CIVIL AVIATION AUTHORITY OF NEPAL

Head Office, Babar Mahal, Kathmandu, Nepal

Ref.No.:

Message from the Director General

I am highly delighted to learn that Nepal Air Traffic Controllers' Association (NATCA), as always, is observing their INTERNATIONAL DAY OF THE AIR TRAFFIC CONTROLLER on 20 October 2006 with various programs and activities, and that it is bringing out its HORIZON magazine as a special souvenir publication in commemoration of the event.

NATCA, since its inception initiative in 1990, has amply demonstrated an overriding concern in upholding professionalism among ATCs and thus assumed a role of frontline pacesetter in the maintenance of safe and efficient air traffic control.

We, at the Authority, are aware of problems ATCs are facing due to increased communication load given by continued air traffic rise in recent years. CAAN is committed to cooperating with NATCA, as always, and sparing every effort towards speeding up Air Traffic Management and modernization plans that we have nurtured in the interest of aviation safety.

Finally, on the occasion of the International ATC Day, I, personally as well as on behalf of CAAN, wish NATCA every success in its celebration of this international event and look forward to its continued support and cooperation in CAAN's endeavor in the days ahead.

Mohan Adhikari

Director General
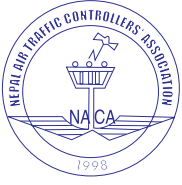
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NEPAL AIR TRAFFIC CONTROLLERS' ASSOCIATION
नेपाल हवाई यातायात नियन्त्रक संघ
(MEMBER ASSOCIATION OF IFATCA)

GREETINGS FROM THE PRESIDENT

First of all, on the occasion of the **International Day of the Air Traffic Controller**, I, personally as well as on behalf of Nepal Air Traffic Controllers' Association (NATCA), would like to offer our warmest felicitations to all the ATCs and esteemed readers. I am please to inform you that the Executive Board of IFATCA has set this year's theme as "**security threats on air travel - safety assurance always provided by the Air traffic controllers**," which is not only oppertune but also quite supportive to the theme chosen by ICAO for the forthcoming celebration of the International Civil Aviation day on 7 December 2006.

Yearly publication of HORIZON is reflective of our commitment to professionalism as it has served a forum for all of us to share our thoughts and Knowledge. In this regard, NATCA which works closely with our international affilate - IFATCA, is dedicated for the continued uplift of professinalism of our air traffic controllers.

As always NATCA values safe, orderly and expeditious movement of air traffic. However, we are in a world of dismay as we are confronted with acute problems surrounding the working environment, systems degradation and lack of motivation, to point out a few.

NATCA will ever remain commited to closely working with CAAN towards motivating our ATCs, improving systems and undertaking globalization initiatives. In this regard English language Proficiency demonstration of ATCs stands out as an apparent challenge facing CAAN.

NATCA reiterates its commitment to play its role more effectively and efficiently in the days ahead to acheive organisational goal of "Consolidating Safety through Professionalism." In this noble endeavor, valuable suggestions, support and cooperation from NATCA advisory committee, general members and well wishers would be highly appreciated.

Finally, I would like to thank the members of the publication committee, writers, valuable advertisers and publisher for their generous support and cooperation to make this publication possible.

Wishing you Happy Deepawali 2063.

Pratap Babu Tiwari
President, NATCA

NEPAL AIR TRAFFIC CONTROLLERS' ASSOCIATION

HISTORY REPEATS ITSELF, FIRST AS FARCE, SECONDLY AS TRAGEDY

What is that beyond horizon - a star or a drop of tear ?

When the entire country was poised on the brink of festive pool of Dashain, who could guess that a tragedy would occur with the preventable crash of an MI 17 (172?!), passenger version (?!) chopper into one of the mountain ridges in the far eastern region of Nepal, killing all 24 great corporeal souls on board and sending shock waves through the home and abroad communities. The state mourned for them, solemm darkness clouded over the bereaved homes, and the bulk of the nation resorted to coincide with the festive mood of Dashain. Against the stingy juxtaposition of these two realities - tragedy & delight which are indeed an innate component of human emotions, we as aviation professionals involved in aviation safety affairs, axeologically feel that neither tragedy nor any delight must overshadow the 'behind the scene' factor that led to that disaster.

It is fairly agreed that for any academic research, a good hypothesis reaps a grand outcome. What about assumptions that are required to be considered in accident investigation project? Prudent assumptions emanate from real life experiences that regulators, flyers, operators, etc. have had for the past few years in this part of globe and thus cannot be done away with issues surrounding adherence and nonadherence to operations manual, use/misuse of GPS, eerie similarities of recurring accidents, cases of amnesia, right/wrong organizational decisions, vagaries of training, culture, CRM, flight safety, weather, CVR/FDR, so on and so forth. If these factors be addressed, the outcome of the report would be no less a commendable achievement than that of an independent, prudent and objective historicist. Amen! May the departed drops of tear rest as floating cherubs beyound the horizon. Amen!

On this day of 20th October, we are observing yet another event - INTERNATIONAL ATC DAY - in commemoration of the birth of IFATCA in 1961. On this occasion, allow me, on behalf of the editors, to present our hearty felicitations to all ATCs and valued readers.

IFATCA's role in making us controllers more aware of and responsive to ICAO's **English Language Proficiency Requirements** is commendable. I believe the incorporation of two articles in the consecutive opening pages should speak of the importance of English Proficiency among ATCs and pilots in all communicative contexts. In this regard, CAAN's timely response to the call of our exposure to the relevant knowledge and training opportunities is eagerly awaited.

A most vulnerable area with room for improvements are what we call the psycho-technical working conditions of air traffic controllers. Hours of work, consecutive working days and mandatory overtime all have a direct bearing on safety. Frequent communication breakdown, ATC drain out, low morale and fatigue have led to a state of apathy among our controllers. Fatigue is perhaps the other name of demotivation. What is interestingly pathetic about them is that they have been quite successful in managing air traffic with the continued degradation of ATC systems. Their delicacies need grave attention, as latent unsafe conditions are piling up in our domain. Human performance limitation and conventional systems are not commensurate to the level of tremendous traffic pressures they are encountering. So, NATCA feels it a high time for the Authority to accelerate the process of review of the licensing and rating privileges of Air Traffic Controllers.

Saurabh Ranjan Baral

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Challenge of English Proficiency Demonstartion in Air Traffic Control

Pratap Babu Tiwari
President, Nepal Air Traffic Conrollers' Association

In the context of aviation, communication has been the most frequent aspect studied since the human factors movement began in the early 1990's.The world wide accident revealed that more than 70% accidents are related to human factors. According to ICAO journal between 1976 and 2000, more than 1,100 passengers and crew lost their lives in accidents in which investigators found that language had played a contributory role. Although English has been designated as the international language of aviation, inability of a pilot or controller to speak English proficiently has been implicated in several crashes.

On 27 March 1977, a departing KLM B747 collided with a Pan American B747 at Tenerife, Canary Islands resulting the loss of all 583 passenger including crew of both aircrafts. The investigation report revealed that the accidents took as a result of poor communication between a Spanish air traffic controller and a Dutch pilot. The case happened as Pan Am 747 crew missed or misunderstood taxi instruction requiring a turn off the active runway and at the same time KLM747 initiated a fog-shrouded take-off in the opposite direction.

On 25 January 1990, Avianca Airlines flight AV052, a B707 from Bogotá, Columbia to JFK International in New York City, crashed in a residential area of New York City. The accident occurred while trying to return to land as a result of critical level of fuel reserve after more than an hour holdings and crashed, killing 73 of the 158 people on board. Among various factors, such as weather, stress, aircraft operational limits, the main factor was the inappropriate way of communicating aircraft's fuel problem by the crews to the controllers. That is, pilot simply didn't use the word ''emergency'' to aware tower while the aircraft was running critically low on fuel.

On 20 December 1995, American Airlines Flight 965 from Miami, Florida to Cali, Columbia turned off course, crashing into a mountain side and killing all 160 people on board. The main cause of the accident the air traffic controller told to the investigators that he knew the information given by the flight crew was inconsistent with the intent of the clearance he had issued. If the controller had shared a common language with the pilot he would have been able to seek clarification of the position from the crew.

On 31 July 1992 Thai airways flight TG-311, an airbus from Bangkok, while attempting approach to land at Tribhuvan International Airport, Kathmandu lost its position in bad weather and crashed into a mountain to the northern side of Kathmandu valley. This is the first jet accident in Nepal, where all 113 persons lost their lives. Among the various recommendations accident investigation committee, highly emphasized the use of the standard phraseology and the ability to communicate in English by the crew and training for ATCs on effective English communication to resolve the potential confusing situation.

Besides these accidents, multiple incidents and near misses as a result of language problem or imperfect controller- pilot communication as a contributory factor are reported worldwide annually.

Controllers' world is a highly specialized and technical space having its own coded jargons not readily understood by laymen.

Last November at Los Angels, AeroMexico Flight 432 twice failed to understand and obey tower instructions to stop short of the runway. The plane came within 60 feet of colliding with a United Airlines 757 traveling 175 miles per hour.

Last April, at O'Hare International Airport, an Air China 747 did not understand the air traffic controller's instructions and came within 30 feet of the top of a Korean airliner.

These are some examples of the major accidents and incidents where the investigators found the common thing is the lack of English language proficiency on the part of ATC or flight crew. Additionally, the role of language to the safety of the aircraft as identified are due to the incorrect use of phraseologies and use of more than one language in the same environment.

Along with the increasing volume of international traffic, the risk of communication errors escalates even further because of one's culture and native language difference. Not only because of lacking in English language skill, several accident and incident cases have been documented in native speaking countries as well. The cause behind is because of the miscommunication or way of using language. Study revealed that all poor communication as result of human factors are rooting either from people misusing of language or from people interacting. Several things can go wrong when people use language:

- The words and sentence we use are too difficult.

- The words are so general and abstract that they mean one thing to us but something entirely different to someone else.

- The language sometimes has such an abrasive tone that audience reaction is negative.

- Some other contributory reasons such as varying regional accents, poor grammar, incoherent expression, improper logic and use slang or jargon etc.

Besides the language problems, four major contributing factors to voice communication errors in the ATC environment have been identified in the research:

1) Quality of the Very High Frequency (VHF) radios. The poor quality of radio equipment can lead to miscommunication:

- A message may not get through due to transmission problems.

- When transmission is adequate but the message is misunderstood.

2) Phraseology

3) Fatigue

4) Workload

ATC phraseology also called Radiotelephony covers aviation English as well as general English. This is the only acceptable language used between controllers and pilots worldwide regardless of linguistic boundaries in routine situation but the list of standard phraseology set in ICAO DOC 4444 is not sufficient because it is limited to memorized specific phraseology, created for standard procedures, routine operations and some predictable emergencies. This phraseology cannot possibly cover every conceivable situation that might take place in the air and on the ground. Moreover, English proficiency varies greatly among crews and air-traffic control personnel, and that there is no guarantee that one's counterpart on the same radio frequency actually speaks and understands English proficiently. It is also given that 70% of the verbal exchanges in English are taking place among speakers who use English as a second language, the potential for miscommunications leading to accidents. As a result, communications lapses and errors that affect the safety of the aircraft are frequently reported in different parts of the world.

The need for English proficiency on the part of international pilots and air traffic controllers has been recognized for decades, specially after the issue came up following the accident of Avianca and later on, American Airlines Flight 965, where the Safety Board recommended to the FAA that it works with ICAO to develop a program to enhance the English language fluency of controllers to enable them to more effectively interact with and assist English-speaking pilots.

The growing concern over the impact of language on the safety of the aircraft has led to a review of the language proficiency requirements in radiotelephony communication. ICAO, at its 32nd Assembly Meeting in 1998 passed a resolution which urged Air Navigation Commission to consider, with a high level of priority, the matter of English language proficiency and to complete the task of strengthening the relevant provisions of Annex 1 and 10.

ICAO's Air Navigation Bureau formed Proficiency Requirements in Common English Study Group

A concise and standard phraseological communication between ATCs and pilots is indispensable for smooth & safe aircraft movement.

The goal of the test is to ensure, as far as possible, that all speakers have sufficient proficiency in the language to be able to respond to unusual situations and harmonizing the language proficiency level throughout the world.

(PRICESG). The group presented the ICAO secretariat with the set of recommendation in 2001. ICAO council adopted the proposed amendments on 5 March 2003. The amendments have been made in annexes 1, 6,10and 11, which require:

1. English as the common language used in pilot-air traffic controller communication when the pilot is unable to use the language normally used on the ground (Annex 10),

2. ICAO language proficiency rating scale and minimum level requirements for air traffic controllers, pilots and aeronautical station (radio) operators (Annex 1, 6) and

3. Airline's and air traffic services provider's oversight of personnel compliance (Annex 11).

By this provision, English has been elevated to the "official language of aviation," replacing its earlier recommended-only status on the list of approved languages, which included French, Spanish, Russian, Arabic and Chinese. This marks a historical first that one language will be used as a medium for communication in one industry by everyone.

The International Civil Aviation Organization (ICAO) grades English Language performance on a scale of 1 (Pre-Elementary) to 6 (Expert) across 6 areas of linguistic description: Pronunciation, Structure, Vocabulary, Fluency, Comprehension and Interactions. This scale is to bring meaningful improvements to the overall level of international aviation communications.

In congruent with the minimum safe level of English language proficiency as determined through research by eurocontrol, the U.S.Federal Aviation Administration (FAA) and France's École Nationale de l'Aviation Civile (ENAC), ICAO decided that the minimum acceptable level required for the air traffic controllers and pilots involved in international operations shall be operational level 4. The new requirements focus on the assessment of

communicative proficiency that is, an individual's speaking and listening skill only. This minimum requirement is equally applicable to native and non-native speakers. Responsibility of ensuring that controllers meet the new ICAO requirements by the Match 5th, 2008 deadline is the responsibility of the Service Provider and the Regulator.

To meet the language proficiency requirements, the newly developed ICAO language proficiency rating scale will be used to assess an individual's ability. In order to receive Level 4 rating, besides ICAO standard phraseologies, an individual must demonstrate Level 4 proficiency across all six areas. The final rating is not the average or aggregate of the ratings in each of the 6 language proficiency skills, but the lowest of these six ratings. For example, an air traffic controller rated as a Level 3 in pronunciation but a Level 4 in all other areas would be rated as a level 3 overall, for safety reasons. Annex 1 recommends that personnel rated at ICAO Levels 4 and 5 need to undergo testing on recurrent basis. That is personnel at Level 4 in the interval of every three years and personnel at Level 5 in every six years.

ICAO doesn't define what exactly is the standard aviation English? However, language test need to be designed to access the features of language intended by the ICAO provisions. The goal is to ensure, as far as possible, that all speakers have sufficient proficiency in the language to be able to respond to unusual situations and harmonizing the language proficiency level throughout the world.

Each country has the responsibility to develop and implement its own test procedures. But the problem is, regulatory body may not possess expertise to fulfill their responsibility. In implementing the proficiency provision, State may have to consider the following aspects:

- Mechanism to identify current proficiency levels amongst operational staff. (Training can be concentrated to those areas where participants need more exercise).

- Mechanism for the provision of language enhancement training.

- Whether to carry out proficiency assessment by

Some tips to improve radiotelephony communication

- Keep intonation neutral and calm.

- Avoid using slang and idiomatic expression.

- Make rate of delivery to moderate speech and speech comprehensible

- Making habits of read back and hear back.

- Keep instructions short with not more than two to three instructions per transmission. Avoid issuing instructions to a second aircraft until the first has responded.

- Remember the saying, 'manage the radiotelephony, manage the traffic.'

competent external service providers or, where a unit does not have such, by the CAA's Inspectors of ATS.

- Need of high quality aviation specific language learning material.

- If using external service providers, mechanism to identify appropriate provider. (Instructors need to have specialized training on aviation language and in depth knowledge of aviation).

- Settlement of the training and testing schedule keeping in view of existing proficiency status of controllers, manpower constraints, tentative training duration.

- Contingency consideration in the event that insufficient controllers attain Level 4.

The increase in volume of the air traffic as a result of increasing popularity of air travel has raised concern to safety of air travelers. Albeit various efforts made to make air travel more safe and secure, it hasn't stopped nor it will. But we can minimize the rate of accidents and incidents by learning from the past mistakes and prevent reoccurring in the future. In this connection, action taken by ICAO in ensuring the harmonization and

> *The poor communication system and working environment, de-motivation are some major factors cited in ATC operation that have aggravated stress to air traffic controllers, a contributing factor to language errors .*

standardization of language proficiency levels has been taken with great importance in the aviation community.

In the context of Nepal, the assessments might not be a problem if controller received the standard training. But things never go normal. The poor communication system and working environment, de-motivation are some major factors cited in ATC operation that have aggravated stress to air traffic controllers, a contributing factor to language errors . It is high time for CAAN to be proactive in developing an adequate training program without making further delay.

References

1. ICAO Journals

2. The Controller Magazine

3. ICAO Annexes 1, 6,10 & 11

4. ICAO Manual on the implementation of ICAO Language Proficiency Requirements (DOC 9835)

5. Singapore Aviation Academy Review

6. The U.S Air Transporation Safety Bureau Report

7. Working paper on Language Proficiency presented on ICAO 15th meeting of APANPIRG

Entropy Vs Redundancy in ATC-Pilot Communications

Saurabh Ranjan Baral
Manager, CAAN Head Office

*I*f fluctuations from the environment become too much, the system cannot dissipate enough entropy to maintain its structure and therefore begins to become internally chaotic and unstable. In other words, we feel overwhelmed. If input continues at this higher level, the system will finally come to a point where it is so unstable that the slightest nudge brings things to a screeching halt. At this point the system has the ability to move in an infinite number of unpredictable directions, like an angry crowd on the verge of rioting or a person at a crisis point in a serious illness - Bill Harris: The Holosync Solution.

In aviation, human factors remains the primary area of concern, not only from the immediate perspective of flight safety, but also in all aspects of aviation operations, both in the air and on the ground. In considering human factors in aviation, it is pertinent to examine the history of human factors in retrospect.

When we talk of safety, human factors tends to loom large. And, they have been by far the most significant area of aviation safety virtually since the dawn of aviation. To illustrate: during World War I, for every one hundred pilots killed, only two were killed by the enemy, eight died as a result of mechanical or structural deficiencies of their aircraft, and, ninety out of every 100 pilots met their deaths as a consequence of their own individual deficiencies. It happened with British Royal Flying Cops.

These kinds of appalling statistics produced two important outcomes: human centered technology that could help eliminate engineering deficiencies, and technology-backed human performance. These two considerations have resulted in considerable improvements on aviation safety compared to past decades situations. However, there is still another link of high significance - human -human bond, which has been a weak link gone unobserved since long. Human-technology relationship pertains to design of an appropriate technology where as Human-human link can not be done away with the implications of communication, psychology, sociological elements, cultural and linguistic factors. Out of these, language as a factor in air accidents and incidents in general and controller-pilot communications in particular has been a burning issue. Therefore, this paper analyses language and communication as two significant factors having bearing on safety.

Language Issue

English is the commercial and air traffic language internationally most widely used. Proficiency in this language is not, however, on the same level throughout the personnel, and when there is a lack of compatibility between the level required and the actual individual level, communication problems may arise. Taking in to account this criticality, manifested by many and several air accidents, ICAO adopted a language competency standard in March 2003. The proficiency requirement focuses on linguistic competence rather than on the cultural aspects of language. In this regard air traffic controllers and pilots must be able to communicate competently in English. Therefore as part of educational resource at conceptual level it is essential to understand three critical areas of English competency required for safe communications.

Standard phraseology

ATCs and pilots communicate in a prescribed, coded language called ATC phraseology. This phraseology is used routinely all over the world, enabling pilots to fly across linguistic boundaries. It separates itself from plain language by its standardized and non idiomatic forms and usage. Due to extensive mobility of aircraft and ATC's obligations to guide planes safely, the standard phraseology is designed to make the communicative function between the ground and aircraft as concise and

brief as possible, with the emphasis on accurate content avoiding conventional politeness.

The standard phraseology involves English for specific purposes. In this regard pilots and controllers enter a highly specialized and technical world with its own language, a subject of the larger whole that consists of vocabulary and concepts not readily understood by many lay people. On the other hand, in non routine situations when there is no prescribed script of ATC Phraseology, the ability to communicate concisely is critical. Precisely it is the issue of general English language use. Although strict adherence to phraseology is always preferred, situations arise for which there is no adequate ATC phrase, or the phrase needs to be explained with real time information. The new ICAO requirement, with specifications for minimum English language proficiency, targets this particular aspect of language use. It sets out a standardized minimum level of competency in English consisting of pronunciation, structure, vocabulary, fluency, comprehension and interactions. However the problem still persists as to how best the air traffic controllers and pilots can be enabled to think in English so that the level of competency reached by them could support the creativity in using English in all situations. This is more important when non-native personnel are involved or where English is not the first language. A review of major air disasters that have occurred so far, and in which language proficiency is implicated demonstrate that ATC phraseologies do not work very well in emergency conditions. Creativity of controllers in the proficient use of English language in such contingent situations has still been a major problem in aviation safety domain leading to miscommunications. Even in normal or routine air operations, miscommunications do occur due to failure to address linguistic pitfalls given by cross cultural interaction, and pronunciation, dialect and accent.

Conceptual model: Redundancy vs Entropy

The foregoing problems obviously focus on the need of language training for which a more absorbing and effective baseline for educational resource is a necessity. Despite the development of language technology and increased institutionalization of English education in the global arena, an effective theoretical model to serve as a base of educational resource to enhance the language proficiency of controllers and pilots in normal as well as unusual (emergency or abnormal) circumstances expressions- standard or plain English - and what to teach the concerned in the class room environment is the need of the hour. In this regard a synthetic model involving entropy and redundancy of message can be a good approach. ATC standard phraseology is entropic by nature. It means that the expression contains clear, standard, understandable and concise message having more

information and low predictability. If the predictability is low, the transmitted message by the controller tends to be objective and hence readily comprehensible by pilots. On the other hand, when circumstances do not allow full exploitation of standard phraseologies, such as in emergency or unusual conditions, then the most intimidating challenge that stands out before a controller is to create language or appropriate syntax. The new context specific English expressions are going to be less entropic, that is, more redundant. This means the message tends to be highly predictable with low information content, leading to uncertainty and unintelligibility. Ultimately it may result in miscommunications because greater the redundancy the lesser the certainty and clarity of the message. To illustrate, consider the following standard phraseology (in spoken form):

Royal Nepal two one seven cleared to Delhi via flight plan route climb and cruise flight level three five zero.

