CAAN
Souvenir 2021

23rd Anniversary

Civil Aviation Authority of Nepal (CAAN)
Babarmahal, Kathmandu

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POKHARA

TRIBHUVAN INTERNATIONAL

Message

Civil Aviation Authority of Nepal (CAAN) has played an important and crucial role in facilitating the smooth operation of air services in the country over the last two decades. As a regulatory body, it is devoted to ensure reliable, qualitative and comfortable air services to travelers. Since the contribution made by air services sector to our national economy is very significant, the role played by CAAN in promoting and facilitating safe and reliable air services in the country owes special importance.

Safe and reliable aviation is the prerequisite of tourism sector development. Since Nepal is considered as one of the most attractive tourist destinations in the world, there is a pressing need ahead of us to strengthen and further expand our air services to cater growing needs of tourists who wish to visit Nepal. Even for the sake of promoting internal tourism, expanding air services is a must. In view of this, I am optimistic that CAAN will pay its focus to make aviation industry stronger in the coming days and garner support and confidence of passengers both from inside of the country and abroad.

The world is passing through the grave threat of COVID-19 since the last two years. The pandemic has affected every aspect of life including society and economy. While it had devastating impacts on business and economy, tourism and aviation sectors were hit the hardest. The government had announced relief programmes and refinancing facility to support the private sector aviation companies in business recovery. I am happy that the sector has witnessed a quick revival compared to the other sectors and sprung back to support in transporting goods and people. However, the regulator and the service providers must be aware that the third wave of the pandemic might hit the country anytime so they must comply and continue with the health safety protocols. While we were successful in reviving most of the businesses affected by the pandemic, there is a need to sustain this growth and expansion. The Government of Nepal is ready to work with the private sector in this regard.

Over the years, Nepal's aviation sector is making significant improvements in terms of infrastructures and policy regulations. International bodies have appreciated our policy and systemic reforms that have introduced in the aviation sector. We need to further scale up and continue this reform and establish our aviation sector as a robust one. In this regard, on the one hand, we have to put emphasis in improving and expanding our infrastructures and, on the other, we should pay utmost efforts to ensure safety of passengers and goods without any compromise.

Finally, I would like to congratulate the CAAN and all of its employees for the completion of 22 years as a successful regulator of the aviation sector in the country. I wish to express my best wishes for CAAN's every success in the days to come.

Jay Nepal !

31st December, 2021

Sher Bahadur Deuwa

Prem Bahadur Ale
Minister

MESSAGE

I would like to congratulate the Civil Aviation Authority of Nepal (CAAN) for its contribution to the development and growth of the aviation sector, tourism and economy in the last 22 years since its establishment in 1998. I would also like to express my best wishes to this aviation sector regulator for its efficient management of air services during the global COVID-19 pandemic while transporting passengers and cargo. It has not only facilitated the successful operation of flight services in and out of the country to transport medicines, vaccines, health staff and other people but also supported in the revival of tourism business in various destinations.

For a country like Nepal that has difficult terrain due to mountains, air service is crucial to create connectivity and support in local and national development. From carrying tourist to rescuing pregnant women, all have been possible due to air services. CAAN has played an important role to enhance air connectivity to remote locations and lifting the economic status of people and country. In the past two decades, CAAN has handled an immense responsibility in terms of air transportation together with increasing connectivity and lifting the economic status of the country.

During the COVID-19 pandemic, CAAN has issued guidelines for safe transportation and supported in the business revival. But international flight services have not resumed as expected earlier, even the nearest neighbor India is relying on air bubble agreement. However, it has an important task to complete the Gautam Buddha International Airport and Pokhara Airport so that the two major tourism destinations in the country could be connected with the international market. Development of such infrastructure will propel growth in other sectors of the economy and business. CAAN had also announced plans to develop regional aviation centers across the country which needs to be implemented as early as possible.

We must not forget the role of CAAN in the development of airports across the country and their operation. Flight safety should be the top priority of the aviation sector while there should be sustainability in the business.

I would like to express my greetings to the employees of CAAN, airline industry and all concerned organizations and individuals in the aviation sector. I am also happy with the publication of the souvenir that records the opinion of the experts of aviation.

My best wishes to CAAN!

Prem Bahadur Ale
Minister
Culture, Tourism and Civil Aviation

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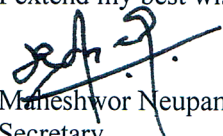Website: www.tourism.gov.np

Message

Since tourism and aviation were the sectors hardest hit by the global COVID-19 pandemic, it will take some time to recover. Air services, however, recovered faster than predicted, at least on the domestic front. The capacity of international flight service is not being utilized to its full potential yet. During the pandemic, this industry helped with rescue and relief efforts, as well as transporting health equipment and medicines, assisting the government and the general public in tough circumstances.

Aviation, unlike other modes of transportation, is a dynamic industry that requires rapid updates and innovation in high-end technology, as well as improved collaboration between regulators and the private sector, as well as between governments. It demands proactive approaches to policy formulation and implementation. Collaboration and knowledge sharing among diverse stakeholders are critical for the sector's sustainable development. Apart from being a tool for information transmission, the CAAN Souvenir can be a medium for sharing ideas and knowledge.

CAAN should work in tandem with stakeholders, not only to improve its own competency, but also that of the private sector. It should contribute to technological development and transfer, as well as strive to maintain a positive image of Nepal's sky. The inclusion of Nepal on the European Union's safety concerns list has harmed the image of Nepalese civil aviation, in addition to causing immediate losses in airlines because airlines are unable to operate to Europe, one of the country's main sources of tourism. CAAN is also responsible for setting standards for domestic and international aviation service providers, infrastructure development, and the development of skilled labor.

I am pleased to note that the Civil Aviation Authority of Nepal has been serving, developing, and regulating the civil aviation industry in Nepal for 22 years and has made significant contributions to business and economic development, poverty reduction, and connecting people in rural areas with cities. On this occasion, I would like to offer my sincere congratulations to the CAAN and the family. Furthermore, I am delighted to know that the CAAN has continued to publish the CAAN Souvenir, which I think will be a useful publication for the aviation and tourism sectors.

I extend my best wished to CAAN on the occasion.

Maheshwor Neupane
Secretary
Ministry Of Culture,Tourism and Civil Aviation

International
Civil Aviation
Organization

Organisation
de l'aviation civile
internationale

Organización
de Aviación Civil
Internacional

Международная
организация
гражданской
авиации

منظمة الطيران
المدني الدولي

国 际 民 用
航 空 组 织

Felicitations on the 23rd Anniversary - Civil Aviation Authority of Nepal (CAAN)

On behalf of the ICAO Asia and Pacific Office, I take great pleasure in conveying my heartfelt congratulations to the Civil Aviation Authority of Nepal on its 23rd Anniversary.

The ICAO APAC Office shares your pride and appreciates our fruitful collaboration over the past number of years. I consider Nepal an important partner of the international civil aviation community and I would like to extend my gratitude for your active participation and continued support to the ICAO activities as well as your reiteration of confidence in leadership of ICAO in global civil aviation.

The valuable contribution of Nepal to the enhancement of safety, security and efficiency in regional as well as international civil aviation is very well recognized. To that end, I wish to take this opportunity to thank CAAN for its contribution to the Asia Pacific Air Navigation Planning and Implementation Group (APANPIRG) as the Second Vice Chair until recently and the current leadership to the co-operative sub-regional safety programme, COSCAP-South Asia as the Chair. I also wish to acknowledge your kind gesture of hosting the last APAC DGCA Conference in Nepal, which showed amply, your commitment to the APAC regional collaboration.

The ICAO APAC Office wishes CAAN all the success for many more years to come and look forward to working closely with the Government of Nepal in strengthening international aviation safety and security levels, enhancing capacity and efficiency and promoting sustainable air transport.

My best wishes for your 23rd Anniversary celebrations.

Tao Ma
Regional Director
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CIVIL AVIATION AUTHORITY OF NEPAL

Head Office, Babar Mahal, Kathmandu, Nepal

Message of Director General

It gives me immense pleasure to inform our stakeholders that the Civil Aviation Authority of Nepal (CAAN) has completed 22 years of its existence and services successfully and is celebrating 23rd anniversary on 31st December 2021. A close cooperation and collaboration among the aviation sector stakeholders has supported the growth and development of air service in Nepal. Therefore, I would like to express my warm greetings and felicitations to our clients, travelers, companies, donors and other concerned stakeholders in and out of the country. Your unfettered support has helped us in leading the aviation sector on to the path of continuous development. Without your continuous support and collaboration, CAAN wouldn't have achieved progress in the development and expansion of civil aviation sector.

Tourism, including the aviation sector, is among the sectors that were severely affected by the global COVID-19 pandemic. Airlines lost a large size of business during the two waves of the corona virus as the aircrafts were grounded during the lockdowns and restrictions. During the first year of the crisis, about half of the employees in the aviation and supported fields lost their jobs while direct aviation jobs were down by about 43 percent. Nepali airline companies resumed their services after almost six months with the application of health and safety protocols developed on the basis of ICAO guidelines. But this year's lockdown again disturbed the business although the restrictions were imposed for short period as compared to the previous year.
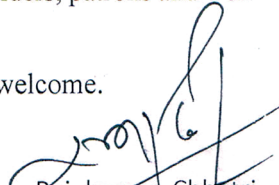
However, aviation sector was the one among some business sectors that witnessed a quick revival of the business. I would like to appreciate all stakeholders for their support, patience, and good conduct during the difficult times. The aviation industry's support in transporting people including the health staff and patient, and medicines during the COVID-19 period was unprecedented. Transportation of medical supplies, relief materials, stranded people especially foreigners and rescue missions as well as the supply of essential goods was significantly made through air services.

Nepal needs to complete both Gautam Buddha International Airport and Pokhara International Airport. Development of aviation infrastructure is our priority since aviation service is of high importance for a mountainous country like Nepal where road travel is cumbersome and difficult due to various reasons. We at CAAN believe that without proper infrastructure, skilled manpower, relevant policies and high-end technological support, air safety and security can't be achieved. Meanwhile, the business should be continued with strict adherence to the COVID safety protocols as it is uncertain when the third wave of the pandemic hit the country.

I would like to thank souvenir publication committee and the Anniversary Celebration Committee of CAAN for their valued contribution. I am also thankful to all members of organization, stakeholders, patrons and well-wishers for their support.

I feel happy to present this souvenir to our distinguished readers. Your comments are welcome.

Allow me to wish you a happy new year 2022.

Raj kumar Chhetri
[Director General]

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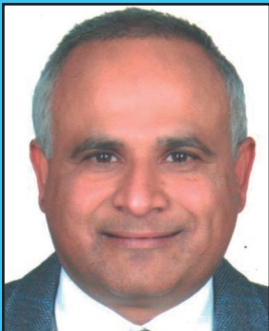Representative of Ministry of Culture,
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Member Secretary

Mr. Raj Kumar Chhetri
Director General, CAAN

Editorial

Civil Aviation Authority of Nepal (CAAN), the aviation sector regulator in our country, has successfully concluded 22 glorious years since its establishment in 1998. As we are bidding farewell to the Year 2021 and waiting to welcome the New Year 2022, we feel happy to present this edition of CAAN Souvenir to you.

CAAN's history begins with the Department of Civil Aviation which was established in 1957 under the Ministry of Work, Communication and Transport. The country formulated the first ever law related to civil aviation, the Civil Aviation Act in 1959 and subsequently obtained the membership of International Civil Aviation Organization (ICAO) a year later. Likewise, Nepal introduced the first ever Civil Aviation Policy in 1993 which supported in the transformation of the Department of Civil Aviation into an autonomous Civil Aviation Authority. However, the autonomous regulatory body, CAAN, was established on 31st December 1998 under Civil Aviation Act, 1996. Currently, CAAN is the regulator of the civil aviation sector as well as the service provider in the areas of air navigation services and aerodrome operations.

Working with the mission to ensuring safe, secured, efficient, standard and quality service in civil aviation and airport operations, CAAN is tirelessly working to support in the economic growth of the country through the expansion of aviation services and development of infrastructure. In a mountainous country like Nepal, there is a huge importance of aviation in the transportation of passengers and cargo in remote and mountain areas. It has played an instrumental role in the rescue of people and transportation of relief materials during the disasters like earthquake, floods and pandemic like COVID-19.

On the last day of every year, CAAN celebrates its anniversary with various activities and publishes 'CAAN Souvenir'. The souvenir which is in your hand includes articles, experiences and opinions from various CAAN employees, aviation sector experts, former CAAN officials and other stakeholders. Publication of this souvenir is an effort to disseminate useful as well as technical and academic information with deeper understanding of the subject to the stakeholders and public at large. This is our effort to record and archive useful information and experiences of people directly or indirectly involved in the field of aviation sector.

With growing demand of aviation, shortage of large aircraft for long-haul destinations, single international airport and lack of other required infrastructure, aviation in Nepal has become a cross-cutting issue. Development of Gautam Buddha International Airport in Bhairahawa and Pokhara International Airport will provide some relief to the need of aviation infrastructure in terms of international connections while regional air transportation hubs will facilitate at the domestic front. CAAN also has the responsibility to implement the national civil aviation policy, create enabling environment for the private sector airlines companies, introduce air safety measures and adhere to the ICAO principles. But, without proper infrastructure, skilled manpower, relevant policies and high-end technological support, air safety and security can't be achieved.

As in the past, we would like to express our utmost commitment to apply innovative approaches in aviation sector regulation and infrastructure development and management as per the ICAO Guidelines and national policy for we know that opportunities originate from challenges. Development is a process which is achieved by pinning small achievements together. The Souvenir Publication Committee would like to express its sincere gratitude to writers and contributors, and other individuals for their invaluable support and suggestions.

Wish you all a very happy and prosperous New Year 2022!

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CAAN Souvenir 2021

National Pride Aviation Projects and FUTURE OF TOURISM INDUSTRY

Dr. Lekha Nath Bhandari
Board Member, CAAN

Why Airports Necessary?

Airports are the most important infrastructure of tourism industry globally. Beyond that airports are very significant infrastructure for the people all around the world. Therefore, airports, airlines and the entire aviation industry are the indispensable part of daily life. The development of aviation sector in any country is an indicator of mapping its wholistic development. Let us see and make analysis, of a small data below of airports domestic and international as a model study of a few countries around the globe.

Number of Airports Country Wise

S.No	Name of the Country	Total Number of Airports	International Airports
1	United States	13513	102
2	Brazil	4093	23
3	Mexico	1714	65
4	Russia	1218	71
5	China	507	64
6	France	464	34
7	India	346	30
8.	Nepal	54	1
			(2 under construction & 1 in process)

According to CAAN (Civil Aviation Authority of Nepal) report 2020, Nepal, has a total number of 54 airports, out of which 35 are at operation level and 19 are not in operation. Among 54 airports, Tribhuvan International Airport is only one international airport in operation at present. The growth of tourism industry has a direct relation to efficient airports and strong national airlines. For example, Qatar, Singapore, Hong Kong and Thailand have developed tourism industry as well as the entire economy because of efficient aviation facilities. Hence, if a country has more runways, tourist arrival naturally multiplies. For instance, Republic of Panama, a small central American country having 4.3 million population has three international airports:

Bocas Toro Airport, Mulalupo Airport and Tokumen International Airport. Similarly, Bangladesh, one of the least developed countries in South Asia also has 3 international Airports. Likewise, Israel has 4 international airports, India 30, Mexico 65, China 64, Russia 71 and USA has 102 international airports. If comparative analysis is made with these figures in reference to Nepal, time has come to think more seriously as Nepal has only one international airport till the third decade of 21st century. Therefore, it is a dire need to complete the construction work of GBIA (Gautam Bud dha International Airport) and PIA (Pokhara International Airport) as early as possible. In addition to this, Nepal must go ahead and start to build Nijgadh International Airport (NIA) which will be the biggest airport not only in Nepal but also in South Asia in terms of area and capacity.

Tribhuvan International Airport has already reached at saturation point. Thus, passengers have been severely facing uncertain flight delays, flight holdings both on the ground and in the sky. At this juncture, there is a ray of hope to reduce flight congestion of TIA with the completion of the construction of two upcoming national pride aviation projects, Gautam Buddha International Airport, and Pokhara International Airport. Along with global tourism, Nepalese tourism industry is damaged now due to Covid-19 pandemic, however, massive global anti Covid -19, vaccination campaign gradually insisting travelers to move from one place to another. Let us hope in a year or two, tourism industry will start to take its shape. Therefore, this is the right time to complete Gautam Buddha International Airport and Pokhara International Airport and bring into operation as early as possible. Hence, this article has given focus to discuss about three national pride aviation projects GBIA, PIA, NIA.

Gautam Buddha International Airport (GBIA)

As per the latest report provided by GBIA, project office, on 20 Dec. 2021, approximately 98 percent construction work has completed. CAAN has initiated to make calibration flight in order to test the equipments installed in the airport to ensure flight safety of this airport. Probably, test flight will be done within a month time.

Not Nijgadh, but Gautam Buddha International Airport will be the first alternative or the second International Airport in Nepal. Until and unless, any unavoidable circumstances appear, GBIA will come into operation within the year 2022. The runway length of GBIA is 3000 meters and width is 45 meters, which is almost similar to TIA. Hence, GBIA can accommodate bigger planes like Airbus 330 and Boeing aircrafts. After the operation of GBIA, international flight fare to Nepal will be slightly reduced, flight holdings and delays will be significantly low at TIA. Flight operation at GBIA will certainly increase tourist flow in Nepal because a big number of international tourists will come to visit Lumbini, the birth place of Gautam Buddha. Operation of GBIA will enhance tourists in Tilaurakot, Ramgram and other surrounding areas. Moreover, operation of GBIA will certainly attract thousands of international Buddhist pilgrims at Lumbini, and the western part of Nepal.

Pokhara International Airport (PIA)

Pokhara is the most attractive tourist destination of Nepal. Bringing into operation of PIA will be a milestone for Nepal's tourism industry. The construction growth of PIA now is approximately 85 percent as per the report provided by the project head office. The construction speed of PIA is comparatively much better than GBIA. The runway length of PIA is 2500 meters and width is 45 meters. CAAN'S aeronautical experts argue that PIA is designed to accommodate narrow body aircrafts like Air Bus 320 or similar type aircrafts. Chinese contractor China CAMC Engineering Company Ltd. is constructing this airport in EPC (Engineering Procurement and Construction) model. The original construction deadline was 10th July 2021 but the Chinese contractor could not complete the work within the timeframe due to severe impact of Covid-19 pandemic. Now, CAAN has extended its construction deadline up to 10th July 2022 AD.

However, there are three major external impediments to bring PIA into operation. 1). Cutting of 40 of Rithepani hill. In order to make flight landing and takeoff secure and easier it is necessary to cut down the hill as suggested by aeronautical engineers and experts both Chinese and Nepalese. In order to cut the hill, CAAN is still to complete procedures for approval of EIA (Environmental Impact Assessment) report from Ministry of Forest and Soil Conservation. But the process of getting approval is still stagnated. 2). Shifting of landfill side is also another task Pokhara Metropolitan City has responsibility to do it. Existing landfill site is just 2 km away from the airport. Close landfill site always creates problems that birds and vultures might be roaming around. This situation may bring chances of birds encounter with the aircrafts during the takeoff and landing. According to ICAO (International Civil Aviation Organization), any land fill site must be minimum of 10-20 km away from the airport. 3) The north east part of PIA is in high risk of damage by monsoon flood near Bijayapur Khola. The drainage part of this area is already damaged by the last monsoon season's flood. Hence, it is suggested local, federal and central government to solve above

mentioned three obstacles with the co-ordination of CAAN in order to bring PIA into operation by 10 July 2022.

After the completion of PIA, Pokhara and its surrounding region will get a huge benefit of tourism because of direct international arrivals. Due to beautiful nature, Pokhara region has one of the best aviation sport activities like paragliding, ultra light flights in the world. Apart from this, operation of PIA, will help reduce flight congestion, delays and holding problems of TIA. Those tourists having very short leave and still want to do short trek in Annapurna region can have direct benefit of holiday time management with direct flight to Pokhara.

Nijgadh International Airport (NIA)

If NIA project will be completed, it will be a full fledged alternative international airport of TIA in Nepal. But, the process of making of NIA is at snail's pace. Till the date, no concrete and complete, master plan and business plan is made. A Korean consultant LMW (Land Mark Worldwide) has made a master plan of NIA, but Nepal government could not afford to own it. Then after, government of Nepal has started to make another master plan. According to CAAN source, about 50 percent work of making master plan is completed. Now, there is confusion between CAAN and Investment Board of Nepal in making of this airport. Nearly, a year ago Zurich International Airport was interested to invest in NIA through Investment Board. But, due to propaganda of some environmentalists and cases filed in the court, Zurich International Airport has almost changed its mood. If the NIA will be completed, it is expected that the airport will feature two parallel runways and will be capable of handling Airbus A380 and Boeing 777 and 15 million passengers annually at the first stage.

A. Project Development Status of NIA

1. Project office has been established at Simara Airport.

2. Detailed Feasibility Study (DFS) has been completed.

3. EIA report of the project has been approved.

4. External boundary has been located with DGPS technology.

5. Boundaries in the east, west and south are marked by installing cement pillars in every 50 meters.

6. Process of providing financial compensation has started. Financial compensation is provided about 70 Bigha land of Kanthgaun Village. But no alternative settlement has been made for the villagers of Tangia Basti and Matihani.

7. Study process is still undergoing to resettle the people of Tangia and Matihani.

8. Process of selecting airport construction modality, DPR and Master Plan is still underway.

9. The rumor of cutting of a huge number of trees is false because airport city will not be made inside the territory of NIA and the concept paper of the project has clearly said only a minimum number of trees will be cut down to build the airport that will pave the way to construct a single runway airport with necessary buildings and infrastructures at the first stage in 1900 hectors out of its total territory of 8045 hectors.

In my opinion, It is recommended to give focus on the following points for the construction of Nijgadh International Airport:

1. The crucial point is – it is obligatory to fix the MODALITY of airport construction whether it will be PPP, BOOT or Full involvement of Government itself, then making of DPR, Master Plan amalgamation with Business Plan.

2. Alternative settlement of the villagers mentioned below is obligatory in the suitable locations as early as possible.

1. Tangia Basti having 1476 houses,

2. Kanthgoun Village having approximately 100 houses and

3. Matihani Village having 39 houses

The Detailed Feasibility Study has planned to make airport runway at Tangia Basti.

3. The rumor of tree cutting at massive level must be stopped because as per the report of Feasibility Study, NIA can be made with minimum number of tree cutting down. Thus, even after the construction of the third phase NIA will be the GREEN airport in the world.

4. Attention must be given while making DPR and Master Plan to cut only required trees at minimum level and give scientific ways to pass wild animals from one territory to another, out of 7 sources of local waters 6 can be protected. Similarly 400 years old tree named Bhimsakhuwa, can be protected and tree plantation can be made at adequate number so that no serious environmental damage will be made to construct this airport.

5. For the massive growth of tourism in the country and boost national economy, the construction of NIA is extremely important. NIA will be the only airport in Nepal that can accommodate giant planes like Air Bus A 380 which can carry 525 – 853 passengers and Boeing 777. NIA will be Nepal's mega aviation infrastructure to international tourist arrivals and lead this nation to national prosperity.

Conclusion

Massive tourist flow to Nepal will be only possible if three ongoing international airports will come in operation. Gautam Buddha International Airport and Pokhara International Airport will come into operation in the year 2022, if Covid -19 will not make any further damage in human health. These two airports will certainly reduce flight congestion of Tribhuvan International Airport and make cost deduction of international flights coming to Nepal. But, all the international travelers will get a huge benefit after completion of proposed Nijgadh International Airport, because it will be the biggest airport in South Asia in terms of its area and passengers handling capacity. NIA will be the only airport in Nepal that can accommodate giant planes like Air Bus A 380 which can carry 525 – 853 passengers and Boeing 777. NIA, along with other three international airports will be Nepal's mega aviation infrastructures to increase massive tourist flux and lead this nation to national prosperity as the countries like Singapore and Qatar have proved it.

GBIA RUNWAY

State Safety Oversight Capabilities and Nepalese Civil Aviation System.

Sanjiv Gautam
Former DG, CAAN

Abstract:

Safety oversight capability of state plays a crucial role to deliver safety in air transportation. Civil aviation service providers are authorized to provide services based on the State regulation and, their safety performance is constructed on the capability of state civil aviation regulators. Safety oversight capability of Nepalese civil aviation regulator is gradually established but, sustainability of such has yet to be achieved. Robust system needs to be proven through the establishment and implementation of eight critical elements of safety oversight system.

Introduction:

Air transportation is one of the safest, fastest and reliable mode of transportation among others. Air transportation is growing in a consistent manner except few short-term interruptions due to economic recession and global pandemic. Nevertheless, it has been evident that air traffic is growing double in every 15 years since 1970. So sustainable civil aviation system is the key to cope with the growing demand of aviation services that has witnessed unprecedent growth.

Safety must remain highest priority for the States and international organizations community involved in the air transportation which has been echoed in the ICAO strategic objectives. The responsibility of contracting States to regulate civil aviation activities under their jurisdiction is emphasized in the article 12, 37 and 38 of Chicago Convention

to provide safe, regular and efficient air services. Therefore, States must develop legislation and regulations in line with Chicago convention and its Annexes, and adopt measures to ensure effective implementation of Standard and Recommended Practices (SARPs) contained into the ICAO annexes.

