. It's one of the first points of contact a customer will have with our airport so it needs to present the information in a clear and logical yet, eye pleasing manner.

Passengers information could be given by:
a. Signage
b. Audio Information
c. Visual Information
d. FIDS(Flight Information Display System)
e. CCTV

Facilitations could be:
a. "May I help you?"
b. Public Grievance
c. Lost and found property
d. Left luggage property
e. Trolleys

So to conclude, Airports are the mirror image of the country. The passengers who are our esteemed Customer coming to the Country for the first time Analyze / Forms the image of the Country from the Terminal Building and its surroundings. After arrival, inside the Terminal Building anyone tries to explore the surroundings more closely specially furniture, cleanliness & comfort of the surroundings. By this time the customer is in a position to judge the standard of the establishment. The basic service provided should be clean, comfortable & safe surroundings as the satisfaction of the customer is of paramount importance.

As today's passengers are growing their more expectations and choices than ever before in terms of good customer service levels. We can also say that the customer satisfaction has become a very challenging subject for airports around the globe. There are many airports in the world, which have made raising customer satisfaction Levels a priority and some have even made it a prime objective to tackle the challenges confronting the consistency of service excellence at their airports. Indeed, there are many customer service campaigns implementing service innovations, amenities and programmes to address the customer. Because it is believed that when there is a customer service issue, it's everybody's issue. The challenge is to work together as an airport community to address the issue and ensure customers have a great experience every time they fly from our airport.

Refrence

- Wikipedia, Skytrax Terminal Management Manuals dif ferent websites.

TIA OPERATION BUILDING/TOWER

A Dissertation Work on "Occupational Health and Safety of Ground Staffs at TIA"

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"Concept of Occupational Safety and Health (OSH)

The International Labor Organization (ILO) and the World Health Organization (WHO) have shared a common definition of occupational health. This definition was adopted by the Joint ILO/WHO Committee on Occupational Health at its first session in 1950 and revised at its twelfth session in 1995. The definition reads: "Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities.

Key Principles of OHS

- All workers have protection rights.
- OHS policies must be established.
- There is need for consultation with the social partners (that is, employer and workers) and other stakeholders.
- Prevention and protection must be the aim of OHS programs and policies
- Information is Vital for the development and implementation of effective programs and policies.

Noise also presents a fairly common workplace hazard; occupational hearing loss is the most common work-related injury. Noise pollution refers to sounds in the environment that are caused by humans and that threaten the health or welfare of human or animal inhabitants

The most common definition of noise is "unwanted sound." A sound might be unwanted because it is:

- Loud
- Unpleasant or annoying
- Intrusive or distracting

Aircraft noise is noise pollution produced by any aircraft or its components, during various phases of a flight: on the ground while parked such as auxiliary power units, while taxiing, on run-up from propeller and jet exhaust, during takeoff, underneath and lateral to departure and arrival paths, over-flying while en route, or during landing.Aircraft noise differs from road traffic noise in the sense that it is not continuous but intermittent. Noise is at a maximum during take-off and landing. Major cities around the world have banned or reduced flights at night and also prescribed noise limits.

This is hard to believe but the problem of aircraft noise pollution has been a topic of discussion since the inception of the first aircraft. This has always happened, technology has created more problems than it can solve. Sure technology gave us wings to fly but then the engines that made the aircraft fly created deafening sounds which had a negative impact on the human health.

There are many reasons for the growth of noise pollution from the aircraft in the Kathmandu valley. First, TIA is located in close proximity to the centers of population. Second, the airport is experiencing a rapid growth in air traffic, thanks to the increased economic and commercial activities in the valley and the nation. Third, the

physiographic configuration of the valley limits choice of flight paths for the aircraft. Outgoing jet planes must circle the valley at least once to gain enough altitude to surpass the surrounding mountains of the Kathmandu Valley. Incoming jet planes also circle the valley before landing. Thus the flight paths at takeoff and landing are located immediately above the dense urban settlements of the valley, exposing the population to aircraft noise.