None of the word or phrase in the above example is removable. So this phraseology is entropic in that it is direct, apt, intelligible and unambiguous. If you strive for deeper structure, the same phraseology would appear as:

Air traffic controller of Kathmandu clears Royal Nepal's Boeing 757 to Delhi based Indira Gandhi International Airport via Bravo 345 as mentioned in the flight plan. You are cleared to climb and maintain flight level three five zero.

The above construct is redundant, and is called a plain language. More than 50 per cent of words and phrases can be omitted to make the message yet readable intelligible and understandable. It is conceivable that because of unavailability of prescribed standards for suddenly encountered circumstances, controllers especially the non-native ones feel it natural to be redundant with their message in view of the challenge to create apt constructs. Even native controllers are not free from using redundant messages as they are smart to create structures given by their acquisition of natural language, which involves simultaneous working of thinking and speaking.

Therefore, to counterblast the problem, the redundancy must always be reduced, though plain English happens to be a preferable and an inevitable usage during unusual situations. The concept of integrating these two themes with language proficiency process, which involves thinking, listening, speaking reading and comprehending of items prescribed by ICAO, can be a pacesetter in the enhancement of English language proficiency and competency among controllers and pilots. It is against the need for pilots and controllers to be entropic with

their message at best and also be creatively redundant in emergency that I have proposed a model that synthesizes these two theoretical aspects of communication to generate outcomes useful for the development of language technology. The schematic diagram of the model is given below:

Transitional Model collaborating the concept of entropy and redundancy.
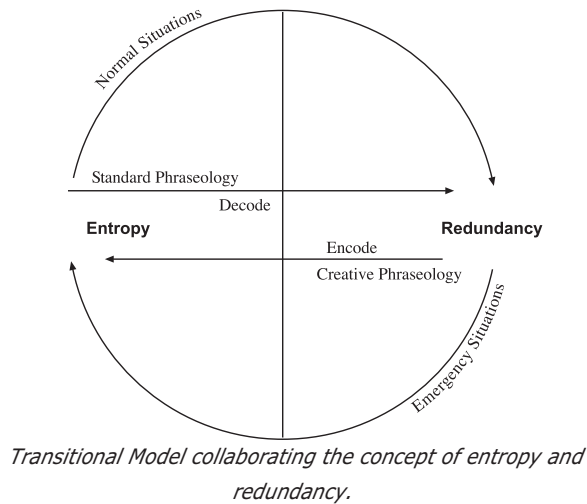
The model collaborates entropy and redundancy and allows the learners a transition from the former to the latter and vice-versa, providing opportunities for rigorous practice of encoding and decoding of phraseologies in a class room environment.

In Language technology system (LTS), communication between controller and pilot can be made more reliable and efficient, thus improving safety in aviation. An LTS can detect for example detect read-back errors. It can also directly feed data from the voice recognizer on XML (eXtensible Markup Language) form into a flight data processing system or interact with it. The three links of communication are:

A. Communication from the controller as he enters information into the Flight Data Processing System (FDPS).

B. Radio communication between the controller and pilot.

C. Communication from the pilot as s/he enters information into the Flight Management System (FMS) of the aircraft.
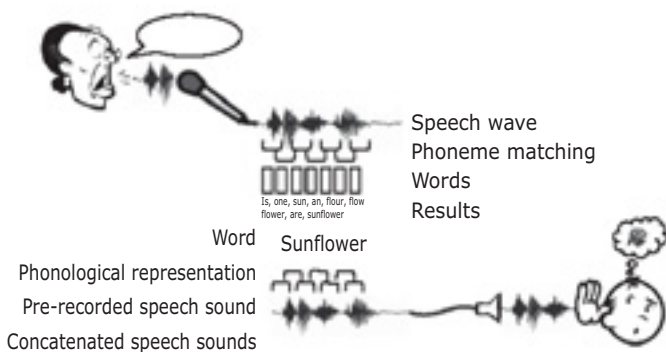
Speech to text and back to speech

Data and information input for a given standard work environment, LTS can work wonderfully. Nevertheless, in all untoward and abnormal circumstances, sound error management is possible only when speech-text-speech mode is supported by correct, grammatical, less redundant, and intelligible input. In this regard the proposed communication model can be a good theoretical tool to support input requirements at speech level. In sum, the collaborative model has the following advantages:

- enhances learning process

- supports language technology especially the intelligent voice user interface

- grammar and syntax learning is rapid and correct

- augments creativity in any contingent situations

- training content exploration is not burdensome

- it is a pedagogical approach. and is applicable in classroom environment.

References

1   Baral, S. R. HUMAN FACTORS IN ATC: STRATEGY AND APPLICABILITY. CAAN Souvenir 2000.

2   Fiske, John. INTRODUCTION TO COMMUNICATION Routlege 1990.

3   Flight Safety Foundation Inc. HUMAN FACTORS IN SAFE FLIGHT OPERATIONS: SEMINAR PROCEEDINGS Virginia 1974.

4   ICAO. MANUAL ON THE IMPLEMENTATION OF ICAO LANGUAGE PROFICIENCY REQUIREMENTS (Doc 9835) Montreal Canada 2004.

5   ICAO. PROCEEDINGS OF THE 4TH ICAO GLOBAL FLIGHT SAFETY AND HUMAN FACTORS SYMPOSIUM HFD 14. Chile Santiago 1999.

6   Mathews, Elizabeth. PROVISIONS FOR PROFICIENCY... ICAO Journal Vol. 56 2001.

7   McMillan, David. MISCOMMUNICATIONS IN AIR TRAFFIC CONTROL. An M. Ed. Project, Queensland University of technology 1998.

8   Mell, Jeremy Dr. LANGUAGE TRAINING AND TESTING ... ICAO Journal Vol. 59 2001.

9   Mitsutomi, Mario and O' Brien, Kathleen. FUNDAMENTAL AVIATION LANGUAGE ISSUES... ICAO Journal Vol. 59 2001.

10   Ragnarsdottir, M.D. INTELLIGENT VOICE USER... An MS Thesis proposal, University of Iceland 2002.

11   Robertson, Fiona. A. AVIATION ENGLISH TEACHING MATERIALS AND RESOURCES University of Franche Comte'

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Aviation Industry and National Flag Carrier: Views and Suggestions

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Aviation industry in Nepal plays a vital role since it is a landlocked country having difficult terrain. Tourism industry can prosper with correct long term vision, planning, infrastructure, serious commitment from the government and a strong national flag carrier. Nepal Airlines Corporation (NAC) has contributed significantly for the growth of tourism industry and development in Nepal. Crisis of confidence, discipline, loyalty and sense of belonging are some of the major factors affecting many institutions including NAC because of politically appointed top level external executives.

It is not only the national flag carrier but the government ministries also urgently need better coordination, cohesion, long term vision, planning and effective execution. Conducive atmosphere, correct policy and non interference from the government are some of the important criteria for the growth of NAC.

National flag carrier is run like a government organization since the top executive is always politically appointed from the government. We all should learn from past mistakes and be more serious about the well being of flag carrier and tourism industry. Open sky policy should be redefined and amended to safe guard the interest of flag carrier. Work inefficiency in NAC may reflect the functioning of government offices.

Ministries and government offices related to aviation and tourism industries are also in need of streamlining and efficient functioning so that the flag carrier can progress towards a successful airline. The suggestions listed below could be considered as some of the guide lines for the improvement of aviation and tourism industry in Nepal.

Government should provide the following facilities so as to steer the aviation industry in a more safer and dynamic pace. Kathmandu airport VOR/DME (ground navigational aid) approach should also be coupled with a localizer considering the scalloping of VOR radial due to terrain effect. Runway centre line should be lighted. Existing taxiways should be extended until the both end of runways to expedite arrival and departure. It will also facilitate the turning pad (radius) for certain modern jets including the A-330.

Considering the instrument arrival and departure procedures, existing terminal facilities and work efficiency of various ministries at TIA (Tribhuvan International Airport); scientific slot timing of air traffic should be introduced. Tall buildings and high ridges in the approach and departure path should be lighted properly. Radar coverage should be more effective and range should be extended in all directions from the Kathmandu airport.

Scientific and long term solution should be sought for the bird hazard at TIA. Some of the non aviation towers (antennas) from Phulchowki area should be relocated to other suitable hill tops considering the security of country and safety of aircraft.

Nepal government should negotiate with other countries for the fifth freedom traffic rights in the interest of national flag carrier during bilateral negotiation and treaties. Domestic airport should be upgraded or relocated to operate more efficient modern aircraft. The above suggestions should be implemented in the immediate and short term phases.

The short term plan should be a construction of an airport for the domestic operations somewhere in the vicinity of Banepa area with a high speed surface transportation connection. This will ease the traffic congestion and enhance the safety margin at the Kathmandu airport for the bigger jet traffic.

The long term plans should focus on constructing at least one alternative international airport somewhere in the inner Terai region in close proximity to capital which will help to ease the ever growing population pressure of

Kathmandu valley and promote tourism in the surrounding region. The airport should be connected with a high speed surface transportation.

Kathmandu airport due to its physical feature makes non stop long flight economically non viable because of load penalty on take off and landing on most modern big capacity jets. Construction of new airport in the Tarai region with suitable approach and departure path will save millions of dollars from increased take off and landing load capability. Feeder airlines will also have ample passenger load by shuttling from the new international airport to the capital city. The long term plan should also consist of having one each international airport in the Eastern and Western region.

Nepalese airspace utilization for high level international air traffic and additional entry and exit points should be negotiated with the neighboring countries for better revenue generation. Extension of airspace in Simra area should be negotiated with the Indian government for safer and smoother transitioning of aircraft during the descent phase of flight while coming to land at the Kathmandu airport.

NAC for the last ten years has been rudderless. It has also been void of long term realistic plans since the management has been busy leasing aircraft and crisis management with the change of almost every new government. The top management should know precisely what they want and the need of the airline which is financially viable. In order to grow an Airline as an industry, all major decisions should only be decided with ample internal homework which has been lacking in recent years.

Government policy of appointing the top post (Chairman, MD and Board Directors) either from the ministries or politically affiliated personnel who has little or no knowledge of complex airline operations have been one of the major contributing factors to steer the airline amid the present state of chaos. NAC staff should get the first priority to lead the airline.

In my service of last 25 years with the flag carrier, NAC did have some capable administrators but they also failed to deliver good results because of government interference and lack of cooperation from subordinates within the organization.

NAC is not only a confluence of administrators, technocrats and bureaucrats but politicians and business people alike are also highly sensitive about its functioning. To lead NAC efficiently is to have a successful balance between the above intricate forces which is quite a complex task to achieve especially to a new outsider executive who does not know much about the airline operation and staff of organization.

One of the major drawbacks an outsider top executive often faces is to win the confidence of NAC staff and his own subordinates. By the time an outsider executive starts to know a little about the organization, its structure and staff, it will be the end of his tenure. *It must be stressed that an airline* **administration is highly technical and sophisticated.**

In order to materialize the above few but very important points, the democratic government of Nepal after the **Jana Aandolan II** at first should have a very clear-cut vision regarding the airline whether to privatize NAC or to operate it fully autonomous as a national flag carrier. It has been amply proven that the airline cannot sustain much longer financially without injecting a large amount of capital.

The following suggestions may be considered if NAC is to function autonomously.

- Restructuring of NAC organogram, existing Corporation Act and NAC Employees Service Rules.

- Job categorization and rationalization of perks and other fringe benefit as per the productivity and international standard.

- Hiring, terminating, posting, promoting, rewarding and punishing of employees should be based on the basis of job performance and requirement.

- Fleet selection and acquisition should be independent to match the present and future route net work of airline.

- Fare restructuring except on few domestic routes without having motor roads should be reviewed and based on economic viability.

Once the airline is functioned without interferences, the criteria listed below will also automatically come into effect.

The trained and experienced manpower and route network are strength and property of NAC where as weakness is not being able to properly mobilize the manpower and failure to optimally utilize 'zero valued' fleet due to lack of effective promotion, haphazard decisions and timely alteration of services and fleet. Aircraft reliability and aircraft on ground (AOG) can be improved having regional commonality fleet and better inventory planning and acquisition system.

Negotiation and contract should also be done with reputed companies. Operating cost index should be more realistic. Balance sheet and audit should be transparent and up to date. Expansion and discontinuity of routes should be based primarily on commercial viability however, long term implication in tourism industry should be taken

into account and all options should be explored before totally withdrawing flights from any destinations. Selection of GSA, PSA and any other agents should be on the basis of their company reputation and performance.

Alliance and code sharing tie-ups with Domestic and International Airlines will increase frequencies and reliability.

The following criteria are important for the smooth functioning of airline:

Install a sense of belonging and motivation among the staff

Optimum fleet utilization

Define and develop a clear-cut future vision for the airline and plan for its implementation effectively.

Definition of an efficient working system Working manuals for all departments

Frequent change in top level executives has led to a "pool of directors" and **'top heavy management'.** NAC with its existing fleet size, departments must be trimmed down immediately. Productivity and growth can only be possible with a stream-lined management. Grooming and proper training of younger generation is equally crucial for the growth of NAC.

Too many and too often changes in top level administrator should be avoided. This is happening due to sheer greed of politicians in power and lack of grooming of in house top level administrators. For the growth of national flag carrier, management and decision making body should be groomed from among the in-house staff or at least people with sound aviation knowledge having clean back-ground.

The role of Civil Aviation Authority of Nepal and Tourism Ministry should be positive and constructive for the growth of aviation industry in Nepal. Regulatory bodies should be discouraged from aviation related business for the betterment of air safety. Proper coordination among Tourism Ministry, Tourism Board and national flag carrier is equally vital for the fruitful promotion and concrete evolution of tourism industry.

System Approach to Accident Prevention

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*U*ntil few years back, the number of accidents and incidents, that had been occurring within the country, could be remembered easily. People could even spell out the name of operator, and the crew involved in the accident. But in recent years, the rate of occurrence of accidents has increased so much that it almost seems to be as common as road accidents likened to a continuously buzzing clock alarm that goes ignored. This year observed maximum number of accidents within a short span of 5 months (May - September, 2006).
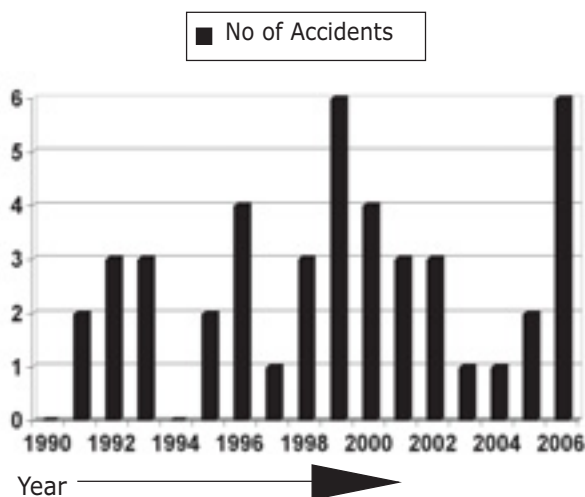
Diagrammatic representation showing the number of aircraft accidents in Nepal

The table above shows that the number of accidents during these 5 months is 6. Six accidents within 5 months is a matter of serious concern to Civil Aviation Authority of Nepal, which had recently declared to have been moving towards zero fatality. That is why it is the matter of utmost importance that we start looking for the cause of these accidents seriously so that further accident can be prevented.

Prevention of further accident undoubtedly is a challenging issue but not an impossible. One must know the main cause or contributing factor of the accident in order to reach the solution. Based on the cause of accident, a list of safety recommendation has to be sent to the concerned authority so as to prevent further accident of same nature. Previous safety study and report on accident/incident investigation reveal that all the causes identified today have a known precedent i.e. they are all repeated causes. In some way, measures to prevent accidents can be imagined to avoid causes from repeating themselves. If measures are not taken, causes will repeat themselves. If a system or an organization is generating some kind of a failure, and doesn't inciate to change in the system, it will keep on generating the same failure.

Why do these causes repeat again and again? Very rarely is an accident defined through what caused it to happen. And even rare through what could have prevented it from happening. Accident investigation reports usually depict clearly what happened and when, but in too many instances, they failed to explain how and why the accident occurred. By stating that a pilot did not follow the rules implies that the rules are safe and appropriate. Hence the investigation report often limit conclusion to phrase, such as "pilot error", failed to see and avoid, improper use of controls or fail to adhere to established Standard Operating Procedure (SOP). This is one of the narrow focii that stands as obstacle to and effective investigation.

Aviation industry is a complex socio-technical system in reference to the complex interactions between their human and technological components. In such system errors committed by front line operators depend mainly on the way the system is designed and managed. System tolerance to error will determine how likely an error could possibly be committed by one or several individuals. System resistance to error will determine how likely on

*Accident Record since 1990 to till date

| S No	Date of Accident	A/C Reg. no.	Type of A/C	Operator	Place of Accident	Fatality	survival
1.	09/06/91	9N ABA	DHC 6	RNAC	LUKLA	NONE	
2.	28/06/91	9N ABS	DHC 6	ATSC	SIMIKOT	NONE	
3.	31/07/92	HS TID	A310	THAI AIRWAYS	GYANGPHEDI	113	NONE
4.	26/09/92	9N ACI	Y12	NEPAL AIRWAYS	LUKLA	NONE	
5	28/09/92	AP BCP	A310	PIA	BHATTEDANDA	157	NONE
6	../04/93	9N ACK	BELL260	HIMALAYAN HELICOPTER	LANGTAN	NONE	
7	08/11/93	9N ACS	Y12 II	NEPAL AIRWAYS	JOMSOM	NONE	
8	31/07/93	9N ACL	DO228	EVEREST AIR	SOLIGHOPTE	18	NONE
9	14/01/95	9N ABI	DHC6	RNAC	KATHMANDU	2	23
10	15/07/95	9N ADB	Y12	NEPAL AIRWAYS	BHARATPUR	NONE	
11	24/01/96	9N ADM	MI17	NEPAL AIRWAYS	SOTANG	NONE	3
12	25/04/96	9N ABR	HS748	RNAC	MEGHAULI	NONE	
13	28/07/96	9N ACC	DHC6	ATSC	SIMIKOT	NONE	
14	23/12/96	9N ACF	Y12	NEPAL AIRWAYS	DOLPA	NONE	
15	30/09/97	9N AEC	AS350	KARNALI AIR	THUPTEN CHOLING	1	4
16	21/08/98	9N ACC	DHC6	ATSC	CHUCHCHE KHARKA	18	NONE
17	24/10/98	9N ACY	AS350B	ASIA AIRLINES	MUL KHARKA	3	NONE
18	20/11/98	9N ACK	PC6/B2H4	RNAC	PHAKDING	1	NONE
19	17/01/99	9N ADA	CESSNA208	NECON AIR	JUMLA	5	7 (2 serious injury
20	30/04/99	9N AEJ	AS350BA	KARNALI AIR	LISUNKHU (SINDHUPALCHOK)	NONE	
21	31/05/99	9N ADI	AS350B2	MANAKAMANA AIRWAYS	RAMECHHAP	NONE	
22	07/07/95	VT LCT	B727-200	LUFTHANSA	BHASMASUR HILL	5	
23	05/09/99	9N AEG	HS748	NECON AIR	(THANKOT, KTM)	15	
24	25/12/99	9N AFL	DHC6	SKYLINE AIRWAYS	BURJO LAKE (MAKWANPUR)	10	
25	26/02/00	9N-ABO	DHC-6	RNAC	Bajhang	01	
26	27/07/00	9N-ABP	DHC-6	RNAC	Jogbuda (dadeldhura)	25	None
27	03/11/00	9N-ACV	DO-228	GorkhaAirlines	Lukla	None	
28	19/11/00	9N-AFS	DO-228	Cosmic Air	Tumlingtar	None	
29	05/04/01	9N-AEV	DHC-6 /300	Yeti Airlines	Tumlingtar	None	
30	11/09/01	9N-ADK	MI-17	Air Ananya	Mimi	None	
31	12/11/01	9N-AFP	AS-350B	Fishtail Air	Rara lake, Mugu	4	2
32	12/05/02	9N-AGE	AS-350 BS	Karnali Air	Makalu Base Camp	None	
33	17/05/02	9N-AGF	DHC-6 /300	Skyline Air	Surkheth (Gadgade Danda)	4	-
34	22/08/02	9N-AFR	DHC-6 /300	Shangrila Air	Kristi Nachne Chaur	18	-
35	28/05/03	9N-ADP	MI-17 IV	Simrik	Everest Base Camp	2	7
36	25/05/04	9N-AFD	DHC-6 /300	Yeti Airlines	Lamjura, Solukhumbu	3	-
37	04/01/05	9N-AGG	AS-350 BA	Air Dynasty Heli Service	Thhose VDC Ramechhap	3	-
38	30/06/05	9N-AEO	DO-228	Gorkha Airlines	Lukla Airport	3	10
39	07/05/06	9N-ADT	MI-17 MTV 1	Simrik Air	Dhaulagiri Base Camp	-	-
40	21/06/06	9N-AEQ	DHC-6 /310	Yeti Airlines	Jumla Airport	9	0
41	03/07/06	9N-AFE	DHC-6 /310	Yeti Airlines	Bajura Airport	0	3
42	08/08/06	9N-AGS	MI-17	Karnali Air	TI Airport,KTM	0	0
43	03/09/06	9N-ACR	AS-350 BA	Air Dynasty Heli Service	Dhaulagiri Base Camp	None	1 major injury
44	23/09/06	9N-AHJ	MI7	Shree Air	Ghunsa , Taplejung	24	0

*Source: ASD, CAAN
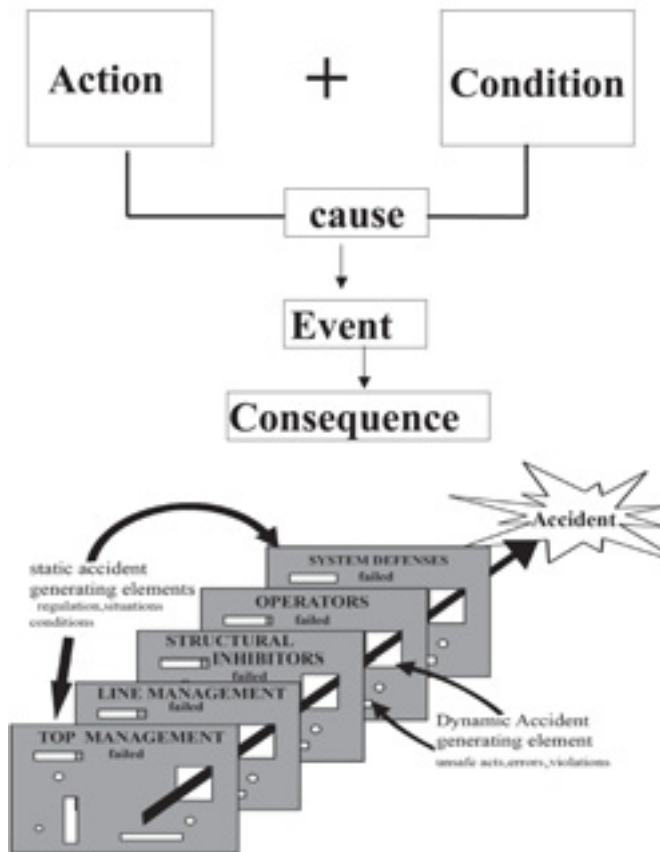
Fig. James reason's model of accident causation showing the various human contributions in the break down of a complex system (source: James Reason, Human Error, 1990, UK, Cambridge University Press)

adverse event (an accident) will result from an error in case such an error is committed. Both the tolerance and the resistance depend on the probability for an error to be detected in due time, i.e. before an error is committed.