The Convention on International Civil Aviation, the Chicago Convention of 1944, is the basic international legal document for civil aviation operation. Article 1 of the Convention stipulates that "contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory. Similarly, Article 12 requires States to "adopt measures to ensure that every aircraft flying over or maneuvering within its territory and that every aircraft carrying its nationality mark... shall comply with the rules and regulations relating to flight and maneuver of aircraft there in force". This clearly designates contracting states to establish safety system and put in place necessary measure in compliance with international standards to deliver services maintaining acceptable level of safety performance. State must maintain the safety level to build the confidence of travelling public therefore, " The real goal is not to blow the whistle on potentially unsafe operations, but to promote aviation safety and inspire public confidence in such safety"(Kotait 2013, P.378). Assad Kotaite further described that it can be achieved through the effective safety oversight by the State.

Air transportation is by nature global activity, therefore, all member States must be capable of establishing

and implementing safety oversight system in their respective areas of responsibility in order to ensure global aviation safety. International Civil Aviation Organization (ICAO) came forward to help State to assess and strengthen their safety oversight capabilities through its universal safety oversight audit programme (USOAP) since 1999.

State safety oversight system:

Contracting State must be capable enough to regulate its aviation service providers under its authority. In order to be well able for such activities, they have to establish and implement safety oversight system. ICAO defines safety oversight as a "function performed by a State to ensure that individuals and organizations performing an aviation activity comply with safety-related national laws and regulations" (ICAO 2016, P.1-3). Therefore, safety oversight forms the part of State safety regulatory process which is committed to ensuring safe provision of services through the applicable regulatory requirements and its effective implementation.

ICAO describes that safety oversight includes the establishment and implementation of a system by a State to monitor the effective implementation of its national requirements derived from ICAO SARPs and associated guidance material and procedures (ICAO 2017a). So, an individual State's safety oversight capability is the basis upon which safe international air transportation relies and lack of such capability therefore threatens the safety of civil aviation operation. ICAO Annex

19 -safety management appendix 1 delineated the eight critical elements of State's safety oversight system which are the basis for the safety oversight capabilities of state. These critical elements are CE-1 Primary aviation legislation; CE-2 Specific operating regulations; CE-3 State system and functions; CE-4 Qualified technical personnel; CE-5 Technical guidance, tools and provision of safety-critical information; CE-6 Licensing, certification, authorization and/ or approval obligations; CE-7 Surveillance obligations; CE-8 Resolution of safety issues. ICAO explains that safety oversight comprises the establishment and implementation of a system by a State to monitor the effective implementation of its national requirements contained in ICAO SARPs and related guidance material and procedures (ICAO. 2017a). "The eight CEs of an State Safety Oversight System are interconnected and complement each other. CE-1 to CE-5 are presented as the "Establishment CEs", while CE-6 to CE-8 are the "Implementation CEs"." (ICAO 2017a, P. 2.5).

Doc 9735, (Universal Safety Oversight Audit Programme Continuous Monitoring Manual) explain critical elements (CEs) of safety oversight are essentially the safety defense tools of a State's safety oversight system. It further stipulates that contracting States should address all eight CEs in its effort to establish and implement an effective safety oversight which covers personnel licensing (PEL), aircraft operations (OPS), airworthiness of aircraft (AIR), aircraft accident and incident investigation (AIG) and air navigation services and aerodromes (AGA). The level of effective implementation (EI) of the CEs is an indication of State's capability for safety oversight. Hence, contracting State should address all CEs with determination to establish and implement an effective safety oversight system that reflects the mutual responsibility of the State and the aviation community.

In 2019, ICAO safety oversight programme completed its 20th years of audit and related activities. To celebrate the 20th years of its successful activities, ICAO has highlighted safety audit aims to maintain the programme's status as a global aviation monitoring system of ICAO Member States' capabilities for safety oversight, aircraft accident and incident investigation, and their maturity in implementing State Safety Programmes (SSPs).

ICAO safety report showed that inspite of ICAO and State continued efforts to increase the effective implementation of CEs related to safety oversight system, CE-4, CE-7 and CE-8 continue to be well below desirable global levels. The main reason behind this fact remains of some States failure to recruit, train and retain qualified and trained Staff. The disparity in the remuneration for the qualified technical personnel in the authority and industry is one of the primary reasons for it. The report further indicated that at global level, the three audit areas with the lowest EI are AIG, ANS and AGA (ICAO 2019, P.19).

ICAO has issued Global Aviation Safety Plan (GASP) for triennial with set objectives and associated timelines to implement it by the member states. The Global Aviation Safety Plan (GASP) 2020-2022 version highlighted numbers of goals, targets and indicators to achieve and maintain the aspirational safety goal of zero fatalities in commercial operations by 2030 and beyond.

Nepalese Civil Aviation System and safety oversight capability:

The aviation regulator has a key responsibility for the promotion of safe operation environment so as to protect the travelling public. However, States reaction and safety rhetoric is more visible immediately after the disaster and "An even uglier truth, though, is that much of the safety produced by government agencies are the result of blood priority" (Cusick 2017, P.166).

In May 2009, an ICAO USOAP comprehensive systems audit (CSA) found number of deficiencies confirming that the implementation of international safety standards by Nepal was far below the world average (EC 2014, P. 5). The ICAO audit showed that the CAAN was not capable of ensuring effective implementation of international safety standards and issued the recommendations for corrective actions for such deficiencies which Nepal submitted within agreed timeframe. However, during period of 2010- 2012 number of accidents and fatalities drew attention of international organizations and agencies on air safety situation of Nepal. European Commission then raised the concern on aviation safety and asked Nepalese regulator to produce sufficient evident that safety regulations are implemented in effective manner. During 2013, ICAO coordinated validation mission (ICVM), ICAO raised a significant safety concern (SSC) on air operator certificate (AOC) issuance process (ICAO, 2013) and asked to resolve the deficiency at the earliest. Nepal was able to improve effective implementation (EI) Scores of 44.14 % in 2009 to 54.89% in 2013 but issuance of SSC brought Nepalese regulator in worse situation that was one of the reasons being listed in European Commission air safety list in December 2013. Nepal was able to resolve SSC and increase EI to 66.76% during ICVM in July 2017 (ICAO, 2017d) . In the year 2018 Nepal was awarded with the ICAO Council President Awards for this achievement which was a testimony of significant progress made by Nepal in safety oversight capability.

Global Aviation Safety Plan 2017-2019 called for all State to achieve minimum of 60% of effective implementation by 2017. The effective implementation of Nepal in the 2017 ICVM audit was 66.76% which is well above the ICAO GASP benchmark. It is an evident that Nepal has made a substantial improvement in its safety oversight capability since the first USOPA CSA audit in 2009. However, ICAO identified poor scores in CE-4,

Qualified technical personnel and CE-8, Resolution of safety issues (ICAO, 2017d). These CEs are core elements for establishment and implementation of safety oversight system. Similarly organization (ORG), accident and incident investigation (AIG) and air navigation services (ANS) were identified as safety deficient protocol areas of Nepal's safety oversight system (ICAO, 2017d).

Nepal has developed the national aviation safety plan 2018-2022 based on the GASP goals and targets. Nepal needs to put serious efforts in implementing the effective State Safety Programme (SSP) which is one of the core indicators of State safety oversight capabilities.

Conclusion:

State regulatory authority should be autonomous enough to discharge its duties and responsibilities without external interference. Other State organizations have to positively support the regulatory authority for its sustainable activities. Lack of sufficient qualified human resource is one of the main limitations for authority to effectively implement of safety oversight system. CE-4 directly influences the effective implementation of CE7 and CE8. Therefore, high level commitment is required for execution of safety policy and programme. CAAN has roles of both regulator and aviation service provider that may result in reduced attention on regulatory functions in comparison to visible activities of service provision functions. Based on the empirical research, it is evident that Nepalese aviation regulator is able to prepare all required documents in line with ICAO SARPs but, effective implementation in real operational context is a challenge to achieve robust safety oversight regime.

Nepal has to achieve higher EI as stipulated in the GASP 2020-2022 version as well as ever growing global average of EI during the forthcoming ICAO USOAP CMA audit scheduled for April 2022. For this, the regulator's functions must be independent and autonomous without any interference from any quarters. As indicated by the ICAO and European Commission during the audit and safety assessment, existing CAAN should be separate as a regulator and service providers at the earliest. Furthermore, high level commitments expressed for safety in past must be put in practice.

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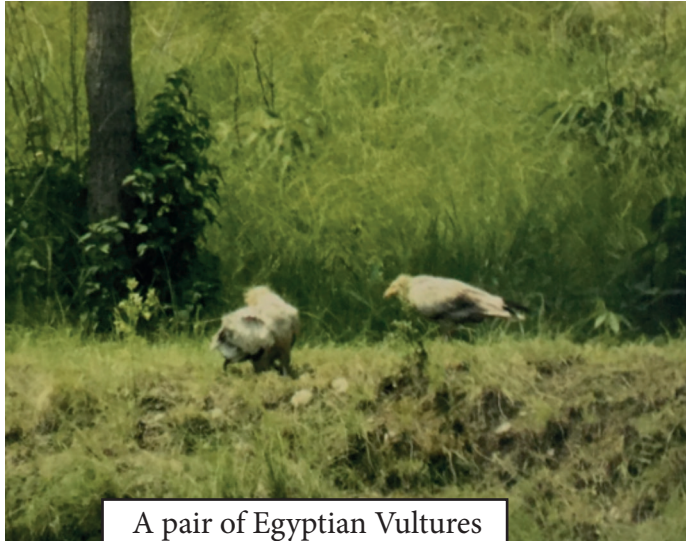
Closure of the BBSLS
A Big Challenge to
CAAN

Ramesh Man Joshi
Former DDG, CAAN

A pair of Egyptian Vultures grazing over BBSLS in 2016.

Sanitary Landfill Site filled with liner basement, Jute mat and Concrete, also with vertical cylindrical bolsters, gas vent system

A small incident can be the cause of a great disaster – depending. In Sanskrit, we say, Subhena Kinchit, asubhena Samaptam. This quote seems more appropriate in aviation. Just a bird, if injected into the aircraft engine or the cock-pit, has, more than once, happened to be the cause of a fatal crash all over the world. In 2013, a bird hit a Dornier Aircraft of Sita Air immediately after take-off from Kathmandu and crashed at the nearby Manohara river killing all 19 people on board which included 13 Europeans too. It is believed that this accident too was one of the reasons for putting Nepal in the black-list of European Union (EU) in 2013 and have continued to be there till this date (2021) despite a great many attempts by CAAN to improve the air safety in Nepal.

Now that Pokhara Regional International Airport (PRIA) will come into operation from 10 July 2022, National Airport Bird Hazard and Reduction Committee (NABHRC), way back in 2001, decided that Bachhe Baduwa Sanitary Landfill Site (BBSLS), just 1.5 km from the Runway of PRIA, must be compulsorily closed by Pokhara Metropolitan City (PMC) by this date for the obvious reason of reducing the bird hazard to aircraft in the PRIA area.

Closing of a Landfill Site can be a very complex issue if it is to distract the birds in future. Suffice it to say that CAAN cannot afford to take anything for granted on this issue. BBSLS is only 4.5 Km away from the existing Airport at Pardi. Yet, ADB in 2004 required CAAN to give consent to a BBSLS Bird Control and Monitoring Scheme of PMC if it is to minimize the bird hazard to aircraft.

Closing a SLS scientifically have a lot many considerations and consequences. Closing of BBSLS at Bachhe Badhuwa which is 1.5 Km from Runway at PRIA, is more complex and must be closed carefully by taking into consideration of the importance to scare the birds away at all times. Scientific utilisation of the whole area is a must after its closure. Generally, planting of trees and crops, meadow, Botanical Garden, Park, Access Road, Recreational Areas are possible areas of the re-utilisation of BBSLS which is already a popular habitat for Egyptian Vultures. It must be carefully taken into consideration. Relocation of this habitat must be carefully planned in time.

This Closure Plan, the responsibility of PMCO must be strongly guided and continuously monitored by PRIA. The whole Pokhara region and PRIA cannot afford to have bird hits right from the beginning. Scientific and fool-proof End-use Plan of BBSLS must be guaranteed at all cost. Growth of all vegetation, water, accommodation, food, and shelters which may affect birds, must be strictly controlled and continuously monitored. Stock piling of top soil is a necessity. Grading and landscaping must be well planned in advance. Leachate and gas emissions from the previous solid waste deposits must be fully controlled. A legal frame-work must be in place with the clear demarcation of duties and responsibilities of MPCO, CAAN and other related entities. Pokhara Valley alone have 500 kinds of birds. The time to act is now. An elaborative 'Closure Plan' is the need of time. Proper landscaping of Rithepani Danda is another issue for that matter which CAAN cannot afford to set aside, even though it is not a Sanitary Landfill Site.

सूर्य बहादुर थापा
पूर्व उपमहानिर्देशक,
नेपाल नागरिक उड्डयन प्राधिकरण

नागरिक उड्डयन प्राधिकरणमा विभाजन :
ऐच्छिक या बाध्यता

नेपाल नागरिक उड्डयन प्राधिकरणको प्रमुख उद्देश्य नेपालको हवाई उडान सेवालाई सुरक्षित, स्तरिय, प्रभावकारी विश्वसनिय बनाई सुरक्षाको पूर्ण प्रत्याभुती सहित हवाई यात्रुहरुलाई सुरक्षित र आरामपुर्वक गन्तव्यमा पुर्‍याउन आवश्यक सघाउ पुर्‍याउनु हो । यसको लागि यो स्वायत्त संस्थाले एयर नेभिगेसन सेवा र विमानस्थल सञ्चालन जस्ता सेवा प्रदायक कार्य र तिनिहरु निर्धारित स्तर र तोकिएको मापदण्ड बमोजिम भए नभएको अनुगमन र नियमन गर्न नियमन कार्य दुबैको भुमिका निर्वाह गर्दै आएको छ । उड्डयन मौसमी रिपोर्ट र वायुयान सञ्चालन कम्पनीले दिने सेवा भने प्राधिकरण भन्दा बाहिरी संस्था हुन् । सेवा प्रदायक कम्पनीहरु बाहिरी संस्था पनि हुन सक्छन् तर नियामक निकाय सरकारी या सरकारी स्वामित्वको संस्था नै हुनुपर्छ भन्ने मान्यता रहिआएको छ । वायुसेवा कम्पनीहरुको नियमन तथा अनुगमन गर्ने सन्दर्भमा नेपालमा दर्ता भएका विमान र यहाँ संचालित विदेशी विमानहरुलाई उडान संचालन प्रमाणपत्र (एयर अपरेटर सर्टिफिकेट - ए.ओ.सि.) जारी गर्ने, विमानचालक तथा जहाज मर्मत गर्ने प्राविधिकहरुलाई निश्चित मापदण्ड पुरा गरे पछि लाईसेन्स जारी गर्ने, नविकरण गर्ने, रद्ध गर्ने, विमानहरुको उड्डयन सुरक्षा प्रणाली (Safety) निश्चित मापदण्ड बमोजिम भए नभएको (Airworthy) अनुगमन र नियमन कार्य पनि गर्दै आएको छ ।

एउटै निकायबाट दुबै कार्य गर्नु पर्दा नियामक कार्य प्रभावकारी हुन नसकेकोले सेवा प्रदायक र नियामक कार्य गर्ने दुई अलग स्वायत्त संस्था बनाउन हवाई सेवा प्राधिकरण ऐन, २०७६ र नागरिक उड्डयन प्राधिकरण ऐन, २०७६ निर्माण गरी त्यसैको आधारमा सेवा प्रदायक कार्यको लागि हवाई सेवा प्राधिकरण र नियमन कार्यको लागि नागरिक उड्डयन प्राधिकरणको स्थापना गर्न लागिएको छ ।

यी दुई विधेयक राष्ट्रिय सभाबाट पारित भई प्रतिनिधि सभामा पारितको पर्खाईमा छन् । दुई निकायका रुपमा अलग गर्दा नियामक कार्य प्रभावकारी हुने हुदा हवाई सुरक्षामा अभिवृद्धि हुने विश्वास गरिएको छ । यसरी अलग गर्दा कर्मचारीको वृत्ति विकास र संस्थाको आर्थिक भविष्यको सुनिश्चतता के कस्तो हुने भन्ने कुराले प्राधिकरणका कर्मचारीहरुमा संशय पैदा गरेको छ । यस सम्बन्धमा तहाँ कार्यरत कर्मचारीहरुले केही समय आन्दोलन गरी अहिले स्थगन गरिएको अवस्था छ । उनीहरुसंग सघन छलफल गरी विश्वासमा लिन पनि उत्तिकै आवश्यक छ ।

नागरिक उड्डयन क्षेत्र उच्च प्रविधिमा आधारित निकाय हो अर्थात यो प्राविधिक निकाय हो । यो संस्थामा धेरै प्रकारका प्राविधिकहरु कार्यरत छन् । यसले सुरक्षित हवाई उडानको लागि अन्तर्राष्ट्रिय नागरिक उड्डयन संगठन (आई.सि.ए.ओ.) ले प्रकाशित र सिफारिस गरेका कतिपय एनेक्स, डकुमेन्टसहरु र सर्कुलरहरुमा आधारित भएर कार्य गर्न गर्छ । अन्तर्राष्ट्रिय हवाई उडान सेवा कुनै पनि देशका सीमा भन्दा बाहिर हुने भएकोले हवाई सेवा सञ्चालनमा एकरुपता ल्याउन आई.सी.ए.ओ. को रुल, रेगुलेसन, सिफारिसलाई सबै सम्बद्ध राष्ट्रहरुले पालना गर्नु सम्बद्ध राष्ट्रको दायित्व पनि हो ।

अन्तर्राष्ट्रिय नागरिक उड्डयन संगठन (आई.सि.ए.ओ.) को विभिन्न बैठकहरुमा यस संगठन संग आबद्ध राष्ट्रहरुलाई सेवा प्रदायक र नियामक निकाय अलग हुनु पर्ने भनि सिफारिस गर्दै आएको छ, तर बाध्यात्मक गरेको छैन । दक्षिण एशियाका केही दे शहरुले पनि दुई अलग निकायहरुको स्थापना गरीसकेका छन् । दुई स्वायत्त निकाय बनाउन दबाव परेको भए पनि केही देशहरुले अभैm पनि दुबै कार्य एउटै निकायबाट सम्पन्न गर्दै

आएका छन् । नेपालमा पनि नेपाल नागरिक उड्डयन प्राधिकरण स्थापना भएको २३ वर्ष पछि दुई अलग निकाय बनाउन ऐन निर्माण गरी संसदबाट अनुमोदन गर्न लागिएको अवस्था छ ।

सेवा प्रदायक कार्य र नियमन कार्य एउटै निकायबाट सम्पन्न गर्दा दुबै निकायलाई समान किसिमले ध्यान दिन नसक्दा हवाई उड्डयन सुरक्षामा आँच आउन सक्ने, एउटै निकायले दुबै कार्य गर्दा स्वार्थको द्वन्द (Conflict of Interest) बढ्न सक्ने, दुवै निकायको ताल्लुकवाला प्रमुख एउटै हुदा एउटा निकायमा कमी कमजोरी देखिदा कारवाही गर्न व्यवहारिक समस्या हुने, सेवा प्रदायक प्रणाली अलग हुँदा यसको क्षमता तथा कार्यकुशलतामा वृद्धि हुने र फलस्वरुप नियमनकारी निकायले औल्याएका फाईन्डिडसहरुलाई समाधान गर्न सम्पूर्ण ध्यान पुग्ने आदि कारणले अलग गर्नु पर्ने तर्क गरिएको छ ।

आई.सि.ए.ओ.को २०१३ को अडिट रिपोर्टले गम्भीर सुरक्षा चासो (सिग्निफिकेन्स सेफ्टी लिस्ट- एस.एस.सी.) मा देखाएको आधार मा युरोपियन युनियनले पनि नेपालका सम्पूर्ण वायुसेवा कम्पनीहरुलाई युरोपेली मुलुकमा उडान गर्न नदिने गरी एयर सेफ्टी लिस्टमा (कालो सुची) राखेको छ । युरोपेली युनियनले आई.सि.ए.ओ.को एस.एस.सी. र ने पालमा भएका जहाज दुर्घटनाहरुलाई आधार बनाएर एयर सेफ्टी लिस्ट (ब्लाक लिस्ट) मा राखेको देखिन्छ । सन २०११-२०१५ पाँच बर्षको समयावधिमा जहाज दुर्घटनामा मानवीय मृत्यु दर १४.२ % भएको थियो । यो आँकडाको आधार र सो दुर्घटनामा केही युरोपियन हवाई यात्रुहरुको मृत्यु भएको कारणले पनि उसले ब्लाक लिस्टमा राख्न थप बल पुगेको हुन सक्छ । यसरी युरोपियन युनियनले उसको आकासमा प्रवेश

गर्न लगाएको प्रतिबन्ध फुकुवाको लागि पनि सेवा प्रदायक र नियामक निकायलाई अलग गरेर नियामक निकायलाई बलियो बनाउनु पर्ने अवस्था देखिएको छ ।

नियामक निकायले हवाई सुरक्षासंग सम्बन्धित सेवा प्रदायक प्रणालीहरुको नियमन गर्दा मापदण्ड बमोजिम भए नभएको नियमन कार्य गर्छ र यदि केही प्यारामिटरहरु निर्धारित मापदण्ड बमोजिम नभएको पाईएमा त्यस्ता कमी-कमजोरी उल्लेख गरी 'फाईन्डिङ्डस' तयार गरी सेवा प्रदायकलाई निश्चित समयावधिमा पुरा गर्न निर्देशन दिन्छ । यसरी फाईन्डिङ्डसहरुलाई हटाई सुरक्षालाई अभिबृद्धि गर्ने जिम्मा फेरि पनि सेवा प्रदायक निकायको नै हुन्छ । यसले सेवा प्रदायक संस्थालाई चाँडै फाईन्डिङ्डस हटाउने मनोबैज्ञानिक दवाब परिरहन्छ । नियमन कार्य सम्पन्न गर्दा निर्मम हुनु पर्छ र कम्प्रोमाईज गर्दा सुरक्षा लाई आघात पर्न सक्छ । दुई अलग निकाय बनाउने कार्य कार्यात्मक (Functional) भन्दा संरचनात्मक (Structural) खालको भएकोले छुट्टा-छुट्टै जनशक्तिको आवश्यकता पर्छ । नियमन कार्य गर्ने व्यक्तिहरु से वा प्रदायक प्रणाली सम्बन्धि ज्ञान र कार्य अनुभव भएको हुनुपर्ने भएकोले बजारबाट सिधै नयाँ जनशक्ति आपुर्ति गरेर यो कार्य सम्पन्न गर्न सकिदैन । प्राधिकरणमा ऐले कार्यरत पुराना प्राविधिक जनशक्तिहरुबाट नै यो कार्य गर्न सम्भव हुन सक्ने हुदा सेवा प्रदायक क्षेत्रमा कार्य गर्ने जनशक्तिको अभाव हुन सक्छ । सरकारले चाहेमा कार्यरत जनशक्तिहरुलाई जता पनि काम लगाउन सकिने भएपनि कर्मचारीहरुलाई शुरुमा काम गर्ने निकाय रोज्न लगाउनु उनिहरुको मौलिक हक प्रति सम्मान जनाउनु पनि हो ।

नियामक कार्य गर्ने नागरिक उड्डयन प्राधिकरणलाई छुट्टै सरकारी बजेटको व्यवस्था गर्ने सम्भावना कम देखिन्छ । सेवा प्रदायक कार्य गर्ने हवाई सेवा प्राधिकरणले नै खर्च ब्यहोर्ने सम्भावना देखिन्छ । २०५५ पौष १६ गते हवाई विभागलाई खारेज गरी नेपाल नागरिक उड्डयन प्राधिकरण स्थापना भए पश्चात आफ्नै आम्दानीले खर्च धान्नु पर्ने भएकोले मितव्ययी बन्नु यसको बाध्यता भएको छ । उड्डयन सेवा उच्च लगानी भएको प्राविधिक संस्था हो । चालु विमानस्थलहरुको निर्माण र मर्मत-सम्भार, आई.सि.ए.ओ.ले तोकिदिएको मापदण्डका उपकरणहरुको खरीद, मर्मत-सम्भार तथा प्रतिस्थापन, आफ्ना जनशक्तिलाई सक्षम र शीपयुक्त बनाउन स्वदेशी तथा विदेशमा गर्नु पर्ने तालिमहरु आदि जस्ता अनिवार्य खर्चले यसको खर्चमा वृद्धि हुदै आएको छ । पोखरा अन्तर्राष्ट्रिय विमानस्थल र भैरहवा अन्तर्राष्ट्रिय विमानस्थलमा भएको खर्च पनि शेयर लगानीको रुपमा प्राधिकरणले नै ब्यहोर्नु पर्ने स्थिती छ । यद्यपी Aviation Safety लाई पहिलो प्राथमिकतामा राख्नु पर्ने भएकोले पैसा हेरिदैन भनिन्छ जुन स्वाभाविक हो तर आर्थिक रुपमा सक्षम भएन भने हवाई सुरक्षा स्तरिय र विश्वसनिय बनाईराख्न पनि धौ धौ पर्न जान्छ । अलग निकाय बनाएर पनि हाम्रो कार्यशैलीमा परिवर्तन गरिएन भने उड्डयन सुरक्षामा बढोत्तरी आउने कुराको सुनिश्चितता गर्न सकिदैन ।