Noise in and of itself can be a nuisance for everyone, but studies show that noise has a direct and immediate effect on a person's health. Seniors are especially at risk human body reacts to noise with a "fight or flight" response. Physiological changes occur in the nervous, hormonal and vascular system, resulting in significant long-lasting consequences. Exposure to constant and excessive levels of noise can cause health problems such as stress-related illness, high blood pressure, speech interference, hearing loss, sleep disruption, depression and lost productivity.

ICAO Annex 16 Volume I Aircraft Noise

This volume contains the Standards and Recommended Practices for aircraft noise certification, and international specifications relating to noise evaluation methods. It also covers noise measurement for monitoring purposes, the assessment of airport noise and criteria for the application of noise abatement operating procedures.

General objective

- To assess noise related health problems among the ground staff of the TIA

Specific objectives

- To measure noise levels around the runway during all three work shifts
- To identify noise related health problems among the TIA ground staff

Methodology

- Sound meter – Measure sound level
- Questionnaire- Ground staffs (Fire fighter ITA)

For 1st objective:	
Data collection	Sound level meter DSL-331
Measurement site	Middle section of runway apart 250m Eastern
Duration observed	1 week (2014 /7/28 -2014/8/4)
Schedule observation	Three times a day:- Morning shift =8-10 am Day shift = 1-3pm Night-shift = 8-10 pm

For 2nd objective:	
❑ Questionnaire	- staff, worker TIA - key personnel
❑ Staffs	- Firefighter and Rescuers
❑ Sampling	-10%(400)
❑ Sampling group	-Based on service period >30 year 21-30 year 11-20 year <10 year
❑ Secondary data collection	-Literature review -Related information - CAAN, TIA ,CAO Office

Result and Analysis

1. In the regarding data monitoring of morning, Day and Night shift up to one week before monsoon maximum, minimum and equivalent sound level has been obtained so as Average Mean and Absolute Mean calculated. In the Morning shift 97dBA, 49.4dBA, 55.4dBA and in Day shift

2. 102.7dBA, 54.3dBA, 63.8dBA and in Night shift 100.1dBA,46.9dBA and 57.6dBA average mean of maximum minimum and equivalent sound level was found respectively. This obtained sound level was represented via given below bar diagram fig II. Similarly, absolute mean of equivalent sound level was 58.8dBA, 65.8dBA and 60.5dBA found in moing, Day and Night Shift respectively.

Time / Days	Morning shift			Day shift			Night shift		
	Max	Min	Leq	Max	Min	Leq	Max	Min	Leq
1st	97.1	43.6	56.3	103.6	56.1	64.6	99.7	44.2	57.1
2nd	95.3	46.3	54.2	103.4	54.7	63	98.3	42.1	56.2
3rd	94.5	47.6	53.8	106.2	54.3	65.8	104.4	50.7	60.5
4th	102.2	53.2	58.2	102.3	53.2	63	102.3	44.8	59.2
5th	98.1	50.3	57.2	99.8	54.1	62.8	98.7	47.2	56.2
6th	95.2	51.5	53.8	98.6	53.2	62.4	99.6	49.1	57.2
7th	96.3	53.6	54.3	104.7	54.6	63.2	97.4	50.1	56.7
Mean	97	49.4	55.4	102.7	54.3	63.8	100.1	46.9	57.6