According to James Reason's Causation model, the accident is caused due to sequence of event.

One of the basic elements of the complex system consists of the TOP MANAGEMENT, who are responsible for setting goal of safety and the goal of on time and cost-effective transportation of passengers and cargo. A second key element is LINE MANAGEMENT, those who implement the decisions made by TOP MANAGEMENT. To result in effective and productive activities by the OPERATORS, certain precondition (STRUCTURAL INHIBITORS) have to exist. For example, equipment must be reliable, operators has to be skilled knowledgeable

and motivated, and environment and mental condition have to be safe. SYSTEM DEFENCE or safeguards usually prevent foreseeable injury damage.

There are two types of failures in any complex system. An active failure caused due to Dynamic Generating Elements (DGE) such as unsafe acts, errors, violations etc. which has an immediate adverse effect. Such errors are usually made by the front line OPERATOR. A pilot raising the landing gear lever instead of the flap lever is the example of this type of failure. A latent failure caused due to Static Generating Elements (SGE) is a result of a decision or an action made well before an accident, the consequence of which may remain dormant for a long time. Such failures usually made by the TOP MANAGEMENT or LINE MANAGEMENT level. Decision of providing Area Control Service by 120.6 MHZ (APP Frequency) under Contingency Plan for long period illustrates latent failure. This failure can also be introduced at any level of the system by the human condition, for example, through poor motivation or fatigue.

The front line Operators are also the inhibitors of a system's defect. They directly involve with the technical conditions and its problem. These two failures interact in the SYSTEM DEFENCE to avoid accident. When system defense do not work, then accident occurs.

Therefore in a system where technological progress and excellent defense exists, accident rarely originates from the errors of operational personnel. Instead, they result from a series of failures present in the system. These failure are not immediately visible and consequences are delayed.

CONCLUSION:

Cause of accident is not solely the result of an act undertaken by an individual. Accident is created when active failure (Dynamic Generating Elements) and latent failure (Static Generating Element) present within an organization and they interact in a manner which breaks all of the defenses. Therefore, it is necessary to determine the related latent failure present at all level of the organization including TOP MANAGEMENT. We cannot prevent humans from making errors, but we can reduce the frequency of their errors and limit their consequences. This is the essence of prevention activities.

Concept of ATC Delay: A case study of TIA

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G"ood Morning and warm welcome to all on board. This is Capt. X speaking. Please expect 30 minutes ATC delay for our departure". On board a reputed international airline, I was surprised by the announcement. On many occasions, as an ATC, I had issued clearances from control position anticipating the delay of a flight. But, here as a passenger, I felt the pain of it. Also as an ATC, it was horrible to hear the word 'ATC Delay'.

Every traveler cringes at the words "delay," "late," or "cancellation." In 1993, the worldwide air traffic system recorded 276,000 delays of over fifteen minutes. Various levels of government, airport, and airline officials are attempting to address this situation. The problem has become so acute that the Bureau of Transportation Statistics has set up an Internet web site, so users may check the delay histories of specific flights. Since the Airline Deregulation Act of 1978, the number of airline passengers has grown from 243 million to over 468 million per year causing significant increase in air traffic. The result is delay.

What is ATC delay?

Delay: to cause to be late or behind in movement or progress.

ATC Delay: Though the exact definition of ATC delay can not be found in dictionary, it can be defined as a cause to be late or behind in movement or progress due to air traffic. But ATC delay itself is not a cause but a resultant of several other factors e.g. weather, lack of navigational facilities, runway orientation, ATC system etc.

Let us study three different traffic situations at TIA:-

A) Sometime only two aircraft are sufficient for a delay whereas in the same period six aircraft can be accommodated without delay. For example consider the following cases.

No 1 case:-

No 1 A/C (Departure): - THA320, EOBT 0820 UTC (requesting RWY 20)

No 2 A/C (Arrival): - SAH501, ETA 0828 UTC (on VOR/DME RWY02 APP)

At 0808 UTC, THA320 requested for pushback and start up clearance. As SAH501 is on VOR/DME approach (RWY 02, ETA0828) and THA320 is requesting RWY20 (ETD 0818), at least one A/C will be delayed for at least 10 minutes. Because priority was given to arriving A/C, THA320 departed at 0831 UTC. Additional traffic will further delay the aircraft movement. Cause: Runway, Result: ATC Delay

No. 2 case:-

No 1 A/C (Departure): -   DRK202, ATD 0820 UTC for VQPR (from RWY 02),

No 2 A/C (Arrival): -   SAH501, ATA 0828 UTC (VOR/DME RWY02 APP)

No 3 A/C (Arrival): -   9N-ABU, ATA 0822 UTC (VOR/DME RWY02 APP)

No 4 A/C (VFR Departure): -   BHA901, ATD 0821 UTC (to east)

No 5 A/C (VFR Departure): -   9N-AET, ATD 0823 UTC (to east)

No 6 A/C (VFR Departure): -   BHA603, ATD 0824 UTC (to west)

Compared to the first situation, traffic volume is three times high, but as the runway in use is 02, there will not be any delay. This is a typical example of ATC delay (due RWY layout and terrain) at TIA, which is beyond the capacity of anybody.

B) Consider another example from actual traffic scenario (Example no 2):-

No 1 A/C: RNA409, entering RWY 02 via taxiway 5 for line up @ 0840 UTC for IGRIS 1B departure

No 2 A/C: BHA902 ETA 0845 UTC (from east)

No 3 A/C: DRK202 ETA 0848 UTC (VOR/DME approach)

ATC planning: - By the time BHA902 joins right hand base rwy 02; RNA409 will depart. DRK202 will be cleared to land after BHA902. When RNA409 was about to line up, APP gave requirement to reach O/H KTM @ or above 10,500' due traffic. ADC relayed the requirement to RNA409. PIC replied unable, we can reach 9500' by KTM. Now when TWR coordinator tried to relay the message to APP, INTERCOM was U/S. He tried on telephone; it was busy. Time was critical, BHA902 was already on right base 02, and DRK202 was at 12 DME. By the time TWR was able to contact APP; BHA902 was on short final and advised to 'GO ROUND'. DRK 202 was on 8 DME, later carried Missed Approach. RNA409 departed at 0846 UTC. All the aircrafts were delayed from 4 minutes to half an hour. Such situation not only causes for a delay but also jeopardize safety. Cause: INTERCOM; Result: ATC Delay

C) Following actual traffic scenario during IFR condition at TIA (last week of February, 2006) gives a clear picture of ATC DELAY caused by weather, traffic pattern and ATC capacity (example no 3): -

(Capacity is the maximum number of traffic that a unit can handle under standard condition. Capacity is not rigid; it depends on the traffic pattern, working conditions, weather situation, skilled manpower etc.)

(Due weather, airport was open for IFR operation at 0245 UTC)

To reduce the delay in the above-mentioned traffic situation, Air Traffic Flow Management should be introduced. This will help to take the delay on ground rather than on air. In TIA, ATFM is very much essential especially to handle traffic in approach control centre because most of the traffic concentrates in its jurisdiction. ADC and ACC play bigger role to confine the traffic by delaying departure or restricting the traffic according to demand. So they are an integrated part of ATFM. This concept is applicable effectively in IFR conditions.

A/C call sign	EOBT	Dest.	ATD	Est. Over NOPEN (on-inbound)	EAT	Seq.	Delay
9N-AET	0045	VNLK	0252	0404	0411	**4**	Average delay of 25 minutes.Max. Delay one hour. The delay is achieved either on ground or on air. Even though ETA of some A/Cs are earlier, due to lower level of smaller a/c, they have granted priority. The delayand priority might change significantly depending on level and way of handling traffic.
9N-AHE	0045	"	0256	0359	0402	2	
BHA101	0100	MTN	0304	0356	No-delay	1	
9N-AFE	0050	VNLK	0305	0417	0440	8	
BHA102	0100	MTN	0309	0401	0408	3	
9N-AGQ	0045	VNLK	0310	0413	0434	7	
BHA301	0050	MTN	0312	0405	0423	5	
9N-AHM	0045	LOCAL	0313	0415	0515	14	
9N-AHB	0045	VNLK	0315	0418	0447	9	
BHA104	0100	MTN	0317	0410	0428	6	
9N-AEP	0055	VNLK	0318	0432	0510	13	
BHA103	0115	MTN	0320	0416	0453	10	
9N-ABU	0115	VNRT	0321	0435	0505	12	
9N-AHK	0115	MTN	0327	0427	0459	11	
DRK202	Inbound from VQPR		0215	0245	No-Delay		
QTR355	0215	OTBD	0258	CTOT (0250,r/w 20)	Departed from R/W 20 after landing of DRK202, adjusted with the departure traffic. R/W in use still 02 for others.		
GFA207	0215	OMAA	0308	CTOT (0300,r/w 20)	Delayed due departing traffic.		
COZ601	0215	VIDP	0232	CTOT (0230,r/w 02)	Departed from R/W 02		
RNA401	0330	VTBD	0420	CTOT (0400,r/w 20)	Delayed due arrival A/C, this caused extra holding for No.5 arriving A/C.		

CTOT:-Calculated time of Take-Off

While writing this article, I remember the day when I was a student of Statistics at Tribhuvan University. I was performing a statistical test and to impress my teacher, I did the practical so smoothly that the error was almost zero. With a fantastic mood I showed my practical to the teacher. I was expecting some encouraging comment from the teacher. Instead, he used some harsh word and said," How did you manage to have the zero error?" Because I wanted the best result, I replied. "Why are you worried about the error?' Error is the right of a statistician'. Do any statistical test without worrying about the error". From that day on, I never gave a second thought about the error while conducting the test.

During my initial job as an ATC, traffic was very much less and the word 'Delay' was in dictionary only. But after the introduction of open sky policy, traffic volume increased significantly and delay became an integrated part of Nepalese aviation. But, whenever I issue a clearance anticipating a delay, my voice becomes weak and shaky. I'm afraid of the negative comment from concerned people. So, I used to apply all possible efforts to expedite traffic, sometime it was beyond my capacity. This may jeopardize safety. So, I remembered my teacher's mantra, 'Error is the right of a Statistician'. Therefore, I followed another 'guru mantra' of a controller 'As an ATC, delay is my right for a safe operation'. So, we shouldn't afraid of the delay (no doubt it should be justified), because our first priority should be safety. These days the word 'expeditious' is limited to aviation dictionary. ATC's traditional ethics of SOE (Safe, Orderly and Expeditious) flow of air traffic has become SOMD (safe, Orderly and Minimum Delay) of air traffic.

Believe it or not: Cessna on African Runway.   *Courtesy: The Controller Mazagine*

Operating Cost Reduction Approaches to TIA Budget

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Overview:

This discussion is aimed at finding strategic budgetary measures to save or minimize some of CAAN operating costs. Financial management always has to look in for cost control opportunities. But cost control principle should also take care of enhancing service level and efficiency

As per the Act 2053, CAAN operations must be guided by business principles. In a pure business organization budgetary process may not be compulsory. Because CAAN is a Government entity yearly budgets are integral part of operation. In this context CAAN has institutionalized budget formation, implementation and review process.

Government budgets tend to take a bigger shape year by year. One of the reasons may be inflation. The other may be the increase in the scope of service. The third one may also be the nature of the bureaucracy itself. Bureaucracy prefers an empire in terms of staff, budget, and fixed assets. CAAN may also have been fallen pray of such empire-building syndrome. Therefore exploring for economical and cost saving strategies of budgeting makes here a sense.

Importance of TIA in CAAN Finance:

TIA has apex position within CAAN in term of physical and financial mobilization. More than 90% of CAAN revenue is generated here. About 40% of expenditure budget is to be spent on its account. Therefore, discussion on operating cost issues of TIA is important. It will help to identify the problems and guide to formulate financial policies for CAAN as a whole.

Total Revenue and Expenditure Scenario:

In the following table a gross comparison of CAAN and TIA revenue and the operating cost figures are presented. Let us examine these data.

Table 1 show that the percentage of operating cost is increasing. It is continuously going up year by year both in CAAN and TIA. If we compare F.Y. 2058/59 to F. Y. 2062/63, operating costs percentage in relation to revenue has increased by 50%. In F. Y. 062/63, overall operating cost percentage of CAAN has reached to 45% and that of TIA has approached to 25% of gross revenue. Why CAAN operating costs are going high? Is there any chance of controlling it? Is the 25% operating cost itself satisfactory for TIA? These are some of the quarries we want to raise.

May be there are valid reasons for increased operating costs. Only this much presentation of data may not be sufficient to draw a reasonable conclusion. So we would not prefer to comment. We only maintain that there must be chances of cost reduction on some of the operating cost lines of TIA.

The Scenario of TIA Electricity, Fuel, Vehicle Maintenance, Airport Maintenance and Cleaning (EFVAM) Costs:

Here are expenditure data of electricity, fuel, vehicle maintenance, airport maintenance and cleaning costs of TIA.

Interestingly it is revealed from the table 2.2 that salary related expenses have been more or less static for the past 5 years. In the fiscal year 058/59 salaries related expense budget was 7.99% of revenue. It reached only to 8.76% in 062/63. But in the case of EFVAM, budget has raised two folds. It was 5.88% of revenue in the F.Y. 058/59 and approached to 11.98% in 062/63.

From the above data, our problem area is identified. The increasing Electricity, Fuel, Vehicle maintenance, Airport Maintenance and Cleaning (EFVAM) has big share on overall increase in the TIA operating costs. We assume that there is possibility of minimizing these costs. We also assume some of these costs can be avoided with the possibility of dragging them to revenue streams. In the following paragraph we try to discuss to explore such

Table 1: Total Revenue vs. percentage of Budgeted Operating Cost of CAAN and TIA.
(Figures in million Rupees)

	CAAN					TIACAO				
F.Y	Total	Total Revenue	Capital Exp	Oper Exp	Oper Exp% on Rev	Total Rev	Cap Ex Rev	Oper Exp	Total Exp	Oper Exp % on Rev
062/63	1407.0	936.0	617.3	631.6	45	1168.9	84.98	297.38	382.36	25
061/62	1304.3	844.6	314.2	530.4	41	1177.64	64.40	233.45	297.85	20
060/61	1208.5	605.0	200.2	404.7	34	1112.27	50.05	234.50	284.53	21
059/60	1164.3	561.1	170.6	390.8	34	1033.67	52.85	235.95	288.80	23
058/59	1155.7	936.0	577.7	358.4	31	1040.48	94.15	162.73	256.88	16
Total	6239.8	3882.7	1880.0	2315.9		5532.96	346.43	1164.0	1510.64	

Source: Civil Aviation Reports (2002-2005) and TIA financial reports.

Figures for 2062/63 are preliminary and un-audited. (For our analysis purpose we assume yearly budget = yearly expenditures)

possibilities.

A. Vehicle maintenance and transport fuel costs:

As mentioned in Table 2.1, in the year 062/63, cost for vehicle maintenance has reached to Rs. 2.50 million. Likewise fuel for vehicle cost has gone up to Rs. 6.00 million. Transport facility is very much essential for sift duty operation. Most of the vehicles are old. Some may have been purchased two decade ago. Old vehicles are less fuel-efficient and need frequent maintenance. On the other side the price of petrol and diesel is increasing year by year. In the future there will be further increase in fuel price. Hence this cost has been a big burden and a matter of concern for TIA. We could reduce these costs by the following approaches:

Operating Approaches

1. Operate service with new vehicles preferably not older than 5 years.

2 Maintain every vehicle as per manufacturer manual and preferably in their authorized service station.

3. Conduct periodic KPL (Kilometer per Liter) test for every vehicle and try to maintain factory prescribed fuel efficiency.

4. Practice of group pickup and drop service for staff. No special vehicle for any staff.

5. Use of staff passes to get transportation service. Outsiders may be served on monthly service charge basis only.

Strategic Approaches

1. Instead of going to Jawalakhel (up down 12 km) take fuel from nearby petrol pumps.

2. Security purpose fuel expense (for army and police) should be budgeted in separate budget head.

Table 2.1
Budgeted Electricity, Fuel, Vehicle Maintenance, Airport Maintenance and Cleaning Costs of TIA
(Figures in Million Rs.)

Budget code	Budget Head	062/63	061/62	060/61	059/60	058/59
3.2.01	Electricity and Water	35.00	38.00	32.00	31.00	24.00
3.2.02	Telephone & Telex	2.50	4.00	4.00	3.00	3.40
3.9.04	Vehicle	2.50	2.00	1.50	1.50	1.00
3.9-01,	Maintenance					
02,03,05	Building & Equipment	68.13	37.20	4.50	18.00	5.50
3.13	Fuel for Vehicle	6.00	4.50	4.50	4.50	3.50
3.13.02	Fuel for Other	4.00	4.00	8.00	3.00	2.20
3.17	Airport Cleaning & Maintenance	22.00	23.50	24.70	21.00	21.60
Total EFVAM Exp		**140.13**	110.2	79.20	82.00	61.20

Table 2.1 shows detail of budgeted figure for major operating cost incurred in TIA. A close scrutiny of the figures reveals that costs for Building & Equipment maintenance Fuel and Vehicle maintenance is steeply rising in the past years. Let us observe further details of these operating cost figures.

3. Integrate transport system of CATA, ATSC and other agencies within CAAN office for 10-5 duty.

4. Specification of Vehicle to be standardized. Such specification would consider fuel and maintenance as well as total cost for useful life of the vehicle.

Innovative Approach

1. Develop revenue schemes. Such as involving Shajha or other appropriate agency to open a multipurpose fuel pumping station cum fast food and car wash centre at the nearby TIA land. Revenue sharing of such scheme would generate revenue to compensate above cost.

2. To out source transportation service may be another innovative approach. This bidding can be tied up with revenue as well. The agency can pick up or drop other agency employees on the same route on monthly fare basis. Hence, reducing the outsourcing cost.

3. Staff Loan for Vehicle. This scheme may be introduced in collaboration with any appropriate agency / dealers of specific vehicle manufacturer.

B. The cost for Electricity and Water

The annual cost of electricity for the year 2062/63 has reached to Rs. 35 million. While in 2058/59 it was only 24.00 million. The yearly revenue on electricity is about Rs. 8 million (23%). So there is also a big gap on cost recovery side. Most of the electricity cost is not recoverable from the user agencies. A big part of power is utilized by airport itself for runway lighting, radar, equipment and aircontioning. However, much more could be done to reduce this cost. Some of our suggestions are given below:

Operating Approaches:

1. To install sub meter to every leased space client. If sub meter installation is not possible calculate minimum charge on the basis of used power and points.

2. To install fuel-efficient and quality lighting accessory.

3. To use light when it is needed. Street flood lighting time be controlled and monitored so that lights are switched on only in the night and operation time. Reduce flood light number in landside.

Strategic Approaches

1. Recover the lighting charge from government agencies and Nepal Army.

2. Monitor the misuse and wastage of power through inspection team.

3. Levy of tariffs such as lighting charge for aircraft landing say @ USD 20.00 for international and USD 5.00 for domestic flights.

4. Rent for the air-condition facility area to be extra changed

5. Regular energy audit provision and implementing audit report.

Innovative Approach

1. Outsourcing an electricity administrator for proper management of power supply.

2. Where possible install and use solar power.

3. Extra charge for essential lighting (generator powered expense).

C. The Cost for Airport Cleaning

Yearly Airport clearing cost for the year 2062/63 is Rs.22.00 million. This was Rs. 21.60 million in the year 2058/59. There is no cost recovery from clients on cleaning. What could be done to reduce the cleaning cost?

General Considerations:

1. Can the airside grass cutting be linked to revenue? May be herb growing company like Dabur Nepal would utilize the airside grassland. Can it be managed without compromise on safety and security?

2. Some of the airside grass area may be given to Nepal Army leaving them to cut grass to feed horses.

Strategic Approaches

1. Reduce the required cleanable area. Concentrate more on passenger movement area. This means one time cleaning to office areas and many times cleaning only to passenger movement areas.

2. Self-cleaning of rented area. Government agencies and conciseness should spend their money to clean their space.

Innovative Approach

1. Encourage self-cleaning system by airlines in OA building. This will reduce our manpower requirement.

2. Landside cleaning contract can be awarded tying it with the space for flower nursery, or advertisement schemes.

3. Airside cleaning charges to be born by airlines on prorate or proportionate basis.

Conclusion:

We agree that above suggestions on TIA operating cost saving approaches are not conclusive in any way. Basically, any such implementable suggestions need additional study and analysis. Only one thing here seems important. Management should be aware of the ever-increasing operating cost of CAAN and TIA. And everybody agrees that these costs should be controlled and managed in a proper way. Where possible cost should be recovered. Possibilities of revenue generation should also be considered.