सरकारी र सरकारी स्वामित्वका के ही निकायहरुले अहिले पनि नियमन कार्य गरिरहेका छन । वित्तिय संस्थाहरुको अनुगमन गर्ने नेपाल राष्ट्र बैंक, खाद्य तथा तरकारी मा विषादि अनुसन्धान तथा विश्लेषण गर्ने खाद्य प्रविधि तथा गुण नियन्त्रण विभाग, नेपाल टेलिकिम (तत्कालिन दुर सञ्चार संस्थान) को नियमनकारी निकाय दुर सञ्चार प्राधिकरण, बिमा कम्पनीको नियमनकारी निकाय बिमा समिति तथा नेपाल पुँजी बजार क्षेत्रको नियामक निकाय नेपाल धितोपत्र बोर्ड जस्ता नियमनकारी निकायको भुमिका प्रति बेलाबेलामा प्रश्न उठ्ने गर्छ । हजारौं यात्रुहरुको जनधनसंग जोडिएको हवाई यातायातको सुरक्षाको प्रश्न अति नै सम्वेदनशील भएकोले यस्को नियामक निकाय पनि अति जिम्मेवार हुनु आवश्यक छ । अन्तर्राष्ट्रिय नागरिक उड्डयन संगठनले हवाई सुरक्षालाई स्वाभाविक रुपमा पहिलो प्राथमिकतामा राखेको छ । हवाई दुर्घटना हुँदा त्यस्को सत्य तथ्य पत्ता लगाउन कमिटि बन्ने गर्छ त्यसले लामो अध्ययन गरी दुर्घटना हुनुका कारण र त्यस्ता घटना भविष्यमा नदोहोरियोस भन्नका लागि केही सिफारिसहरु गरेको हुन्छ । त्यस्ता सिफारिस कति लागु गरियो र त्यसको निरन्तर अनुगमन, अध्ययन र अनुसन्धान गर्न पनि एउटा अलग निकायको आवश्यक हुन्छ । नियमनकारी निकायको सिफारिस तथा फाईन्डिङ्डसहरुलाई बेवास्ता गरियो या काम गर्नु भन्दा कागज मात्रै मिलाउने कार्य गरियो भने छुट्टै निकाय बनाउनुको केही अर्थ रहदैन । प्रतिबद्धता र ईमान्दारी पुर्वक कार्य गर्ने हो भने अहिलेको संरचनाले पनि कार्य गर्न नसकिने होईन । तर अब नियमनकारी निकाय अलग बनाउने कार्य धेरै अगाडि बढिसकेको, सम्बन्धित विज्ञहरुको राय, आई.सि.ए.ओ. को सिफारिस, युरोपियन युनियनको कालो सुचीबाट मुक्त हुनु पर्ने बाध्यता आदि कारणले पछ्याडि फर्कन सक्ने अवस्था छैन । त्यसैले हवाई सुरक्षालाई बलियो बनाई राष्ट्रिय तथा अन्तर्राष्ट्रिय यात्रुहरुको विश्वास आर्जन गर्न अलग नियमनकारी निकायको विकल्प देखिदैन । खाँचो छ काम प्रतिको ईमान्दारिता र प्रतिबद्धताको, अनि देश प्रतिको जिम्मेवारीको र गम्भिर ईच्छाशक्तिको ।
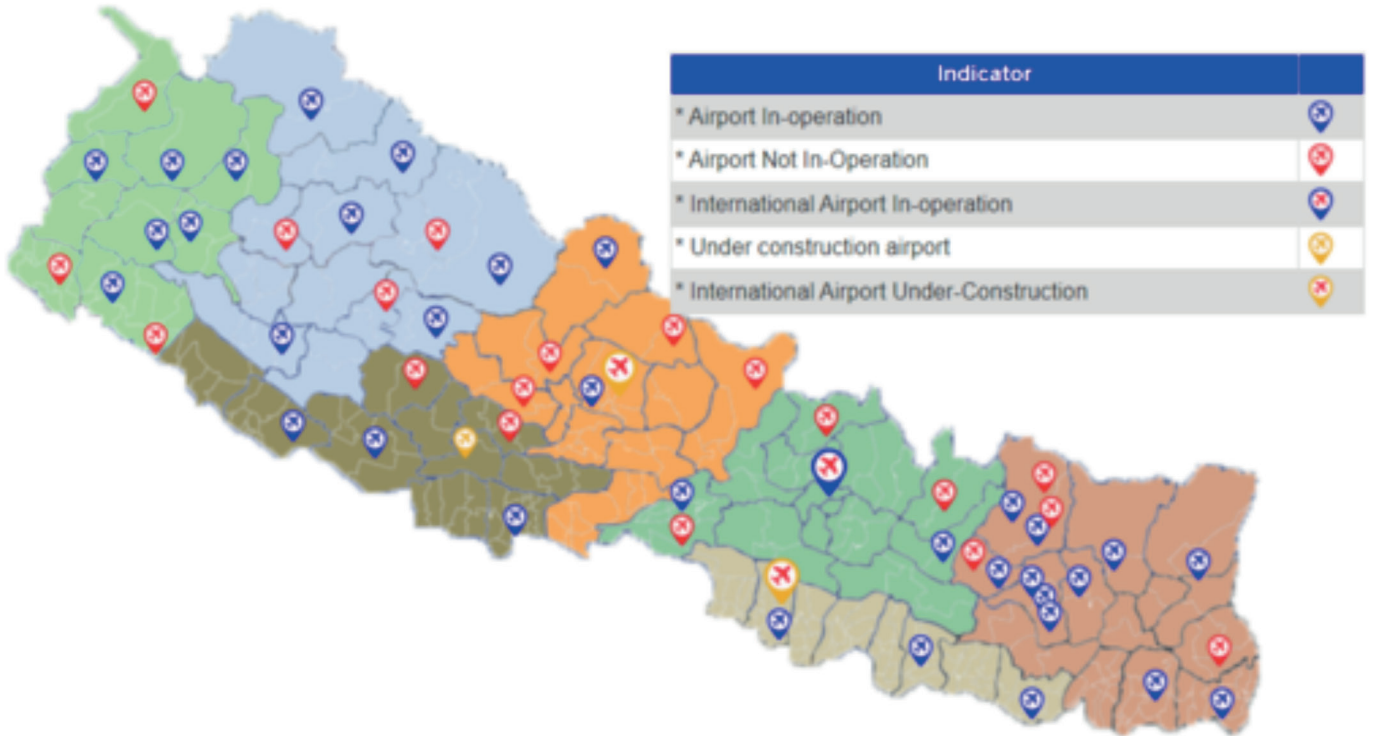

POKHARA AIRPORT TERMINAL

शालिग्राम पौडेल
पुर्व निर्देशक,
नेपाल नागरिक उड्डयन प्राधिकरण

सञ्चालनमा नरहेका विमानस्थलहरु: एक छलफल

(हवाई नीति २०६३ लाई प्रतिस्थापन गरी नयाँ हवाई नीति २०७६ ल्याउन खोजिएको थियो ।तर त्यसै बखत कोभिड -२०१९ को महामारीले असर गर्यो । हवाई र पर्यटन लगायत सम्पुर्ण आर्थिक क्षेत्र तहस नहस पार्यो कोभिडले । कोभिड सँगै भिड्ने क्रममा नयाँ नीति पनि थन्को लागि रहेको अवस्था छ । नेपालको हवाई क्षेत्र अन्तर्गत सञ्चालनमा नरहेका आन्तरिक विमानस्थल सम्बन्धी नीति तथा अन्य आन्तरिक विमानस्थलको निर्माण तथा सञ्चालन आदि विषयमा केही छलफल अगाडी सार्ने उद्देश्यबाट यो लेख तयार गरिएको छ)

Indicator	
* Airport In-operation	🔵
* Airport Not In-Operation	🔴
* International Airport In-operation	🔵
* Under construction airport	🟡
* International Airport Under-Construction	🟡

नेपालमा हाल ३२ ओटा विमानस्थल सञ्चालनमा रहेका र २१ ओटा विमानस्थलमा उडान सञ्चालन नरहेको अवस्था छ । नीजगढ समेत तीन ओटा अन्तरराष्ट्रिय विमानस्थल निर्माणधिन रहेका छन् । कतिपय हाल सञ्चालनमा नरहेका विमानस्थलहरु निर्माण कार्य जारी रहँदै गरेका र एकपटक टेष्ट फ्लाइट भएर पुन: सञ्चालन बन्द रहेका (४-५ ओटा) पनि पर्दछन् । नेपालमा भौगोलिक कठिनाईका कारण जन पहुँचको लागि (Accessibility need) खोलिएका विमानस्थल रहेका जिल्लाहरुमा स्थल यातायात मार्ग खुल्दै गएकाले पनि विमानस्थलको आवश्यकता नभइ बन्द हुन पुगेका छन् । नेपाल जस्तो सानो देशको लागि हाल

भएका ५४ ओटा विमानस्थल नै बढि हुन् । नेपालीको आयस्तर बढ्दै जाँदा भविष्यमा ती विमानस्थलहरु सञ्चालनमा आउने सम्भावना पनि छदैछ । त्यसैले ती विमानस्थलको सम्पति, जग्गा, भवन र सञ्चार सहाय सुविधाहरु यथावत् चालु अवस्था राखि रहन र वैकल्पिक उपयोगिता पनि गर्न सकिन्छ कि भन्ने तर्फ सोच्नु आवश्यक छ ।

मेघौली, टिकापुर, कञ्चनपुर,स्याङ्बोचे, जीरी, लाङ्टाङ्ग, मनाङ्ग, ढोरपाटन, डोल्पा, दार्चुला, बैतढी, बागलुङ्ग, रुकुम कालिकोट आदि सञ्चालनमा नरहेका विमानस्थलहरुको उपयोगिता के छ त भन्ने प्रश्न आउन सक्छ । प्रथमत: ती विमानस्थलहरुको हजारौं रोपनी जग्गा छ । त्यो जग्गामा नेपाली सेनाको ब्यारेक राख्न सकिन्छ । नेपाली

सेनाले हवाई उडान प्रशिक्षण स्थलको रुपमा पनि विमानस्थललाई उपयोग गर्न सक्छ । भारतमा जस्तो सिविल इनक्लेभ (civil enclave) को रुपमा वा मिलिटरी इनक्लेभ (military enclave) को रुपमा विमानस्थल सञ्चालन गर्न पनि सकिन्छ । Civil enclave विमानस्थल सेनाको स्वामित्वमा रहन्छ र दिनमा नागरिक उडान गर्न सकिन्छ । विमानस्थलको आम्दानी सेनाले उठाउने गर्दछ।नागरिक उड्डयन प्राधिकरण (CAAN)सँग आय अंशियारी (revenue sharing) गर्न सकिन्छ । त्यस्तै military enclave विमानस्थलहरु नागरिक उड्डयन प्राधिकरणको स्वामित्वमा रहन्छन् र त्यहां सैनिक उडानको लागि प्रयोग गर्न सकिन्छ । ती विमानस्थलमा लाग्ने शुल्क सेनाले CAAN लाई बुझाउनु

पर्ने व्यवस्था गर्न सकिन्छ । हाल सञ्चालनमा नरहेका मध्ये कुनकुन विमानस्थल से नालाई civil enclave को रुपमा सञ्चालन गर्न दिने र कुनकुन विमानस्थल military enclave को रुपमा रहने भन्ने विषय नेपाली सेनासँग छलफल गरी सम्झदारी पुग्न सकिन्छ । त्यसरी विमानस्थलहरु से नालाई सुम्पिदा विमानस्थलको मास्टर प्लान नबिगारी प्रयोग गर्नँपर्ने सर्त राखिनु पर्दछ । साथै विमानस्थलको सम्पत्ती प्राधिकरणको सम्पत्तीबाट हटाई सरकारमा हस्तान्तरण गर्ने र सो को मुल्याङ्कन रकम सेयर लगानी बाट हटाउनु पर्ने हुन्छ । एक दुई विमानस्थलहरु स्थानीय निकायलाई निश्चित अवधिका लागि करार सम्झौताबाट सञ्चालन गर्न दिन पनि उपयुक्त होला, जस्तो, दोलखाको जीरि विमानस्थल । स्थानीय निकायलाई विमानस्थल हस्तान्तरण गर्न भने सङ्घीय स्वामित्व भएको कारणमिल्ने देखिदैन ।

विमानस्थलहरु राष्ट्रिय सम्पत्ती हुन् । सरकारले CAAN लाई हस्तान्तरण गरे पनि सबै विमानस्थलहरुको अन्तिम स्वामित्व सरकार कै रहनुपर्दछ । देशमा पर्ने प्राकृतिक विपद व्यवस्थापन र अन्तरराष्ट्रिय सीमा सुरक्षाका लागि समेत विमानस्थलहरुको ठुलो महत्व रहन्छ । २०५४ साल सम्म झापाको चन्द्रगढी विमानस्थल सञ्चालनमा थिएन । त्यस्तै भरतपुर विमानस्थल पनि २०४७ सम्म वर्षौं देखि बन्द थियो । रामेछ्राप र डोटी विमानस्थल २०६७ तिर सम्म सञ्चालनमा थिएनन्। पछि यी विमानस्थलहरु पुन: सञ्चालनमा आएका छन् । चन्द्रगढी र भरतपुर विमानस्थलहरु अहिलेसम्म राम्रै व्यस्ततामा छन् । त्यसैले कुनै विमानस्थलहरु अहिले सञ्चालनमा छैनन् भनेर त्यसको CAAN लाई बोझ मात्र रह्यो भन्ने

सोच्नु भन्दा उपयोगका वैकल्पिक उपाय गर्नु बुद्धिमानी हुनेछ ।

अब कञ्चनपुर विमानस्थल बारे केही थप कुरा गरौं । त्यो विमानस्थल २०५५ साल देखि नै सञ्चालनमा छैन । विमानस्थलको जग्गा पनि अतिक्रमण भएको छ । राष्ट्रिय सुरक्षा र मेची - महाकाली द्रुत पहुँचको हिसाबले यो विमानस्थलले चन्द्रगढी विमानस्थल जस्तै महत्व राख्दछ । काठमाण्डौबाट सोझै कञ्चनपुर पहुँचको सुविधा कायम राख्न यो विमानस्थललाई चालु हालतमा राख्नु पर्दछ । सहुलियत दरको भाडा कायम गरेर वा धनगढी जति मात्र भाडामा कञ्चनपुर पुग्न सकिने उपाय गरी यो विमानस्थल चालु राख्न सकिन्छ । यस विषयमा धेरै छलफल गर्न आवश्यक छैन । गहन दृष्टिकोणबाट यसको उपादेयता प्रष्ट हुँदैजानेछ । काठमाण्डौबाट महेन्द्रनगर हुँदै भारत प्रवेशको हवाई मार्ग (L626 route) अनुगमनमा पनि कञ्चनपुर विमानस्थल सहायक हुने स्पष्टै छ ।

प्राधिकरणले नेपाल सरकारबाट करीब आठ अर्ब बढीको सम्पत्ती हस्तान्तरणबाट प्राप्त गर्दा ५०% भन्दा बढि मुल्याङ्कन विमानस्थलको जग्गाको रहेको छ । ती जग्गाहरुको कुल क्षेत्रफल बारे यकिन जानकारी नभए पनि करिब बीस हजार रोपनी बढी क्षेत्रफल रहेको अनुमान गर्न सकिन्छ । ती जग्गाहरु प्राधिकरणको स्वामित्वमा रहंदा सरकारी स्वामित्वमा राख्दा भन्दा कानूनी संरक्षण खुकुलो हुने र जग्गा अतिक्रमण हुने सम्भावना बढ्ने हुन्छ । साथै सङ्घीय सम्पत्तीको रुपमा रहेका विमानस्थलका जग्गाको स्वामित्व सरकार मै रहनु पनि उपयुक्त हो । भारतमा सरकारले भारतीय विमानपत्तन प्राधिकरण (Airports Authority of India-AAI) लाई विमानस्थलहरु निश्चित

रोयल्टी लिने गरी आवधिक करार बाट बन्धकि (lease) मा उपलब्ध गराएको छ । अमेरिकामा पनि वार्षिक १ डलर मात्र सङ्घ सरकारलाई रोयल्टी तिर्ने गरी विमानस्थल क्षेत्र सरकारले उपलब्ध गराउँदछ । यस्तो व्यवस्था गर्दा प्राधिकरणले विमानस्थलमा गर्ने भवन निर्माण, उपयोग र व्यापारिक क्रियाकलाप सञ्चालनमा कुनै बन्देज लगाइनु हुँदैन । यस्तो व्यवस्थाबाट सरकारलाई आर्थिक दृष्टिले पनि फाइदा पुग्दछ । हाल प्राधिकरणमा अधिक पुँजी लगानी (Over Capitalization) को समस्या छ भन्न सकिन्छ । Over Capitalization को समस्या कम गर्न पनि आवश्यक छ । त्यसो गर्दा प्राधिकरणमा हुने शेयर लगानी कम भई प्राधिकरणको प्रति शेयर मुनाफा आर्जन क्षमता (Earnings Per Share) बढ्न जान्छ । मुनाफाको हक सरकारकै हुने भएकाले आर्थिक रुपमा सरकार लाई थप प्रतिफल प्राप्त हुन्छ ।

अन्त्यमा, माथि उल्लेख गरिएका विषयहरु नीतिगत रुपमा प्रवेश गराई कार्यान्वयनमा ल्याउन आवश्यक छ । सरकारले हाल जारी गर्न लागेको नयाँ हवाई नीतिमा यी विषयहरु समावेश गरिनु उपयुक्त देखिन्छ । नयाँ हवाई नीति अन्तरगत नेपालमा अब थप आन्तरिक विमानस्थल निर्माण नगर्ने प्रावधान राखिनु पर्दछ । कुनै ठाउँमा आन्तरिक विमानस्थल निर्माण गर्नै परेमा तराई र भित्री मधेश क्षेत्रमा कम्तीमा ६० (साठी) नटिकल माइल र पहाडी क्षेत्रमा ४० (चालिस) नटिकल माइलको दुरीमा अर्को विमानस्थल नभएमा मात्र निर्माण गर्ने नीति लिएमा उपयुक्त हुनेछ । त्यसो गर्दा कुनै दुई कन्ट्रोल विमानस्थलको एरोड्रम क्षेत्र र एप्रोच क्षेत्र एक अर्कामा ओभरल्याप हुने समस्या (जस्तो, Nepalgunj Surkhet airport) पनि हट्नेछ ।

GBIA AIRSIDE TERMINAL

NASP Nepal 2018-2022:
implementation status and challenges for effective implementation

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Introduction

The National Aviation Safety Plan (NASP) Nepal, developed in line with guidance contained in Global Aviation Safety Plan (GASP) of ICAO, complements State Safety Plan (SSP) in Nepal. In order to implement strategic objective on safety, ICAO has developed GASP which is regularly updated every triennial period to enhance aviation safety in global scale. International Civil Aviation Organization (ICAO) states "The national aviation safety plan (NASP) is the master planning document containing the strategic direction of a State for the management of aviation safety for a set time period. This plan lists national safety issues, sets national aviation safety goals and targets, and presents a series of safety enhancement initiatives (SEIs) to address identified safety deficiencies and achieve the national safety goals and targets". ICAO further elaborates "In line with the 2020-2022 edition of the GASP, each State develops a national aviation safety plan. Each plan should be developed in line with the GASP goals, targets and high-risk categories (HRCs) of occurrences. The NASP is the means to demonstrate commitment to the implementation of activities for improvement of safety in the State. To assist States in developing their developing their national aviation safety plan (NASP), ICAO published Doc. 10131, Manual on the Development of Regional and National Aviation Safety Plans. This manual complements the 2020-2022 edition of the GASP. It addresses different aspects that should be taken into account by a State when developing or modifying its NASP, to implement a plan consistent with the GASP". Civil Aviation Authority of Nepal (CAAN) developed NASP Nepal in 2018 based on GASP 2017-2019 edition. The templet was adopted from the GASP 2020-2022 draft version. It was further revised to align with GASP 2020-2022 when latter was formally issued. NASP Nepal has taken into account the goals and targets of GASP and ICAO Asia Pacific Regional Aviation Safety Plan (RASP) as well as local operational safety issues. This article is limited to the activities of Flight Safety Standards Department and is aimed to shed light on the need of actions from all concerned stakeholders for the effective implementation of all associated action items in order to achieve the target associated with each goal of NASP.

NASP Goals

The GASP contains an aspirational safety goal to achieve and maintain zero fatalities in commercial operations by 2030 and beyond. This goal is deemed "aspirational" as it represents an ambition of achieving an even safer aviation system. The year 2030 has been selected as the time frame for reaching this goal as it is the year when the traffic volume is forecasted to double. It is also the target year presented in the United Nations (UN) 2030 Agenda for Sustainable Development. The GASP is aligned with the timelines of this agenda since the GASP goals contribute to the achievement of the UN Sustainable Development Goals (SDGs). In order to achieve global aviation safety, ICAO has set forth goals for the implementation by all Contracting States. These goals have been adopted by the NASP in congurence with GASP and RASP goals. The goals are as listed below.

Goal 1 to achieve a continuous reduction of operational safety risks.

Goal 2 calls for all States to strengthen their safety oversight capabilities.

Goal 3 is also aimed at individual States and calls for the implementation of effective SSPs.

Goal 4 calls for States to increase collaboration at the regional level to enhance safety.

Goal 5 aims to expand the use of industry programmes.

Goal 6 focuses on the need to ensure the appropriate infrastructure is available to support safe operations

NASP Targets

Each of the NASP goal contains specific targets. Targets are specific desired outcomes from the actions taken by States, regions and industry to achieve the goals, at a certain point of time:

Major target for each goal has been listed below.

Target 2.1 All States to improve their score to 75 per cent for the effective implementation (EI) of the critical elements (CEs) of the State›s safety oversight system (with focus on priority PQs).

Target 2.2 To reach a safety oversight index greater than 1, in all categories.

Target 3.1 To implement foundation of a state safety programme (SSP).

Target 4.2 To contribute information on safety risks, including SSP SPIs to their respective regional aviation safety group (RASG).

Target 4.3 To actively lead RASGs' safety risk management activities.

Target 5.2 To increase the number of service providers participating in ICAO-recognized industry assessment programmes.

Target 6.1 To implement the air navigation and airport core infrastructure.

Status of NASP goals

To achieve a continuous reduction of operational safety risks- The current safety performance of Nepal with respect to operational safety is better than the previous years as suggested by the statistics depicted in the Aviation Safety Report 2021.

Safety oversight capabilities- The upcoming ICAO USOAP CMA audit of Nepal planned for April 2022 will measure the capability of Nepal to achieve the targets 2.1 and 2.2. A high level USOAP Nepal Steering Committee headed by the Deputy Director General (ASSRD) and National Continuous Monitoring Coordinator (NCMC) comprising the Directors of respective safety standards department to manage areas of Flight Safety Standards Department (FSSD), ANS Safety Standards Department (ANSSSD), Aerodrome Safety Standards Department (ASSD) and Air Transport

Department (ATD) are the members. Similarly, a technical team headed by the Alternate NCMC and Director of FSSD comprising of counterparts of all eight audit areas of LEG, ORG, PEL, OPS, AIR, AIG, ANS and AGA is working continuously for the preparation of audit. Nepal is confident that the outcome of forthcoming USOAP CMA audit will witness an even higher effective implementation rate than current 66% against ICAO global average of 65.4% and APAC average of 58.8% as indicated in latest revision of EI.

Implementation of effective SSPs- Nepal is on the verge of reaching level 3 implementation of SSP (as indicated in the ICAO iSTARS portal) which is a desired ICAO acceptable level of SSP implementation based on the size and complexity of aviation system in Nepal.

Collaboration at the regional level to enhance safety- Nepal is active member in South Asia and Asia Pacific Regions for the exchange of safety information and necessary collaboration at regional and sub regional level.

Expand the use of industry programmes- Nepal has encouraged the service providers to seek the accreditation like IOSA, ASAGO etc. and is in active engagement with ACI and CANSO.

Challenges in implementation of NASP goals and targets

The effective implementation of targets of each goal in periodic and consistent manner across all application domains of is essential for strengthening SSP.

The following national High-Risk Categories (HRCs) of occurrences in the context of Nepal were considered of the utmost priority because of the number of fatalities as well as risk of fatalities associated with such events. They were identified based on analysis of mandatory and voluntary reports over the past 3 years, accident and incident investigation reports over the past 10 years (2018 to 2020) and the operational safety risks described in the GASP and AP-RASP. These HRCs are in line with those listed in the 2020 to 2022 edition of the GASP, as well as the 2020 to 2022 edition of AP-RASP.

In addition to the national operational safety risks listed above, an additional category of operational safety risk viz. "Wildlife Strike (WS) on and in the vicinity of Aerodrome" has been identified in Nepal.