Figure -I

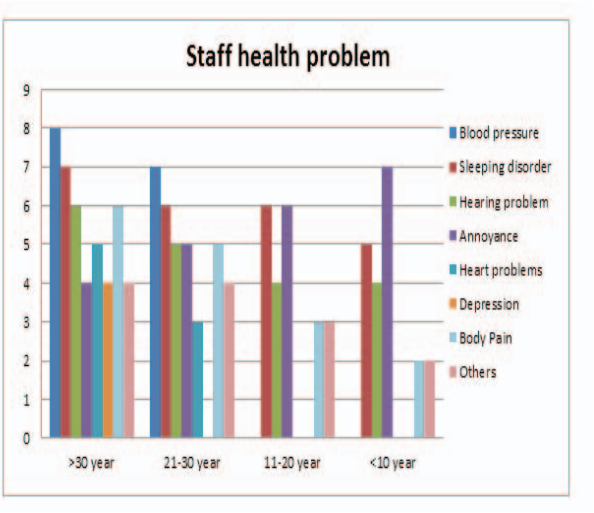

Figure-IV

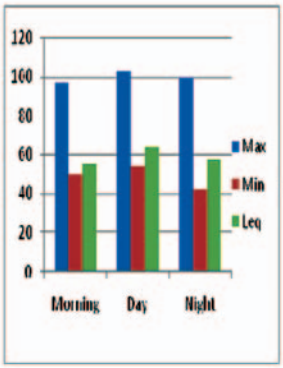

Figure-II

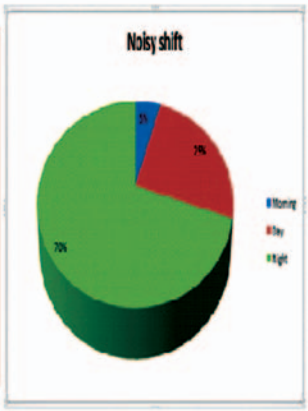

Figure-III

Regarding the questionnaire in this question "Which shift you will find noisy environment?" So as 70% responded that night shift was found very noisy where as 25% responded that day shift was noisy 5% found it noisier in morning shift. Night shift was found to be noisier than the other shifts.

Well, collecting the data with the help of questionnaire from inward ground staff of TIA (firefighters) based on working period /duration, four groupswere categorized i.e, group I (<10) years, group II (11-20)years, group III (21-30)years and group IV (>30) years with 10%sampling .Regarding the noise related health problem, those who were directly exposed to noise were more concerned about their health as they were the direct sufferers.Fig(IV) bar-diagram shows higher level of the disease/problem to the ground staff and high no. of disease/ problems as well as high no. of respondent suffered. In group (I) less no .of disease/problems were found and also less no. of respondent suffered .In group IV (>30) years blood pressure, sleeping disorder, hearing problem ,Annoyance, Heart problem, Depression, Body pain are disease suffered and no. of respondent suffered were shown in bar-diagram fig(IV)

While in group I (<10) just Sleeping disorder, Hearing problem, Annoyance, Body pain are suffered. As compared to other groups, less no. of disease were found in this group. Evenmore, the number of respondents was also found to be less.

Conclusion and Recommendations

Conclusion:

This researchconcludes the following:

- Sound level around the TIA was found within the standard guide line except Night shift when it was found slightly high in the season before monsoon. However, the sound level monitored after monsoon was found to be slightly in an increasing pattern .It might be due to increase in no. of flights.
- Basically, after monsoon period, traffic volume is dense owing to clear weather and tourism month. In addition, festivals such asDashain and Tihar, Bakr-eid and Chhath are celebrated in same time.
- Regarding the questionnaire night shift was found much noisier than other shifts.

  It might be due to the silence andcalmnessof night making even low sounds clearly audible.
- On the basis of questionnaire on ground staff's (firefighter) health, TIA has been analyzed. Questionnaire was prepared taking into consideration the of service period of the respondents.
- Service periodwas divided into four groups viz. groupI(<10) years, group II (11-20)years ,group III (21-30) years and group IV (>30) years. Many employees falling in group IVare suffering from maximum number of diseases.Only few of the employees in group 'I' aresuffering from some of the diseases enlisted.
- The study shows variation resulting between group I and group IV -just because of period of working.
- Working in much noisy environment for a long period of time becomes harmful to health. Noisy environment negatively affects the occupation and health (physical or psychological).

Recommendation

- To make sure of the legal provisions concerning OSH, the working environment should be secured by an adequate and appropriate system of inspection.
- Awareness education and training to the workers are needed.
- The management needs to provide necessary PPEs and maintain safe workplace by adopting the appropriate measures to minimize the health hazards.
- More research and studies are necessary to formulate occupational safety and health guidelines.

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Running In When Others Run Out

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Guesss What ?

In case of fire emergency please do not forget to dial 101 and the phone call is usually received by phone handling person in the fire station. Well in some cases it might just be some prank or let us say a bluff call but at once our station is buzzed we have to set up our mentality that there is some structural fire somewhere in the apartments, building blocks and public areas within Kathmandu valley.