Somebody may argue that above suggestions are easy to talk but hard to implement. We believe in the will of management. The apex body of CAAN, Board of Directors and apex executive, the CEO of CAAN. Both are apparented determinants to implement these suggestions.

Development of Aeronautical Communication in Nepal

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History: Air transportation in Nepal is believed to have commenced from the month of July 1948 after the successful landing of aircraft "Beech Bonanza" by the British pilot Mr. H. Weatheral on the rough and barren cattle grazing pasture called "Gaucharan". This livestock grazing land "Gaucharan" which after several transformation now is named as Tribhuvan International Airport after the name of the late king Tribhuvan the grandfather of the present king. As the development of air transport in Nepal gradually went on, new types of challenges appeared and one of them necessitated the development of aeronautical communication systems in Nepal. To face this challenges in civil aviation, Government of Nepal has undertaken different activities. It started seeking international assistance for the civil aviation development from different countries. The names of the countries and the contributions they have made to civil aviation development in general and to the development of communications and navigational aids are briefly mentioned below.

India: After the advent of democracy in June, 1951 (Asad, 2008 B.S.) the then prime minister of India visited Nepal. To asssure safety and efficiency of that flight, a complete redio equiped technical team was catered from India to provide communications and navigation services. This service was extended for another 20 yrs and can be believed as the beginning of the technical and financial assistance to Nepal by India. This Indian team left only in 2029 B.S. for India after Nepalese technical team was capable of handling communication service. During that time the mode of communication was Morse code signal and communication between aircraft and ground station and also with Indian cities like Calcutta and Delhi were linked by this system. This Morse code system completely ceased in operation since 1993 after more reliable radio/data communication system came in to operation.

Australia: Though the rapid increase of new airports, development of air services with upgradation of airports were in full swing, the Tribhuvan International airport, the only International airport of Nepal at that time was not equipped with modern, high tech communication systems of International standards. Australian Govt. sensed the need to upgrade the existing system by assisting Nepal for the development of infrastructure of communication and navigational aid. Australian Government formed a study team in 1966 under Mr. J H Jeranda on whose report the two countries decided to implement the project, and the first memorandum of understanding was signed between the government of Nepal and Australia on June 6, 1968.The work started with the installation of modern international H.F. (High Frequency) and VHF communication systems at Tribhuvan International airport and with tho construction of air transmitting station at Sinamangal and receiving station at Sanothimi for H F communication and VHF repeater station in mount Phuchowki. So during 1974/75 (B.S.2031) the communication system installation was completed ,tested and finally put in to operation making communication system of T.I. Airport safer and reliable. The Australian government had also extended cooperation by adding modern communication equipment and physical facilities for the newly constructed operation building along with shifting of equipment from the old building. Nepal and Australian Government signed the third MOU in April, 1983 after the technical study team of Austraila submitted its report following a study work in June, 1981. This project was completed 1991 and came in to operation. The major historical work of this project was to introduce computer based Semi-Automatic Message Switching System for the first time in Nepal, making AFTN more reliable, fast and easy to work. Thus the era of computer technology in communication systems started in Nepal. Another remarkable job done was upgrading of the old VHF link between T.I.Airport and mount Phulchowki repeater

station with more reliable dual UHF link. New ATIS was installed on the VOR equipment for the first time and is in service till this date.

French Assistance: It is a well-known reality that due to lack of electricity in the remote airports situated in the high hills and mountains of different districts of Nepal, to give communication and navigational aids service to the aircrafts was next to impossible.

To overcome this problem during those days generators were in use but adequate supply of fuel was not possible causing disruption in service. In remote areas fuel were carried by animals from different districts taking several days to reach the airports.

When we were facing this kind of difficulties the French Government came with a solution by providing solar based technology as substitute to the electricity . With the assistance of French Government remote 15 STOL airports were first selected for the up gradation. The agreement was signed between governments in Feb, 1981 for the project. The French company Sofravia was awarded the work and the agreement for the work was signed in May,1982 (2038/039 B.S.). This project started its work under the first programmed by installing solar powered communication and navigational aid in 15 STOL air fields. Again in May, 1983 (2039/040 B.S.) the government of France and HMG of Nepal signed another

financial assistance programmed to add communication and navigational aid to T.I.Airport and to other airports of Nepal. After the completion of installation work the old Australian aided equipment was slowly relieved from the job.

Japanese aid: The Japanese assistance to improve the air transportation and tourism in Nepal started with the signing of the first agreement between the two governments in Feb, 1988. A study team arrived in August, 1988 and submitted its report in Sept, 1989 suggesting six priorities base projects. But only after the tragic crash of the two airliner of Thai Airways and the Pakistan Airlines in 1992, the government of Nepal requested the Japanese government for assistances in adding modern com. and nav. aid facilities at T.I.A. . For this purpose the agreement was signed between Japan and Nepal in Jan, 20 1994. After the agreement, the Japanese government organization "JICA" was awarded the project to introduce RADAR system in Nepal. The work started in 1994 and was completed in August 1997 followed by hand over to Nepal government.

Present Status: After the Japanese aid, no foreign assistance has been received for the last 10 years. All the equipments that were installed on foreign aid now have become old and out of date, and require to be replaced by new equipment and latest systems. These equipments are running either with critical spare parts or some have been out of order due to the lack of maintenance skill and non-availability of spares, which have to be purchased from distant foreign land by paying huge amount of money. Procurement of exact spares is almost impossible due to rapid system upgradation and closure of manufacturing companies.

To face this challenge Civil Aviation Authority of Nepal is trying to be self-sustainable by utilizing its previous experience, technical manpower and skill in infrastructure development, gradually replacing old systems by new equipment without the foreign assistance. In this regards some works have been accomplished in the past completed in the past i.e. on 20th March 1996 Australian aided Semi-Automatic Message Switching System was replaced by fully Automatic Message Switching System and again on12 July 2000 Y2K complaint system was procured on its own cost. Thus with the breaking of the foreign dependency of financial and technical advice, this system has been put to operation which is still running. By utilizing this self-confidence and preceding experience, CAAN should gradually replace further old systems.

Future Work: Despite all the achievement received so far due to various bilateral and multilateral economical and technical co-operation extended by different countries for the development of communication and navigational aid, we are still lacking behind in the implementation of new concept of global CNS/ATM plan. For this purpose

CAAN (Civil Aviation Authority of Nepal) has constituted a separate Department to look after this matter. Recognizing the importance of CNS/ATM concept CAAN has issued updated CNS/ATM transition plan as issue-2 in June 2005. To fulfill this objective meetings and seminars were conducted but the progress is very slower than expected. Also task force to look after this is already to action but due to slow administrative decision and financial regulations the work is delayed unwillingly. Implementation of ATN (Aeronautical Telecommunication Network) application, the backbone of communication systems for the over all air navigation systems should be given top priority. This ATN application, the vital part of the CNS concept on complete structure is believed to enhance air safety and helps in regularizing flight movement. ATN end system application currently applies six systems as per the manual of technical provision for the ATN.

1. Context Management (CM): provides a logon service to the aircraft initially to the ATN

2. Automatic Dependent Surveillance (ADS): Provides data from the aircraft to the ATS units for the surveillance use.

3. Controller Pilot Data link communication (CPDLC): Provides a means of ATC data communication between controller and aircraft.

4. Flight Information Service (FIS): Provides to aircraft information and advice useful for the safe and efficient conduct of flight.

5. ATS Message Handling System (AMHS): Provides ATS message service.

6. ATS Inter-facility Data Communication (AIDC): Helps to exchange ATC Information between ATC units.

These applications mentioned above should be gradually implemented when and where necessary. In our case, at present, provisions made under 2, 5, and 6 above, needs to be considered for execution.

The task force has been created for this purpose. To accomplish this a target date has been set by ICAO with guidelines and planning documents. First of all for up gradation work in accordance with ATN transition plan to provide infra structure for the implementation of AMHS in near future and gradually add other ground-to-ground application the task force is thinking to upgrade Kathmandu-Mumbai AFTN circuits to 9.6kbps with x.25 protocol. To upgrade speed and protocol both the side should agree and along with the local service provider. Some hard ware as well as soft ware changes have to be done on both sides before going for final accomplishment.

The RADAR system installed on Japan grant assistance in Tribhuvan International Airport on August 1997 and came in operation from January 1998 is now running in very grave state after 8 years of continuous service. This old system lacks spare parts, which are not available instantly in addition to, are acquired from distant country of manufacture by paying huge amount of money with very little chance of compatible parts.

This type of RADAR system now opts for the new system called ADS-B/C as the substitute of RADAR. In this regards, ADS-B along with Wide Area Multilateration (WAM) system is believed to be very helpful in the mountainous country like Nepal, and this very system is in operation in Austria.

Before the replacement of AFTN by AMHS (ATS Message Handling System) system the current links of AFTN system has to be upgraded to cater traffic load generated by AMHS over heads by increasing speed to 9.6kbps with package switching x.25 protocol.

ICAO Asia/Pac Bangkok had set the end of 2005 as the deadline for upgradation of infrastructure for ATN implementation but many other countries including Nepal countries have just taken initiatives. To introduce new technology and its accomplishment has never been so easy for any one, so to manage these difficulties and its smooth operation CAAN has to plan and train technical and operational staff to enable them to plan and develop smooth transition to ATN. The CAAN should arrange besides appropriate trainings, for exposures to new concepts, knowledge and procedures required for ATN implementation.

Retrospection to Zagreb Mid Air Collision

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In the mid-1970s Zagreb Air Traffic Control was one of the busiest centre in Europe. The Zagreb VOR beacon formed a junction for heavily used airways used by air traffic en-route to and from southeastern Europe, the Middle East, the Far East and beyond. To look after all this traffic were a group of understaffed and overworked Air Traffic Controllers using a radar system which was 'under test' and radio transmitters that often failed to work. The controllers would use the radar only as a back-up, as it had not been commissioned since it had been installed two years earlier. This meant that aircraft separation was to be maintained by a process called procedural control, which requires pilots to make position reports at designated waypoints and provide an estimated time of arrival for their next position. In the first five years of the decade, 760,000 aircraft movements were handled by Zagreb ACC, and by 1976 the Zagreb ACC was the second busiest in Europe, its staff of 30 desperately coping with traffic which required at least double their number. Despite the staff shortage and increased workload, Zagreb's safety record was, under the circumstances, surprisingly good, although 32 air misses had been reported in the past five years and two controllers had been dismissed for negligence. Even the negligence charges came out not through lack of skill but from under work: lateness for duty and unauthorized absence from the control station to snatch a bite to eat. Zagreb Airspace was divided into three sectors, by altitude. The lower sector controlled aircraft below 24000 feet, the middle sector between 24000 and 31000 feet, and upper sector for aircraft flying above 31000 feet.

September 10th ,1976, the Zagreb ACC was working on a knife edge of nerves. The Morning shift at ACC consisted of 5 controllers and chief of shift Julio Dajcic that would work the middle and upper sectors. As per the roster the middle sector was manned by Gradimir Pelin and Brojan Erjavec, the upper sector manned by Gradimir Tasic, Mladen Hochberger and Nenad Tepes.

At 08.32hrs GMT (09.32 hrs local time) on the morning Bristish Airwarys scheduled flight BEA476 from London to Istanbul took of from Heathrow Airport, London. At the controls of the Hawker-Siddeley Trident 3B aircraft (G-AWZT, series no.2320, manufactured on 5 June 1972) was experienced captain Dennis Tann (born 21 June 1932) with accumulated 10,781 flying hours. He was accompanied by first officer Brian Helm and acting first officer Martin Flint. In total, there were 63 people on board, 9 crew and 54 passengers. BEA746 was routed

outwards over Dover and onto Brussels , Munich and Zagreb thence onto Turkey. After reporting its position to Munich, the aircraft settled on airway Upper Blue 1(UB1), flying at 33,000 (330) and crossed into Austrian Airspace at 09.48hrs GMT. It flew a track that took it over Munich down to the Villach VOR, where it turned left and onwards to Klaganfurt. Overhead the Klagenfurt VOR it would turn right to fly along airway Upper Blue 5, or UB5, at which point it entered Zagreb's arirspace and eventually cross the Zagreb VOR.

Same time At 09.48hrs GMT (10.48 local time) in the holiday resort of Split, on the Yugoslavian coast, Flight JP550, ad DC-9 of the Jugoslav charter airline Inex Adria Aviopromet, took off on the journey to Cologne. Split is located 140nm south of Zagreb on the Adratic coast, once

the DC-9 was overhead the Split VOR climbing through 12000ft heading northwards towards the Kostajnica non-directional beacon, located 40nm south of Zagreb. An Inex-Adria DC-9 of registration YU-AJR, series no.47649, manufactured on 7 March 1976 was controlled by Captain Joze Krumpak and first officer Dusan Ivanus with 108 passengers and total 5 Crew members. Prior to departure, Captain krumpak had requested to cruise at 31000ft for the flight, but was given initial clearance to climb to 26000ft. The south-east bound Trident and the north-west bound DC-9 were both flight-planned to traverse the Zagreb beacon.

By 10.00hrs GMT (11.00hrs local time) the duty shift which started at 07.00hrs local at Zagreb ACC, had already been on station for four hours under its supervisor, 43-year-old Julije Dajcic. Dajcic's five-man team normally worked a 12-hour duty day, with two hours at a control station controlling the upper and middle layers of airspace, followed by a one-hour break. Bojan Erjavec, who had been at his station for an hour, controlled the middle section console with his assistant Gradimir Pelin, newly on duty. Mladen Hochberger controlled the upper section and was due, at that moment, to be relieved by Nenad Tepes, who had not so far appeared in the building and looked like being late. Hochberger's assistant was 28 year old Gradimir Tasic, who had been on duty for three and a half hours, the first two as duty controller. When Tepes arrived, Tasic was due to continue for a further hour as his assistant, monitoring procedures and coordinating flights with other regions on ground telephone links. Tasic, the youngest member of the Zagreb staff, was on his third consecutive day of 12-hour duty; all the others had taken at least 24-hours off.

The morning was developing into a busy one. Amongst other difficulties, Flight JP550, planned to reach level 310 in a smooth climb out of Split, was tiptoeing up the lower flight levels, on instruction from Zagreb, because levels above 260 were blocked by an east-west flow of traffic. Captain Krumpak, in the Cologne bound DC-9, estimated Zagreb at about 10.16hrs; at 10.02 he radioed passing level 220 and was instructed to transmit his next call on Erjavec's middle sector frequency. A minute later he did so, and was allocated a radar identification "squawk" code, Alpha 2506. At the same time, Flight BA476 was crossing the Austrian-Yugoslavian border on flight level 330, airway UB5, and was switched from Vienna control to Zagreb. The call was taken by Tasic, who was now alone at the upper level console. Controller Hochberger had impatiently left his seat to look for Tepes, the late arrival.

Tasic allocated squawk Alpha 2312 to the Trident, with a continued flight level of 330. A glance at his radar screen showed BA476's flight label to be either level 332 or 335, but the radar at Zagreb was known to be imprecise. Tasic ignored it in order to send a Turkish

aircraft at level 350 on its way. Someone on BA476's flight deck exclaimed "there he is," as the Turkish aircraft passed over them. Tasic now required clearance from Belgrade for an Olympic Airways flight to Sarajevo on UB1 eastbound. He made a ground telephone call of some 25 seconds to clear this and a German aircraft, with an Iran Air flight close on their heels.

Meanwhile Erjavec, at the middle control console, had JP550 at level 260. Captain Krumpak asked for clearance to a higher level. Erjavec checked tries to accommodate the request as FL280 and FL310 were unavailable, so he informs JP550 of the situation and offers FL350 : " Are you able to climb maybe to 350?", "Affirmative, affirmative, " replied Krumpak. "With pleasure." "Roger. Call you back." It was 10.06:14hrs. Erjavec could see Tasic through the glass window. To get clearance for a higher level, permission must be granted from the upper sector controller Hochberger or Tasic. Erjavec waved to Tasic through the glass, and Tasic impatiently waved him away. Pelin, Erjavec's assistant, went around to the busy Tasic's radar screen and indicated JP550's target, which was unlabelled, and asked Tasic for clearance. Tasic, speaking into his headset, simply thought an aircraft near Kostajnica was being indicated, and nodded impatiently. Pelin assumed clearance had been received. It was a disastrous misunderstanding.

BE476 was cruising at flight level 330 with a true airspeed of 480kt, though a tailwind pushed it to a groundspeed of 489kt. The Trident had tracked a little to the south, and at 10:11:41 Captain Tann made a six degree left turn to home directly over the Zagreb beacon, estimated at 10:14hrs. At the same time, the DC-9 was at level 310, passing into the upper sector. At 10:12:06hrs, Erjavec bade Captain Krumpak goodbye, instructing him to squawk "standby" on his transponder, in order to release his middle section squawk code - 2506 - for another aircraft. This was the second mistake, for though the radar was programmed to show the flight label of any aircraft crossing into the upper section while transmitting a middle section code, the "standby" squawk would not register in the upper console. Hastily, Pelin altered the written strip showing JP550's details for the planned middle sector and handed it to Tasic, but the harassed controller had barely time to glance at the details. Virtually unannounced, JP550 appeared on Tasic's radar screen as an unlabelled target.

Tasic during this period was heavily involved with traffic in his sector, without an assistant, he also had to arrange clearance for a number of aircraft to enter Belgrade airspace. From the time the Trident called Zagreb at 10:04:12 to the time he spoke to Pelin about the climb for DC-9, he had been in continuous contact with seven other aircraft issuing various instructions along with communicating with Belgrade. At that moment, Nenad Tepes, the latecomer, arrived at Tasic's elbow; as duty controller he was impatient to vacate his seat, but for the

moment Tasic was still busily directing flights. He began trying to brief Tepes on the situation, which was reaching saturation point: there were 11 aircraft now in the upper sector. Tasic still had not had the time to examine JP550's flight details progress strip. In any case, Pelin, in his own haste, had omitted to indicate with an arrow the fact that the DC-9 was still climbing. Tasic was unaware of its height. In fact JP550's rate of climb and true ground speed of 470kt would mean that it crossed Zagreb, still climbing, at 10:14hrs - the same time as BA476.

Tasic's first verbal contact with JP550 came at 10:14:04. Captain Krumpak said, "Dobar dan, Zagreb," or "Good morning." Then: "three two five crossing Zagreb." The DC-9 was directly over the beacon, 500ft below the Trident, still climbing, and the two aircraft were still closing at a combined airspeed of 920kt - 1,100mph - faster than a high velocity rifle bullet. A frantic glance at his faulty radar screen showed BA476's flight level, incorrectly, at 335. Tasic reckoned that if he could hold the DC-9 at 327 they would whisker each other with 800ft to spare. Breaking into Croatian, Tasic begged Captain Krumpak to hold his present height. Krumpak replied in their usual native tongue:

"OK. We'll remain precisely at 330." The time was 10:14:38. Tasic watched his screen, he saw the two points merge, pass for a moment, then vanish from the screen. He called out to the Trident and asked it to report passing the next waypoint at Nasice but received no response. The two aircraft collided over the village of Vrbovec, the last 5 meters of the DC-9s left wing sliced through the Trident's cockpit section. Ironically, had the DC-9 were allowed to continue the climb, it would have narrowly missed the Trident. In fact, the DC-9 was slightly above the Trident, carried up by inertia as it attempted to hold 33000ft, it came back down and collided. The DC-9 went into an immediate nose dive, the Trident stayed aloft for a little longer before going down. All 176 people aboard both aircraft were killed, two people, a young girl and a women were found alive, but died soon after. The pilot of Lufthansa 360, a captain Kroese, witnessed the collision.

Flying at 29000ft on airway UB5, behind the Trident, he called out on the middle sector frequency. He reported seeing two aircraft going down with a rapid rate of descent with smoke coming out

It was at this point that Erjavec looked across to his right to watch Tasic, paled faced, remove the headphones from his ears. Pelin on hearing Kroese's call initially went to the lower sector console to see if they had any problems. He then went to the upper sector and immediately looked out for the DC-9, which at that time should have been just north of Zagreb, but there was no sign of it. He then looked at the rack containing the flight progress strips and noticed that the British Trident was crossing Zagreb at 1014, the same time as the DC-9.

By noon, all controllers were in custody for interrogation. Later, all had been released except Tasi_, who remained in custody until the trial. The trial opened on 11 April in Zagreb District Court. All 7 controllers 5duty controllers and 2 supervisors were indicted under the Penal Code of Yugoslavia, Articles 271-72 as persons who by endangering railway, sea or air traffic, threaten the lives of men or property. Tasi_ was the only one to be found guilty; he was sentenced to seven years imprisonment.

After a petition by international air traffic controllers, it was proved that Tasi_ had been used as a scapegoat, and he was released on 29 November 1978. He had served some two years and three months.