The aviation occurrence categories from the CAST/ICAO Common Taxonomy Team (CICTT) were used to assess risk categories in the process of determining national operational safety risks.

Additionally, following HRCs have been identified as the national operational safety risks for Nepal.1) Controlled Flight Into Terrain (CFIT)

2) Loss of Control – In flight (LOC-I)

3) Mid Air Collision (MAC)

4) Runway Excursion (RE)

5) Runway Incursion (RI)

6) Abnormal Runway Contact (ARC) including Hard Landing and Tail Strike Landing (Regional HRC)

NASP SEI and SEI of APRAST and SARAST

Civil Aviation Authority of Nepal has participated in various meetings and working group of Asia Pacific Regional Aviation Safety Team (APRAST) and has actively presented in all versions of South Asia Regional Aviation Safety Team (SARAST) in past so as to address the safety issues identified in the region and sub region. CAAN has issued various advisory circulars (ACs) in this regard and conducted workshops for the effective implementation of these ACs by all stakeholders across all applicable domains of civil aviation. The implementation of SEIs of APRAST and SARAST is being tracked consistently and updated periodically so that national safety contributes to in sub regional as well regional safety ultimately supporting the global aviation safety that is one of the major strategic objectives of ICAO.

NASP operational safety issues

The operational safety issues in Nepal are being addressed through the technical expertise of various safety teams. The safety issues related with large airplanes are dealt with Large Airplane Safety Team headed by a senior Flight Operations Inspector (FOI) with support of Directors, Flight Operation (DFO) of all large airplane operators in Nepal. The prevailing operational safety issues of STOL operations are managed by STOL Operation Safety Team headed by a senior FOI and supported by DFOs of STOL operators in Nepal. The helicopter safety issues are being managed by a Helicopter Safety Team led by a senior FOI and supported by all DFOs of helicopter operators. The safety teams review progress in periodic manner to address various operational safety issues identified in the respective operational environment.

Implementation of State Safety Program (SSP)- In order to implement SSP Nepal, in line with Annex 19 to the Convention, Nepal has developed SSP Nepal. ICAO defines it as "State Safety Programme is an integrated set of regulations and activities aimed at improving safety. It is a management system for the administration of safety by the State".

The SSP Nepal is has been implemented though various teams namely as following.

High Level Safety Coordination Committee (HLSCC) headed by DGCA Nepal and with participation of Ministry of Culture, Tourism and Civil Aviation (MOCTCA), Department of Hydrology and Meteorology (DHM), Nepal Airlines, Airline Operators' Association of Nepal (AOAN) with support from various directorates of CAAN.

SSP implementation team headed by Deputy Director General, Aviation Safety and Security Regulation Directorate (ASSRD).

National Aviation Safety Teams for Flight Safety (Airplane and helicopter separate teams), ANS Safety team and Aerodrome safety team headed by directors of respective safety standards departments.

The above committees and teams are further supported by various working teams and committees. The implementation of SSP Nepal is in process of maturity and is almost at level 3, based on size and complexity of operation, as indicated in ICAO iSTAR portal.

Conclusion

The objectives of NASP can only be achieved when all SEIs are updated in periodic manner by all stakeholders otherwise it will be only a plan without any life. A regular and systematic approach in this regard will produce desired results that contribute to national, sub-regional, regional and ultimately global aviation safety. Since the SEIs of NASP are closely related with SEIs of APRAST and SARAST, a common approach to address the SEIs of NASP will eventually lead towards achievement of meeting all other SEIs of APRAST and SARAST.

References

International Civil Aviation Organization website and publications

ICAO GASP 2020-2022 Doc 10004

Civil Aviation Authority of Nepal, National Aviation Safety Plan (NASP) 2018-2022

ICAO APAC Asia Pacific Regional Aviation Safety Plan (AP-RASP)

RNP AR Departure: Opportunities and Challenges

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Background

Many airports around the globe are critically challenged by terrain where there are big issues of enhancing accessibility. Tribhuvan International Airport (TIA) is one of the examples of such airports. With the introduction of RNP AR Approach operations at TIA in 2012, we have experienced significant operational benefits- like less holding, less diversion thus enhancing the airport accessibility.

As far as the RNP AR Departure is concerned, there are no ICAO provisions for this Navigation Specification (NAVSPEC). ICAO Instrument Flight Procedure Panel (IFPP), who is responsible for developing RNP AR Departure design criteria, is still waiting for RNP AR Departure navigation specification to be developed by the ICAO PBN Study Group (PBNSG). However, some countries have already implemented RNP AR Departures without waiting for ICAO guidance, such as Denmark, South Africa, Guatemala and El Salvador. Some countries like Australia and China have implemented proprietary RNP AR Departure procedures on demand for individual operators. Significant operational benefits have been realized by those countries in the airports where they have implemented RNP AR Departure.

Looking at such benefits, the operators started initiating the demand for the next phase of the project for RNP AR that would include the departures as well in 2014. In April 2015, Kathmandu was badly impacted by the devastating earthquake. Consequently, the project could not formally be initiated without the resurvey of runway data that could have some distortions in position and elevation. Runway thresholds were resurveyed in August 2015, and later, after having agreement with NAVBLUE (an Airbus Company), and as approval by CAAN, the next phase of project that also included RNP AR SIDs formally took off in August 2018.

Operators' expectations and role of CAAN

Airline operators had put their views on formal and informal occasions demanding the better options for Standard Instrument Departures (SIDs) at TIA. In 2014, Tibet Airlines initiated an informal request for the introduction of RNP AR SIDs at TIA, and including Himalaya Airlines, Sichuan Airlines and others too in later years. Being an authority of the State of Aerodrome for which the procedures are developed, CAAN had to review the demand of the RNP AR Departure procedures and logically address it, if possible, at TIA.

The demand for RNP AR Departure was not just confined within Nepal. Himalayan Airlines had submitted application package for RNP AR operations, including RNP AR Departures, for Lhasa Gonggar Airport, Tibet China. Being an authority of the State of operator, CAAN had to assess the formal request and authorize Himalaya Airlines to conduct RNP AR Departures based on their capability, if possible. CAAN should play the same role for the operators' demand when the RNP AR SIDs will be implemented at TIA in future.

Benefits of RNP AR Departure

Many terrain challenged airports in the world have been benefitted by the RNP AR Departure procedures such as Linzhi Airport, Lhasa Airport, Cape Town Airport and Maderia Airport. The operators are attaining operational as well as commercial benefits from the RNP AR Departure. The benefits of RNP AR Departure can be summarized as follows:

Departure design flexibility

- A better solution for noise abatement SIDs and other environmental issues
- Greater efficiency in the design of Engine Out SIDs
- Enhanced accuracy and safety
- Low cockpit load during the critical airborne phase
- More ATC confidence due higher degree of predictability
- Get rid of limitations of ground-based NAVAID- No issue of line of sight problem throughout the departure operation

Challenges in Approval and Implementation of RNP AR Departure

None of the ICAO documents Doc 8168, Doc 9905, Doc 9613 and Doc 9997 have the provisions of RNP AR Departure- neither the design guidance nor the operational approval guidance. As such, proceeding forward with the project was quite challenging. However, Doc 9905 in its foreword clearly mentions that the similar design criteria for RNP AR departure procedures will be incorporated in the manual when developed, which gives some glimpse of hope that ICAO will develop similar type of design criteria for RNP AR Departure. NAVBLUE has taken ICAO Doc 9905 as well as FAA Order 8260.58B as the basis for the design of RNP AR Departure procedures at TIA.

Major challenges with regard to the design approval, operational approval and implementation of RNP AR Departure can be summarized as:

RNP AR Manual, Doc 9905 does not contain design criteria for RNP AR Departure. The NAVBLUE could design the RNP AR SIDs based on their past knowledge and experiences in designing such procedures, but the real challenge for NAVBLUE was to convince CAAN and get the approval of RNP AR Departure procedure design.

NAVBLUE employed some deviations in the design criteria such as higher bank angles more than 20° and first departure turn below 120m from Departure End Runway. So, the challenge for CAAN was to accept such design criteria deviations.

PBN Manual, Doc 9613 does not contain any Navigation Specification (NAVSPEC) for RNP AR Departure, and PBN Operational Approval Manual, Doc 9997 does not provide any guidance for the operational approval of RNP AR DP NAVSPEC. So, the other major challenge for CAAN was the operational approval of the RNP AR DP.

- Demonstration of operational safety through acceptable Flight Operational Safety Assessment (FOSA) for design criteria deviations could be the challenge for airline operators.

- Mixed mode operations- Conventional vs. RNP AR departures and approaches, VFR vs. IFR operations, small aircraft vs. big jet operations, helicopter vs. fixed wing operations could be the challenge for the effective implementation of RNP AR Departure.

Activities to overcome the challenges

CAAN had performed following series of activities, in collaboration with NAVBLUE and other stakeholders, to meet the challenges as mentioned above:

1. The provisions of ICAO Doc 9905 and FAA Order 8260.58B, which were the basis for NABBLUE to design the RNP AR Departure, have been thoroughly studied.

- CAAN interacted with NAVBLUE on the issue of design criteria deviations to deeply understand the rationale behind the application of such of deviations.

- These activities supported CAAN personnel to gain confidence over the designed product that would be made available to CAAN for approval.

2. ICAO Doc 9997 which is the basis of PBN Operational Approval does not contain any provision for RNP AR Departure approval. So, a thorough research was done to explore the international practices about RNP AR Departure operations and operational approval procedures.

- Number of States such as US, Australia and Brazil have implemented RNP AR Departure operations and developed the operational approval procedure for such NAVSPEC.

- With the guidance of such procedures and practices, CAAN has developed the operational approval procedure of RNP AR DP NAVSPEC, which is a part of CAAN PBN Operational Approval Manual, 2nd Edition. This manual provides clear-cut guidelines for the operational approval of RNP AR DP.

- Based on the guidance of this manual, CAAN has already provided Operational Approval of RNP AR DP to Himalaya Airlines in 2020.

3. Lack of sufficient knowledge on the RNP AR DP could be the hurdle for the design approval process. So, activities related to knowledge transfer was sought as an appropriate means to overcome such situation.

- NAVBLUE in collaboration with CAAN has conducted workshops and meetings involving all the stakeholders with the focus on RNP AR Departure.

- Airbus arranged RNP AR training for CAAN personnel from regulatory as well as service providers' side and held discussion session on RNP AR Procedure Design package that included the RNP AR Departure also.

- Two simulation sessions were conducted- one in Bangkok in presence of CAAN personnel and other at Toulouse to check the fly-ability of the procedures.

- Lots of discussions were held and all the issues raised by CAAN

side were logically responded by NAVBLUE.

4. The NAVBLUE has submitted RNP AR Design package as well as the RNP AR Validation Report to CAAN for approval. The design package includes 6 RNP AR SIDs- 3 from RWY 20 and 3 from RWY 02.

- CAAN has already approved the RNP AR validation report.

- There is still an issue with regard to ground validation, which is now in the process of resolution. By the time, when this article will be published, CAAN would have already approved the RNP AR Design Package submitted by NAVBLUE.

- With this, the path will be clear for the formal implementation of RNP AR Departure into TIA operations.

5. All the deviations in design criteria must be addressed by Flight Operational Safety Assessment (FOSA) which is the responsibility of the airline operator who applies for RNP AR DP operations.

- So, as a future activity during operational approval, CAAN must minutely assess the FOSA of the operator before authorization of RNP AR DP.

- CAAN must assess physically the simulator trials and other training activities of the operators, or documents related to such activities whichever is appropriate or applicable.

6. CAAN must ensure appropriate trainings for ATCs to resolve the issues related to mixed mode operations.

- Safety activities must be conducted before implementing the new RNP AR Departures and Approaches.

Fig. Draft RNP AR SIDs Chart for TIA

Conclusion

Opportunities and challenges are like two facets of a coin. Neither it is possible to be blessed with opportunities all the time nor it is possible to avoid the challenges completely. So, we have to grasp the opportunities of RNP AR Departure by managing the challenges associated it.

In conclusion, in present context, RNP AR can be the better solution for TIA where many international operators will be doing RNP AR Departures and Approaches in near future. Pokhara also has severe constraints of terrain where as per the existing draft procedure design, the design gradient of departure from RWY30 may go as high as 8.9% and the operating minima of ILS RWY 30 could be very high, i.e. DH could be as high as 830ft and visibility minima 3800m. For VOR approach, the minima could be further increased. As such, RNP AR Departures and Approaches can be the better options that could be further studied for forthcoming Pokhara International Airport in the future.

[Note: The RNP AR Design Package submitted by NAVBLUE contains both RNP AR APCH and RNP AR DP flight procedure designs, but as this article is focused on the RNP AR DP, issues related to this navigation specification have been highlighted in the article.]

Nabin Prasad Acharya
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COVID-19 and
THE AVIATION INDUSTRY:

Civil Aviation sectors are providing rapid worldwide transportation network, and creating economic growth, jobs for millions and facilitating international trade and tourism.

Before the Covid-19 pandemic the air transport industry's growth appears that aviation sector supports a total of 65.5 million jobs globally. It provides 10.2 million direct jobs. Another 55.3 million indirect and tourism-related jobs are supported by aviation.

Tourism sectors are heavily damaged with this pandemic, in pre- pandemic year, approximately 1.4 billion tourists were crossing boarders every year and over half of them were travelling to their destination by air. Aviation sector has supported almost 37 million jobs in tourism sector and contributing roughly 900 billion USD every year to global GDP

Pre-pandemic, aviation sector contribution worldwide.

Per Year	4.3 Billion Passengers	48,500 Routes worldwide	38 Million Schedule Commercial Flights
Per Day	100,000 Flights	12 Million Passengers Transported	240,000 Hours Flown
Economic Benefits	65.5 Million Jobs Supported	3.6 percent of GDP Supported	USD 2.7 Trillion Economic Impact

Source: ICAO

In general, both air passenger traffic and air freight traffic are expected to more than double in every two decades. The forecast indicates that in 2036, aviation will provide 98 million jobs and generate USD 5.7 trillion in GDP, this is a 110% increase in normal situation worldwide.

When COVID-19 first identified in Wuhan, China, in December 2019 then later it was spread globally and the World Health Organization declared the outbreak a public health emergency of international concern on 30 January and a pandemic on 11 March 2020. Now COVID-19 has spread worldwide and has impacted   all industries, all sectors and all aspects of our lives with devastating economic and financial losses with uncertainties. The aviation world has abruptly changed from early 2020.

As per WHO data till the end of November 2021, the total death toll from Covid-19 surpassed   52, 24500 and more than 26Crores and 28 Lakhs has been infected from this virus worldwide. The severity of this virus is anyone can get sick and become seriously ill or die at any age.

This pandemic has produced an unprecedented commercial devastation for the world's airline industry. The tourism and aviation industries has been highly at risk by this infectious disease outbreaks. The unprecedented decrease in passenger demand led to a halt of most airlines; many companies had to cease almost all their operations and grounded entire fleets, many airports have closed their runways in order to free up space for aircraft parking, most companies in the aviation sector are working with minimum staffing on strict rotations and aircraft manufacturers have largely shut-down their production lines.

With the extreme impact on global aviation. The International Air Transport Association (IATA) has estimated the global aviation industry lost over $100 billion in 2020 alone and that global revenue passenger-kilometers (RPK) will be lower than pre-pandemic projected levels by over 60% in 2020 and around 50% to 65% in 2021. The International Civil Aviation Organization (ICAO) also estimated in year 2020 that global scheduled passenger numbers were reduced by 60%.

The largest impact of the pandemic on aviation are arising from travel restrictions ,border closures, quarantine regulations as well as distancing requirement . The international RPK was 98% below year-2019 levels in May 2020 driven by border closures,. It is likely some movement restrictions has extended till now and potentially beyond 2021, depending how the pandemic progresses.

The following presented data form different organization has shown the Global impact of Covid-19,

- Air passenger traffic: An overall reduction of air passengers (both international and domestic) ranging from 60% in 2020 compared to 2019 (by ICAO)

- Airports: An estimated loss of approximately 64.6% of passenger traffic and 66.3% or over USD 125 billion airport revenues in 2020 compared to business as usual (by ACI)

- Airlines: A 65.9% decline of revenue passenger (RPKs, both international and domestic) in 2020 compared to 2019 (by IATA)

- Tourism: A decline in international tourism receipts of USD 1.3 trillion in 2020, compared to the USD 1.5 trillion generated in 2019 (by UNWTO)

- Trade: A fall of global merchandise trade volume by 5.3% in 2020 compared to 2019 (by WTO)

- Global economy: An estimated -3.3% to -4.3% contraction in world GDP

in 2020, far worse than during the 2008–09 financial crisis (by IMF and World Bank)

When On 8 December 2020, the first ever jab of the COVID-19 vaccine in the world was delivered in the United Kingdom, then the signs of hope emerge amidst the pain and threat of covid. Now COVID-19 vaccines have reached billions of people worldwide, and people around the globe feeling relaxation with the jab and world is returning slowly in normal economy. But the pandemic is far from over, and being a challenge for medical science with emerging new variant and killing human being worldwide.

Covid -19 impact on Asia pacific region

The airlines industries in the Asia-Pacific regions are severely affected. About 11.2 million jobs in Asia pacific region are at risk that are dependent on the aviation industry, including travel and tourism,

Almost two years into the COVID pandemic, the global aviation market is beginning to pick up the pieces now. Recovery remains influenced by geopolitical factors resulting in some markets taking longer to recuperate. Now while the USA and Europe show signs of progress, but things are moving at a slower pace in the Asia-Pacific region.

The slow rate of aviation recovery in the region has put millions of jobs at risk. The air transport sector accounts for $944 billion of Asia-Pacific GDP, with the region accounting for more than 50% of the 88 million employed in the industry globally. The pandemic has dealt a more severe blow in Asia-Pacific than elsewhere, with major social and economic implications.

Aviation supports nearly 47 million jobs in Asia-Pacific. The region is so heavily dependent on aviation as an essential means of transportation that the resumption of international air services is urgently needed to restore global connectivity and reunite people with their loved ones. The Asia-Pacific region employs more than half of the total aviation workforce, so a quick recovery in the area is essential.

Asia-Pacific is the largest market for passenger flows to Nepal, followed by the Middle East and Europe. 75.3 percent of total, passengers arrived in Nepal from Asia-Pacific, Passengers arrived from the Middle East is 16.4 percent of the total and passengers arrived from Europe is 5.7 percent of the total.

The COVID-19 has ruined the tourism sector in Asia Pacific countries including Nepal and affecting the livelihoods of millions. Asia and the Pacific stands to

lose approximately $1.1 trillion in GDP, more than any other region in the world. IATA has highlighted that the air transport industry in Asia and the Pacific is expected to register losses totaling $29 billion in 2020, the largest of all the regions.

Hopefully, with greater vaccine coverage and more standardized border protocols and traveling requirements, aviation sector in Asia-Pacific will recover sooner rather than later.

Covid-19 impact on Nepal Air Transport sector

The air transport sector is making a major contribution to Nepal's economy. As per the IATA Economic survey data 2018, there are 455,000 jobs supported by Nepal air transport sector. Similarly USD 1.1 billion contribution to GDP and 3.7% GDP supported by air transport and foreign tourists arrived by air.

Air transport in Nepal is forecast to grow by 165% in the next 20 years under the "pre-covid pandemic trends" scenario. This would result in an additional 6.9 million passenger departures by 2038. If met, this increased demand would support approximately US $2.9 billion of GDP and around 784,400 jobs in Nepal.

In Nepal tourism, aviation and hospitality sector have been hit hardly by the pandemic outbreak. Year 2019 was prosperous for aviation sector. Nepal government had launched the visit Nepal 2020 campaign, with the hoping of attract two million visitors, but due the corona the campaign got cancelled which shattered the hospitality and tourism related business sector. With this the tourist arrival rate has declined to below 10 percent, from 70 percent before the Covid-19 outbreak. Tourism sector, being one of the largest industry has been contributing 8 percent to Nepal's economy. Likewise, cancellation of all spring mountaineering expeditions resulted job loss of around 13,000 tour, trekking and mountain guides. The outbreak affected people's lives in private and public sectors. Banks are suffered in loss of their investments in hospitality and aviation due to the tourist slump

The Nepal government issued a nationwide lockdown from 24 March to 21 July 2020, prohibiting domestic and international travels, closure of the border and non-essential services. The first case in Nepal was confirmed on 23 January 2020 when a 31-year-old student, who had returned to Kathmandu from Wuhan on 9 January 2020 , tested positive for the disease , then within 6 month period The viral pandemic has been detected in all provinces and districts of the country. Almost total 6 month lockdown in the year

2020 and in 2021 had shrunken aviation sector completely. Nepal had resumed international and domestic flights from September 2020 after a long lockdown within the health safety measures restriction.

Till November 2020 there was 65% passenger decline in domestic sector and declined of about72 % in international sector compared to year 2019.

In 2020 International Aircraft Movement and Passenger Movement declined by 74.08% and 68.85% compared to 2019. Similarly Domestic Aircraft Movement, Passenger Movement are reduced by 65.71%, 67.36%. A report shows that Nepal's aviation sector lost around 37 billion Nepali rupees due to flight restrictions. Airlines as a whole lost about 25 billion Nepali rupees due to flight restrictions enforced after the first and second waves of the pandemic that hit in between March 2020 to July 2021 (fiscal year 2020/2021) .According to the report, the Nepal Airlines lost around 7 billion Nepali rupees and the Himalaya Airlines, lost around 3 billion Nepali rupees in potential earnings. Nepal's other airlines involved in domestic flights lost around 15 billion Nepali rupees, as of July 2021. Similarly CAAN lost RS 12 billion as airport operator.

Conclusion:

The COVID-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to human being. The economic and social disruption caused by the pandemic is devastating. Frequently changing different variants of Covid like Delta and Omicron has created another grate challenge to medical science with uncertainty for coming days. These events and findings have raised new questions about when the pandemic will end. Now the biggest risk is the emergence of a new variant that is more transmissible, more liable to cause hospitalizations and deaths, and more capable of infecting people who have been vaccinated. To tackle the emerging threat government need to develop long-term sustainable strategies to address the challenges facing the health and economic sectors through the fully vaccination to its people. Let us hope for the better world for the peace and prosperity of human being.

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SAFETY MANAGEMENT SYSTEM (SMS)

vs

QUALITY MANAGEMENT SYSTEM (QMS)

Manju Paudyal (Gyawali)
Manager, CAAN

QUALITY MANAGEMENT SYSTEM

QMS

Aviation

SMS

SAFETY MANAGEMENT SYSTEM

Safety Management System

A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures

Quality Management System

A quality management system (QMS) is a system that documents the policies, business processes, and procedures necessary for an organization to create and deliver its products or services to its customers, and therefore increase customer satisfaction through high product quality.

Relation between QMS and SMS in Aviation

The relationship between the Quality Management System (QMS) and Safety Management System (SMS) has developed into an insightful association in the aviation industry. The importance of their harmonious integration is becoming a crucial element in any successful flight operation as SMS continues to evolve and become more regulated and takes on a dominant role in a company's overall strategy.

Both have common methods and techniques, but different objectives. QMS's objective is Customer Satisfaction and SMS's objective is aviation safety. Quality is essentially looking at compliance, while safety is looking at risk.

Difference Between QMS and SMS

There is a distinction between the concepts of quality management system and safety management system. It is possible to have a quality product or service, as defined by the ISO standards, and still not have a safe product or service.

The adoption of some of the types of tools and techniques used in quality management is also used to manage the safety system. However, it must not be assumed to mean that processes designed to produce a quality product, (repeatedly doing the same thing, without variation) equates to the same thing as repeatedly producing a safe product.

Improving a safety record is not the same as improving safety performance. May be There are many airlines that have extremely good safety records but are operating with inadequate

organizational structures or unsafe performance and have just not had an accident. A good safety record, just like a good quality record, does not guarantee safe performance.

Improvements to the QMS process are needed to fully meet SMS requirements. This includes establishing processes to better identify new hazards and establishing processes to measure the effectiveness of safety risk controls. These improvements are developed during the SMS implementation effort. Safety management and Quality management are complementary and work closely together to achieve the overall safety goals of the organization.

4 Pillars of Safety Management System

1. Safety policy and objectives

This is a statement that establishes senior management's commitment to continuously improve safety and health. It defines the methods, processes, and organizational structures needed to meet safety and health goals.

2. Safety risk management

It determines the need and adequacy of new or revised risk controls based on the assessment towards an acceptable risk.

3. Safety Assurance

It evaluates the continued effectiveness of implementing these control strategies to support the identification of new hazards. Continual improvement practices are also part of this.

The role of the quality management system (QMS) is to ensure the quality of our safety performance by identifying the substandard performance of SMS activities and its causes.

4. Safety promotion

It is an element that includes training, communication, promotion and education, and other actions to create a positive safety culture within all levels of the workforce.

The role of safety promotion is to:

- Encourage a positive safety culture

- Create an environment where safety objective can be achieved

- Develop awareness in the workforce that gains support for the SMS

- Foster improve communication.