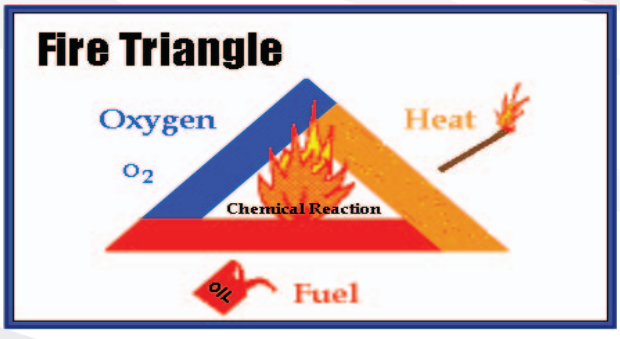
Within the narrow time frame our fire vehicles turn out quickly and reach the destination with an emergency signal. Once our group reaches then from there our real job starts as a fire fighter and the life saviors. We can witness the common sight where the dwellers of the affected areas run out for their lives where as firefighters come inside the scene with all the necessary equipments. Yes running in when others run out and that is what the firefighters they do. This is only a virtual scenario but a big salute to these ordinary people who have dedicated their life in extra ordinary job. Risking own life to save others this is where they prove their life is not worth just for their own living but also committed to save others.

Fire safety is an important concern for everyone. The unmanaged urbanization and mushrooming settlement have fueled the chances of fire hazards and destructions all over the city. Fire safety involves prevention, containment, detection, and evacuation. Fire prevention basically means preventing the ignition of combustible materials by controlling either the source of heat or the combustible materials. It is very important to be aware about fire safety. It is very thoughtful of every one of us to consider pre conceived notion about hazards by wildfire. I have presented the point below to make things more clear.

What Is Fire

In simple language Fire is combustion, oxidation reaction involving heat flame and light.

Fire Traingle



How does the fire start

Three components which are required for the fire to start are given below:-

1. Fuel,
2. Oxygen,
3. Heat,
4. Self sustained chemical reaction.

We have 21% oxygen in our atmosphere but 16% is more than enough to ignite fire.

Fire is classified as given below

Class A – solid like wood, paper, clothes etc come under this class

Class B - Fire involving Flammable liquids such as organic solvents for e.g. Petroleum ether alcohol, paints varnishes oil, grease kerosene, petrol etc come under this class

Class C – Fire involving gases such as Hydrogen, LPG, etc comes under this class

Class D - Fire involving Combustible metals such as Sodium, Potassium, magnesium, Chromium etc comes under this class

Different Kinds of Extinguishers

The Four most common fire extinguishers:

1. Mechanical foam
2. Carbon Dioxide
3. Dry Powder
4. Water CO2 type

Each kind of extinguisher has a specific use

P.A.S.S. Method

P=Pull the pin

This will allow you to squeeze the handle in order to discharge the extinguisher. Sometimes you have to roll the small wire which may be on left side attached to pin. It may be different according to different fire extinguisher.

A=Aim at the base of the fire.

The agent will pass through the flames. You have be safe while attacking the fire. Ur position must be tentative 5ft to 6ft while attacking on fire. You can go nearer if the fire deceased.

S=Squeeze the handle

This will release the pressurized extinguishing agent

P.A.S.S. Method, S=Sweep side to side

Cover the entire area that is on fire. Continue until fire is extinguished. Keep an eye on the area for re-lighting or flash back.

Tips for Evacuation In Case Of Fire Emergency and Condition not To Fight Against Fire

Most Important

Never Fight A Fire If Any Of The Following Apply

1. Don't have the proper extinguisher or FIRE fighting equipment
2. Fire has spread beyond its point of origin
3. Your instincts tell you GET OUT
4. If the situation is out of your control.

Emergency Procedures

In the Event of Fire

1. Pull nearest alarm station

2. Immediately exit the building

3. Make pre defined point to meet in case of fire and disaster

4. If you hear an alarm DO NOT assume it is a drill, your life may depend on it!

Emergency Procedures

Building Evacuation

Proceed to nearest exit.