Air Traffic Control Transcript :

09:54:49	**JP550**	**Dobar Dan(Good day) Zagreb, Adria 550 crossing 130, climbing 180, heading Kostajnica**
09:55:01	Zagreb Low	Roger, recleared 240, Adria 550
	JP550	Recleared 240
09:55:50	Zagreb Low	Adria 550, recleared 260, call passing 220
09:56:06	JP550	Cleared 260 and call you passing 240, do you read me?
09:56:12	Zagreb Low	Call me passing 220
09:56:15	JP550	I will call you passing 220
09:59:53	Zagreb Low	Adria 550, level check ?
	JP550	550, passing 183……..
10:02:44	JP550	Zagreb, Adria 550 passing 220
	Zagreb Low	Contact Zagreb, 135.8, Good-day
10:02:50	JP550	Goodbye
10:03:21	**JP550**	**Dobar Dan (Good day) Zagreb, Adria 550 crossing 225, climbing 260**
10:03:28	Zagreb Mid	550, good-morning, Squawk Alpha 2506, continue climb 260
10:03:38	Zagreb Mid	That is correct, inbound KOS, Zagreb, Graz next (after radar identification)
10:04:12	**BEA476**	**Zagreb, Bealine 476, good morning**
	Zagreb Upp	Bealine 476, good morning, go ahead
10:04:12	BEA476	Er, 476, is Klagenfurt at 02, 330 and estimating Zagreb at One Four
10:04:27	Zagreb Upp	Bealing 476, roger, call me passing Zagreb, flight level 330, squawk Alpha 2312
10:04:38	BEA476	2312 coming up
10:05:57	**JP550**	**Adria 550, leveling 260, standing by for higher**
10:06:03	Zagreb Mid	550, sorry, 330 , er 310 is not available, 3…280, also, are you able to climb, maybe to 350 ?
10:06:11	JP550	Affirmative, Affirmative with pleasure
10:06:13	Zagreb Mid	Roger, call you back
10:06:14	JP550	Yes sir
10:07:40	Zagreb Mid	Adria 550, recleared flight level 350
10:07:45	JP550	Thank you climbing 350, Adria 550
10:09:18	Zagreb Mid	JP550, approaching KOS, proceed to Zagreb, Graz and call me passing 290…
	JP550	550, roger
10:09:49	JP550	Zagreb, Adria 550 is out of 290….
10:09:53	Zagreb Mid	Roger, call me passing 310 now
10:09:55	JP550	Roger
10:12:03	JP550	Zagreb, Adria 550, out of 310
10:12:06	Zagreb Mid	550, for further Zagreb 134.45, squawk stand by and good-day sir
10:12:12	JP550	Squawk stand by, 134.45, good-day
10:14:04	**JP550**	**Dobar Dan (Good day) Zagreb, Adria 550**
10:14:07	Zagreb Upp	Adria 550, Zagreb dobar dan, go ahead
10:14:10	JP550	325 crossing Zagreb at One Four
10:14:14	Zagreb Upp	What is your present level ?
10:14:17	JP550	327
10:14:22	Zagreb Upp	{Stammering}…..e…zadrizite se za na toj visini I javite prolazak Zagreba (…e… hold yourself at this height and report passing Zagreb)
10:14:27	JP550	Kojo visini (What height ?)

10:14:29	Zagreb Upp	Na kojoj ste sada u penjanju jer...e..imate avion pred vama na... (not coherent) 335 sa leva na desno. (The height you are climbing through because.... You have and aircraft in front of you at....[not coherent] left to right)
335 from		
10:14:38	JP550	OK, ostajemo tocno 330 (OK, we'll remain precisely at 330)
10:14:50	Zagreb Upp	Bealine 476, Zagreb....report passing Nasice
10:14:56	BE778	Beatours 778, were you calling......
10:14:58	Zagreb Upp	Negative
10:15:50		Adria 550, Zagreb
10:16:00		Adria 550, Zagreb
10:16:14		Adria 550, Zagreb
10:16:32		Adria 550, Zagreb
10:16:42		Adria 550, Zagreb
10:16:50		Bealine 476, Zagreb
10:16:58		Bealine 476, Zagreb
11:15:40	LH360	...e Zagreb ! It is possible we have a mid-air collision in sight-we have two aircraft going down, well , almost below our position now
11:15:42	Zagreb Mid	Yes, two aircraft are below you, but I don't understand you, what do you want sir ?
	LH360	I'm sorry sir.... I don't understand you.
11:17:19	LH360	Do you still have contact with Olympic airliner ?
	LH360	Not him?.... the aircraft ahead of us, I believe it's 172 ?
11:18:02	Zagreb Mid	LH360, this is Zagreb- will you be so kind to say again ? Do you have any problem ?
11:18:12	LH360	We don't have any problem, but in front of us... about 15miles or so I think we did see a mid-air

collision. It's possible that the other aircraft ahead of us had a mid-air collision...er....just over

Zagreb. We had two aircraft going down with a rapid rate of descent....and there was also some smoke coming out.

CAUSES OF THE ACCIDENT :

"1) Direct cause of the accident was the struck of the DC-9 wing into the middle side of the TRIDENT THREE fuselage which occurred at the height of 33.000 feet above Zagreb VOR so that both aircraft became uncontrollable and fell on the ground.; 2) Improper ATC operation; 3) Non-compliance with regulations on continuous listening to the appropriate radio frequency of ATC and non-performance of look-out duty from the cockpits of either aircraft."

Internet sources

Safety Management Systems in Air Traffic Mananagement

Mahesh Kumar Basnet
Manager ATS CAAN, H O

Emergence of SMS Concept

The 35th session of ICAO Assembly in October 2004 and Air Navigation Confernce in September 2003 considered the implementation of Safety Management in the aviation system assuming that safety is not effectively addressed by regulatory compliance only. The provision of SMS in annex 11 and 14 was made in 2001 and recent developments including system safety present the harmonization of annex 6, 11 and 14.

In many countries regulators were seen to have been involved in the technicalities of safety and the specialists in regulatory discharge of duties. These overlappings had and will have a great bearing on safety.

Data and Safety are the two facets of the same coin - Safety Management. Absence of one cannot guarentee a sound safety corporate culture. In a developing aviation economy like Nepal this holds more significance as corporate planning and managemrnt are constantly threatened by myriad of loops and holes in all aspects of aviation. This has posed negative impact on required safety data management.

Safety Management System refers to a corporate culture. It is an organic whole of the corporate safety. It provides a transparent, recorded system to manage safety which is implicated in the network of all organizational units and functions. In a way, proper safety data management is a synonym of safety management system. It is only with this system that civil aviation can set out its safety policy and defines methodologies to manage safety as an integral part of the business

In the organization of CAAN, Air traffic control Service does not belong to a separate function, rather it is a part of air navigation services of which CAAN is the sole responsible authority. Therefore, air traffic controllers are the heart of the Air Traffic Management System and safety management on ATM is directly related with ATCs and their works as well the system environment in which they work.

While concentrating on providing a safe and efficient air traffic service they are responsible to follow the CAAN's rules directives,and requirements. Beside ATCs are bound to follow the standards and recommended pratices prescribed in the ICAO annexes.

Safety Management in CAAN is presently in fragmented form. The Aviation Safety Department under CAAN does not cover the provisions of annex 11 and annex 14,hence air traffic services personnel who are directly involved with flight safety at operational level, are not associated with safety management.

In the lack of centralized Safety department within CAAN, SMS is in a fractured state. Last year CAAN was provided with the opportunity of getting aquanted with Safety Management System with the technical cooperation of COSCAP-SA in the field of ATM, aerodromes and personal licensing besides regular safety works on airworthiness and flight operations. However this led to more fragmented scenario regarding the responsibility and performances on safety matters.

CAAN is responsible to operate and maintain 51 airports including TIA . About 200 ATS personnel including air traffic controllers are working at these airports. In TIA alone around 60 active ATCs are working in shifts, handling 300 (approx) aircraft movement per day. To elaborate futher, in Chandragadi aerodrome, an AFIS aerodrome in far eastern Nepal the peak movement during Dasain festival increased to 19 flights per day from regular 4 flights a day this illustrates how the air traffic services personnel are working at the front line.

Since air transport plays an instrumental role in tourism, and poverty alleviation, the value of ATS personnel could not be ignored and does not need any further elaboration.

Therefore, on the safe transition of flights from departure to destination data analysis and management are important aspects towards determining safety management systems requirement. Increased air

accidents, excessive communication load, conventional mode of working with inadequate facilities, unreliable equipment are some of the things to which ATC are entangled with an that is hindering proper data collection, analysis and dissemination for establishing safety management system.

CAAN has the dual role of regulatory and air navigation service provider. As per different studies the organization structure of CAAN needs urgent revision to accommodating safety management functions. There is no clear structure in air traffic management domain. For example Personnel of CNS/ATM (CNS personnel and ATM personnel), Com and Nav. Aid and ATS Deprtment are serving both management and specialists functions. Therefore organizational review should be made at the functional level with a clear distinction of regulatory and service provision.

With regard to introducing SMS in the field of air traffic management following suggfestions are made.

- There should be clear demarcation of CNS Department and ATM Department.
- Management group should be formed from CNS And ATM departments for regulatory and management functions.
- Specialists Groups from CNS, Aviation Technical Service and Com and Nav AID department along with ATS Department should be solely responsible for delivering air navigation services.
- Formulation of clear safety policy for ATM, safety objectives, standards, and requirements are required.
- Establish a central safety data centre.
- Establish a nonpunitive voluntary reporting System.
- Monitor the safety performance on the basis of standards set.
- Investigate incident and events other than accident investigations.

Outstanding Figures in Aviation

Compiled by MAKUB

Leonardo da Vinci was the first man to study the problems of flight scientifically. He was concerned with flapping winged aircraft known as ornithopters which operate on the principle of flight of birds. He also designed helicopters, propellers and a parachute.

Joseph and Etienne Mongolfier designed the first hot air balloon, which was made of paper and flew in 1783, rising to a height of 6,000 feet and traveling about a mile.

Sir George Cayley is Known as the "Father of Mordern Aviation." He formulated the basic principles upon which modern aeronautics is founded. Cayley built and flew the world's first practical and successful airplane-a model glider in 1804.

Wilbur and Orville Wright, with the availability of the internal combustion engine, designed a control system which meant for the first controlled and sustained flight in 1903.

Daniel Bernoulli developed the underlying principle of airplane wing design-that an upward-curved wings gives more lift than a flat wing when moving through the air.

Otto Lilienthal was one of the world's greatest pro-ponents of gliding and made over 2000 glider flights.

Glenn Curtiss was known for his pioneering in water-based aircraft. He built and flew the first seaplane and founded the first U.S. airplane manufacturing company.

Count **Ferdinand von Zeppelin** was credited with developing the first airliner. The airship was a dirigible and provided air service between Europe and America in the early 1900s.

Harriet Quimby became the first American woman to earn a pilot's license and the first woman to fly the English Channel.

Charles Lindbergh was best known for accomplishing the first solo, non-stop transatlantic flight from New York to Paris in 1928. He covered the distance of 3610 miles in 33.5 hours.

Amelia Earhart was a well-known American pilot in the 1930s. She was the first female pilot to fly solo across the Atlantic, and the first female to fly solo across the United States non-stop.

Chuck Yeager was the first pilot to exceed the speed of sound in level flight. He flew a Bell XS-1 at 670 mph in 1947.

Captain Joseph Kittinger of US Airforce sets a world record for the highest ballon ascent at 102800 ft. in 1960, bailing out at that height he sets another world record for the longest parachute free fall which still stands.

Soviet Cosmonant Yuri Gagarin becames the first man in space orbiting the earth in 1961.

Neil Armstrong, a civilian test pilot and NASA astronaut on the Apollo II mission was the first man to set foot on the moon in 1969.

हवाई बीमा

सुजेश काजी वज्राचार्य

व.ए.टि.सि. अधिकृत, त्रि.अ.वि.ना.उ.का.

हावामा उड्ने कामको इतिहास निकै पुरानो छ । हिन्दू तथा ग्रिक पौराणिक कथाहरूमा उड्ने रथ, वायुपंखी घोडा, वायुमार्गको भ्रमणको उल्लेख भएको पाइन्छ । इसापूर्व ग्रिक दार्शनिक एरिस्टोटल, पन्ध्रौं शताब्दीमा लियोनार्दो दा भिन्ची लगायत प्राचीन कालमा थुप्रै शोधकर्ताहरूले हावामा उड्ने यानको अध्ययन र अनुसन्धान गरेको विवरण पाइन्छ । सन् १७८५ मा दुई व्यक्तिहरूले हाइड्रोजन ग्यास भरेको बेलुनको सहायताले इङलिस च्यानल (फ्रान्स र इङ्ल्यान्डबीचको समुद्री भाग) माथि उडेर पार गरेका थिए । त्यसपछि पनि उड्ने मेसिन बनाउने प्रयत्न लगातार भइरह्यो जसको फलस्वरूप तातो हावा भरेर उडाउने बेलुन, ग्लाइडर, एअरसिप आदिको आविष्कार हुन थाल्यो । तर आधुनिक उड्ने मेसिन (हवाई जहाज) भने अमेरिकाका राइट दाजुभाइले सन् १९०३ डिसेम्बर १७ का दिन उडाएर देखाए । तिनीहरूले बनाएको हवाई जहाजले त्यो दिन १२ सेकेन्डमा १२० फिटसम्म उडेको थियो । त्यसपछि हवाई प्रविधिको विकास एकदमै द्रुत गतिमा हुन थाल्यो । आजकल हवाई जहाज, मानिस र सामान ओसार्ने लगायत खेलकुद तथा मनोरञ्जन, अनुसन्धान तथा खोज, उद्धार कार्य, मौसमको अध्ययन तथा भविष्यवाणी, युद्ध तथा जासुसी आदि क्षेत्रहरूमा व्यापक प्रयोग भएको पाइन्छ ।

हवाई उड्डानको अन्तर्राष्ट्रिय कानूनी व्यवस्थाः

हवाई जहाजको प्रयोगबाट संसारको एक ठाउँबाट अर्को ठाउँसम्म जाने काममा तुलनात्मक रूपमा निकै कम समय लाग्न जाँदा यसको प्रयोग व्यापक हुँदै जान थाल्यो । साथै हवाई जहाजको यात्रा थुप्रै देशहरू भएर र माथिबाट जाने हुँदा, हवाई यात्राको लागि एउटै एअर ट्राफिक नियम, विमान कम्पनीको दायित्व, पर्याप्त र स्तरीय सुरक्षा प्रणाली आदि समेटिने एउटा अन्तर्राष्ट्रिय कानूनको आवश्यकता पर्न गयो । त्यसको लागि सबैभन्दा पहिले सन् १९१९ मा पेरिसमा र त्यसपछि थुप्रै अन्तर्राष्ट्रिय सम्मेलनहरू भए तर अन्तर्राष्ट्रिय कानून निर्माण गर्ने उद्देश्यको लागि ३ सम्मेलनहरू भने महत्वपूर्ण रहे ।

क. वार्सा कन्भेन्सन १९२८ः

यो सम्मेलनले हवाई जहाजको दुर्घटना हुँदा विमान कम्पनीहरूले यात्री (वा यात्रीका कानूनी हकदार) लाई व्यक्तिगत दुर्घटनावापत र यात्रुको सामानको शोधभर्ना दिनु पर्ने व्यवस्था गर्‍यो । यो व्यवस्थाबाट दुर्घटना वा क्षतिको कारण जे सुकै भए पनि विमान कम्पनीहरूले यात्रु र सामानप्रतिको दायित्व लिनै पर्ने भयो तर दायित्वको एउटा सीमा तोकियो ।

ख. हेग प्रोटोकल १९५५ः

यसले वार्सा कन्भेन्सनले गरेको निर्णयहरूमा निम्न अनुसारका संशोधन/थप गर्‍यो:

▶ दावी गर्ने समय सीमा बढाइयो,

▶ अदालतले क्षतिपूर्ति सम्बन्धी निर्णय गर्न सक्ने व्यवस्था,

▶ दावीको लागि यात्रुको टिकट नै चाहिने व्यवस्थाको खारेजी,

▶ विमान कम्पनीको दायित्व बढाएर निम्नअनुसार गरियोः

▶ यात्रुको दायित्व- यु.एस. डलर २० प्रतिकिलोग्राम आदि ।

यो सन्धि, पारित गर्नको लागि चाहिने न्यूनतम संख्या ३० राष्ट्रहरूले हस्ताक्षर गरेपछि, सन् १९६३ अगस्त १ देखि मात्र लागु भयो ।

सम्मेलनको समयमै अमेरिका दायित्वको सीमा बढाउने कुराको अडान लिदै आएको थियो । अमेरिकाले यो सन्धिमा तत्काल हस्ताक्षर गरे पनि पछि अमेरिकी सरकारले यो सन्धि अनुमोदन गर्न अस्वीकार गर्‍यो ।

ग. मोन्ट्रियल एग्रिमेन्ट १९६६ः

सन् १९६५ मा अमेरिकाले वार्सा कन्भेन्सनले तोकेको र पछि हेग प्रोटोकलले संशोधन गरेको दायित्वको सीमा कम भएका कारणबाट सन्धि नमान्ने निर्णय गर्‍यो । अमेरिकाले गरेको निर्णय पछि सन् १९६६ मा मोन्ट्रियलमा अर्को सम्मेलन भयो जसले निम्नअनुसारको निर्णय गर्‍यो:-

◗ यो सम्मेलनमा भएको सहमति वास्तवमा वायुसेवा संचालकहरूबीच भएको सहमतिको रूपमा लिन सकिन्छ जसअनुसार सम्मेलनमा अमेरिकाबाट वा अमेरिका भएर उडान हुन्छ, ले प्रतियात्रु यु.एस.डलर ७५,००० (कानूनी खर्च सहित) वा यु.एस. डलर ५८,००० (कानूनी खर्च बाहेक) दायित्व लिनु पर्ने ।

◗ जुन देशका वायुसेवा संचालकहरूको उडान अमेरिकामा रोकिन्छ, त्यो देशको सरकारले अमेरिकी सरकारलाई माथि उल्लेख भएको व्यवस्था लागु गर्ने प्रत्याभूति दिनु पर्ने ।

हवाई बीमाको इतिहासः

हवाई बीमाको सुरुवात बीसौं शताब्दीको पहिलो दशकमा बेलायतमा हवाइट क्रस बीमा एजेन्सीले शुरु गऱ्यो । त्यो बेलाको हवाई बीमामा जहाजको अग्नि जोखिम मात्रै समावेश हुन्थ्यो । सन् १९१० मा जहाजको दुर्घटना र त्यसपछि तेस्रो पक्ष दायित्व जस्ता जोखिमहरूको बीमा हुन थाल्यो । तर, आधुनिक हवाई बीमा भने सन् १९१९ मा ल्वायडूवसका सदस्यहरुले केही बीमा कम्पनीहरूसंग मिलेर सुरू गरे । त्यसपछि सन् १९२२ मा BAIG (British Aviation Insurance Group) को स्थापनापछि हवाई बीमाको विकासले गति लिन थाल्यो । सन् १९३१ मा त्यसबेलाका ठूला बीमा कम्पनीको र केही ल्यावडूयका सदस्यहरूलाई समावेश गरेपछि यो संस्था BAIG (British Aviation Insurance Group) मा परिणत भएपछि हवाई बीमाको लागि एउटा कोसेढुङ्गा साबित भयो । सोही समायवधिमा अमेरिका तथा केही युरोपीय देशहरूमा पनि हवाई बीमाको उल्लेखनीय विकास हुन थाल्यो ।

हवाई बीमाको क्षेत्रः

हवाई बीमाअन्तर्गत निम्नअनुसारका जोखिमहरूको बीमा गर्न सकिन्छ:

◗ हवाई जहाजको भौतिक क्षति (दुर्घटना, आतंकवादी कार्य, अपहरण, युद्ध जस्ता जोखिमहरूको कारणबाट) हवाई जहाजको पार्टपुर्जा (स्पेयटर पार्ट्स) को क्षति (हवाई जाहजमा जडान गरिएका, गोदाम/ स्टोरमा राखिएको वा मार्गस्थ रहेको कुनै पनि अवस्थामा)

◗ वायुसेवा कम्पनीको निम्नअनुसारका कानूनी दायित्वअन्तर्गत भुक्तानी गर्नुपर्ने रकम:

◗ यात्रु र यात्रुको सामानको लागि,

◗ हवाई जहाजमा रहेको कार्गो तथा अन्य समानहरू

◗ दुर्घटना वा अन्य कारणबाट जमिनमा रहेका सम्पत्ति, मानवीय क्षति आदि ।

◗ व्यक्तिगत दुर्घटना (निम्नअनुसारका व्यक्तिहरू):

◗ हवाई जहाजका चालक (पाइलट) तथा अन्य कर्मचारीहरू,

◗ वायुसेवाका जमिनमा रहेक प्राविधिक तथा अन्य कर्मचारीहरू,

◗ नागरिक उड्डयन वा सम्बन्धित सरकारी पदाधिकारी तथा कर्मचारीहरू

◗ हवाईजहाजका यात्रुहरू

◗ हवाई जहाजका चलाक (पाइलट) हरूको अनुमतिपत्र (लाइसेन्स) रद्द हुने (Loss of License)

◗ विमानस्थल संचालकको कानूनी दायित्व,

◗ हवाई जहाजको इन्जिनको ब्रेक डाउन (Aero Engine Breakdown)

◗ भूउपग्रहरू (Satellites)

◗ हवाई जहाज वा इन्जिन निर्माताहरूको उत्पादनप्रतिको दात्वि (Product Liabilities of Manufactures) दुर्घटनाको कारणबाट हवाई जहाज नचल्ने अवस्थामा रहदा हुने नाफाको नोक्सान आदि ।

हवाई बीमाका विशेषताहरूः

◗ अन्तर्राष्ट्रिय प्रकृति (International Nature), हवाई जहाजको यात्रामा थुप्रै देशहरु पर्न जाने हुँदा हवाई बीमा पनि अन्तर्राष्ट्रिय प्रकृतिको हुन्छ जसअनुसार जुनसुकै देशमा पनि हवाई बीमाको बीमालेख एउटै प्रकारको हुन्छ ।

◗ निर्धारित मूल्य बीमालेख (Agreed Value Policy) हवाई बीमामा जहाजको बीमाङ्क रकम बीमित र बीमकबीचमा छलफल गरेर राख्न सकिन्छ ।

◗ अनिवार्य कानूनी व्यवस्था: हवाई बीमा अन्तर्राष्ट्रिय प्रकृतिको भएको र यसमा जोखिमको स्तर पनि उच्च भएकोले हवाई बीमाको अनिवार्य व्यवस्था भएको पाइन्छ ।

◗ बीमा र पुनर्बीमाको लागि सीमित बजार हवाई बीमामा जोखिम उच्च हुने र यसको दाबी पर्दा ठूलो रकम भुक्तानी गर्नु पर्ने हुँदा यसको लागि संसारभरि नै बीमा वा पुनर्बीमाको लागि सीमित बजार रहेको पाइन्छ आदि ।

स्रोत : समय पत्रिका
एभरेष्ट इन्स्योरेन्स कम्पनी लि.