5 pillars of total quality system

1. Product

2. Process

3. Organization

4. Leadership, and

5. Commitment

Challenges to Integrating QMS and Aviation SMS

More aviation service providers don't integrate quality and safety operations because it requires:

- Significant financial and physical support;

- Time and planning;

- Migration from prescriptive implementation to performance-based SMS implementation; and

- Commitment from safety and executive management.

How to Integrate QMS and SMS in

Aviation Safety Programs

Integrating QMS and SMS can prove to be extremely beneficial to aviation service providers. Combined QMS and SMS are usually called:

- Quality-safety management systems (QSMS);

- Safety-quality management systems (SQMS); or

- Integrated management systems.

All of the above points amount to the same thing: combined quality and safety operations. Combing QMS and SMS operations involves 5 general steps:

1. Ensure upper management support;

2. Redesign policies and procedures to incorporate QMS and SMS;

3. Create goals that combine SMS and QMS objectives;

4. Combine and/or coordinate QMS and SMS resources; and

5. QSMS performance monitoring.

Conclusion : There are way too many benefits of fully integrating QMS and SMS, of which are: Better safety performance, More resources for safety operations; and Promotes value of safety program.

Note: Internet sources

QMS & SMS
Will Improve Aviation Safety Audit Performance

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Success and Failure of An Organization

What is organization?

Simply organization is an organized group of people with a particular purpose, such as a business or government entity.

In other words, organization is simply people working together for a common goal. It is a group of people assembling or congregating at one place and contributes their efforts to achieve a common goal.

If organizing and others related task is the key function of management; a good management will help organization to perform the best. Eminent Thinkers says organization is the backbone of management because without an efficient organization no management can perform its functions smoothly. In the management process this organization stands as a second state which tries to combine various activities in a business to accomplish pre-determined goals. It is the structural framework of duties and responsibilities required of personnel in performing various functions with a view to achieve goals.

Management is the coordination and administration of tasks to achieve a goal. Such administration activities include setting the organization's strategy and coordinating the efforts of staff to accomplish these objectives through the application of available resources. Management can also refer to the seniority structure of staff members within an organization.

Management is a set of skills, including planning, communication, organization, leadership and so on. It is extensive knowledge of the company's goals like how to track or guide or direct employees for optimum outputs and other operational task to accomplish all for best result. It is a skill to establish a network of relationships (authority-responsibility structure) amongst all those who are part of the organization, working at different levels in different departments.

Success and failure of an organization depends on so many things. A management has influencing capacity. Management can handle the situation and change the scenario.

So organization is the process it mainly involves:

(i) Identification of work

(ii) Grouping of work into smaller groups

(iii) Assigning work to every individual at every level in every department

(iv) Defining its authority and responsibility, and

(v) Establishing relationships amongst people to make them contribute towards organizational goals in an integrated manner.

A good organization has to fulfill four special functions:

1. It must enable the management to maximize the outputs through its resources.

2. It must ensure smooth and effective net-work of communication and information.

3. It must offer interesting and meaningful jobs to all individuals working in the organization. This alone will ensure job satisfaction. Organization is developed for people. It must, therefore, be humanistic also and not merely mechanistic.

4. It must create, maintain and develop its own image or individuality. Employees can develop a sense of belonging to the organization.

Up to now what we understand that organization is the process, it involves groups; so an individual effort or task or performance doesn't have any meaning. We need all to perform. We need common interest to achieve common goal. In fact all members must involve in the process.

In an Organization we find there:

1. Common goal – The main reason for the existence of an organization is to accomplish some common goals. The structure of the organization is bound by a common

purpose.

2. Division of labor – The work needed to accomplish the goals is divided into a number of functions and sub-functions. These, functions are organized in the form of departments.

3. Authority structure – There is an arrangement of chain of command. Authority and responsibility associated with various positions are defined.

4. Group – It is people who work in groups in the various departments of an organization.

5. Communication – There is free flow of communication through various official channels among the people across various departments.

6. Coordination – The diverse efforts of various functional departments are integrated towards the common objective through the process of coordination.

7. Environment – No organization is functioning in a vacuum. Social, political, economic and legal factors exert influence on the environment. Beside it is influenced by internal factors like tools, technology, economic resources, human resources, etc.

Truly speaking, essential Elements mentioned below if doesn't exist, the organization is not a Good organization

1. It must be Helpful in the Achievement of Objectives:

A good organization must be capable of overcoming the problems of an enterprise. An organization is considered as good only when it is capable in achieving the predetermined objects of enterprise. It is not in a position to achieve these objects; it cannot be regarded as a good organization.

2. There must be Harmonious Grouping of Functions:

A good organization should divide the functions of an enterprise in such a manner so that they may be implemented easily and successfully. There must be harmonious adjustment in different activities of the organization.

3. An organization must be Complete in All Respect:

A Very important essential element of a good organization is that it must be complete in all respects. It must include all the activities of an enterprise. Further, there must not be the repetition of activities.

4. There must be Perfect Co-Ordination in All the Activities of an organization:

Co-ordination is the essence of management. If the activities of an enterprise are not co-ordinated, the achievement of the objects of enterprise cannot be thought of. Therefore, all the activities of an organization must be co-ordinated.

5. There must be Reasonable Span of Control:

The span of control of officers must be limited because an officer cannot control a large number of sub-ordinates. Therefore, the number of sub-ordinates under the control of one officer should not be more than five to six. So that proper control may become possible at all levels of management.

6. Proper Utilization of Resources be Made:

Success of a business and industrial enterprise depends to a large extent on the proper utilization of resources. If the resources are not properly utilized, the business enterprises cannot be successful.

7. Provision of Expansion:

The organization must provide for adequate flexibility so that necessary adjustments may be made in it according to the need of changing circumstances. If it is not so, there may be a possibility of missing the opportunity.

8. Employees Satisfaction is Essential:

An organization can be regarded as good and efficient if it satisfies its employees because it will increase the morale of its employees and they will be encouraged to do more work for the success of the enterprises.

9. Policy to be such Which Can be Executed easily and economically:

An organization system can be regarded as good and efficient system, if the system can be easily understood and implemented. All the activities of the organization should be framed in such a manner that all the employees may contribute their efforts in their execution. Therefore, all the functions of the organization must be of the nature that they may be executed easily and economically.

To be successful, an organization must have clear plans and programs that focus on the skills and talents of its employees. Successful organizations need both inspirational leaders and sound managers. In order to achieve increased and sustainable results, organizations need to execute strategies and engage employees. Success is measured by analyzing where the organization is in regards to its goals and its mission. So requirements of a Sound organization are:

1. Realization of Objectives:

Organization is an instrument for realizing the objectives, goals and purposes of the enterprise as a whole. Therefore every division, branch, department and section as well as the entire organization must be tuned to the objectives and must contribute to their realization.

2. Harmonious Grouping of Functions:

For achieving the objectives and goals of a business concern, the functions and tasks involved in the enterprise should be grouped in such a manner that active consultation and co-

ordination can take place with a minimum of over lapping, delay or confusion.

3. Clear Allocation of Duties and Responsibilities:

There should be a clear organizational plan with well-defined duties, responsibilities and relationships. It is often achieved with the help of organization charts.

4. Reasonable Span of Control:

The number of sub-ordinates over whom control is to be exercised at each level of management should neither be so large as to be unwieldy nor too small for the effective performance of the work or fuller utilization of the managers ability to control.

5. Promotion of Satisfaction:

The most important element in organization is human beings. For biological necessity they first seek to achieve their own personal goals. The objectives of the enterprises are realized more easily where there are good chances of the achievement of such personal goals. Moreover, in an organization men work in groups rather than as individuals. Therefore the success of an organization depends largely on how far it can promote the satisfaction of its members as individuals and as groups.

Better results are achieved psychologically if, along with a formal organization structure, some informal relationships are building up within it during the day-to-day functioning of the organization.

6. Effective Communication:

This is very essential for smooth working of an organization. Top management must explain the policies and programmers of the enterprise to the rank and file workers. The later must also be given the opportunity to convey their feelings, reaction and grievances to the former. The flow of information must be quick, easy and two-way. It removes uncertainty, ambiguities, misunderstanding and friction. It provides co- ordination. Information is to organization is what headlights are to a driver and lighthouse to a sailor.

7. Provision for Growth:

While an organization ought to be fairly stable over a long period, it must contain within itself, the elements of growth and expansion. The mechanism must be such that it can adapt itself, to changing circumstances.

As we know that organization is a difficult decision-making process, why because there is human involves. Human resources don't act similarly but it reacts differently. So that human behavior is an important instrument to achieves organizational objectives. Proper and balance communication, coordination, synchronization must have needed.

That's why; to maximize the outputs of an organization we must realize the importance of all groups within the organization. They must have clearly defined duties and responsibilities. An organization must determine their accountabilities to the job and organization goals. For this they must have authority and they must have resources. Required authority will generate the loyalty to the organization. The key factor here is authority with resources. Authority without resources it doesn't support organization to achieved its optimum output. Organization may run in the short term but will be far away from sound, healthy and dynamic growth, In this scenario, if not recognizing all the groups and units within the house; it means we are compromising with the real development of organization.

Management theory focused on optimum utilization of its resources. All human, technological, financial resources involved in the organizational process must be utilized. All ideas, innovations, suggestion and feedback must be welcomed. To cope the modern scenario, to compete in the new global market we don't have any other choice without accepting true and real management norms. All involved organizational process or in production must be empowered.

Just think where we are? Are we going on right direction? Why we are not ready for self-evaluation? Do check the course if required do not hesitate to correct it. If we trust ours members we can perform. If we accept the culture of group effort or contribution we can perform. This we is very important rather than I or me can perform, I can trust you just trust me, I can believe me just believe me.

A dream of successful organization is everyone's dream. Most of them may be capable and competent. Make an environment to use them, utilize their strength in favor of institutional growth. Give them opportunity to perform with required resources and make them accountable. Recognize for positive behavior and of course punish for bad performance.

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"Touchless Travel"
TECHNOLOGIES AT AIRPORTS

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With Case Study on Touchless Travel Initiations

Background

The impact of the COVID-19 disease on air travel has been dramatic, making it the worst aviation crisis ever. The perspectives for recovery of air travel are bleak, with an estimated return to the 2019 traffic level to take 4 to 5 years (source: IATA Report).

As an industry, resilience of air travel needs continuous improvement. First, preparing to restart and recover aviation to normal traffic levels; then, being ready for the next health crisis and secure passenger confidence in air travel (source: IATA Report). The first objective for aviation remains to reach the highest possible safety level.

Pandemic-free air travel will be reached when the following cases for an infectious disease are both reduced to a minimum reasonably practicable risk:

Contamination between individuals (passenger, crews and workers at the airport) during the travel journey.

Transport of infected persons to different parts of the world.

The objective of this article is to identify and demonstrate what could be done using latest information technology at the airport to continue air travel while reducing the risk of communicable diseases to a minimum.

Airports worldwide have been working around the clock to make their facilities coronavirus ready ever since the pandemic highlighted the need to minimize personal contact and enforce social distancing. More than anything, this has meant switching to touch-free operations and ensuring passengers can have a seamless end-to-end journey.

Aviation industries have been deeply invested in implementing touchless technology for several years and the pandemic is only helping to accelerate their adoption. Today, airports, airlines,

governments and stakeholders in the supply chain are continuing to develop and assess best practices for the immediate future of travel with a greater focus on health and personal safety throughout the travel journey.

Airports and airlines can find best practices for the immediate recovery of business and operations during COVID-19 in the ICAO Take-Off Guidance, as well as in the IATA and ACI guidance. Many of the current COVID-19 risk mitigation measures are expected to be limited in time, re-evaluated and monitored under a fixed schedule. More effective, suitable, less disruptive and scientifically-supported measures will be implemented as they become available, and out-of-date measures removed.

Airport IoT

Utilizing technology for identity management, automation and robotics to create attractive experiences for passengers and staff, while also advancing the interests of aviation security. Data management will create a seamless journey for passengers by leveraging biometrics, self-service kiosks, sensible cameras, customs controls, risk assessments, baggage handling and tracking. Airport, airline and passenger efficiency will greatly increase because of optimized coordination through automated touch points.

Going Digital Identity

In the post-pandemic world, there is an even greater need for connected and contactless processing. A key principle and measure highlighted in the recent ICAO Council Aviation Recovery Taskforce (CART) Report and Recovery Guidelines is the increased use of advanced technologies to facilitate contactless processing of passengers at various stages of their journey. Digital identification will be leveraged when applicable, including but not limited to check in, document check, self-service bag drops, access to

security checkpoints, border controls, risk assessment and boarding. Airports and airlines will promote touchless check-in processes by investing in touchless kiosk technology. Advanced processes, which eliminate the traditional check in, will create a new array of data points that can provide predictive analytics for airports and airlines and can mitigate potential crowding risks.

Electronic Bag Tags

Complementing the priority to adopt digital identification for passengers, the use of electronic bag tags is also playing a key role. The value of reducing the passenger and staff touch points to tag bags has led to many more airlines enabling the use of electronic tags.

Baggage Reconciliation

Allowing the baggage of 'no-show' passengers to remain on the flight enables airlines to focus on providing the desired routing of the bags to match the needs of the limited number of passengers who had missed their flight and avoid the implications that a flight delay has on many other passengers. Additionally, this avoids the unnecessary increased manual handling involved in offloading a bag. More widespread acceptance of this interpretation of current baggage handling regulations would bring significant benefits to passengers and the industry.

Taking control with mobile phones

Covid-19 is making airport operations more smartphone centric. Many airlines are currently relying on apps to communicate with their clients, inform them about the status of their luggage and alert them when it's time to board.

Retailers and restaurants are also using mobiles to avoid table service and contacts with staff.

Movement, voice and temperature sensors

Compared to biometrics and mobiles, motion and sensor-based technologies are

starting to play a key role in minimizing social contact.

Moreover, the age of coronavirus has triggered widespread adoption of temperature and heat sensors or cameras to identify potentially infectious patients from a remote position.

Security slots and health passports before flying

The idea is that technology is not only available at an airport premise, but it can also be anywhere the passenger can start the journey from that point. Companies are encouraging remote planning and check-in to minimize contact and speed up queues.

Case I

Avinor – Which operates 44 state-owned Norwegian airports – and its partnership with travel technology company Amadeus. Earlier in July, the two companies launched an end-to-end touchless travel program across four airports to attract world travelers during the holiday season.

The solution encompasses check-in, baggage drop, security and boarding. It relies on passenger handling platform and encourages people to use their phone as a boarding pass throughout the airports.

Phones are a key enabler of Amadeus's contactless operations in Norway. Passengers are encouraged to use their mobile devices as a boarding pass and coupon to print the bag tag, altogether removing the need to touch digital kiosks and similar surfaces.

Case II

Often branded as the future of air travel, biometric technology is playing a crucial role in enabling touch-free operations. A prime example is Dubai International Airport, which recently introduced a 'smart tunnel' at immigration control that uses facial recognition to speed up queues.

This concept is further amplified by companies like Vision-Box, which is using biometrics to eliminate manual and face-to-face operations at e-gates and several airport touch points.

Meanwhile, SITA and the International Air Transport Association (IATA) – are developing biometric-based passenger processing solutions. In fact, both SITA's Smart Path and IATA's One ID are bidding to use face scans as potential replacements to passports and boarding passes to make a traveller's journey throughout the airport entirely touchless.

Case III

Passengers may now also use social distancing-focused wayfinding apps like Wisefly, which sends out alerts when they get too close to others.

Restaurants at Seattle-Tacoma International Airport have adopted the Grab app, which allows users to scan a QR code and order online. Employees at Hartsfield-Jackson Atlanta International Airport are relying on the Kolo Hygiene app to track hygiene-related chores around the hub.

Case IV

Abu Dhabi International Airport has rolled out motion-based elevators across its terminals where users can indicate their destination floor by waving their hands.

Similarly, passengers at Australia's Avalon Airport can now interact with kiosks and bag drop displays by moving their head. The company behind this technology, called Elenium Automation, is also fitting devices with voice recognition technology.

Abu Dhabi, where Etihad Airways and Elenium Automation are testing the feasibility of self-service kiosks that monitor a passenger's temperature, heart and respiratory rate.

Case V

Manchester Airport is currently allowing passengers to pre-book a 15-minute slot at security lanes to avoid waiting in line. Finally, with more waves of the outbreak expected in the months to come, some companies are developing health apps and solutions for passengers and staff to use before reaching the airport. For example, the blockchain-powered APPII app is working to provide a digital health passport for airport workers, while Israeli company Pangea is currently branding a Covid-19 immunity passport that allows airports to determine if the person is virus-free or has immunity.

Case VI

Hyderabad International Airport is known for its technology-enabled passenger comfort and convenience solutions. The airport had introduced contactless and paperless e-boarding solutions, making it the only airport in India to do so.

The contactless journey under the

Can the entire passenger journey through an airport be contactless? *Passenger Terminal World* speaks to the airports and suppliers working toward making this a reality

Check-in

Security

FINISHING TOUCHES

new normal was heavily dependent on technology inventions to ensure the safety of passengers and airport staff. From day one of the restart of domestic travel, all technology-enabled solutions were available around the clock to instill passenger confidence. Some of these include contactless entry to the airport, with a high-definition document reader at all gates; Self Bag Drop counters at check in, e-boarding enabled contactless scanning of boarding pass at Security Frisking Zone and Boarding Gates.

To make the journey of international flyers even smoother, the airport has extended its end-to end e-boarding for international flights. After a successful pilot with IndiGo airlines, and approval from government and regulatory authorities, Hyderabad International Airport went live in September, 2020 making the first airport in India to offer such a service to international flyers.

Some of the key successful projects include its pilot project of facial recognition. The airport has also innovated an in-house contact-less information desk at the domestic departures resolving passengers' query in real time. Airport has also inducted a facility for passengers to explore retail options through the HOI app. This unique artificial intelligence powered mobile app equips passengers with all the necessary information about their itinerary like their boarding pass, baggage information, retail outlets at the airport etc. HOI is not only useful for frequent flyers but empowers first time flyers who arrive at airport to maneuver through the airport and helps
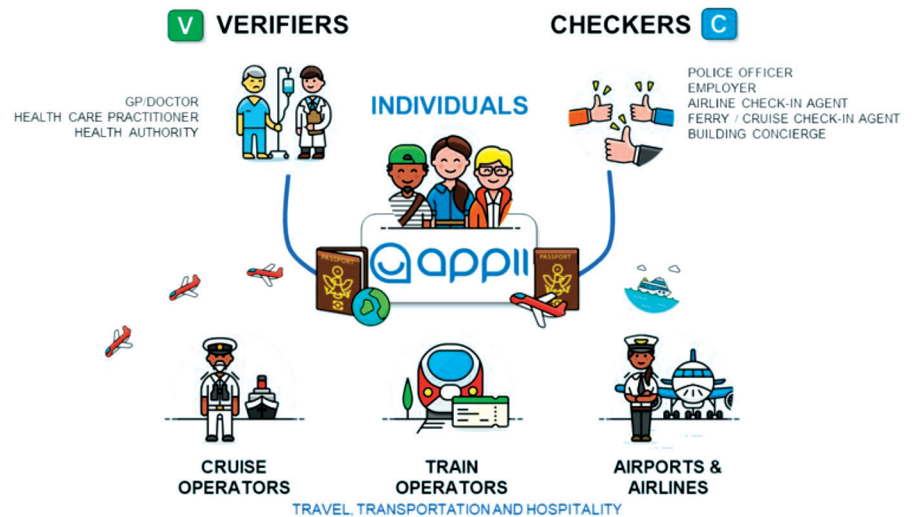
them with the ease of navigation.

The airport has converted most of its elevators to a sensor-based contactless mode infusing a sense of confidence among everyone using the facility.

Conclusion

Pandemic-free air travel requires a pandemic-free airport. There are sound prospects that technology will be able to deliver this capability at an affordable cost and in scale in a not so distant future.

The concepts of touchless technology continue to demonstrate applicability in the post-pandemic future by establishing resilience and flexibility for the aviation industry to adapt to changing conditions while improving efficiency. By establishing a standard of adopting and implementing cutting-edge technology to increase digitalization, the concepts of touchless technology in airport processing activities,

advanced processing and interactive decision making–will continue to advance efficiency on all aspects of the passenger, cargo, baggage and aircraft journey. Furthermore, the development of the technologies aimed at addressing predicted airport capacity constraints will support the implementation of health measures and leverage their use for a greater focus on health in the air travel journey. Finally, the immediate business restart efforts and future actions of the aviation industry need to focus on sustainable implementations in a post-COVID-19 era. More than ever, close cooperation among the airlines, airport operators and governments is vital. Airlines will need to revise their current passenger processes, airport operators may need to assist in redesigning airport facilities, including gate areas, and governments may have to adapt applicable rules and regulations.

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प्रविधिः प्रयोग, प्रवृत्ति र पर्याप्तता

प्रविधि मानव जीवनको अपरिहार्य जस्तै बन्न पुगेको छ । प्रकृति भैँ यो पनि निरन्तर परिवर्तन र विकास भइरहन्छ । परम्परागत र रैथाने प्रविधि बाट आज मानव समाज Artificial Intelligence को अत्याधुनिक युग सम्म आइपुगेको छ । सुरक्षा र सुविधा प्रत्याभुत गर्न उड्डयन क्षेत्रमा सँधै विश्वसनीय प्रविधिको उपयोग आवश्यक हुन्छ ।

प्रविधि प्रयोग

प्रविधिको विकास, छनौट, खरिद र जडानले मात्रै लक्षित उधेश्य हासिल हुँदैन । अपेक्षित प्रतिफल प्राप्त नभएसम्म जति सुकै अत्याधुनिक र महँगो प्रविधि भित्र्याइए पनि त्यसको औचित्य सिद्ध हुँदैन । यसका लागि जडित प्रविधिको सही प्रयोग हुनु जरुरी छ । सही प्रयोगका विविध प्रक्रिया तथा विधि हुन्छन् । उड्डयन क्षेत्रमा ICAO ले जारी गर्ने गरेको SARPs, Docs तथा Procedures हरुमा उड्डयन प्रविधि, उपकरण तथा प्रणालीहरुको जडान, संचालन तथा मर्मत सम्भारको विधि तथा मापदण्ड प्रतिबिम्बित हुने गर्दछन् । बेलाबेलामा यस्ता प्रविधि प्रयोग गर्न आवश्यक दक्ष, सीपयुक्त जनशक्ति भए नभएको र मापदण्ड परिपालना भए नभएको सम्बन्धमा ICAO ले Safety Oversight Audit गर्ने गर्दछ ।

विधमान प्रवृत्ति

प्रविधि प्रयोग उचित ढङ्गले गर्नको निमित्त जनशक्तिमा ग्रहणशीलता, तत्परता सँगै पर्याप्त तालिमको आवश्यकता रहन्छ । तालिम कर्मकाण्डी होइन उधेश्य उन्मुख र Demand Based हुनुपर्दछ । तालिममा मनोनयन र छनौटको निम्ति चयनको सुविधा सहित पारदर्शी प्रक्रिया अपनाइनु आवश्यक छ । उपकरण प्रयोगमा प्रत्यक्ष सँलग्न प्राविधिक बाहेक मध्यम र उच्च व्यवस्थापकीय तहमा कार्यरत जनशक्तिलाई समेत प्रविधि र उपकरणहरुको संवेदनशीलता, जोखिम, भैपरी आउने अवस्था र प्रयोग सम्बन्धी सामान्य जानकारी (General Knowhow) बारे छोटो तालिम संचालन गर्नँ मनासिवै देखिन्छ । यसो गर्न सकेमा प्रविधिजन्य विरोधाभास अन्त्य भई प्राविधिक र गैर प्राविधिक जनशक्तिबीच आपसी दोषारोपण अन्त्य र उचित तालमेल तथा समन्वय हुन जाने र समग्रतामा कार्यदक्षता र प्रभावकारिता प्रवर्धन भई सुरक्षित, नियमित र स्तरीय उड्डयन सेवा प्रवाह गर्ने उद्देश्य हासिल गर्न मदत पुग्नेछ ।

कतिपय उपकरणहरु (X-Ray Machine, Metal Detectors लगायतका सुरक्षा उपकरणहरु) को प्रयोगमा प्राविधिक जनशक्तिको भुमिका अप्रत्यक्ष मात्रै रहने गर्दछ । सुरक्षा संवेदनशीलता र प्रचलित ऐन नियमको प्रावधान बमोजिम प्रहरी कर्मचारीहरु त्यस कार्यमा संलग्न रहने प्रचलन छ । एकातिर जनशक्ति अभावले गर्दा कार्य समयमा पर्न जाने चाप त छँदैछ, त्यसका साथै उपकरणको उचित प्रयोग गर्न तालिम तथा प्रशिक्षणको अभावले उपकरण प्रयोगमै हिच्किचाहट व्यक्त गर्ने गरेका छन् । उपकरणको आलोपालो प्रयोग बारे सचेत गराउँदा समेत बेवास्ता गर्ने र एकै उपकरण निरन्तर प्रयोग गरिँदा छिटोछिटो खराबी देखिने समस्या अर्को व्यवहारिक समस्या हो । उपकरण प्रयोगको अर्को महत्वपूर्ण पाटो भनेको त्यसको अवस्थिति हो । स्पष्ट योजना, गुरुयोजना र मापदण्ड बेगर मेशिन उपकरणहरुको अवस्थिति