1. Assemble at the space allocated to you.

2. Provide emergency crews with information about people still in the building.

3. Provide information to emergency crews about the reason for evacuation.

4. Never re-enter a building until fire is successfully extinguished.

5. Remember to keep an exit to your back.

6. Only fight a fire in the incipient stage.

7. Always follow the escape plan and make pre defined meeting point in case of fire or any disaster.

8. If possible make go bag which will be useful in various disaster. Go bag contains necessary things which u can keep like small emergency light ,rescue knife blanket, Xerox of important document, food, tent and other basic needs.

Never

- Smoke in bed.
- Burn candles.
- Allow an open flame (cigarette, candle, torch, etc.)

or cooking appliance (coffee pot, hot plate, etc.) near

Common combustible material, i.e., wood, paper, textiles, or

Flammable liquid.

- Ignore fire alarm.

Important Phone No

- 100 POLICE
- 101 FIRE
- 102 AMBULANCE

At last I want to say that firefighters are always there to save the life and property of people in case of fire emergency. Firefighters are true heroes of our community. They risk their own life to save people. So take a good look at this modern warrior firefighter who serves us and he would die just to save me and you. SALUTE TO ALL FIREFIGHTERS AROUND THE WORLD

A Prolific Aviation Policy for Nepal

Kunjan Shah

LL.B. Student of Law Campus

Nepal is situated as a best route of air access for two highly industrialized Countries i.e. China and India. There are indeed benefits in regard to 'Transit', and Nepal is potential of benefiting enormously. And, this is where least developed country like Nepal can at least seek benefits from developed nations in name of a meaningful Reciprocal share. And most importantly concerning the recent retreat of our only International Airport being categorized as the third worst Airport of the world, my aim is to present a legal measure that can contribute raising some revenue for airport or other aviation related development in Nepal. Here, Nepal can impose Royalty for Overflight or Transit on foreign aircraft as a humble compensation, for Nepal not having capacity to perform international flights and thus, not utilizing its reciprocal share – leaving room for Unused Frequencies.

Nepal being party to international conventions, the Civil Aviation Authority of Nepal will have to justify such policy in consistency with international laws and practices, since, such policy will be intended to affect foreign airlines, and therefore I have accentuated the following strategy to build a legal measure.

Global Discourse on Rights Over Airspace and Overflight Charges

The very persistent controversy of the Siberian Overflight Charge issue is of major discussion. The European Union expressed "…these payments, which are imposed by Russia, constitute an unacceptable charge for transit, contradict universal practice and are considered to be incompatible with international law, including Article 15 of the Chicago Convention". The EU state airlines flying over Russian territory have to pay special royalties to their Russian competitor, Aeroflot, which the EU regards "…not related to normal payments for Air Traffic Control Services".

In the wording of Article 15 (3) of the Chicago Convention it forwards that no charges for the transit over, entry into and exit from the territory of a state shall be imposed. This in some instances has given rise to confusions that it can be interpreted to mean that no charges are to be levied when an aircraft flies into, out of or over a State. That, however, is not the intent here since all States are fully within their rights to recover the costs of the services they provide to aircraft operators through charges. In the first place, the 'commercial agreement clause' in Bilateral Air Service Agreements concluded by the governments generally paves the way for the approval of such agreements by the aeronautical authorities of the Contracting Parties. State practice following the conclusion of the Chicago Convention has also showed the attitude of States to bilaterally negotiate any commercial aspect of scheduled international civil traffic on a 'reciprocity' basis, which can be submitted to support the legitimacy of the practice, especially considering the economic value attached to the airspace and, in particular, the Trans-state routes.

Some counter arguments do exist, being made through the provisions of International Air Service Transit Agreement (IASTA) which is said to have been generally granting transit rights to other Contracting States, but it can be established even through plain interpretations of the IASTA and Chicago Convention that it does not restricts the commercial character of overflight rights. And as a matter of practice, it is difficult to enforce the basic right of flight over another State's airspace.