नेपाल नागरिक उड्डयन प्राधिकरणका चुनौति एवं उपलव्धी - एक विवेचना

सुनिल मूल

सहायक लेखा अधिकृत, नेपाल नागरिक उड्डयन प्राधिकरण, प्र. का.

पृष्ठभूमि

अन्तराष्ट्रिय नागरिक उड्डयन संगठन (ICAO) ले आफ्नो स्थापना काल सन् १९४७ देखि नै विश्वमा नागरिक उड्डयनको विकासमा महत्वपूर्ण योगदान पुऱ्याउँदै आएको छ । नागरिक उड्डयनको प्रकृति अन्तर्राष्ट्रिय स्वरुपको भएकोले यसको संचालनसँग सम्बन्धित प्रविधि एवं प्रकृयामा मुलुकहरु वीच एकरुपता हुनु आवश्यक हुन्छ । यसै उद्देश्यको परिपूर्तिको लागि अन्तराष्ट्रिय नागरिक उड्डयन संगठनले आफ्नो १८ वटा एनेक्सहरु मार्फत हवाई परिवहनको क्षेत्रमा आवश्यक पर्ने न्यूनतम मापदण्डहरु निर्धारण गरिदिएको छ । यसैमा आधारित हरेक राष्ट्रले नागरिक उड्डयनसँग सम्बन्धित आफ्ना नियम, कानून एवं मापदण्डहरु तर्जुमा गर्ने गरेको पाइन्छ । वायुयान डिजाईन, निर्माण, यसको मर्मत संभार, उडान योग्यता प्रमाणिकरण आदि विषयमा अन्तर्राष्ट्रिय नागरिक उड्डयन संगठनका सदस्य राष्ट्रहरु वीच पारस्परिक सहयोग र समझदारी अपरिहार्य हुन्छ । वायुयानहरु कुनै एक मुलक वा विभिन्न मुलकहरु हुँदै अर्को मुलुकमा उडान गर्नुपर्ने भएकोले हवाई यातायात नियन्त्रण प्रणाली, हवाई क्षेत्र एवं हवाई मार्ग व्यवस्थापनको कार्य अन्तर्राष्ट्रिय एवं क्षेत्रीय सहयोग विना संभव हुन सक्दैन । विश्वमा हवाई परिवहन को सुचारु संचालनका लागि अन्तर्राष्ट्रिय नागरिक उड्डयन संगठनको अगुवाईमा सदस्य राष्ट्रहरु वीच विद्यमान पारस्परिक सहयोग एवं समझदारी एक अनुपम उदाहरणको रुपमा रहेको छ । एक मुलकको नागरिक उड्डयन निकायले प्रदान गरेका ईजाजत, रेटिड, प्रमाणपत्र र निर्धारण गरेको मापदण्ड अर्को राष्ट्रको लागी समेत मान्य हुने वाध्यकारी व्यवस्था गरिएको हुन्छ । अन्तर्राष्ट्रिय नागरिक उड्डयन संगठनको एक सदस्य राष्ट्रको रुपमा नेपालले पनि यिनै मूल्य र मान्यतालाई आत्मसात गरी नेपालमा हवाई यातायातको विकास एवं विस्तारमा महत्वपूर्ण उपलव्धि हासिल गरी हालसम्मको अवस्थामा आउन सफल भएको पाइन्छ ।

नेपालमा नागरिक उड्डयनको विकास

अमेरिकाको नर्थ क्यारोलिनामा सन् १९०३ मा राइट बन्धुहरुले पहिलो पटक हवाई जहाजको सफल उडान गरेपछि विश्वमा हवाई यातायातको इतिहास प्रारम्भ भएको हो । उक्त घटनाको ४५ बर्षपछि सन् १९४८ (वि.सं.२००५) को जुलाईमा Beach Bananja नामक वायुयानलाई वेलायती नागरिक H. Wedler ले काठमाडौंको गौचरणमा सफलतापूर्वक अवतरण गराए पछि नै नेपालको सन्दर्भमा हवाई यातायातको शुरुआत भएको मान्नु पर्ने हुन्छ । त्यसपछि सन् १९४९ (वि.सं. २००६) मा पहिलो पटक काठमाडौं गौचरणमा डाकोटा-३ वायुयान अवतरण, वि.सं. २००७ मा भारतको पटनावाट Indian National Airways ले पहिलो व्यावसायिक उडान, सन् १९५४ मा गौचर विमानस्थल पक्की, सन् २०५७ मा हवाई विभागको स्थापना, सन् १९५८ मा शाही नेपाल वायुसेवा निगम स्थापना नेपाली हवाई सेवाको प्रारम्भिक विकासक्रमका उल्लेखनीय घटनाक्रमहरु हुन् । यसै पृष्ठभूमिमा हवाई सेवालाई नियमित एवं व्यवस्थित गर्न कानूनी आवश्यकता पूर्तिका लागि गैर सैनिक हवाई उडान ऐन, २०१५ लागू गरियो । सन् १९६० मा नेपालले अन्तर्राष्ट्रिय नागरिक उड्डयन संगठनको सदस्यता प्राप्त गरे पछि यसको सहयोगमा नेपालमा हवाई यातायातको क्षेत्रमा आवश्यक पूर्वाधार विकास तथा दक्ष जनशक्ति उत्पादनमा उल्लेखनीय उपलब्धि हासिल भएको देखिन्छ । नेपालमा सन् १९९२ मा उदार हवाई नीति अवलम्बन गरिएपछि निजी वायुसेवाहरुको प्रवेशबाट हवाई यातायात एक प्रतिस्पर्धि व्यवसायको रुपमा स्थापित मात्र भएन, यसले हवाई सेवाको विकासमा महत्वपूर्ण योगदान पुऱ्याएको छ । यिनै विकासको क्रममा राष्ट्रमा हवाई यातायात नियमन, नियन्त्रण एवं व्यवस्थापन गर्ने निकायको रुपमा रहेको हवाई विभागलाई एक स्वशासित र आत्मनिर्भर संगठनको रुपमा विकास गर्ने अवधारणा अनुरुप वि.सं. २०५५ साल पौष १६ गते तदनुसार सन् १९९८ डिसेम्बर ३१ तारिखका दिन एक स्वायत्त नेपाल नागरिक उड्डयन प्राधिकरणमा रुपान्तरण गरिएको हो ।

नेपालको उच्च पहाडि तथा हिमाली भू-वनौटका कारण देशको अधिकांश पहाडी भू-भाग अझै पनि सडक यातायातको पहुँचबाट टाढै रहेका छन् । नेपाल एक भूपरिवेष्ठित राष्ट्र भएकोले जलमार्गवाट हुने यातायातवाट समेत मुलुक वन्चित हुनुपरेको छ । तसर्थ सडक यातायातको पहुँच नभएका पहाडी तथा हिमाली भेगका विभिन्न जिल्लाहरुमा हवाई यातायातवाट नै आधारभूत यातायात आवश्यकताको परिपूर्ति भैरहेको छ । देशको पर्यटकीय महत्व बोकेका दुर्गमका स्थानमा हवाई सेवाले पर्यटन क्षेत्रको विकास मार्फत स्थानीय स्तरमा रोजगारीको अवसर सृजना गरी ग्रामीण जनताको जीवनस्तर उकास्नुका साथै समष्टिगत रुपमा राष्ट्रिय अर्थतन्त्रको अभिवृद्धिमा समेत अहं भूमिका निर्वाह गरेको तथ्य हाम्रो सामु रहेको छ ।

चुनौति एवं उपलब्धिहरु

नेपालमा सन् १९९२ देखि उदार हवाई निति अवलम्बन गरिएपछि निजि क्षेत्रको प्रवेश पश्चात वन्द रहेका केहि विमानस्थलहरु हाल व्यस्त विमानस्थलमा परिणत भएका देखिन्छन् । सुरुमा निजी क्षेत्रवाट ३ वटा वायुसेवा कम्पनीहरुले आन्तरिक उडान तर्फ नियमित सेवा प्रदान भएकोमा विमानस्थलहरुमा वायुयान यात्रु र कार्गो आवागमनमा उल्लेखनीय बृद्धि भएको समेत देखिएको छ । विगत केही समय देखि मुलुकले व्यहोर्नु परेको आन्तरिक द्वन्दको परिस्थितिमा समेत हवाई यातायततर्फ अनुमान गरेको जस्तो हवाई यात्रु चाप मा तीव्र रुपमा गिरावट आएको देखिएन । यसले देशमा सामान्य स्थिती बहाल हुनासाथ यहाँ पर्यटक आगमनको दर उल्लेखनीय रुपमा बृद्धि हुने स्पष्ट संकेत दिएको छ । देशमा भावी दिनहरुमा बढ्न सक्ने उड्डयन गतिविधिलाई सुरक्षित एवं व्यवस्थित रुपमा संचालन गर्न प्राधिकरणले विमानस्थलहरुको क्षमता अभिबृद्धि, साधन, श्रोत एवं प्रविधिको आधुनिकीकरण एवं सोको परिचालनका लागि अझ सक्षम जनशक्ति विकासतर्फ आफूलाई केन्द्रित गर्नुपर्ने देखिएको छ ।

वर्तमान समयमा आन्तरिक हवाई यातायात जेट युगमा प्रवेश भै सकेको अवस्थामा मुलुकको एक मात्र अन्तराष्ट्रिय विमानस्थलमा निरन्तर वढदो हवाई ट्राफिक चापलाई व्यवस्थित गर्न आन्तरिक विमानस्थलहरुमा समेत पूर्वाधार विकासका संरचनाहरु अभिबृद्धि गर्दै जानुपर्ने देखिएको छ । देशमा एक अर्को अन्तराष्ट्रिय विमानस्थलको निर्माण गर्ने सम्बन्धमा करिव डेढ दशक अघि देखि नै विभिन्न अध्ययनहरु भई निजी क्षेत्रलाई परिचालित गरी विमानस्थल निर्माण गर्ने योजना गरिएको भएता पनि त्यसले हालसम्म पनि मूर्त रुप लिन नसकेको यथार्थ छ । प्राधिकरण आफैले साधन श्रोत परिचालन गरि दोश्रो अन्तराष्ट्रिय विमानस्थल निर्माण गर्न सक्ने अवस्था छैन । यसको विकल्पको रुपमा आन्तरिक हव विमानस्थलहरुलाई मझौला आकारका जेट वायुयान संचालन हुन सक्ने गरी विकास एवं विस्तार कार्यलाई प्राधिकरणले आफ्नो प्राथमिकताको सूचिमा राखी कार्य प्रारम्भ गरेको देखिन्छ । विश्व नागरिक उड्डयन मन्चमा विमानस्थलमा पूर्वाधार विकासको क्षेत्रमा निजी क्षेत्रको बढ्दो सहभागितालाई दृष्टिगत गरी नेपालमा पनि यसका लागि उपयुक्त वातावरण विकास गर्न तत्सम्बन्धि नीति लिई मौजुदा ऐन, नियमहरुमा समय सामेक्ष परिमार्जन गर्नु पर्ने देखिन्छ ।

अन्तराष्ट्रिय उडान तर्फ पर्याप्त वायुयानको अभावमा विदेशी गन्तव्यहरुमा नेपालले आफूलाई प्राप्त गरेको सिट क्षमताको उपयोग निरन्तर घट्दो क्रममा रहेको छ । विदेशि मुलुकका वायुसेवाहरुले नेपालको हवाई सेवा सम्झौतावाट प्राप्त सिट क्षमताको भरपूर उपभोग गरिरहेको तर नेपाललाई दुई तर्फि वार्षिक ४५,०१,४४६ र साप्ताहिक ८६,५६६ हवाई सिट उपलव्ध भएकोमा हाल सेवा संचालनमा रहेका अन्तराष्ट्रिय वायुसेवाहरुवाट ४५ प्रतिशत मात्र सिट क्षमता उपयोग हुन सकेको छ । नेपालले हाल सम्म विभिन्न ३५ राष्ट्रहरुसँग हवाई सम्झौता गरेको भएता पनि धेरैजसो औपचारिक मैत्री सम्बन्ध गाँस्ने दृष्टिकोणभित्र मात्र सिमित हुन पुगेको देखिन्छ ।

हवाई उडानको सुरक्षित प्रवाहको लागी आवश्यक विभिन्न संचार, परिवहन, निगरानी तथा एअर ट्राफिक व्यवस्थापनसँग सम्बन्धित उपकरणहरुको जडान एवं मर्मत संभारमा प्राधिकरणले बर्षेनी ठूलो धनराशी व्यहोर्दै आईरहेको छ । देशका अधिकांश विमानस्थलहरुको विकास विस्तार तथा स्तरबृद्धिका लागि प्राधिकरणले आफ्नो साधन श्रोत परिचालन गरी तथा विदेशी दातृ राष्ट्र तथा निकायबाट ऋण सहयोग लिई करोडौंको लगानी गरेको छ । तर देशका व्यस्त भनिएका विमानस्थलमा समेत त्यस्तो लगानी आपूर्ति हुने कुनै संभावना रहेको छैन । कतिपय विमानस्थलहरुको नियमित संचालनमा समेत प्राधिकरणले बार्षिक रुपमा ठूलो आर्थिक नोक्सानी बहन गर्नुपरिरहेको छ । मुलुकमा आन्तरिक द्वन्दको समयमा महत्वपूर्ण भौतिक संरचनाहरु ध्वस्त हुने क्रममा कैयौं विमानस्थलहरु समेत क्षतिग्रस्त हुन पुगेका छन् । विभिन्न विमानस्थलमा क्षतीग्रस्त हुन पुगेका टर्मिनल भवन, टावर तथा संचार एवं परिवहनका उपकरणहरुको पुनरुद्धार कार्य प्राधिकरणको सामु अर्को चुनौतीको रुपमा रहेको छ ।

प्राधिकरणको आम्दानीको प्रमुख श्रोत विमानस्थलबाट प्राप्त हुने विभिन्न सेवा शुल्क र रोयल्टी हो । जसमध्ये हवाई सेवा संचालनसँग प्रत्यक्ष रुपमा सम्बन्धित एरोनटीकल आयको अंश प्राधिकरणको कुल आम्दानीको करीब ८० प्रतिशत रहेको देखिन्छ । प्राधिकरणलाई दिगो रुपमा आत्मनिर्भर बनाउन नन-एरोनटिकल आयको अंशलाई बढाउने तर्फ सोच अघि बढाउनु पर्दछ । यसका लागि विमानस्थल क्षेत्रका जग्गा जमिनहरुलाई व्यावसायिक उपयोगमा ल्याउन सके यसले नन् एरोनटिकल आय आर्जनमा उल्लेखनीय योगदान पुर्‍याउन सक्दछ । तर यस्तो संभावना हाल त्रिभुवन अन्तर्राष्ट्रिय विमानस्थल बाहेक अन्यत्र न्यून नै रहेको देखिन्छ । हाल मौजुदा ऐन, नियमहरु पनि यस कार्यमा बाधक रहेका छन् । हवाई सुरक्षा स्थितिमा देखिने गरेको विश्वव्यापी खतराको कारण अवलम्बन गरिएका कडा सुरक्षात्मक उपायहरुका कारण विश्वका धेरै विमानस्थलहरुको व्यावसायिक क्रियाकलापमा नकारात्मक प्रभाव परेको सन्दर्भमा नेपाल समेत यसबाट अछूतो रहेको छैन । हवाई सुरक्षामा सम्झौता नहुने गरी विमानस्थलको व्यावसायिकरण गर्नु नेपाल जस्ता न्यून साधन श्रोत रहेका मुलुकहरुका लागि ठूलो चुनौती हो । प्राधिकरणको विमानस्थल दस्तुरसँग सम्बन्धित मौजुदा

नियमावली त्यती समय सापेक्ष र वैज्ञानिक नभएका कारण अधिकांश व्यस्त र पर्यटकीय भनिएका विमानस्थल समेत ठूलो नोक्सानीमा संचालन भइरहेका छन् ।

संस्थागत सुदृढिकरण

नेपाल नागरिक उड्डयन प्राधिकरण ऐन, २०५३ ले प्राधिकरणलाई एक स्वायत्त संस्थाको रुपमा स्थापना गरेको छ । एक स्वायत्त संस्था सुदृढ हुनका लागि प्रथमतः प्राधिकरण आफैं आर्थिक रुपमा सक्षम र समर्थ हुन सक्नु पर्दछ । प्राधिकरण स्थापना हुनु पूर्व सरकारले हवाई यातायातको क्षेत्रमा कुनै प्रतिफलको आशा नगरी बर्षेनी करोडौंको धनराशी खर्च गर्नुपर्दथ्यो भने प्राधिकरण स्थापना भए पछि यी सम्पूर्ण व्ययभार प्राधिकरणले नै बहन गर्दै आइरहेको छ । तत्कालिन हवाई विभागको समयमा हवाई यातायात विकास योजनाका लागि त्रिभुवन अन्तर्राष्ट्रिय विमानस्थल लगायत अन्य आन्तरिक विमानस्थलहरुमा बिदेशी दातृ राष्ट्र तथा दातृ निकायबाट भएको लगानी ठूलो बोझको रुपमा प्राधिकरणको काँधमा बोकाइएको छ । हवाई विभाग हुँदा नगण्य व्याजदर (करीब १-१.५ प्रतिशत) प्राधिकरणमा रुपान्तरण भए पछि १०.२५ मा परिणत हुन पुग्यो । हाले नेपाल सरकारको निर्णयानुसार यो व्याज दर ८ प्रतिशतमा झारिए ता पनि यसलाई अझै सहुलियतपूर्ण मान्न भने सकिदैन ।

धौ धौ परेको विमानस्थललाई उडान संचालनको एक न्यूनतम स्तर बमोजिम संचालन गर्नु प्राधिकरणको दायित्व रहेको छ । कतिपय विमानस्थलहरु राजनैतिक दवावले निर्माण गर्नुपर्ने वाध्यता समेत प्राधिकरणमा देखिएको छ । यस प्रकारको अनावश्यक दवावको कारण प्राधिकरणको ठूलो घनराशी अनुत्पादक रुपमा खर्च भएको पाइन्छ । ती विमानस्थलहरु संचालन हुन नसकी उपयोगहीनसमेत भै रहेका देखिन्छन् । केही बर्ष अघि निर्माण सम्पन्न भएका काँगेलडाँडा र थामखर्क विमानस्थल यसका ज्वलन्त उदाहरणको रुपमा रहेका छन् । विमानस्थल निर्माण गरेर मात्र हुँदैन, त्याहाँ सेवा संचालनका लागि वायुसेवाहरु समेत उत्प्रेरित हुनु जरुरी हुन्छ । त्यसैले नयाँ विमानस्थल योजनाहरु तर्जुमा गर्दा लागत उत्पादकत्वको सिद्धान्त वमोजिम निर्माण गर्ने स्पष्ट नीति तर्जुमा गरी राजनीतिक हस्तक्षेप र अनावश्यक दवाव दिने प्रबृत्तिलाई निस्तेज पार्न आवश्यक छ ।

हाले युरोपबाट मध्यपूर्व हुँदै एसियाको चीन तथा सुदूर पूर्व तर्फ आउने जाने लामो दुरीका अन्तर्राष्ट्रिय उडानहरुलाई नेपालको वायुक्षेत्रको अधिकतम उपयोग गर्ने गरी वायुमार्गको विकास तथा प्रवर्द्धन गर्न हिमाल पार रुटहरु (Trans Himalayan Routes) हरु स्थापना गर्ने तर्फ गृहकार्य भैरहेको छ । यी रुटहरुको स्थापनाबाट पूर्वपश्चिम लामो दुरीका वायुयानहरुका लागि रुटहरु सोझो तथा छोटो हुन गई समय तथा इन्धनको बचत हुने र नेपाली वायुक्षेत्रको अधिकतम उपयोगबाट थप राजस्व प्राप्त हुने देखिन्छ । यस्ले वायुसेवाको संचालन खर्चमा कमि आउने, कम समयमा उडान सम्पन्न हुन सक्ने मात्र नभई नेपालको हवाई क्षेत्रवाट उडान भर्ने कारणले गर्दा प्राधिकरणको राजश्व समेत वृद्धि हुने देखिएको छ । त्यस्तै भारतको नयां दिल्लिवाट चीनको वेईजिङ, जापान, कोरिया र पाकिस्तान र मध्यपूर्वका मुलुकहरुवाट वेईजिङ, जापान र कोरियाको हवाई पथ छोटो दुरीमा तय गर्न सकिने भएबाट भविष्यमा अन्तर्राष्ट्रिय उडानका लागि अधिकतम नेपाली आकाशको उपयोग हुन जाने देखिन्छ ।

नेपालले विश्व व्यापार संगठन (WTO) को सदस्यता प्राप्त गरिसकेको सन्दर्भमा राष्ट्रिय हित अनुकुल हुनेगरी उपयोग गर्नका लागि हामीले हवाई सेवालाई देशको समुद्रपार निर्यातको अनुकुल हुने गरी संचालन गर्नेतर्फ सोच अघि बढाउनु आवश्यक हुन्छ । यसका लागि हवाई यातायातको क्षेत्रवाट उपलव्ध गराउनु पर्ने सेवा सुविधालाई अझ सरल सहज र गुणस्तरिय वनाउदै लैजानु पर्दछ ।

निष्कर्ष

वर्तमान ऐतिहासिक जनआन्दोलन पछि राष्ट्रले लोकतान्त्रिक प्रणाली अवलम्बन गरिसकेको अवस्थामा लामो समयदेखि अवरुद्ध रहेका विकासका ढोकाहरु क्रमशः खुल्ने अवसरहरु उत्पन्न भएका छन् । यस क्रममा हवाई यातायात संग सम्बन्धित विभिन्न सकारात्मक विषयहरुको समेत चर्चा हुन थालेको छ । विशेष गरी नेपाललाई भारत र चीन वीचको ट्रान्जिट प्वाइन्टको रुपमा विकास गर्ने सम्बन्धमा राष्ट्रिय रुपमा बहस नै प्रारम्भ भएको देखिन्छ । हवाई सेवाले केही हदसम्म भए पनि यस तर्फ योगदान पुऱ्याउन सक्ने निश्चित छ । यसले नेपालमा पूर्ण क्षमताको एउटा अर्को अन्तर्राष्ट्रिय विमानस्थल निर्माण हुन सक्ने संभावनालाई पनि बल पुऱ्याएको छ । हालका दिनमा मुलुक भित्र पर्यटक आवागमनको स्थितीमा निरन्तर सुधार हुँदै गएको देखिन्छ । विश्वका दुई सबैभन्दा बढी जनसंख्या भएका मुलुकहरु भारत र चीनबाट बर्षेनी बिदेश भ्रमण गर्ने पर्यटकहरुको एक सानो अंश नेपाल भित्रिन सकेको खण्डमा नेपाली अर्थतन्त्रले ठूलो फड्को मार्ने कुरामा दुइ मत हुन सक्दैन ।

सन्दर्भ सामाग्रीहरु

◗ पूर्व महानिर्देशक श्री राजेशराज दलिको खुला वजारमा अन्तरवार्ता (जनवरी २००५ र अंक ९)

◗ पूर्व महानिर्देशक श्री राजेशराज दलिको प्राधिकरणको सातौं वार्षिकोत्सव समारोहको भाषण (२०६२)

◗ नि.महा निर्देशक श्री मोहन अधिकारीको प्राधिकरण सुदृढिकरण एक विवेचना HORIZON – Oct.2005

◗ प्राधिकरणको स्थलगत अध्ययन प्रतिवेदन (नेपाल प्रशासनिक प्रशिक्षण प्रतिष्ठान) २०६२

◗ वजेट तथा कार्यक्रम पुस्तिका २०६३ र ०६४

Was Buddha a Communist ?