परिवर्तन गरिँदा त्यसले विभिन्न जटिलताहरु निम्त्याउने गर्दछ । साथै उपकरण प्रयोग, मर्मत सम्भार, हेरचाह कार्यमा सँलग्न हरेक व्यक्तिलाई औजार, उपकरण प्रति अपनत्व कसरी जगाउन सकिन्छ, त्यस तर्फ सरोकार वाला सबैको ध्यान जानु आवश्यक छ । तसर्थ उपकरण प्रयोगको प्रवृत्तिमा परिवर्तन गरी प्रविधिमैत्री व्यवहार अपनाउनु अति आवश्यक छ ।

प्रविधिको पर्याप्तता

अन्वेषणले प्रविधि विकासमा टेवा पुर्‍याउँदछ । प्रविधिको बदलाव अकाट्य सत्य भैसकेको छ । दिनदिनै प्रविधि पुरानो हुने र नयाँले प्रतिस्थापन गर्ने क्रम जारी छ । त्यसैले पर्याप्तता आफैँमा अस्पष्ट विषय हो । तर पनि नेपालको उड्डयन क्षेत्रमा पर्याप्त प्रणाली, उपकरण र प्रविधिको उपलब्धता हुन सकेको छैन । यसका आफ्ने सीमितता र कारणहरु छन् । उड्डयन प्रविधि निकै खर्चिलो हुने तर यस क्षेत्रबाट अपेक्षित राजश्व भने वृद्धि हुन नसक्ने भएकाले यसमा गरिने लगानी सोचनिय विषय बन्न पुगेको छ । यर्धपि उड्डयन तथा हवाई सुरक्षा प्रत्याभुत गर्न आवश्यक उपकरणहरुको लगानीमा राज्यले ठुलो लगानी गरिरहेकै छ, गरिरहने नै छ । मौजुदा प्रविधिको स्तरोन्नति र जगेडा प्रणालीहरुको व्यवस्थापनमा भने लगानी बढाउनु पर्ने जरुरी छ । जस्तै त्रि.अ.वि. मा जडित VOR/DME मा कथंकदाचित समस्या पैदा भएमा वैकल्पिक प्रणाली नहुँदा VFR बाहेकको उडान अवतरण कार्य नै प्रभावित हुने अवस्था छ । यस्तो लगानी क्रमशः सबैजसो CNS/ATM उपकरणहरुको व्यवस्थापनमा बढाउँदै जानुपर्ने देखिन्छ । साथै Satellite Based Communication, Navigation, Surveillance Systems हरुको प्रयोग गरी Global Air Navigation Plan र Asia Pacific Navigation Plan अनुसार ASBU Framework लाई National Aviation Plan मा आन्तरिकरण गरी सुरक्षित, नियमित, स्तरीय र प्रभावकारी उड्डयन सेवा प्रवाह गर्न मितव्ययी ढङ्गले प्राथमिकताको आधारमा निरन्तर लगानी वृद्धि गर्दै जानु आवश्यक छ ।

उपसंहार

प्रविधि र जनशक्तिको संयोजनबाट नै उड्डयन क्षेत्रले सुलभ, सहज, नियमित, सुरक्षित, स्तरीय र विश्वसनीय सेवा प्रवाह गर्न सक्दछ । प्रविधिको समुचित प्रयोग गर्न सक्षम जनशक्तिको विकास विना यसले अपेक्षित नतिजा दिन सक्दैन । प्रविधिको उपादेयता यसको खरिद र जडानले मात्र होइन, यसको सही उपयोग र सम्भारले सिद्ध गर्दछ । प्रविधि कहिल्यै पर्याप्त हुँदैन । यसले सदैव नवीनता र अध्यावधिकता अपेक्षा गर्दछ । यी सबै कार्यको लागि प्रविधि प्रयोगकर्ताहरुको प्रवृत्तिमा निरन्तर सुधार, सकारात्मक चिन्तन, सचेत प्रयत्न र प्रविधि उन्मुखतता आवश्यक हुन्छ । तब मात्रै प्रविधि प्रबर्धनमा राज्यले गरेको ठुलो लगानीको औचित्य सिद्ध हुनेछ र सेवाग्राहीलाई सुरक्षा र सन्तुष्टी प्रदान गर्ने अभिप्राय पुरा हुनेछ । यसतर्फ सदैव निष्ठापुर्वक प्रयत्नशील रहनु सम्पूर्ण उड्डयनकर्मीको कर्तव्य र दायित्व हुन पुगेको छ ।

स्रोत सामग्रीः

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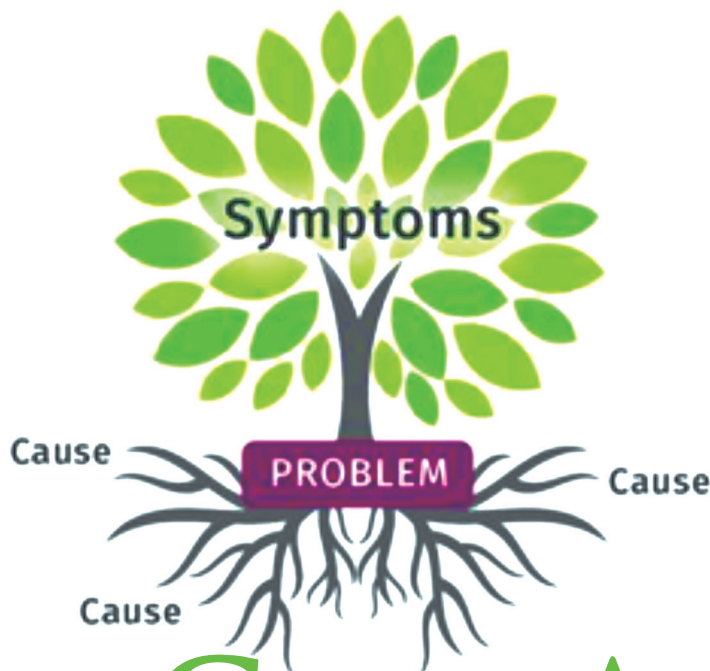
Prajwal Dhungana
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Root Cause Analysis (RCA)

*A*s we know, Corrective Actions are taken to eliminate the causes of the findings of non-conformities with the applicable requirements in order to prevent the recurrence of undesired events. But what if the causes identified were itself unrealistic and not the actual ones? The remedial actions taken without properly establishing the underlying reasons will only waste time and resources putting band-aids on just the symptoms of the problem. Treating only the symptoms is like eating paracetamols during fever without curing the health issue behind it, which may further worsen the situation. Even in that, aviation is such a complex system with issues shaped by an extensive web of relationships and interactions, problems in which demands comprehensive and rigorous analysis.

What is RCA?

The dictionary defines 'root cause' as the fundamental cause, basis, or essence of something, or the source from which something derives. It is the contributing cause of an undesired event or outcome that needs to be eliminated to prevent the recurrence of the associated problem.

Root cause analysis (RCA) is a systematic approach of identifying the true or actual causes that have or may have generated an undesired condition, failure or nonconformity. It is an effective methodology to determine how and why the problem statement has developed along with identifying the underlying causes of the safety concerns and non-compliances. This troubleshooting method is based on the fact that the most resulted way

to solve a problem and prevent it from happening again is to determine its source cause and taking relevant action to eliminate it. RCA is about working beneath the surface of a problem and digging out all associated causal factors.

Goals and Core Principles

The primary goal of RCA is simply to discover the root causes of any occurrences or non-conformances. The associated goals are to know how it could be fixed and apply that systematically to prevent similar replication in future. RCA facilitates a comprehensive and systematic consideration of a problem and ensures that the accurate source causes are identified and treated.

The more we can drill down and interrogate every potential cause, the more likely we are to find a root cause. So, RCA focuses on correcting and remedying the root causes rather than treating the symptom for short term relief. There can be, and often are, multiple root causes

and concrete cause-effect evidences are required to back up them. The analysis demands inputs from various perspectives, so the teamwork and collective expertism is required rather than individual endeavor. During RCA, all aspects of the process, procedures, environment, performance and circumstances surrounding the event is analyzed holistically to explore the underlying causes. However, no assumptions are to be made while examining a problem and also clear distinctions are to be made between the causal factors that contribute to the problem and the root causes that actually interrupt the sequence when eliminated.

Regulatory Guidance

Regulations require organizations to identify the root causes of non-conformances and occurrences and ensure the corrective actions satisfactory to the competent authority. CAA Nepal requires organizations to conduct root cause analysis on findings with any suitable methodology subject to size and complexity of the concerned organization, as mentioned in their SMS documentation. EU regulation 376/2014 requires the authorities to assess all mandatory and voluntary occurrence reports with respect to root cause and corrective actions to enable closure as required by regulatory processes. Many global aviation organizations operating under quality systems certified standards such as ISO 9001, AS9100, AS13000 have offered guidance on root cause analysis and corrective action methodology to ensure compliance with their requirements. Mainly, Safety performance monitoring and measurement domain under ICAO's Safety
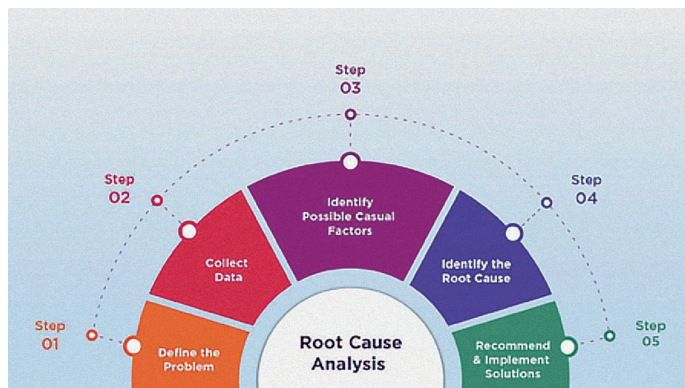
Management Manual-Doc 9859 contains the addressing of identified non-compliances through root cause analysis and the development and implementation of corrective and preventive action plans. The results from analysis of such root causes and contributing factors for any non-compliance should feed into the organization's Safety Risk Management processes.

RCA Process/Methods

Root Cause Analysis and Corrective Action process covers entire range of problem identification, risk assessment, development and implementation of containment actions, investigation along with effective RCA, identification of the root cause(s) and determination of the relevant corrective and preventive actions. Simply, RCA comprises a system of 3R's (i.e. Recognize, Rectify, Replicate) elaborating as the recognition of problem statement and actual causes, rectification through corrective courses of action and

sometimes the need of its replication to test if the root issue has been fixed.

Root Cause Analysis is not a one-fit-all methodology. There are different practices and philosophies on bringing off RCA. The appropriate technique can be picked up on the basis of the scope of the problem and the complexity of the organization. Some situations may also demand the combination of these techniques for more effective analysis. Some techniques to analyze problems, identify causes and/or find solutions are briefly discussed below.

1. **Five Whys Analysis:** It's a question-based technique for RCA, also known as Gemba Gembustu. It is about repeatedly asking 'why' to every answer you get, just like a curious child, until you reach the root cause. It's a simple to understand and quick to perform methodology which provides a direct lineage of circumstances.
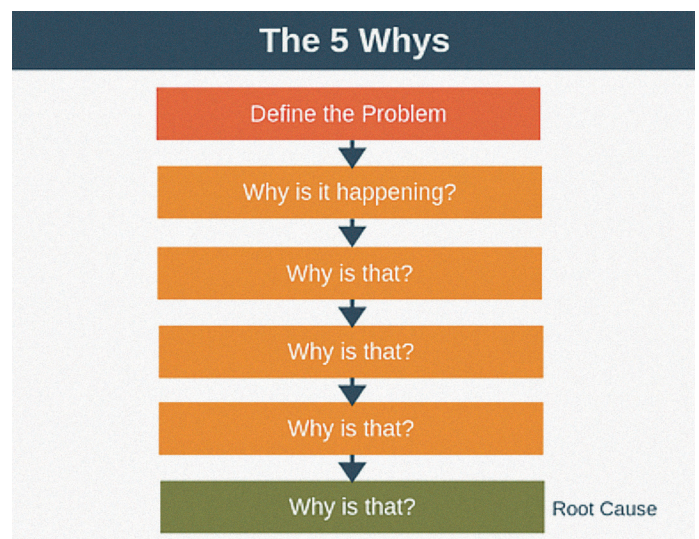

2. **Fishbone Diagram:** Also known as Ishikawa Diagram, this is used to identify the multiple possible factors that could have led to a failure/event. The effect or the problem is written down at the far-right end and the causes are listed along the horizontal lines in their individual domains. The resulting diagram has fishlike appearance, with a head and several fins. This is one of the comprehensive methods of RCA that helps to identify and visualize all major/minor root causes.
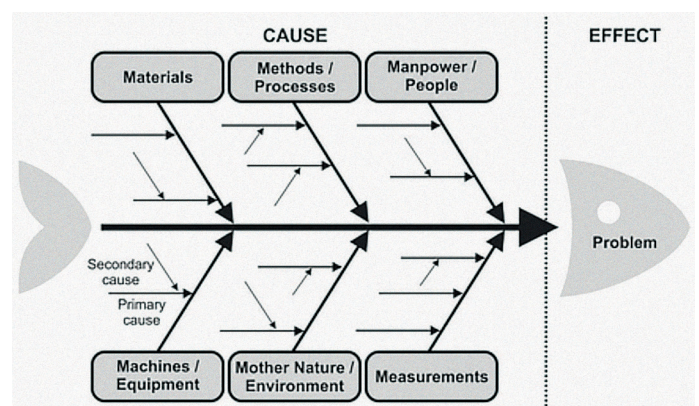

3. **Bow-Tie Analysis:** It is an in-depth technique for performing a root cause analysis. Bow-tie analysis involves graphical depiction of pathways establishing a top event and working backwards identifying the

major event markers and risk controls. This method is generally used by experienced safety managers to have a bigger picture for major root causes identification.
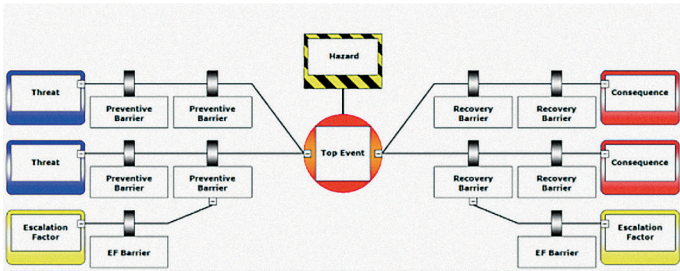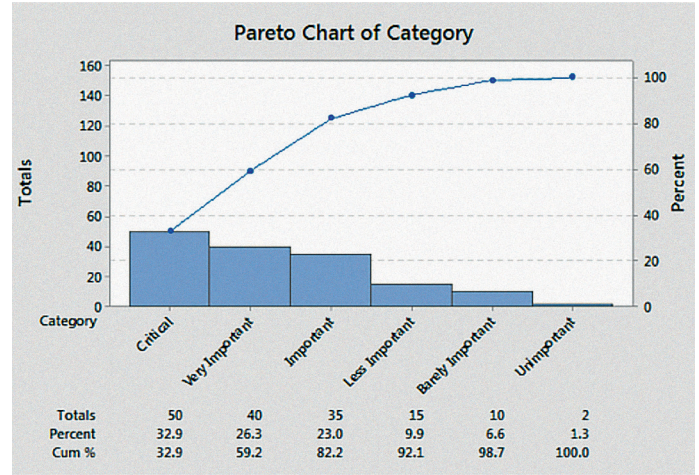

4. **Failure Mode and Effect Analysis:** FMEA is a systematic method for identifying, analyzing, prioritizing and documenting potential failures and their causes. This proactive approach to root cause analysis gives a step-by-step guide for recognizing and preventing potential failures with the prediction of future failures and undesired outcomes by analyzing past data.
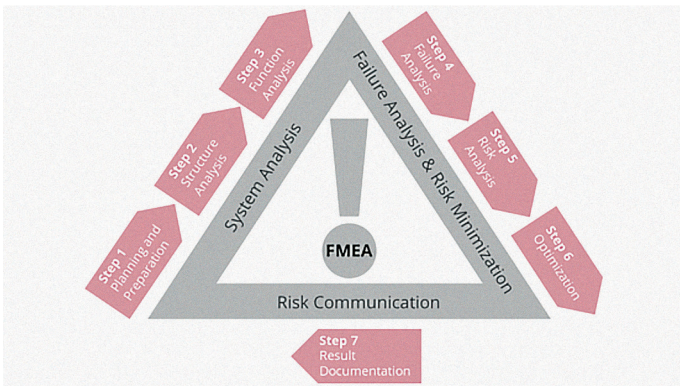
5. **Fault Tree Analysis:** FTA is a method of analysis that uses Boolean logic (AND, OR and NOT) to find out the causes behind the problem. If any two causes of a problem have a logical OR combination causing effect, they are combined with a logical OR operator and if two causes need to occur simultaneously for the fault to happen, it is represented by logical AND. This method of RCA is better used to analyze the effects and failures that might have resulted due to combination of the causes.
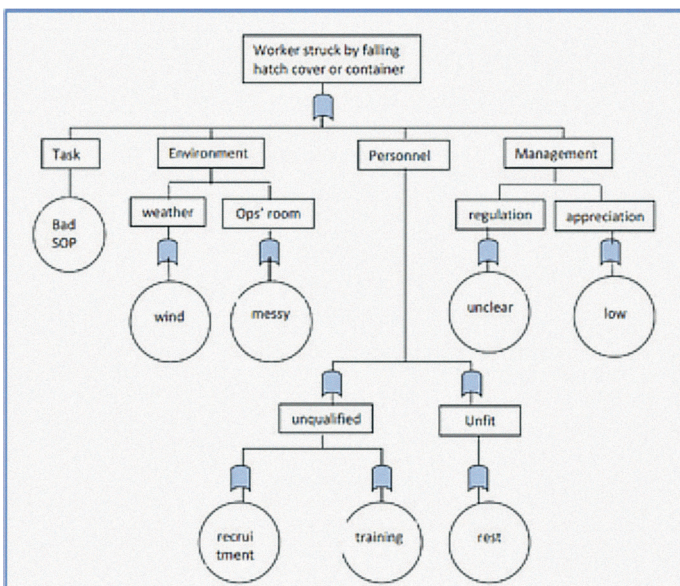
6. **Pareto Charts/Analysis:** This is a statistical way of analyzing the causes which focuses on identifying only a few but significant fundamental causes of problem that must be addressed in order to solve the majority of the problems. Pareto analysis has the 80/20 rule, which assumes that 80 percent of problems are produced by only about few (20 percent) serious causes.

Category	Critical	Very Important	Important	Less Important	Barely Important	Unimportant
Totals	50	40	35	15	10	2
Percent	32.9	26.3	23.0	9.9	6.6	1.3
Cum %	32.9	59.2	82.2	92.1	98.7	100.0

7. **Other Methods:** There are various other methods for RCA like Barrier Analysis, Change Analysis, Causal Mapping, Force-Field Analysis, Timeline Analysis, Matrix Diagram, Six Thinking Hats, Error Decision/ Event Analysis, Management Oversight and Risk Tree Analysis, etc.

Listed above are some of the tried and trusted methodologies and frameworks for executing root cause analysis. Each method has its own list of benefits and shortfalls. Although not all the techniques are appropriate for every problem and none of these methods are foolproof, however they provide a solid base and way out for in-depth problem investigation.

Is RCA always Reactive?

RCA is basically a reactive method since it is done as a reaction to a problem. However once executed it can be used as a proactive method of hazards identification for similar types of problems prediction and their timely prevention. Its of course unfortunate to use this method to diagnose problems always after happening error or adverse event, but it can be equally effective if we tried to find out the root causes behind the successes or improvements. It's not a bad idea to find out the root cause of why things are going well, which helps to figure out and prioritize the causes behind any extra-ordinary performances or outcomes.

Limitations of RCA

There is no single RCA methodology applicable to or proven effective for analyzing all problem types and domains. Root cause analysis results do not directly lead to the solutions. The causal factors may have duplication and multiplication at many levels of the process making the casual chain very difficult to correctly establish. The root cause analysis terminates at a level that is 'root' to the eyes of the investigator and sometimes it may be really

tough job to perceive where to stop when looking for root causes. The identified root causes may also have further underlying causes or we may also reach so far that the generalized root causes are of low-triggering significance to the problem statement. Some of the RCA techniques are so complex that, if carried out without experience and sufficient knowledge, may lead to unrealistic conclusions. Moreover, in all cases the consideration on the complexity, significance and persistency of the problem along with existing policy requirements is the most.

Closing Remarks

We often mistakenly look for a surface and singular cause behind any problem, thinking that its elimination can prevent such occurrences. By this we miss the opportunity to mitigate actual risks associated with the source cause. The systematic approaches of RCA expose multiple causes and chains webbing together to result the occurrences or any undesired conditions. Revealing multiple causes with multiple methods provide multiples ways to prevent the recurring of problem. But as mentioned earlier, theoretically one can continue to trace the root causes back to the Stone Age, but the effort would serve no useful purpose. So, the analysis should be objective till we found the realistic matter-of-fact causes that can be subjected to the corrective and preventive actions. The proper identification of the root causes and contributing factors leads to effective corrective action plans that leads to reduced occurrences and findings that ultimately leads to increased performance and safety level. So, never jump directly to the solutions skipping the root cause analysis, otherwise you will keep investing and in turn being surprised from the recurrence of similar types of problems.

Remember, as wisely stated by Benjamin Franklin - 'An ounce of prevention is worth a pound of cure'.

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GBIA LANDSIDE TERMINAL

किन विकल्प खोज्दछ त्रिभुवन विमानस्थल?

प्रकाश शर्मा
उप प्रबन्धक,
नेपाल नागरिक उड्डयन प्राधिकरण

केन्द्रिकृत शासन व्यवस्था र पुर्वाधार विकासको अदुरदर्शी योजनाले गर्दा जन-अपेक्षा अनुसार सेवा प्रवाह नभएको वर्तमान हामीसँग छ । जनस्तरमा चर्को आलोचना र आर्थिक वृद्धिमा सकस हुनुको प्रमुख कारण गिर्दो सेवा प्रवाहलाई पनि लिन सकिन्छ । कहिले आकाश मै होल्ड त कहिले जमिन मै बन्दि, समयमा उडान नहुँदा सबैले भोगेको समस्या मध्ये एक निकै अलोचना हुने सेवामा विमानस्थल सेवा पर्न गएको छ । यात्रुको संख्यामा आएको उल्लेख्य वृद्धि र संकुचित तथा साघुँरा संर चनाले गर्दा हाम्रा विमानस्थलहरु व्यस्थापकिय हिसावले सधैं टाउको दुखाइको विषय बनिरहे को छ । केही कर्पोरेट घरानाहरुले यस क्षेत्रमा लगानी बढाएको जस्तो देखिन्छ भने सोही कारणले नयाँ नयाँ गन्तब्यहरु पहिचान हुने क्रम अगाडि बढेको देखिन्छ । सुर्खेत, राजविराज जस्ता विमानस्थल संचालनमा आउनु तथा अन्तर प्रादेशिक उडान तथा आन्तरिक अन्तर विमानस्थल उडानमा देखिएका केही यस्ता कुराहरुले उड्डयन क्षेत्र सकारात्मक दिशा तर्फ लम्केको संकेत गर्दछ । यि र यस्ता कुराहरु उड्डयन क्षेत्रलाई सही दिशामा धकेल्ने उर्जाहरु हुन् । स-साना वायुयानमा मात्रै सिमित भएर सुरु भएको हाम्रो इतिहास अहिले आउँदा बिभिन्न अत्याधुनिक ठुल–ठुला जहाज भित्रिए संगै हाम्रा संरचनाहरु माथि स्वाभाविक प्रश्न उठेको पाईन्छ ।

एसियामा उल्लेख्य वृद्धि भएको पर्यटनको केही हिस्सा नेपालमा आउने वातावरण बनेको बखत यि संरचनाहरु आलोचनाको केन्द्रमा रहनु स्वाभाविक हुनेछ।राजनैतिक अस्थिरता तथा द्वन्दको कारण धकेलिएको विकासको मुहान थप थुन्नु देशको प्रतिकुलतामा हुनेछ भने तत्कालिन नेतृत्वलाई जवाफ दिने कुनै बहाना नमिल्ने अवस्था आउने छ । अहिले यसैको लागि बहस ब्यापक छ, संचार माध्यमहरु यसैको साक्षी बनेका छनावैचारिक

तथा राजनैतीक द्वन्दबाट देश क्रमश: स्थिरता र स्पष्टता तर्फ लम्की रहेको छ । यो अवस्था हरेक विकासको लागि सकारात्मक संकेत होयसै सन्दर्भमा जल्दो बल्दोरुपमा आएको बहसको पाटो हो, त्रिभुवन अन्तर्राष्ट्रिय विमानस्थलको अवस्था र बिकल्प । प्राविधिक हिसावले, हाल रहेको एक मात्र अन्तर्राष्ट्रिय विमानस्थलको उपादेयता र यसका जटिलता बारे सबैको चासो बढीरहेको पाईन्छ ।

भौगोलिक विसमताले कठिन त्रिभुवन अन्तर्राष्ट्रिय विमानस्थलको प्राविधिकरुप सबै भन्दा पहिले त्रिभुवन विमानस्थल आउने जहाजको कुरा गरौबिदेशबाट आउने जहाजको प्रबेश बिन्दु सिमरा हो। सिमरा हुँदै जहाज गुँरास विन्दु आइपुग्छन् । काठमाडौंबाट करीब ३० कि.मी दुरीमा रहेको सो बिन्दुबाट काठमाडौं विमानस्थलको ४४९५ फिटमा आउन करीब ७००० फिट झर्नँ(डिसेण्ट गर्नँ) पर्ने हुन्छ । १९१ देखि ३२० नट्सको न्युनतम वेगमा आई रहेको विभिन्न क्याटागोरिको जहाजले कतै ५.३% त कतै ९.३% डिसेण्ट ग्राडिएन्ट कायम गर्नँ पर्दछ। धेरै स्टिप डिसेण्ट गर्नँ हवाई सुरक्षाका दृष्टिकोणले त्यति उपयुक्त मानिदैन । इकाओको मापदण्डले ४% सम्मको सो दरलाई उपयुक्त हुन्छ भन्ने ठहर गरेको पाईन्छ । संचालन हुनु भन्दा पनि कति जोखिम मोलेर संचालन भैराखेको छ भन्ने कुरा महत्वपुर्ण हो। कुनै पनि राष्ट्रले सुलभ सेवाको लागि जोखिम न्युनिकरण गर्नँ उनिहरुको कर्तब्य हुन आउछ । तर एक मात्रै अन्तर्राष्ट्रिय विमानस्थल हुनुको दुःख हामीले सो कुरामा प्रतिबद्ध भए पनि सोको लागि आवश्यक गृहकार्य गर्न सकिएको छैन । मानौ जहाज अवतरण गर्ने अवस्थामा प्रतिकुलता आयो भने जहाज फेरी चढ्नु पर्दछ, त्यो पनि ६% देखी ८% को क्लाइम्ब ग्राडिएन्टमा। नजिकै रहेको ठुलो पहाडलाई छिचोल्न कपन तर्फ लागेको जहाज एकै पटक ७,५०० फिट वा सो भन्दा माथि पुगी काठमाडौं विमानस्थलको ४ कि.मी भित्रै रहेर दिशा समेत परिवर्तन गरी

पश्चिम तर्फ उड्नु पर्दछ। उचाई तथा टर्न सँगसगै लिनुपर्ने हुनाले सो जहाजको नियन्त्रण कार्य जटिल र ट्रिकी हुने गर्दछ। अध्ययनले उडान तथा अवतरणको क्रममा जहाज दुर्घटना दर उच्च हुने हुनाले सके सम्म सो कार्य सहज बनाउनु पर्दछ भन्ने गरेता पनि हाम्रो भुगोल सो अनुरुप उपयुक्त नरहेको कुरा सबै सामु छर्लङ्ग छ । सेप्टी इस्युहरु सगन बनेको अवस्थामा यी र यस्ता कुराहरुले सेवा दिन खोज्ने थप वायुसेवा कम्पनीहरु निरुत्साहित भएका त छैनन्?यो कुरा सल्टाउन के काठमान्डौंको बिकल्प चाहिदैन र ?