In the EU-Russia dispute, Alas! The overflight charge was to be denounced after negotiations and was to be effective from 1st January 2014, but it is still to come in effect. On the other hand, the Siberian overflight issue cannot be taken as a relevant State Practice for Nepal because EU is by far Russia's largest international aviation market. 75% of all Russian passenger traffic is directed towards European destinations, and also for the EU, the Russian Federation is currently the fourth largest foreign aviation market. Thus, there was a justified reciprocal share of EU-Russia to call Siberian overflight charge as Extravagant. But this would not be available for Nepal in relation to other countries with prosperous aviation market.

Possibility of Trading International Air Access on a Bilateral Basis

The Applicability of Article 6 of the Chicago Convention is inevitable, where Article 6 of the Chicago Convention, by not distinguishing between transit and other commercial traffic rights, indirectly recognizes the potential commercial value of overflight rights and foresees their 'trade' on a bilateral basis. It is still a debate whether this distinction amounts to a complete prohibition of any 'tradability' of transit rights in bilateral air services agreements or just to the recognition of the fact that, such rights do not have any economic value and, are freely granted. Here, this undetermined legal debate can then give validity to the customary argument that States are free in the exercise of their sovereign rights – to determine the "terms" of the permission granting access to its national airspace – through bilateral air service agreement. The wording of Article 6 implies an involvement/responsibility of the States in/for the content of the commercial agreements.

Most importantly, the Bilateral Approach to air services negotiation is based on "Reciprocity". Reciprocity in terms of air services agreements may not always be based on the exchange of exactly the same rights. It would for instance be possible to exchange different traffic rights, based on the principle of "Balance of Benefits". Unused frequencies, where they exist, can be agreed in the context of Agreements which, in principle, be assumed a basis for balance of rights and obligations on each side, and royalty for such unused frequencies can be a meaningful balance of benefits for countries like Nepal whose airlines do not have capacity to perform international flights in reciprocal to rights granted to foreign aircrafts.

In 1990's the controversial Brussels' airport tax levy, and in The Netherlands, the so called Dutch Ticket Tax were abolished because it was found being charged 'solely' for the right to entry into, or exit from the territory and in violation of Article 15 of the Chicago Convention. The inclusion of royalty payments cannot be classed as such introduction of a fee, tax or other charge, but an appropriate trading scheme for Nepal in reciprocal share scheme. The royalties are also not 'designed and applied' specifically to recover the 'costs' of providing facilities and services for civil aviation and the intention should be shown as being exclusively for developmental purposes, thus in this light too, Article 15 would not apply restrictions.

Some supporting Practices on Air Access are evident, for instance, in the Yamoussoukro decision of the Organization of the African Union (OAU) despite a liberal air access approach, there are countries that restricts market access under the pretext that their national airline is not ready to compete in a liberalized market and some countries insist that non-local airlines pay royalties for air access. Whilst most States do apply Yamoussoukro decision, rights are granted on selective bases, influenced by the need for reciprocity and in some cases the request for royalties to be paid. Turkey adopted a Step-By-Step Liberalization Approach (SBSLA). Accordingly, Nepal need not incorporate a much liberalized system and through usage of such liberalization approach Nepal could restructure and reorganize itself for latter liberalized market. ICAO has also in practice taken a flexible approach to the basic equality of treatment of States(see ICAO Docs 9902 and 9587), and has issued guidance materials on preferential measure of developing countries in the economic regulation, and did include a qualified exemption that states "take into account the problems of operators of developing countries..."

Concluding Remark

Viewing the statutory requirement, no express prohibition of the 'tradability' of transit rights is contained in the Chicago Convention. Chicago convention barely deals with commercial aspects of civil aviation and leaves any further regulation on the matter to bilateral air service agreements between contracting states – the regulation of any commercial matters.

And to the question whether State practice together with expressions of opinio juris has led to the customary recognition of the 'noncommercial' character of overflight rights – it can be noted that the drafters of the Chicago Convention have not succeeded in setting up a universal system – based on a uniform treatment for all aspects of air transport. The most topical examples of imposition of unilateral measures liable to affect the uniformity of international civil aviation are indeed found in the economic field.

Hence, the economic operation of international air transport services is not based on uniform global regulations, due to which developing countries like Nepal secures its rights to form a policy to impose overflight charges in form of Royalties for enhancing itself to the level playing field.