Bimal Kumar Subedi
Manager, Civil Aviation Academy

*M*any years ago, having been nominated in the Upper House of Parliament in Nepal by the Nepal Communist Party, UML, in its special political-quota for that privilege when Bhikshu Ashwoghos was asked that why he, being a religious holy Buddhist monk, had accepted the offer that was provided by a communist party, notorious enough for anti-religious feeling; the monk was reported to have said that there is no substantial difference in between Buddhism and communism. In another case, Professor Th. Stcherbatsky of the Academy of Science of U.S.S.R. in his book The Concept of Buddhist Nirvana (Leningrad, 1927), gives an interesting story. When the educational authorities of the newly founded republic of Buriats in Transbaiklia in U.S.S.R. started an anti-religious propaganda, they emphasized that modern science takes a materialistic view of universe. The Buddhist monks of that republic who where Mahayanis reported in a pamphlet, pointing out that materialism was not unknown to them and that in fact, one of the schools has developed a materialistic theory. Was Buddha a communist than? Is this the same thing to be a communist or to be a Buddhist? If it is so, what are the salient features of Buddhist communism and Marxist communism? Certainly this would be the most thought provoking and interesting topic.

Despite the wide and deep gulf in between Karl Marx and Gautam Buddha, as they are divided by 2381 years, there is some essence or rather a link that joints them both uniquely if not obviously. In their philosophic approach, Marx was influenced by Hegel and Hegel by the Greek philosopher Heraclitus. Heraclitus , born in 535 BC., was the contemporary of Buddha. There are many similarities in Heraclitus and Buddha. Both are from the noble families and both believe in the same nature of philosophy. Like Buddha, as per Heraclitus also the universe is in a state of ceaseless change; you could not step twice into the same rivers, ' for other and yet other waters are ever flowing on.' He was deeply interest with the fact of change in the world, and concludes that change

constitutes the very life of the universe, that nothing was really permanent, that permanence was an illusion, that though things may appear to remain stables they actually in an endless process of becoming, in a constant state of flux. Interestingly enough, Buddha was also preaching the same thing, the doctrine of momentariness (ksana-bhanga vada), to his disciples in the same time in the other part of the world. He shows that nothing remain last more than one instance. No material or spiritual entity is permanent. All Buddhist philosophic literature is guided by this principle. "Whether Buddha arise, O Priest! or whether Buddha does not arise it remains a fact and the fixed and necessary constitution of being , that all its constituents are transitory. This fact a Buddha discovers and masters, and when he discovered and mastered it , he announces, teaches, publishes, proclaims, discloses, minutely explains, and makes it clear that all the constituents of being are transitory" (H.C. Warren, Buddhism in Translation, 1915) .

George William Hegel, a German Philosopher born in 1770, revitalized this transitory doctrine of Buddha and Heraclitus again. He declares that contradiction is the root of all life and moment, that every thing is contradiction, that the principle of contradiction rules the world. Like his predecessors, Heraclitus and Buddha, he says that everything tends to change, to pass over into its opposite. The seed has in it the impulses to be something else, an other: to contradict itself and to transcend itself. Without contradiction there would be no life, no moment, no growth and no development; everything would be dead existence, static externality. This dialectic theory of Hegel, which is based on transitory-flux of Buddha and Heraclitus, is the leading source of Marxist philosophy. Karl Marx, born in 1818, was a 19th century philosopher, economist, journalist and a revolutionary politician. Marx, as a young Hegelians, retains much of Hegel's way of thinking. But, he turns Hegel's idealistic dialectic into a materialistic one and he writes the Historical Materialism. As per Marx, the social

production of their existence, men inevitably enter into definite relations, which are independent of their will, namely relations of production appropriate to a given stage in the development of their material forces of production. The totality of these relations of production constitutes the economic structure of society, the real foundation, on which arise a legal and political super structure and which correspond definite forms of social consciousness. The mode of production of material life conditions the general process of social, political and intellectual life. It is not the consciousness of man that determines their existence but their social existence that determines their consciousness.

Karl Marx, the founder of communism, and Buddha, at least in their benevolence philosophic latency, are same; even though, in modern leftist political sense, Buddha is not a communist but rather a bourgeois. Buddha was born in a democratic republic of Shakya, Malla, and Lichhibi; the Briji Sangha. He was born a democrat and he died a democrat. He was extremely in love with Vaishali, because it was a republic. Before his Mahaparinirvana he spent his varshavasa in Vaishali. Although Buddha's Bhikshu Sangha was a small commune where the religious men in their proletarian state of existence dwelt there, nevertheless, Buddha enjoyed an acquaintance of the great rulers, raja and maharaja of the days, rich merchants, money lenders, popular and wealthy priests, and upper class heroes. Bindusara, the king of Magadha, was a disciple of Buddha, Prasenjita, the king of Kosal, was proud of being a kshatri of Kosal because Buddha also from the same caste and from the same place .Only for to be more closure t o Buddha, he married a Shakya girl. The wealthy priests like Kutadanta, Sonadanna were his followers. Merchants and wealthy elites were always anxious to open their enormous treasure houses to help Buddha. Anathapindaka, a very rich person from Sravasti had purchased a very costly and beautiful grove, Jetbana , for Buddha and his disciples to dwell with. Another wealthy woman from the same city, Visakha, built a grand monastery of Purbaram. The three merchants from Kosamby, a commercial city from the contemporary South India, competed themselves to build monasteries for Buddha. These all shows that Buddha was not at all an enemy of rich upper class people. He was not against the earning of money by lawful means. His preaching and opinions on prevailing economic system were like a poison less serpent for those wealthy elites of the days. Here are some more examples:

In those days, the money-lenders had right even to purchase his debtor's own body and make him slave if he failed to return the debt he had taken. Having been frightened by this, debtors used to take asylum in Buddha's Bhikshu sangha. The money-lenders objected this and urged Buddha to stop this. In consequence, instead of denying those money-lenders, Buddha readily accepted their proposal (Mahabagga 1-3-4-8). In another instance, when the solders of king Bindusara , instead of going to the war-field begun to enter into the Bhikshu-sangha of Buddha The king Bindusara complained this to Buddha and Buddha immediately stopped the entry of solders into his sangha (ibid 1-3-4-2). In the same token, Buddha denied the entry of slaves into his commune; the Bhikshu-sangha (ibid 1-3-4-9).

Buddha is primary an ethical teacher and not a metaphysician, politician, or economist-philosopher like Marx. But, his dynamic personality, his forceful message attacks many social and religious practices. Buddha does not claim to be an up-rooter of the existing social order or economic systems. He accepts their basic premises and only attacks the evils that have grown under them. So he conceives his immediate primary task that of showing men and women the way out of suffering but not of constructing any economic philosophic theories or implementing any socio-political theories. He sees ignorance and selfish craving (avidya and tanha) but not the physical wealth as the root-cause of suffering of a man and sees that knowledge is the only tools to combat that ignorance. In order to answer the question what constitute the knowledge that dispels the ignorance,

Buddhist philosophical implications started.

Was Buddha a communist then ? The question is still there. We already discussed that in the traditional sense of political leftist communism that is being implemented in many parts of the world viz. China, Cuba, Vietnam, or North Korea etc, he was not a communist. But, if we consider Marxism in its broad sense, communism as a way of life, communism as philosophy of being, communism as a culture of society and principle of intellectuality, as software of equity, solidarity and humanity; Buddha is just near to this types of communism. Buddha advocates the social democracy and social democracy is also a type of Marxism in its broad sense. The Social Democratic Party of Germany, the Labor Party of Britain and many other Social Democratic parties in are in a number of Western nations and elsewhere, who, although they long ago distanced themselves from their historical connections to Marx and his ideas, yet, guided culturally by the very essence of communism.

Buddha was a religious man. But, his religion is not an ' opium of the people' but the code of a free society; a code of social democracy. In his religion, unlike of other religions, there is no God, no abiding soul, and no heaven but there is only man and his factual reality, there is only earth and its natural existence. His religion lives in the heart of man but not in sastra or pramana. Like a Marxist, Buddha also accepts the conflict of interest in society but this conflict is not limited only in economic domain, on the contrary, it is pervasively proliferated in all walks of social and intellectual life.

Another main different between Buddhist and Marxist communism is that Marx believes in violence to get the goal where as Buddha believes in ahimsa, non-violence. But considerable thing is that Buddha's ahimsa is not as absolute as the ahimsa preached by Mahavira, the founder of Jainism or Gandhi, the founder of free India. According to the Tathagata, a man who fights for justice and safety cannot be accused of ahimsa. If all the means of maintaining peace have failed then the responsibility for himsa falls on him who stars war. One must not surrender the evil powers. War there may be; but it must not be for selfish end. The dialog between Buddha and Sinha Senapati, the commander in-chief of Vaisali shows the above fact.

It is already mentioned that Buddha'a Bhikshu-sangha was like a small commune. Here, there is no provision of private property except some very personal things viz. three robes or pieces of cloth for daily wear, a girdle for the loins, an alms-bowl, a razor, a needle, a water strainer etc. The delusions of self, free of bodily passion, suppression of pride, desire hatred and selfish craving, elimination of ignorance and illumination of knowledge, principle of equity are some traits of Buddha that lead us towards a perfect communism. In conclusion, we can say that of course Buddha was a communist but Buddhist communism is wider and greater than that of Marxist communism.

Reminscences of the Incredible 001 Group

Birendra Kumar Singh.
Undersecretary, MOCTCA

7he year 1976, students 14, Main instructors: Three Nepalese, 2 Australians,

Spot:: Engineering Institute, Pulchock, Mission: Basic Training for Aeronautical Communication Operation, Group: 14 vulnerable raw Nepalese students who were very naïve and unheard of the aviation arena.

Yes, I get nostalgic when my brain flashes back to those days when we 14 of us joined the training centre of Nepal Civil Aviation at Pulchock to receive our basic training in Aeronautical Communication Operation for Nepal, thus creating a new 001 ACO group. Let me be brutally frank and I don't hesitator to say that all 14 of us who were enrolled were thrilled to be new ATC Officer, but even after few months of calms we had not the slightest idea that we were not being trained as ATC Officers, but to our great dismay as ACO - the first of its kind who would not only dissipate messages from the far flung remote stations of the nation as Lukla, Jomsom, Jumla, Simikot, Tumlingtar, - but we were even tailored to be the sole master as young administrators. No wonder, we were given basic training in accountancy, administration, security etc.; which come in handy during the days when we penetrated those remote society of the far flung remote stations catering a totally different Management in the field of Civil Aviation creating a mile stone in the history of Civil Aviation. From day one to the final day of receiving our certificate the class of ours was full of fun exhilarating, vibrant, gusto exhibiting zeal and enthusiasm that we left no stone unturned not only to dish out any doubt that lodged within us but were been to receive and devour anything that ought to be sank into our brains (because all of us knew that our upstairs was not full of saw-dust, but of raw matters).

Our days rolled on really quickly and we friends not only became deeply attached sharing our sorrow and happiness but we came to know each other more by our pseudo names rather than by our real names. Just to illustrate this by few examples: Sagar Acharya as "KaKa", Bharat Raj Dhakal as "MaMa", Govinda Poudal as "Guru", Kamlesh Kumar Verma as "Pudka Babu", Dharma Pal Raman as "Dadhi the met man", Ghanshyam Acharya as "Ghane", Sunil Deoja as "Kabiji", Sagar Man Pradhan as "Goolf Goolf Vicktha", Birendra Singh (this colomunist) as "Raja.

These pet names stuck to us so much which we acquired those days that it has been the benchmark even today.

As for the instructors (they were great, funloving, willing to work hard with us and above all were eager to ensure that we understand the annexes under their belt thoroughly) both Nepalese and foreigners, if they were not upto their expectations had not only tough time with us (we the notorious ones) but had to get a hard beating by us if they failed to quench our thirst for knowledge. I do remember an incident when in our Met class our Met instructor Mr. Niaba, who according to me was below the expectation and had to undergo embarrassment. The very first day of his class he started off rattling the met codes "dddd", "ffff", "vvvv" etc. It is not only Greek to us, but even the whole class was flabbergasted and knew nothing. I quickly planned an idea of pushing him off. I raised my arm and asked, " Sir, what are you trying to teach , are you an instructor, teacher, Professor, - what are you Sir ?, where are your transparency, why do you not use your over head projector ?, this totally caught him off guard and taken a back. He simply numbled in his word and said, "Well, ha.......ha........ha....." , well ! you see ! you look, I dictate and you write. I replied, "No sir ! I do not write, you do not dictate." He totally lost his patience and gave a cool look around the room. We all laughed at our triumph and success. The next day he tried to continue in the same fashion to which he was not received well in the class. On the third day he said, " You see, I will not teach - Ha..... ! thank you" and walked from the class.

There was Mr. Flipovich, Russian Instructor he did nothing but sat on the chair and for two boring classes just read a few notes on ICAO - After our complain against him to Mr. D.R.Sharma, our then chief of the training course we never saw him again.

There was Mr. D.L.Shrestha who came to lecture us in accounts, who shouted at the top of his voice and repeatedly told us " Tapainle Sunnubhayo?" (Did you hear?) We used to reply "Ali Kam Bhayo" (A little) He said, Ho Ra ! (Really !) and then he used to shoute a bit louder then the first.)

Mr Dhakal , who came to lecture us in administration used to come in the class in Daura Suruwal.with his strings always dangled below the trouser.

Mr. Subedi who taught us Security and few lessons on Administration loved to say he could do anything, because he had the power. So he told Mama that he will be posted to Lamidanda, to Ghane that he will be sent to Tumlingtar and to our surprise after finishing the training they were posted as he had said.

Mr. N B. S. Dongol, Who started his classes on Theory of Flights and Air Navigation used to walk along the room by saying happy! and good, but left us after a few classes.

Mr Ananda Poudyal,the then Chief of Rescue and Fire Fighting Services began his class by introducing himself. as saying" efO{ xf] My name is Anand , and I am always Anand" I remember his " Red book" and how to extinguish the fire, type of fire, etc. He loved making his class jolly and interesting.

Mr. Madan Shrestha: He replaced Mr. Niaba, and was very cool, cleared highly professional, and a fantastic teacher, Before beginning any new topic, he would say," Birendra Understand, Shall I continue, " - " No problem" pat would come my reply, then he would embark on different topic. He had the nack of taking the class forward, and presenting a clear picture of any topic he taught .

Mr. Mukunda Shrestha- Highly, qualified, deeply professional, very sober, but to my dismay, he lacked the very essence of instructorship. He could not judge the capability not only of the students but had no idea why he was there for, He taught us as if we were the future engineers - which we were not supposed to be - He taught us Basic Radio Theory- I called him " Mr. Basic Radio". The first trail exam he gave, no one fared well. He was very disheartened - I coolly approached him and told him, " Sir ! may I be of any help to you" so that the next exam you take , we all will score above 80%" How ? he told me getting very excited - " Simple sir" I told him, instead of getting the brain, heart liver of the Radio, just tell us the simple theory of radio, its advantage , disadvantage, what usually can go Kapact during the mode of communication, that's all we need because this is Basic - not engineering radio". He laughed . His mood operadi changed, and in the final exam- I scored 98% I still remember "Duck Talk Tendency , Sun spot" - Do you dear readers ! !. He was very happy and thrilled for his success for.

Mr. Yam Bhadur Singh - known to all Aviation people of Nepal as "Yankee dai" He had a class of his own fearing out as Mr. Frank, open, helpful, highly intelligent, stylish, and had his own typical way of pushing his ideas into us. Everyone loved this man not only because he was worth loving, but above all he was one and only man in Civil Aviation of Nepal who had the ability and the knowledge to teach any subject any time, anyday. But sadly his greatest drawback- "getting his and caring a damn to his life thus he never attained that status which he ought to have. But, Friends, that was "Yankee". To ensure that he was understood in his class he had a typical way of pointing out his finger sky ward to say- No. 1,- No. 2,- Ok,- Ok. He told us very frankly, " Hey guys- there is no difference between you ACO- and them-ATC, except they can say' clear to land, clear for takeoff". But do not worry- your pay scale is the same, you and they both are officers but on the contrary you are well placed- you can be boss of Jomsom, Lamidanda, Tumlingtar', which they can't.

His classes were always fun. He loved to relate old experiences he gained during his working days. Any problem we failed at the institute he was there for us - this great man. sadly passed away too soon from us- He was a bundle of joy, talented, yet great boozer of all times. Hats off to a great friend of us.

Mr. Mohan Chardra Singh : He was the first person to tell us- do not address are as jee" or Sir' please call me "Mohan" "dai- and this was the only GM of TIA to be addressed as "Dai" by the then DG- Mr. Deoja. This Dai of ours was dashing, debonair, stylish, and a very diligent instructor who worked harder than us preparing questions and ensuring us that we not only all get above 80% in his subject by utilizing the block 'A','B','C' or 'D'but also gained thorough knowledge. He was very professional, made us happy and had to log on more hours by preparing the answers. He cultivated his own flair of English enunciation. It is no doubt he loved English very much and found at ease in English than Nepali. His classes were lively and he kept us at our toes by his flamboyant nature. His admiration is tucked within us.

Mr. Jefferson - This great Australian instructor was not only thoroughly knowledgeable and stood out from the rest as he was not a great bully, but pushed his way by bulldogging his ideas, teachings and lectures. His basic 75 hours of navigation was so vibrant giving us immense knowledge that it is still vivid in our minds. He was tall, bulky and full loud in his approach that the three beauties of our class (Kamala, Nirmala and Roshan) had difficulty encountering him that they often felt very odd at his jokes. One of his great comparison between an aircraft and an women is "... the more you use them, the better you are !!!" few of us understood it, one YK Bhattarai, Deoja and myself. Well! That was Mr. Jefferson, the great manipulator, pusher and in his heart he was kind. - Nicknamed his "giant". The great teacher died in a car accident

Mr. Dennis Crangston- Another great Australian instructor. He was the best and the one to be admired the most by all of us. He always exhibited the most positive attitude. He taught us theory of Flight. He was a fantastic, positive and above all the most enthusiastic instructor of my life. For him there was never a dull moment. Always cheerful, intelligent and had the knack of teaching just enough and what is essential.

As far as the students, we always enjoyed our days. There were days when class was empty I took the floor of mimicking not only the instructor but also the friends especially and was good in copying the habits of Jefferson, Yankee, MC Singh, Subedi and in among friends - Nirmala, Guru, Sagar man, D. R. Sharma. We were quite happy to have among us our young and beautiful friends - Kamala Kansakar, Nirmala Sewacharya and Roshan. We all had great fun, immense cooporation and above all bond of friendship which has been tucked away in our hearts even till today. I wish all my old friends the best of everything in any profession they may have adopted now.

I do honestly hope that all my old friends, whereever they are, may they attend the Zenith of their career and have profound peace and prosperity

So, friends ! that was the invincible and epoch making 001group in the Nepalese aviation which kicked off the training of civil aviation in Nepal.

Those were the days !

T.R. Manandhar

7 entered aviation field as an air traffic controller more than 25 years back. During this time world aviation has achieved a tremendous development. Even Nepalese aviation has a remarkable achievement during the past 25 years. Aviation is always a field of exciting events and wonderful developments. Sometimes I recall those early days of my service and compare them with present situations and assess my self to understand about a degree of change in nation's aviation. In course of my job, I came across many interesting events and incidents. I want to recall one of such incident here.

It was during 1980, I was posted at Pokhara as an ATC. The control tower then was a small one room, one storey construction across the runway, which still exist. A runway strip with grassy and rocky surface had proved to be a very good and safe all weathered runway for the few operations of twin otter and Avro aircraft owned by the only monopolistic operator of that time Royal Nepal Airlines. Almost 1500 ropanies of land owned by civil aviation office was left unguarded without fencing. Only the portion of runway strip was fenced that was also torn out at several locations for the public movement and for the purpose of letting in the cattle to graze. During day time, runway is usually full of cattle and during night it is the safest area for the mules. It is because of the fencing around the runway, owners feel very comfortable and safe to let their animals inside the runway during night. Pokhara Civil Aviation Office had arranged two dedicated sweepers and a tractor just to collect the dung (animal excrement) of those mules and horses.

During those days as soon as departure message is received or in case of any inbound aircraft for Pokhara, a long siren from control tower is heard as a signal of the aircraft coming to land at Pokhara Airport. Upon the signal of the siren, immediately few security personnel proceed to both sides of the runway to drive away the cattle. The second siren will be heard when the aircraft enters valley. Usually runway will be clear by the time the aircraft enters valley. Sometimes it may not be possible to clear the runway even though the aircraft is inside the valley . During such time they had to hold over Pokhara valley till the runway is clear. Very often Airport Security Police used to object that driving away cattle is not their duty. Though they object time and again for clearing out the runway they were always doing their job.