इन्जिन फेलियर वा न्युनतम पावरमा उड्ने अवस्थामा हाम्रो भुगोल आँफैमा प्रतिकुल छ । ठुल-ठुला चट्टान र पहाडको खोच हुँदै उड्नु आँफैमा सुरक्षित स्थान पुग्न हम्मे-हम्मे हुन्छ भने ति स्थान सुरक्षित हुँदै नन् । ग्लाइड गरेरै भए पनि सुरक्षित स्थान सम्म पुग्ने अवस्था त बन्नु पर्यो नि तर बिडम्बना हामीलाई हाम्रो भुगोलले सिमित गराइदिएको छ । यी कुरालाई मध्यनजर गर्दै हामीले हाम्रा संरचनाहरुको विकास गर्ने तर्फ एकदमै न्युन मात्रामा पहल भएको अवस्था विद्यमान रहेको छ।बजारको बिचको अवस्थिति, गलत स्थानमा आयल निगम र हनु लगायत धेरै चुनौतीका बिचमा रहेको एक मात्र अन्तर्राष्ट्रिय विमानस्थलको सिमितता यो क्षेत्रमा काम गर्ने व्यक्तीले मात्र बुझ्न सक्दछ ।

अब ग्राउण्डबाट उडान गर्दाको कुरा गरौं । काठमाडौंबाट उड्ने प्रायः जहाजसँग कोटेश्वर तर्फ फर्केर वा कोटेश्वर तर्फ बाट उड्ने दुई वटा बिकल्प हुन्छन्।कपन डाँडाको अवस्थितीले गर्दा कोटेश्वरबाट कपनतर्फ फर्केर उड्न ठुला जहाज हिच्किचाउछन्, छोटो समयमा नै धेरै हाइट लिनु पर्ने र टर्न पनि गर्नु पर्ने अवस्था रहने हुनाले जहाजलाई थप भार पर्दछ । उडान भर्दाको सबै भन्दा कम्सल पर्फर्मेन्सको कल्पना गर्दा डाइभ हान्ने ठाउँ पनि नभएकोले प्राविधिक हिसाबले जहाज यसो गर्दछन्। उता हवाई नियन्त्रकले यतैबाट उड

भनेर पेल्न मिल्दैन, यसले गर्दा भित्रिने ट्राफिक र बाहिरिने ट्राफिकमा सब्सिक्वेण्ट डिले हुने गरेको पाईन्छ ।यो किन पनि हुन्छ भने बिपरित दिशाबाट आउने र जाने जहाजको लागि थप दुरी वा समयको फरक राख्नु पर्ने मापदण्ड इकाओले कार्यन्वयनमा ल्याएको छ । साँघुरो उपत्यका र नजिकैका ठुल्ठुला पहाडले गर्दा नियन्त्रण कार्य समेत जटिल बन्ने गरेको पाईन्छ । यो कार्यले गर्दा जहाजलाई थप ग्राउण्ड वा आकाश मै होल्ड गराउनै पर्ने बाध्यता व्यवस्थापकहरुलाई छ ।

विमानस्थलमा हाल दश वटा जहाज पार्किङ्ग गर्न सक्ने क्षमता रहेको छ।विस्तार नै गरे पनि थप नौ ओटै बनाउन सकिने जमिन हामी सँग छैन । एयरबस ३६० जस्ता हेभी क्याटागोरिका बिमान राख्नु पर्‍यो भने थप सजकता अपनाउनु पर्ने अवस्था छ । धावन मार्ग र ट्याक्सी-वेमा सँगै दुईवटा हेभी क्याटागोरिका जहाज अप्रेसनमा ल्याउन पनि केही जोखिम मोल्नु नै पर्ने अवस्था छ।यति हुँदा पनि हामी तेही चाक्लो बनाउ वा मोडेर अन्तै घुमाउ भनेर बस्नु उपयुक्त हैन किन भने दुनियाँ चुस्त सेवाको पर्खाइमा छ नकि टाल्टुले बिकास !! दुनियाँ मेट्रोमा सवार भएर जहाज चढ्न जान्छन्, हामी जहाजमा गाडी ठोकिएलाकी भनेर साइड च्यापी-च्यापी टर्मिनलबाट बाहिर निस्किन्छौ । सुबिधा बढाउनु भनेको र ।जश्वमा वृद्धि गर्नु पनि हो भने जोखिम न्युनिकरण गरेर विमा रकम थप बचाउनु पनि हो। यसको राष्ट्रिय आयमा सकरात्मक प्रभाव देखिने छ।कुन विमानस्थलले कति क्षेत्रफलमा कति सुबिधा दिए भनेर मात्र दाज्नु उपयुक्त हुँदैन किन भने त्यहाको ट्राफिकको प्रकृति, जहाजले प्रयोग गर्ने प्रबिधि, जहाजले एक्टिभ रन-वेमा ब्यतित गर्ने समय, आदि कुराहरुले त्यो स्थानको प्यासेन्जर मुभमेन्टलाई प्रत्यक्ष प्रभाव पारेको हुन्छ । यो बिशिष्टता एकदमै प्राविधिक छ जुन

बाहिर बाट सजिलै नदेखिन सक्छ।जस्तो कि विमानस्थलमा जती एकै नाशको ट्राफिक भयो तेती नै जाम काम हुन्छ किन भने हेटेरो जिनियस ट्राफिक हुनु भनेको फरक फरक दुरी वा समयको फरक आवश्यकता रहेको हुन्छ । जहाजको गती, वेक टर्भुलेन्स अनुसार सेपेरेसन मापदण्डहरु फरक रहन्छन् । जहाजको रिक्वाएरमेन्ट अनुसार होस् वा हवाई नियन्त्रकको आवश्यकताले होस् अहिले रहेको एकमात्र विमानस्थल अप्रयाप्त छ भन्नेमा कुनै शंका छैन ।

जहाज अपहरणमा पर्‍यो वा कुनै बम लगायत खतराका संकेतहरु आए, सुचनाहरु आए जस्ले गर्दा जहाज कुनै आइसोलेटेड पार्किङ्गमा लान्नु पर्ने भयो भने त्रिभुवन विमानस्थल जता विस्तार गरे पनि त्यस्तो कुन स्थान छ जँहा जहाज पड्क्यो भने क्षति न्युनिकरण गर्दछ ? यो हाम्रो भौगोलिक सिमिततामा कसरी एड्जस्ट गर्न सकिन्छ ? अनिवार्य शर्त जस्तै रहेको यो विषयमा हामीले सम्फौता किन गर्ने ? सुरक्षात्मक प्रबन्ध गर्न आवश्यक यस्ता प्राविधिक कुरामा किन आँखा चिम्लिरहनु हामी? अव्यवस्थित चिम्नि, गगनचुम्बी महल, सुकुटी पसलको छेवैमा एएरपोर्ट छ है भनेर कुन देश यहाँ सिधा उडान भर्न आकर्षित होला? मेन्टिने न्स वा भएकै संरचनालाई तान्तुन गरेर क्रसिङ रन्वे वा समानान्तर रन्वे आदी बनाउने नै हो भने त्यस्का लागि गरिने लगानी कम होला र ? वा समय नै कम लाग्ला ? सानो उदाहरण हेरौ, कुनै चाइनिज कम्पनीलाई ट्याक्सी-वे र धावन मार्गको मर्मतको जिम्मा दिइयो, काम समय भन्दा अवागै सकियो। त्यो बिचमा बिहान ८ बजे सम्म एयरपोर्ट बन्द गरियो । यस बाट धेरै प्रगती भए होला तर त्यो बेलामा खुम्बु क्षेत्रको लागि उडान गर्न तोकिएको रामेछ्हाप विमानस्थलबाट भएको उडानको क्रममा देखिएका त्रुटीहरुले यो क्षेत्रको पर्यटनमा कस्तो असर गर्‍यो होला? जानकारका अनुसार

बस्ने खाने उपयुक्त स्थान अभावमा धेरै जसो पर्यटकहरुले भ्रमण नै अन्यत्र मोडे वा बुकिङ्ग नै क्यान्सिल गरे।तत्कालको असर यो रहे पनि यो बारे गएको गलत सन्देशले दुर्गामीसम्म यो क्षेत्रको पर्यटनमा तात्विक भिन्नता देखिने यो क्षेत्रमा कृयाशिल बर्गहरु बताउछन । सुबिधा नभएरै जबर्जस्त पर्यटन सम्भावना मात्रै देख्नु आकाशको फल हेर्नँ भन्दा फरक हुन्न।स्थिर संरचना निर्माणको लागि लाग्ने लागत र समयको हिसाव, नयाँ निर्माण गर्नँ भन्दा पक्कै सस्तो पर्दैन । त्यस माथि प्राविधिक सिमितता कायमै रहन्छन भने यो संरचनामा लगानी गरेर फाईदा कसरी देखिन्छ ?

अन्त्यमा, त्रिभुवन अन्तर्राष्ट्रिय विमानस्थलको आफ्नो भौगोलिक अवस्थितीले गर्दा होस् वा सेवा चुस्त बनाउन कै लागि होस्, आफ्नो बिकल्प कुनै सुबिधा सम्पन्न विमानस्थल होस् भन्ने चाहन्छे। निजगढ अन्तर्राष्ट्रिय विमानस्थल माथिका यावत कुराहरुको लागि धेरै हद सम्मको समाधान हो । र्यापिड् एक्जिट-वे (जहाजले ल्याण्ड गरेपछि तुरुन्त धावनमार्ग छाड्न सक्ने), समानन्तर रन्वे, ट्याक्सि-वे, समानन्तर अप्रोच्, समानान्तर डिपार्चर, कम भन्दा कम अब्स्ट्याकल् रहि जहाजको जोखिम न्युनतम बिन्दुमा फार्ने व्यवस्था सहितको विमानस्थल हो, निजगढ अन्तर्राष्ट्रिय विमानस्थल । खैर रुखहरु कम मुल्यका हैनन । हात्तीहरु अमुल्य निधी नै हुन हाम्रो लागि, तर एब्सोल्युटलि (निरपेक्ष) हेरेर मात्रै विकास सम्भव छैन । रिलेटिभ्ली (सापेक्ष) हेरेर सबै कुराहरु छिट्टै निष्कर्षमा पुगोस । अन्तर्राष्ट्रिय विमानस्थल निर्माण गर्ने नेतृत्वकर्ताहरुले यी यावत आशंका निवारण गर्न सक्षम भैं यो विकल्पको बारेमा सबै तिरबाट सकारा त्मक वातावरण निर्माण गरुन!! देशको उड्डयन क्षेत्रले कोल्टे फेरोस !! सबैको जय होस!

ERP
Implementation in an Organization

Ram Pathak
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Introduction to ERP

Enterprise resource planning refers to the software specifically designed to manage and integrate the core business processes' functions such as Finance, Human Resource, Inventory Management, and Supply Chain in a single system.

An ERP solution automates critical business processes and serves as a shared database for all financial and operational information from across the company. It pulls this data from a number of modules built to help various departments, from accounting to supply chain to human resources to perform their individual functions.

ERP provides the backbone for an enterprise-wide information system. At the core of this enterprise software is a central database which draws data from and feeds data into modular applications that operate on a common computing platform. This standardizes the business processes and data definitions into a unified environment. With an ERP system, data needs to be entered only once. The system provides consistency and visibility or transparency across the entire enterprise.

Benefits of ERP

Implementation of ERP System brings lots of benefits to an organization. Some of the benefits are described here.

- **Improved Productivity**

  Using ERP software can reduce time to complete the tasks thereby improving productivity. ERP software automates redundant processes so that employees can pay attention to other important tasks and activities.

- **Increase Efficiencies**

  ERP software eliminates repetitive processes. It significantly decreases the amount of information that needs to be entered manually. It facilitates the collection of data, making it both more efficient and easier.

- **Cost Savings**

  ERP solutions decrease both operations and administrative costs because they provide a central source of accurate information in real time.

- **Improved Reporting and Planning**

  Implementing an ERP on an organization means organization has a single, unified reporting system for every process. By having a single source of truth, an ERP system can readily generate valuable reports and analytics at any time.

- **Flexible Modularity/Scalability**

  One of the most significant advantages of enterprise resource planning software in the present day is its modular makeup. Most ERP system offer several applications that can work together according to the business needs.

- **Improved Collaboration and Workflows**

  ERP software makes collaboration a piece of cake. An ERP platform streamlines collaborating with others by providing employees with access to the data they need when they need it. They offer an interdepartmental database where information funnels through departments into one centralized location.

ERP Implementation Life Cycle

- **Package Selection**

  It is the first stage of ERP implementation lifecycle where organization by doing a proper research has to select the ERP package that suits organization and business needs. While selecting a package, the degree of matching of package to the organization business needs, how much it is customizable to solve the organization business problems and also the stability and future assistance of the software provider has to be considered.

- **Project Planning**

  In this phase realistic plan for the process are prepared. Timeline and deadline are scheduled for the implementation of ERP in this phase. Roles of various employees from various department are identified and they are assigned responsibilities for the ERP implementation process.

- **GAP Analysis**

  It is considered as an important stage in ERP implementation. Here the gaps are analyzed between organizations' practices and the practices that are

supported by ERP package.

- **Re- Engineering**

  In this phase rapid and radical redesign of strategic, value-added business processes and system, policies and organizational structure are performed which will support to optimize workflow and productivity in an organization.

- **Training**

  To effectively use new system employees within an organization has to be well trained and be familiar with new system which is an important stage in ERP implementation life cycle. With the help of Expert of ERP system and IT personnel in an organization the organization should start training their staffs on ERP system.

- **Testing**

  Testing are performed for various scenarios which may arise while running the system such as system overloads or multiple users try to login the system at the same time. Test case are designed specifically to find the weak links in the system. Different types of testing include Unit testing, Integration testing, Acceptance testing, Security testing, and Performance testing.

- **Application/Go Live**

  After our functional and technical sides are working properly and testing has also been performed, the next phase is Go-Live. Once system is live, old system is removed and new system is used for doing business.

- **Maintenance**

  After the implementation of system, maintenance is the last step of ERP life cycle where constant maintenance of system involves. Here the users will face and deal with system related problems and the problems should be solved in the next version of system update. It is an ongoing process.
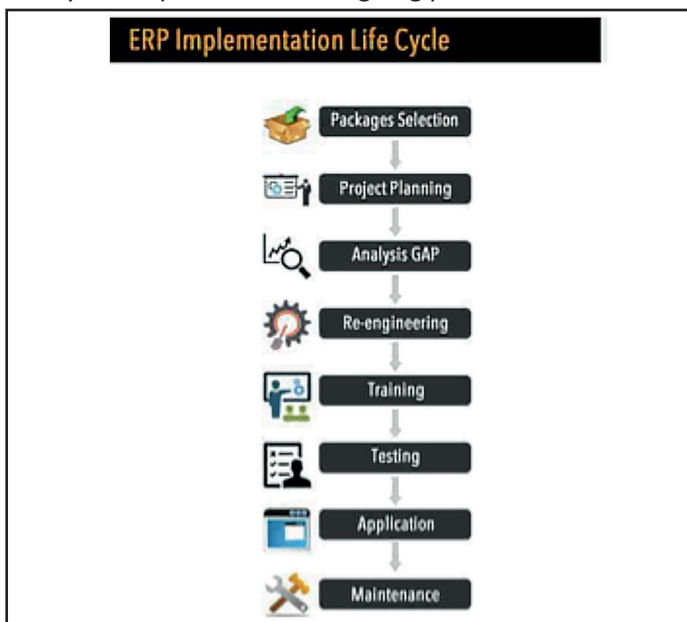
Source:// https://www.tigernix.com/blog/8-stages-of-erp-implementation-life-cycle

ERP Modules

ERP Modules may vary on organization's needs. ERP basic modules are customized to fit organization needs along with development of new modules as per requirement. Some basic modules of ERP are described here.

Source:https://www.esds.co.in/blog/basic-modules-of-erp-system/

- **Accounting and Finance Module**

  It is an important module because it allows business organization to understand their current financial status and future overlook. This module will keep track of accounts payable (AP) and accounts receivable (AR) and also manage general ledger. It also creates and stores financial statement. This module can automate task related to billing, vendor payment and account reconciliation.

- **Human Resource Management Module (HRM Module)**

  This module helps HR department to manage Human Resource efficiently. HR module helps to manage employee information, track employee records like performance reviews, designations, job descriptions, time & attendance tracking etc. One important submodule of HR module i.e. Payroll module helps to manage salaries, payment report etc.

- **Inventory Management Module**

  An inventory management module can be used to track the stock of items. The inventory module includes functionalities like inventory control, master units, stock utilization reporting, etc. The inventory management module should also include tools to manage storage space efficiently for optimum utilization.

- **Purchase Module**

  Purchase module takes care of all processes that are part of the procurement of items or raw materials which are required for an organization. It automates the process of identifying potential suppliers, negotiating price, awarding purchase order to the suppliers and billing processes. Purchase order is

tightly integrated with the Inventory Control Module.

Conclusion

ERP implementation brings lots of benefits to organizations by integrating various departmental functions into one common system. ERP system are large and complex system and requires careful planning and execution of their implementation. ERP is not just a software, it will affect how a business conducts itself. Strong commitment from upper management is required for successful implementation of ERP as implementation involves significant alteration on existing business practices. Selecting right employees to participate in the implementation process and motivating them is critical for successful implementation. Finally, the employees should be trained well to use the system for proper working.

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NEPALGUNJ AIRPORT

TIA RADARS

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Pregnancy:

AN AVALANCHE DURING CAREER PROGRESSION FOR WOMEN

"A ship under sail and a big bellied women are the handsomest two things that can be seen common" –Benjamin Franklin

Abstract

Women don't get pregnant by themselves, and like it or not, cultivating the human race is in all our interests. As a necessary part of society, it is logical and fair that the cost of enabling this process to happen should be spread across society, and that means everybody playing their part. Women often believe that any women will be supportive of their pregnancy, but many women of generation x were treated terrible during pregnancy. They face lots of obstacles and

no support. Some of them come from the mindset of "do you know what I had to go through?" Don't try to build bonds over your pregnancy, unless someone has explicitly and repeatedly shown interest in it. Even then remain professional at all times. One mistake woman makes all too often is defaulting to their pregnancy as small talk. There's no need of inserting your pregnancy into everything, it may seem "okay to talk about how you're really tired because of weight gain nausea etc. but it can seriously impact how you're viewed by your colleagues. Such a thing like oversharing is not always benefitted. In countries like Nepal discrimination during pregnancy is common phenomenon so belonging to an educated women's group we all need to know that there is not any compulsion to bear any kind of prejudice during pregnancy and after return from maternity.

Introduction

Assumptions like "oh a woman cannot perform this type of job", "oh no! expected woman no! never! she cannot handle the post properly, are the horrified general assumptions for the women who are going to be mother during her career in any organizations in Nepal and worldwide also. But no one has have imagined that if a lady can give life (creator) then she can do anything. The pivotal role of being a mother is still the divine mission assigned to women alone. Women are actually given an opportunity and a privilege by God to be his partner in giving life to another human being. Even though When women

don't take charge of what their careers will look like during pregnancy, assumptions are made on their behalf. This can hamper advancement opportunities during the pregnancy and particularly upon return. Organization expects women to be more qualified than men for the same position and that leadership opportunities for men often come with more resources (funding, supervisor support, team size) compared to women's leadership opportunities.

After so many years of equal opportunities legislation, motherhood/ pregnancy still limits women's career progress even in a feminized occupation like nursing. While the effects of motherhood, working hours, career breaks, and school aged children upon career progression has been discussed widely its actual scale and magnitude has received less research attention. Motherhood has regressively detrimental effect on women's career progression. Pregnancy can often herald the gradual ramp off from leadership that many working women inevitably face in their careers. While its illegal for an employer to fire someone for being pregnant, we have heard of women being held back from top assignments not getting deserved promotions or raises, or worse, being demoted as soon as they return from maternity leave if they are lucky enough to even get that in the first place. But if managed properly pregnancy doesn't have to signal the end of a women's career.

Maternity the right of every woman

Pakistani the then Prime Minister Benazir Bhutto who gave birth to her daughter Bakhtawar in 1990 when she was in office. She also gave birth to her son Bilawal while she was campaigning in 1988. Her decision to campaign while pregnant was a response to former president and military general's assumption that she could not take part in politics as a pregnant woman. She also

kept her next pregnancy a secret and was promptly criticized by some in Pakistan after giving birth that as a new mother she would not be able to devote herself fully to the task of running of a country. Recently when New Zealand Prime Minister Jecinda Ardern announced her pregnancy saying that she is just pregnant not incapacitated, pregnancy is largely seen as a mark of progressiveness that's still rare among developed nation. So maternity is the choice and right of every woman i.e., from working woman to housewives or even the head of the nation from the entire world.

Having a baby should not mean losing a job or much needed financial stability. Workplaces are high demanding cultures where employers are required to do their work swiftly and promptly. To meet market expectations employees are always in a rush to do their daily work. So, in such instances, returning from maternity leave is a great challenge. It's important to understand that they have also had a large life change. New mothers try to adopt to all new circumstances without even batting an eye. That's their super power. What others can do to help is that they can try being considerate and supportive of their work hours and load. There is a cultural perception that if you're a good mother, you're so dedicated to your children that you could not possibly be that dedicated to your career.

Discrimination during Pregnancy

Pregnancy discrimination involves (employees) unfavorably on the basis of pregnancy, childbirth or related conditions. Countries like united states of America already have law in favor of pregnant working women i.e., The Pregnancy Discrimination Act (PDA) (1976). Which formally prohibited employer discrimination on the basis of pregnancy. Every time a woman is fired, forced to take leave, denied a promotion or not hired because she is pregnant or because an employer fears, she might become pregnant she is experiencing discrimination and it hurts her, her family and overall economy too and it's also illegal.

The Equalities and Human Rights Commission conducted a formal investigation into pregnancy discrimination in 2015. Their final report found that 54000 women a year are forced out of their job because of pregnancy discrimination, one in five mothers experienced harassment and negative comments because of their pregnancy and 10% of the mothers were discouraged from taking time off for their antenatal care. One in four women quit their jobs due to pregnancy across the world. In India, a study suggests that 50% of women quit their jobs after pregnancy and only 27% return with the majority of them quitting again. The problem is not an exception in Nepal, the case of a teacher of a Kathmandu based school who had to work till her labour that led to the demise of her baby.