Once, a new security incharge was posted at Pokhara Airport. On the first day of his duty, he informed civil aviation office that security personnel will not be driving away the cattle, it is not our job. Mr. Medini Sharma, presently joint secretary, ex Director General of Cvil Aviation Authority of Nepal was the Airport Manager during that time. He explained the Airport Security chief, - I do not know whose duty is to drive away the cattle from the runway. I just know that it is the duty of Airport security to keep the runway clear at all time not letting in the cattle or the trespasser all the time.

On that day the first schedule flight departed from Kathmandu for Pokhara. I was on duty as a controller. Runway was full of cattle as usual. I put on siren. No body went to clear the runway. Aircraft 9N-AAV (avro) was approaching closer to the airport. As the runway was full of cattle I informed it to the pilot. Capt. I.P. Sitaula was in command. Getting the information that the runway is occupied by the cattle the captain was very much furious. He shouted in rage what the hell you are doing out there. Why don't you send someone to clear the runway. My boss Mr. Sharma was beside me monitoring the captain's voice. I asked my boss - sir, shall we send our Chaukidar there to runway. Mr. Sharma said No, never ! Aircraft came overhead Pokhara. Captain was outrageous. He was shouting madly. I just said calmly sorry sir, runway is not clear. He took two round over the Pokhara valley then diverted back to Kathmandu. Those days some of the pilots feel themselves - a very superior and very important persons. Not only the pilots even some of RNAC ground staffs behave very rudely as if they were the zonal commissioner.

The result of the diversion was immediate. I heard there was strong objection from the centre. The security chief was transferred immediately (in the same afternoon). A new security chief was posted. I did not hear occurring such problems later. Several years after that incident, when I went to Pokhara again I found civil aviation staffs, airlines staffs and security police, all involved jointly to clear the runway. Now-a-days, Pokhara airport is nicely fenced. So there is no such problem in Pokhara. However, there are still so many airports in Nepal having such problems.

Irony of the Lot

Ritcha Sharma
ATC officer, TIACAO

Shantanu's hope swelled and burst like a bubblegum. The letter he has just received is not the transfer letter as he had expected, it is a demand for three million rupees by the activist who had formed a parallel government body at the village. Shantanu cannot even imagine of possessing such a large sum of money, after all he has been an honest employee for his whole career through."May be as a reward, I have been transferred to this terror stricken area," he thinks. The eleven years of his dedicated service have done their inexorable work leaving him without any saving.

Shantanu feels drained and then as if a heavy load that he had held off unconsciously for years is now being drawn swiftly over his head. He sits in one posture for the whole scorching day, all courage snuffed out of him. A vision of his family whips up-they are quietly having lunch in their home at the capital, too far away from this remote village. Shantanu looks into the distance, the cruel distance, and sighs over the impossibility of happiness.

At this point of Shantanu's plight, I stop writing. Shantanu is the protagonist of the novel I've been writing since I came to this town. The insurgence shoved me off my village a year back. My mother, a softhearted woman, forced me to leave my place at the expense of the support of her old age. She was deeply shaken by the fear of her son's abduction and the possibility of his getting killed any moment. Actually she was guided by an extreme, unfathomable love for her only son in taking the decision. It's the same love that has kept me alive in this indifferent town. I drag a miserable life form the tuition fee I get by coaching a few children of this area.

During all my pains and loneliness in this town, Shantanu has been my company. I think of him almost every time. Shantanu is a man who believes that dreams are stronger than facts. The intensity of hatred in him for hypocrisy is not an iota less than that within me. Injustice makes me sad and it makes him equally sad. When I find myself down and out, he gets estranged from all of his loved ones. Such intertwined is this tangle.

The heat of the day has dulled all my thoughts. It's impossible to write any further. I want Shantanu to get out of this difficulty quickly but the unsuccessful effort of giving shape to this idea makes me nauseous. I sneak out to get a little of the life outside. The woman who this idea makes me nauseous. I sneak out to get a little of the life outside. The woman who lives next door is returning from the market. She pushes a sly look towards me, her face etched with curiosity. I feel as if the slant look is questioning me as to how I have been making a living ! I try to skip that thought and move to a better one, but Shantanu has not left me even here. I am anxious he may fall apart totally, crumbling to pieces and there will be no one to collect the pieces back to shape. He is appallingly lonely and needs the support of a person stronger than himself in front of whom he can shamelessly collapse. There seems to be no other way for him. This reminds me of my own loneliness. I've appeared almost two dozen interviews during this year-long stay at this place. Nowhere do they find me fit for the job. And on top of all these, there is the letter I got today from the

neighbour at my village. He has written to me about the critical mental state of my mother, but I am helpless. I can't go the village, I've been strictly forbidden even to think about going there. I wonder if the situation is ever going to be favorable. After all, it's not possible to spend an entire life dealing with fiction of one sort or another.

Tomorrow I am going to confront my twenty-third interview of this year. What if I fall down this time ? I can't think beyond this. All works desert me instantly. The mere thought of failure wounds all my sensibilities.

The sun is on the verge of setting. I lousily go back to my room where there are papers scattered all around. My unfinished novel lays half-heartedly on my bed. The certainty of its completion is in the seesaw, like the future of the country and so is Shantanu's future-as uncertain as mine. His pain is truly hurting me now. I clutch my pen and begin to write with an utmost concern, as I have an unknown conviction that his and my fates are unfailingly related to each other.

Shantanu is thinking of pleading with the demanders. I will tell them everything about myself and any how convince them to spare my life for the sake of my family," he determines. This determination does not assuage the apprehension in him. He is much too anxious about meeting them to want any dinner. He wants to get a good night's sleep before facing them tomorrow.

Suddenly he hears subdued voices near his window. He shivers. He focuses on the murmur. It seems some people are talking about money and abduction. He switches off the light and peeps through the window. No one. Nothing. he is puzzled. Is it just a hallucination ? A Stray dog barks near his door. He springs up and quickly gets shrouded under the quilt. His body is damp with sweat."

I am void of words again. The story's progress is slower than the pace of a slow worm. Shantanu's condition on this chapter is no better than that in the previous one. I must also get a good night's sleep before attending the interview tomorrow. But sleep seems to be too faraway. I ponder over the possibility of my failure. It I can't make it tomorrow, I will lose my resilience forever. I try to weld my fear and despair into a positive feeling. I must hope for my mother's recovery, my own success and above all, the ceasefire. It would be so much relieving to confirm an everlasting happiness for everyone in my novel. I make an effort to visualize the ceasefire followed by Shantanu's transfer to the capital, him being among his near and dear ones. This surge of hope calms me down and I fall asleep.

The clamour of my landlord's children wakes me up. They are getting ready for school. I stretch and get aware of a heaviness and debility in all by limbs. I feel as if my whole body has gone numb from top to toe. I lie on my bed and look at the sun through the window, and remember .... Various things......... I feel depressed............ I want to see my mother immensely............. A strong bitterness drenches me. Exhausted, I get up and go to the window. It's almost ten o'clock. There is nothing left for breakfast. While getting ready for the interview, I try to condone the fact that I am completely broken.

It's eight in the evening. I am in my room trying to forget that there is a summer evening going on out there. Everything, it seems, is falling away from me. As usual, I have not been selected. I know, one must not give up hope but by heart, however, is not being able to accept it. Strangely, my hands automatically clutch the pen and catch the notebook. Slowly my concentration returns. The false hopes that had gripped me yesternight have receded. My head is clear now.

Shantanu's face reflects a vast disappointment. He has been given an ultimatum of twelve hours for the payment of money; otherwise he will not be spared. He stumbles to his bed mechanically and lies down, just as he is, in his office uniform and collapses .... to eternity. Somewhere near the village, a fierce combat is going on.

Aviation Humor

Er. Sanjeev Singh Kathayat
CNS/ATM Department, CAAN Head Office

How ill is the a/c

China in the eighties. A DC-3 (or similar?) loaded with tourist passengers starts up and is about to taxi. Then the engines are shut down again. The captain leaves the cockpit and addresses the passengers: "This plane ill! We take other plane!"

They all walk over to a DC-3 parked across the ramp. Engines started, and shut down again. Captain addresses passengers again: "This plane more ill! We take first plane!"

Design limits

A stormy flight aboard a Boeing aircraft; an off-duty airline stewardess is sitting next to a worried man looking through the window to the aircraft's wing bending and bouncing in the tempest. The stewardess tries to reassure him; she works in the industry and flies all the time, she tells him. There is nothing to worry about; the pilots have everything under control.

"Madam," he replies, "I am a Boeing engineer and we did not design this aircraft to do what it is doing."

From the "squawk sheets"

Problem: "Something loose in cockpit."

Solution: "Something tightened in cockpit."

Problem: "Evidence of hydraulic leak on right main landing gear."

Solution: "Evidence removed."

Problem: "Number three engine missing."

Solution: "Engine found on right wing after brief search."

Problem: "DME volume unbelievably loud."

Solution: "Volume set to more believable level."

Problem: Dead bugs on windshield.

Solution: Live bugs on order.

Problem: Autopilot in altitude hold mode produces a 200 fpm descent.

Solution: Cannot reproduce problem on ground.

Say again....

Questions via the radio should not always be answered exactly.

Tower: Aircraft in holding pattern, say fuel state?

Aircraft: Fuel state

Tower: Say again?

Aircraft: Again....

After this the tower controller gets mad and switches off his radio and climbs down the stairs to drink coffee the rest of the afternoon.

The Flight Attendant

Southwest Airlines just after a very hard landing in Salt Lake City: The flight attendant came on the intercom and said, "That was quite a bump and I know what ya'll are thinking. I'm here to tell you it wasn't the airline's fault, it wasn't the pilot's fault, it wasn't the flight attendants' fault.....it was the asphalt!"

Another flight Attendant's comment on a less than perfect landing: "We ask you to please remain seated as Captain Kangaroo bounces us to the terminal."

The Top Ten Flight Advertising Slogans of a Airline

1. Join our frequent near-miss program.
2. On flights, every section is a smoking section.
3. Ask about our out-of-court settlements.
4. Are our jet engines too noisy? Don't worry. We'll turn them off.
5. Complimentary champagne during free-fall.
6. Enjoy the in-flight movie in the plane next to you.
7. The kids will love our inflatable slides.
8. Our pilots are all terminally ill and have nothing to lose.
9. Terrorists are afraid to fly with us.
10. Fly with us and enjoy a free two-week hospital stay on us.

Report of Nepal Air Traffic Controllers' Association (NATCA)

Umesh Kumar Panthi
(General Secretary-NATCA)

L andlocked and mountainous country Nepal is bound to be an aviation country in true sense. There are 46 airports ranging from STOL, to Regional, Hub and International. The gateway to Nepal, the only international airport in the kingdom is Tribhuvan International Airport (TIA), which is facilitated to cater all types and sizes of aircraft.

In the aviation history of Nepal, the first landing of aircraft was in 1949 by a single engine aircraft and in the year 1950, scheduled flight services started in domestic and international sectors. In the beginning, Indian technical personnel provided the ATS & other Engineering services and all these services were provided by Nepali personnel solely since 1972.

ATS environment:

TIA handles 80% share of domestic traffic and 90% of total tourist arrival in Nepal. As per the data from January 2006 to September 2006, the average daily flight movement is nearly 200, which is more or less the same during the same period in 2005 despite a big reduction in military movements. This increase of civil traffic is mainly due to the present ceasefire between government and the Maoists in the country. Yet, we expect a further growth in traffic if the present peace talk succeeds, as there will be many tourists visiting Nepal.

As bigger aircraft like Fokker-100 jet started flights in domestic sector, there is urgent need to revise the procedures like STARS, SIDS, Holding Patterns, etc and restructuring of Aerodrome control zones and airspace especially in domestic sectors and domestic airports.

RNAV Trans-Himalayan routes (especially L626/ Kathmandu-Mahendranager-Pantnagar-Delhi) are yet to come into effect.

We have difficult traffic situation, as there is always mix of a IFR & VFR traffic, different types of aircraft (speeds), single runway, difficult terrain, complex weather, single approach path, upslope runway, etc. So traffic management is difficult, and Faulty equipments make it more stressful.

Social Environment:

Presently around 220 Air Traffic Controllers are working in various positions under CAAN and very few ATCs are working under Ministry of Culture Tourism and a Civil Aviation (Nepal Government). In December 1998, the then department of civil aviation (DCA) was converted into CAAN and majority of ATCs opted to be in the authority, as a level of promotion was granted. There is no further privatization in ATC job in near future. Poor working environment, difficulties in taking leave due to lack of manpower, less social activities, low remuneration and allowances, lack of trainings, inconvenient shift duty are some of the constraints, we (ATCs) are confronted with. However, NATCA is always negotiating with the management for the improvement of working environment and increment of the allowances.

Professional Issues:

Civil aviation academy (CAA), under CAAN, conducts basic and other refresher trainings. CAA conducts other trainings for airlines and aviation related personnel on request. Frequent refresher trainings and emergency related trainings/exercises are absolutely required to familiarize with current changes and develop confidence of the air traffic controllers. NATCA has timely raised the issue to CAAN regarding the ICAO's requirements for proficiency in English language (level 4).

Legal Issues:

Very recently, one of our members was suspended from active controlling job as a measure of punishment because of an incident reporting against him. NATCA

strongly condemned the act of suspension without giving the opportunity of clarification and without studying various technical factors, and raised the norms of safety reporting culture. As a result, no further action was initiated and he was cleared to resume duty. NATCA has strongly raised its concern to CAAN for the protection of its members in case of any mishaps caused by unreliable equipments and unintentional actions.

Safety Issues:

Most of the accidents in Nepal are CFIT related. Nepal observed year 2005 as zero fatality in aviation. Sad news: it is a matter of grave concern for CAAN & concerned stakeholders as, in the year 2006, until now there were six accidents four rotary wing and two fixed wing mainly caused due to human error.

Association's Activities:

NATCA successfully organized its sixth Annual General Assembly meeting held on 2063/3/19 at TIACAO. AGA is the opportunity for refreshment and reunion of all the members. The AGA of NATCA passed the Fiscal Report (FY-2062/63) presented by Treasurer Mr. Devendra Shrestha and the annual report of NATCA presented by general secretary Mr. Umesh Kumar Panthi. AGA also approved the estimated budget for fiscal year 2063/064.

NATCA's proposed annual program, which was put forward in the annual general meeting, passed after incorporating suggestions from the members.

AGA decided, NATCA to bid for the IFATCA's Annual Conference in Nepal in appropriate time.

NATCA recently put forward additional justifications for the timely increase of the ATC rating & license allowances to DG-CAAN, CAAN board members & the minister for culture tourism and civil aviation. Earlier NATCA had presented a detailed paper with all the supporting documents from different countries, & had recommended for the cumulative rating and stress allowances increment with proportional basic salary increment. As a result, it was the agenda of discussion on the Board meeting of CAAN for the second time. We hope the matter will be finalized in the upcoming board meeting. NATCA is continuing its efforts to materialize the matter as early as possible.

NATCA executive committee has carried out several goodwill visits to different organizations. NATCA had massive discussion with those organizations for the mutual benefit and co-operation.

NATCA has initiated talks with various airlines regarding ATC (route/FIR) familiarization flight and positive response is received; the follow up is continued.

As usual, NATCA has recently organized RAFFELE/LOTTERY program in Dashain and Tihar festivals for fun and financial support.

Software program has been developed for ATC personnel record and record keeping has been started.

NATCA's web site www.nepalatc.com has been updated.

NATCA participated in the IFATCA annual conference-2006 held in Kaohsiung, Taiwan.

NATCA participated in the IFATCA Asia Pacific Regional meeting-2006 held in Ulaanbaatar, Mongolia.

NATCA is continually involving itself in the endeavor of establishing fully facilitated aviation club to bring harmony among the aviation personnel in the country.

NATCA carried out interaction program on "ATC System Degradation and ATC working environment".

NATCA has been conducting various classes and interactions to aware the general people about the profession and its importance.

For solidarity and peace, NATCA carried out different

protest programs against the violence and suppressions of peaceful demonstrators. it was due to the solidarity at nation level that the democracy has been restored and there has been ceasefire between the Maoists and the Nepal government.

NATCA organized a discussion program on medical insurance in the presence of insurance office personnel at TIACAO classroom which was participated in by significant number of ATC members. As significant numbers of our members are suffering from critical diseases, we are of the view that our members must be ensured to be able to cop with medical expenses.

NATCA is commemorating INTERNATIONAL ATC DAY (20-October) with various programs.

On this occasion NATCA's official magazine "HORIZON" is being published.

A book on aviation will be published on the same occasion, probably the first book of this kind by a Nepali writer.

On this auspicious occasion, NATCA is organizing quiz competition, chess competition, table tennis competition, musical chair & 3000m race competition.

Inaugural program will be organized to mark the day followed by a dinner at the close of the evening for all the members and well-wishers of NATCA .

Conclusions:

We value professionalism and the well-being of our members. "Consolidating safety through professionalism" is our motto. We are struggling hard for the cause of safe and reliable air transportation despite in proper equipment, facilities and the proper working environment. We believe in negotiation and participatory management. Therefore, we urge CAAN to address our difficulties and problems. In the context, immediate action is required from CAAN in bringing the ATC system in smooth operation with proper maintenance and up gradation of equipment with the development of technology. Infrastructure development is a must for a foreseeable future to cope with future demand. CAAN should focus on more trainings, motivation (immediate increment of license/ rating allowances to boost the morale of ATCs and career development) and improvements in the working environment for better results in days ahead.

NATCA has been in close coordination with CAAN on our noble cause of furthering for of the safe, reliable and efficient air transportation. NATCA's immediate and ultimate concern is to enhance professionalism.

On behalf of NATCA executive committee & myself, wish you all a very happy international day of air traffic controller.

Chronology of NATCA

1990/6/16	An ad-hoc committee formed for the prepration of the constitution of NATCA and its establishment.
1991/2/20	Constitution of NATCA approved. The only professional body of Air Traffic Controllers' Association (NATCA) formally established.
1991/4/5	The first election of NATCA executive committee held. Mr. Mukund Kumar Pokherel became the founder president of NATCA.
December, 1991	Maiden publication of official journal of NATCA 'HORIZON' launched.
25-28 October 1991	Nepalese delegatation participated as observer for the first time in IFATCA Asia Pacific Regional Meeting held in Colombo, Sri Lanka. NATCA put forward its desire for membership of IFATCA (International Federation of Air Traffic Controllers' Association).
22-27 March 1992	NATCA participated on the 31st Annual Conference of IFATCA held in Bournemouth, UK IFATCA granted its membership to NATCA.
18-22 April 1994	NATCA participated on the 33rd Annual Conference of IFATCA held in Ottawa, Canada.
1994-1998	Could not make significant activities.
1998/11/17	A committee formed to make necessary amendments on NATCA constitution and reestablish NATCA
1998/12/28	NATCA constitution amended. Ad-hoc committee formed for the election of the new executive committee.
1999/3/28	The founder president of NATCA, Mr. Mukunda Kumar Pokharel expired in Bangalore, India.. Mr. Birendra Raj Shrestha became the acting President .
1999/5/28	New executive committee of NATCA formed. Mr. Sanjiv Gautam elected as its President.
28-31Oct. 1999	NATCA participated on the16th Asia Pacific Regional Meeting of IFATCA held in Colombo, Sri Lanka.
6-10 March 2000	NATCA participated on the 39th Annual Conferrence of IFATCA held in Morocco, Marrakech.
21-24 Nov. 2000	NATCA participated on the17th Asia Pacific Regional Meeting of IFATCA held in Hong Kong.
Feb. 2000	Horizon publication restarted.

2001/4/13	First General Assembly of NATCA after its re establishment concluded.
2001/6/27	The 3rd election of NATCA formed new executive committee .
	Mr. Bharat Raj Dhakal became its president.
2001/7/29	The Second General Assembly of NATCA concluded.
5-8 Nov.2001	NATCA participated on the 18th Asia Pacific Regional meeting of IFATCA held in Kualalampur, Malaysia.
15-19 Apr. 2002	NATCA participated on the 41st Annual Conference of IFATCA held in Cancun, Mexico.
May 2003	Third General Assembly of NATCA concluded and 4th Issue of Horizon launched.
2003/6/25	The fourth election of NATCA executive committee elected Mr. Narendra Raj Sayami as its president.
20 Oct. 2003	NATCA began the system of commemorating International day of Air Traffic Controllers.
22-26 March 2004	NATCA participated on the 43rd Annual Conference of IFATCA held in Hong Kong. Meeting ratified NATCA's proposal of organising 21st IFATCA Asia Pacific Regional Meeting in Kathmandu, Nepal.
15 Augusts , 2004	The 4th General Assembly of NATCA concluded with ammendments of NATCA Constitution. The ammendments has been made on executive committee structure.
1-3 Dec. 2004	The 21st Asia Pacific Regional meeting of IFATCA successfully completed in Kathmandu, Nepal.
3 June 2005	The 5th General Assembly of NATCA concluded.
10 July , 2005	The new NATCA executive committee formed. Mr. Pratap Babu Tiwari elected as its fifth president.
20 October 2005	NATCA Commemorate International Day of the Air Traffic Controller with various activities.
16-18 November 2005	Participation of NATCA in 22nd IFATCA Asia Pacific Regional Meeting held in Fukuoka, Japan.
27-31 March 2005	NATCA delegate Participated in 45th IFATCA Annual Conference held in Taiwan.
3 July 2006	NATCA concluded 6th Annual General Assembly.
4-7 September 2006	Participation of NATCA in 22nd IFATCA Asia Pacific Regional Meeting held in Mongolia.

Dignitaries at the NATCA's 6th General Assembly.

NATCA delegate with IFATCA President Mr. Marc Baumgartner (Third from the left) and IFATCA Vice President, Asia Pacific, Mr. David K. W. Cheung (first from the right).

NATCA delegate with the participants of 23rd IFATCA Asia Pacific Regional Meeting held in Mongolia.

NATCA delegate with the participants of 22nd IFATCA Asia Pacific Regional Meeting held in Fukuoka, Japan.

Winners of extra activities organized on the occassion of Int'l day of the ATC on 20 Oct. 2005

Women controller in festive mood at a party organized on the occasion of International Day of the Air Traffic Controller.