According to the Nepal Labour Force Survey 2017-18 for every 100 males in the working age population there are 125 females but for every 100 employed males, there are only 59 employed females. Although the population of working age females still lag far behind when it comes to employment and they pay gap between the genders is also huge. Every private and public organization is mandated to provide 14 weeks (98 days) of paid maternity leave to mothers. In which the employer pays for the 60 days and social security fund covers the remaining 38 days. The act also provides 15 days of paternity leave to the fathers. Representation of women in senior positions is alarmingly less with only 13% of women in comparison to 86% of men. These all data from worldwide vividly demonstrate the condition of how women are discriminated during their pregnancy.

Conclusion

Worldwide women are working during all trimester of pregnancy for reasons including career pursuit and fulfillment, financial necessity, preservation of insurance, career advancement and preservation of postpartum leave time. Working pregnant women request advice and assistance from their clinicians to manage challenges that occur while being pregnant at work. If a woman is temporarily unable to perform her job due to a medical condition related to pregnancy or child birth the employer or other covered entity must treat her in the same way as it treats any other temporarily disabled employees. For example, the employer may have to provide light duty, alternative assignments disability leaves or unpaid leave to pregnant employees, but if she is okay with whatever she is doing there should not be any kind of obstruction regarding her work. So, it is in all our interest to work together to end up this sort of pregnancy and maternal discrimination in work places that prevents some of our best and brightest from continuing in their careers, whether through flexible working time or being supportive towards them.

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भीम राज उप्रेती
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नेपाल नागरिक उड्डयन प्राधिकरण

सार्वजनिक सेवामा असल कार्य संस्कृति

सार्वजनिक प्रशासनको प्रभावकारिता यसका पात्रहरुको सोच, क्षमता, दक्षता, बुद्धि, विवेक र नैतिकतामा भर पर्दछ । सार्वजनिक सेवा प्रवाहको स्तर, नतिजा, पारदर्शिता, जवाफदेहिता, इमान्दारीता जस्ता विषयहरु सेवाको असल कार्य संस्कृतिसंग जोडिएका हुन्छन् । संगठन संरचना संगठनको Hardware हो भने असल कार्य संस्कृति Software हो । न्याय र नैतिकतामा आधारित स्वस्थ संगठन निर्माण गरी Ethical Infrastructure विकास गर्न पहिलो शर्तको रुपमा कार्य संस्कृतको नै भूमिका हुन्छ । समग्र कर्मचारीहरुको मूल्य, मान्यता, व्यवहार, विश्वास, प्रबृति, सोचका साथै संगठन नीति र सिद्धान्तको एकिकृत रुप नै कार्य संस्कृति हो । गराई, सोचाई र बोलाई बीचमा संगति हुनु पनि असल कार्य संस्कृति हो ।

मानिस असल कार्य संस्कृतिले महान् बन्छ । साहस, अनुशासन, धैर्य र लगनशीलता भए कुनै पनि मानिस असल बन्न सक्छ । जस्तोसुकै प्रतिकूल परिस्थितिलाई पनि सहज रूपमा लिएर अघि बढ्दा लक्ष्य प्राप्त गर्न सकिन्छ । आफ्नो कर्ममा निरन्तर लागिपर्नु चरित्र निर्माणको आधार हो । नि:स्वार्थ कर्ममा लागिरहने मानिस उदाहरणीय बन्छन् । उनीहरू प्रेरणाका स्रोत बन्न पुग्छन् । जापानको कार्य संस्कृतिमा यस्ता विशेषताहरु पाउन सकिन्छ । असल कार्य संस्कृतिलाई धर्म प्रथा परम्पर, मूल्य र मान्यतासँग मात्र जोड्ने वा हेरिने संकुचित अवधारणाले असल कार्य संस्कृतिको व्यापकतालाई न्याय गर्न सक्दैन ।

कर्मचारीहरुलाई काम गर्ने वातावरण संगठनले निर्माण गरेको हुन्छ । सङ्गठनभित्र मानवीय श्रम वृद्धि, र सिर्जनाबाट निर्माण हुने सबै प्रकारका भौतिक र बौद्धिक संस्थाहरु, संरचना र उत्पादन सबै संस्कृतिको बृहत अवधारणाभित्र पर्दछन् । सार्वजनिक सेवा समाजको प्रतिनिधिमूलक संगठन हो, जहाँ सांस्कृतिक, भाषिक, बौद्धिक, पदीय, जातीय तथा लैङ्गिक लगायतका दर्जनौं विविधताहरु संयोजित हुन्छन् । सुशासन, भ्रष्टाचार नियन्त्रण, संस्थागत दक्षता र नागरिकहरुको माग बमोजिम सेवा उत्पादन गर्न सक्ने गतिशिल प्रशासन संयन्त्रको मूल मुहान सांगठनिक कार्य संस्कृतिसँगै भेटिन्छ । मानवलाई यन्त्रवत रुपमा परिचालन गरी वाञ्छित नतिजा हासिल गर्न सकिन्छ भन्ने शास्त्रीय मान्यताहरु संवेगात्मक बौद्धिकता तथा संगठनात्मक मनोविज्ञानको उदयपश्चात छायाँमा परेकोले उत्कृष्ट कार्यसम्पादनका लागि winning minds and touching hearts का रणनीतिहरु नै अबका सही कार्यदिशा हुन् । प्रतिकूल अवस्थामा पनि धैर्यताका साथ काम गर्नु, असल उदेश्य राखी आफ्नो काममा तल्लिन हुनु, सेवा र सहयोगका लागि तत्पर रहनु, सामुहिकताको भावनाले काम गर्नु, अनुकरणीय चरित्रको विकासका लागि प्रेरित हुनु जस्ता गुणहरु असल कार्य संस्कृतबाट निर्माण भएका हुन्छन् ।

Harvard Business review ले विश्वब्यापी रुपमा सरकारी कर्मचारीहरु किन निजी क्षेत्रभन्दा अल्छी र लाचार तथा कम सिर्जनशील हुन्छन् भनी गरेको अध्ययन अनुसार पहिलो कारणमा अचानक र बारम्बार नेतृत्वको परिवर्तन हुनु, दोस्रोः उचित मूल्याङ्कन र सांगठनिक कार्य संस्कृतिको अभाव र तेस्रो वित्तीय प्रोत्साहनहरुको कमी तथा ट्रेड यूनियनहरुको गलत भूमिका पहिचान गरेको छ । सो अध्ययनका अनुसार सरकारी संरचना भित्रको समानता, अविभेद, नेतृत्व र सहायहकरुबीचको विश्वास, सहयोग, प्रोत्साहन र सहकार्य नै मूख्य रुपमा सांगठनिक सफलताको निर्णायक केन्द्रविन्दुमा रहेका हुन्छन् ।

असल कार्य संस्कृति किन ?

- ✓ खुला, पारदर्शी र जवाफदेही समाजको निर्माण गर्न,
- ✓ न्याय र नैतिकतामा आधारित स्वस्थ्य समाज निर्माण गर्न,
- ✓ सुशासनलाई सुदृढीकरण गर्न,
- ✓ सार्वजनिक निर्णयहरूलाई नागरिक समक्ष पुऱ्याउन,
- ✓ लोकत्रान्त्रिक मूल्य र मान्यताको प्रवर्द्धन गर्न,
- ✓ प्रशासनिक निर्णयहरूमा वैधता प्राप्त गर्न,
- ✓ सार्वजनिक प्रशासन प्रति जनताको विश्वासमा अभिवृद्धि गर्न,
- ✓ सार्वजनिक सेवा प्रवाहलाई छिटो, छरितो, पारदर्शी र गुणस्तरीय बनाउन, कार्यसम्पादनको स्तर र दक्षतामा वृद्धि गर्न,
- ✓ अनुगमन र मूल्याङ्कन प्रणालीलाई वस्तुनिष्ठ बनाउन,
- ✓ सार्वजनिक स्रोत र साधनको दुरुपयोग रोकी यसको दक्ष, प्रभावकारी, मितव्ययी, समन्यायिक प्रयोग गर्न,
- ✓ भ्रष्टाचार रोकी दिगो, फराकिलो र समावेशी आर्थिक विकास र आर्थिक वृद्धि गर्न,
- ✓ असल शासकीय संस्कृतिको निर्माण गर्न,
- ✓ कानूनको शासनलाई व्यहारिक रुपमा कार्यान्वयन गर्न,
- ✓ Ethical Infrastructure निर्माण गर्न ।

सार्वजनिक प्रशासनमा असल कार्य संस्कृति कम हुनका कारणहरू

- ✓ राजनीति र प्रशासनिक प्रतिवद्धता र इमानदारिताको अभाव,
- ✓ सामाजिकीकरणमा Ethics and Morality पक्ष कमजोर हुदै जानु,

- ✓ नागरिक शिक्षा र नागरिक चेतनाको स्तर अपेक्षाकृतरुपमा विकास हुन नसक्नु,

- ✓ नागरिक समाज दलिय विभाजनका कारण क्षयीकरण हुँदै जानु,

- ✓ उत्तरदायित्व निर्वाह अरुको मात्र दायित्व हो भन्ने कमजोर मानसिकता,

- ✓ राजनीतिक अस्थिरता र सरकारी कामकारवाहीमा पारदर्शीताको अभाव,

- ✓ वस्तुनिष्ठ कार्यसम्पादन मूल्याङ्कन हुन नसक्नु,

- ✓ कर्मचारीलाई दिनुपर्ने न्यूनतम र अत्यावश्यक सुविधा उपलब्ध गराउन नसक्नु,

- ✓ दण्ड र पुरस्कारको नीतिलाई व्यवहारमा अवलम्बन गर्न नसक्नु,

- ✓ प्रशासनयन्त्र जनमुखी, पारदर्शी, निष्पक्ष, तटस्थ हुन नसक्नु,

- ✓ विभिन्न सार्वजनिक निकायहरू बीचमा कुशल रुपमा समन्वय हुन नसक्नु,

- ✓ जनसहभागिता र नागरिक समाजको यथेष्ठ परिचालन हुन नसक्नु,

- ✓ सूचनाको हक र सुशासन सम्वन्धी ऐनको व्यवहारिक कार्यान्वयन गर्न नसक्नु,

- ✓ राजनीति र प्रशासनबीचको कार्य क्षेत्रको सीमांकन हुन नसक्नु,

- ✓ प्रभावकारी अनुगमन, मूल्याङ्कन तथा सुपरिवेक्षण अभाव कायम रहनु,

- ✓ विगतबाट पाठ सिक्ने बानीको विकास हुन नसक्नु,

- ✓ कर्मचारीतन्त्रमा व्यावसायिकताको अभाव हुनु,

असल कार्य संस्कृति निर्माणका नविनतम् विधिहरू

- ✓ Digital era governance
- ✓ Citizen-Centric Administration
- ✓ Public Hearing y Social Audit
- ✓ Virtual and cross functional Organization
- ✓ People Bonus
- ✓ Team work/Group work
- ✓ One Door System
- ✓ Mobile Government
- ✓ Community Led Government
- ✓ One stop service, Citizen charter
- ✓ Hello Sarkar
- ✓ Flat structure and Functional Autonomy
- ✓ Lean and thin organization structure
- ✓ Mobile service, Desk system ,Bar Code, Mobile Apps Service,

- ✓ Networking/ Cross broader Organization ,
- ✓ Technical Audit And Performance evaluation ,
- ✓ White paper, Citizen advisory board ,
- ✓ Management audit, Ombudsman ,
- ✓ Crowd sourcing,
- ✓ Grievance handling,
- ✓ 360o evaluation system ,
- ✓ NPM, NPS, NPG ,
- ✓ Co-governance, Co-constructions, Co-productions,
- ✓ Policy Community, Community Cabinet, Citizen Jury, Citizen Shop, etc.

असल कार्य संस्कृति निर्माणका लागि गरिनु पर्ने कार्यहरू

- ✓ राजनीतिक कटिबद्धता र प्रशासनिक प्रतिवद्धता हुनु पर्ने,

- ✓ प्रभावकारी सन्तुलन र नियन्त्रणको व्यवस्था गर्ने,

- ✓ Transformative and ethical and green leadership को विकास गर्ने,

- ✓ सामाजिकीकरण प्रक्रियामा Ethics and Morality पाटोलाई बलियो बनाउने,

- ✓ निर्णय प्रक्रियालाई पारदर्शी र वस्तुनिष्ठ बनाउने,

- ✓ निर्णयका आधार र कारण खुलाउने र निश्चित समयमा नै गर्ने

- ✓ Talent Management and Creating diversity dividend,

- ✓ अनुगमन र मूल्याङ्कन प्रणालीलाई व्यवाहारिक तथ्य र तथ्याङ्कमा आधारित बनाउने,

- ✓ Whistle blower's Protection Act बनाई कार्यान्वयन गर्ने,

- ✓ Digital Culture को विकासमा जोड दिने,

- ✓ कार्य सम्पादनमा आधारित मूल्याङ्कन प्रणाली लागु गर्ने,

- ✓ Work life balance व्यवस्थापन गर्ने,

- ✓ सार्वजनिक प्रशासनलाई राजनीतिक प्रभावबाट टाढा राख्ने,

- ✓ सार्वजनिक प्रशासनसँग आवद्ध कर्मचारीहरूलाई Performance Contract गराउने र उनीहरूले दिइएको Outcomes का आधारमा वृत्ति विकासका अवसरहरू सिर्जना गर्ने,

- ✓ Developing as a learning organization,

- ✓ अनुसन्धानमा आधारित खोजमूलक पत्रकारिताको विकास गर्ने,

- ✓ Spiritualism in public organizations,

- ✓ नागरिक समाजको सशक्तिकरण गरी दलिय आवद्धतामा कमि ल्याउने,

- ✓ सूचनाको हकको प्रचारप्रसार गरी व्यवाहारिक कार्यान्वयनमा जोड दिने,
- ✓ Gratitude culture को विकास गर्ने,
- ✓ स्पष्ट परिभाषित जिम्मेवारी दिने सोही अनुरुप कार्य संपादन मूल्याङ्कन गर्ने परिपाटिको विकास गर्ने,
- ✓ Round table decision making process,
- ✓ उत्तरदायित्वलाई कार्य सम्पादनसँग आवद्ध गर्ने,
- ✓ Due diligence audit,
- ✓ निर्णय, अनुगमन र मूल्याङ्कनमा सेवाग्राहीको संलग्नतामा जोड दिने,
- ✓ Revisiting the whole organizational structure,
- ✓ व्यवसायिक उत्तरदायित्वलाई संस्थागत गर्ने प्रणालीको विकास गर्ने,
- ✓ Ensuring Organizational equity and equality,
- ✓ प्रशासनिक जटिल कार्यविधि र परम्परागत संगठन समय सापेक्ष सुधार गर्ने,
- ✓ Enhance democratic Culture,
- ✓ सामाजिक मूल्यमान्यता र पेशागत आचारसंहिताको प्रभावकारी कार्यान्वयन र अनुगमन गर्ने, सार्वजनिक सुनुवाईमा प्रभावकारिता ल्याउने,
- ✓ Office manners and etiquettes को कुशल व्यवस्थापन गर्ने,
- ✓ Institutionalization of Innovation, creativity and collaborative culture,
- ✓ Value Reengineering of Public Organization, etc.

नेपालको सार्वजनिक प्रशासनमा सांगठनिक कार्यसंस्कृतिका प्रवृत्ति विश्लेषण

नेपालको सार्वजनिक प्रशासनमा संभवत सबै भन्दा उपेक्षित विषय नै सांगठनिक संस्कृति तथा कार्य वातावरण हो । कर्मचारी छनौटमा योग्यता प्रणाली संस्थागत भएको भएतापनि त्यस पश्चातका व्यवस्थाहरु व्यक्तिको तजविजी अधिकार र तदर्थवादमा आधारित रहेका छन्। लोकसेवा आयोगको प्रतिस्पर्धाबाट खारिएर तुलनात्मक रुपमा बजारका उत्कृष्ट र अब्बल युवाहरु जब पदस्थापन तथा कार्यसम्पादनको अवस्थामा आइपुग्दछन् तब उनीहरुको उत्साह, जोस र जागरले निराशालाई ग्रहण गर्न थाल्छ । कार्यसम्पादन तथा वृत्ति विकासका लगायत अवसरका हरेक चरणहरुमा निकै कममात्र कर्मचारिहरु सन्तुष्ट भइ अवकाश हुने गरेका छन् ।

कर्मचारीहरुको उच्च नेतृत्व देखि कार्यालय सहयोगीसम्म नै उच्चस्तरको निराशा, कुण्ठा, असन्तुष्टि, दोषारोपण, स्वार्थ, उच्चताभाष वा लघुताभाष, अपारदर्शिता, उचाल्ने पछार्ने, बजार्ने, थर्काउने लगायतका प्रवृत्तिहरु स्पष्टसँग अनुभूत गर्न सकिन्छ । नातावाद, नेतावाद, कृपावाद लगायत आग्रह र पुर्वाग्रहले सार्वजनिक प्रशासनमा जरा गाडेको छ । सार्वजनिक व्यक्तिले संस्थालाई दोहनको स्रोतको रुपमा लिने गरेका छन् ।

निष्कर्ष :

समग्र शासकिय प्रणालीमा गुणात्मक र परिमाणात्मक परिवर्तन ल्याउन सार्वजनिक निकायका हरेक काममा आम नागरिक र संचार जगतको सहज र सरल पहुँच बनाई पारदर्शी रुपमा राज्य संचालन गर्नलाई सार्वजनिक निकायमा असल कार्य संस्कृतिको आवश्यकता पर्दछ । नागरिकमैत्री शासन बनाई आफुले गरेका काम कारबाहीका सम्वन्धमा स्पष्ट रुपमा माथिल्लो निकाय र कर तिर्ने जनतालाई सुसूचित गराउने र पारदर्शिता वृद्धि गरी समग्र सुशासनलाई बलियो बनाउने मूल खम्बाको रुपमा संगठनात्मक कार्य संस्कृतिलाई लिइन्छ । सार्वजनिक पदाधिकारीहरु जनताका सेवक, सहयोगी वा प्रतिनिधि हुन र उनीहरुमा असल कार्य संस्कृत निर्माणमा Ethical infrastructure बनाउनु पर्ने आवश्यकता देखिन्छ । यसले सार्वजनिक निकायमा सेवाको पारदर्शिता अभिबृद्धिका साथै प्रभावकारितालाई सुनिश्चित गर्दछ । सार्वजनिक निकायमा बस्नेहरुले आफ्नो अधिकार र कर्तव्यको मर्यादितरुपमा पालना गरी न्याय र नैतिकतामा आधारित स्वस्थ र समतामूलक समाज निर्माण गर्ने कार्यमा कार्य संस्कृतको अहम् महत्व छ । लोकतान्त्रिक शासन व्यवस्थालाई बलियो बनाउनका लागि सार्वजनिक निकायका पदाधिकारीहरुले साधन स्रोतको दक्ष, प्रभावकारी र मितव्ययी तरिकाले उपयोग गरे नगरेको सम्वन्धमा आम नागरिकलाई जानकारी दिनु पर्दछ । सुशासन, भ्रष्टाचार नियन्त्रण, संस्थागत दक्षता र नागरिकहरुको माग बमोजिम सेवा उत्पादन गर्न सक्ने गतिशिल प्रशासन संयन्त्रको मूल मुहान सांगठनिक कार्यसंस्कृतिसँगै भेटिन्छ ।

सन्दर्भ सामाग्रीहरुः

कानुन किताब व्यवस्था समिति, नेपालको संविधान, २०७२, बबरमहल, काठमाडौं ।

प्रशासन सुधार सुभाव समितिको प्रतिवेदज, २०७०

सोपान मासिकका विभिन्न अंकहरु

डा. भट्ट भीमदेव, सार्वजनिक प्रशासनका आधारभूत सिद्धान्त

राजन खनाल, सार्वजनिक व्यवस्थापनका सामयिक बहस, दोस्रो परिमार्जित संस्करण, सोपान मासिक, डिल्ली बजार, काठमाण्डौं

राष्ट्रसेवक दर्पण, २०७१

विष्णु सुवेदी, प्रशासन, व्यवस्थापन, समावेशी लोकतन्त्रका नविन आयामहरु, पैरवी प्रकासन, पुतलीसडक, काठमाण्डौं

दुण्डीप्रसाद निरौला, शासन सञ्चालनका नवीन मान्यताहरु, २०७६ सोपान मासिक, डिल्ली बजार, काठमाण्डौं

दुण्डीप्रसाद निरौला, राज्य कौशलताका आधारभूत पक्षहरु, २०७६ सोपान मासिक, डिल्ली बजार, काठमाण्डा

पराग, नेपाल राष्ट्रिय कर्मचारी संगठन, २०७८

In—Flight Connectivity

Bishal Paudel
(Officer, CAAN)

When we think of flying, the first thing that comes into our mind is Air Hostess reminding us to switch off our cell phones or at least keeping them in flight mode. However, this generation of people like us, we are more into the staying connected kind. To put it in a more clear way, we like being online all the time. No matter where, no matter how. We like being addicted and connected to Social Network all day long. Apart from us, there are other people in the flight that might be undergoing a business deal, someone who needs to attend an online meeting, someone who needs to forward an important email, someone who needs to be connected and many more – not only for browsing, surfing, posting or tweeting but also for important tasks like meeting, business deals or so. Hence, being connected in-flight is no longer a luxury, it's a requirement. Not only it provides an enhanced travel experience, it also strengthens the airlines brand.

The initiator for in-flight connectivity industry was the aircraft manufacturer Boeing. Connexion by Boeing launched in 2000-2001 was designed to provide in-flight broadband service to commercial airlines. Eventually, Boeing built partnerships with United Airlines, Delta, and American. However, by 2006, Boeing closed its Connexion operation citing technology, weight, and cost issues as making the service unfeasible at the time. The Connexion hardware that needed to be installed on an aircraft, for example, weighed nearly 1,000 pounds (450 kg), which added more "drag" and weight than was tolerable for the airlines. No wonder it phased out.

Once Connexion by Boeing was shut down, several new providers emerged to deliver in-flight broadband to airlines—notably Row 44, OnAir and AeroMobile (who offer satellite-based solutions), and Aircell (which offers air-to-ground connectivity via a cellular signal).

Wi-Fi in Flight:

Provided either through a satellite network or an air-to-ground network, in-cabin Wi-Fi systems are part of several airlines now. Notably the Airbus A380 aircraft allows data communication via satellite system that allows passengers to connect to live Internet from the individual IFE units or their laptops via the in-flight Wi-Fi access.

When Boeing cancelled Connexion in 2006, hopes of inflight internet being a part of next-gen aircrafts was a raging concern. However, with each year passing by, internet access became a part of Airbuses

and Dreamliners.

Mobile Phones:

It's a general rule that using a mobile phone in flight is a straight NO. Either we have to switch it off or at least keep it in flight mode. But with advancement of technology, some carriers now allow use of mobile phones during flight. Emirates became the first airline to allow mobile phones to be used during flight. Using the systems supplied by telecom company AeroMobile, Emirates launched the service commercially on 20 March 2008. Installed first on an Airbus A340-300, AeroMobile is presently operating across the entire Emirates fleet of Boeing 777s and Airbus A380s.

Likewise, OnAir offers inflight mobile connectivity to a range of airlines through its GSM network. The GSM network connects to the ground infrastructure via an Inmarsat SwiftBroadband satellite which provides consistent global coverage.

How is it going?

Let's see some examples over here. Collins Airspace has already deliver the world's first global high-speed aviation broadband service. They offer flexible, cost-effective connectivity solutions, easily tailored to both airline and passenger needs. Such feature allows passengers to stream content to their personal devices, surf the internet, send & receive email, use social networking and messaging on their devices.

Back in 2019, Norwegian Air Shuttle or simply Norwegian launched gate-to-gate Wi-Fi connectivity which gives passengers access to the airline's Wi-Fi network as soon as they step to board on the aircraft. Customers travelling on any route across Norwegian's global network on a Wi-Fi enabled aircraft can stay connected for the entire duration of the flight from pushback to arrival at the gate. Even way before that, in 2011, they launched free Wi-Fi on board.

Delta currently offers Wi-Fi on nearly all flights across its domestic and international networks and has installed high-speed 2Ku on 60% of mainline aircraft.

Air Senegal has selected SITAONAIR

to deploy high-speed inflight connectivity (IFC) on the carrier's new A330neo aircraft – making Air Senegal the first airline on the African continent to activate GX Aviation passenger connectivity onboard.

In-Flight Connectivity in Asia-Pacific Region:

With the increase in number of aircrafts well equipped with in-flight connectivity, it has become a trend that has expanded over various regions given the rapid growth of onboard Wi-Fi across Asia.

According to a report published by Valour Consultancy, the number of connected aircraft in the Asia-Pacific region will rise to more than 5,000 in 2025 from just 333 in 2015, with much of this growth coming from airlines on the Asian continent. This prediction has been boosted by the fact how airlines from Middle East to the Far East have been investing upon in-flight connectivity.

Back in September 2017, AirAsia contracted for the GX Aviation high-speed broadband service that will cover more than 120 aircrafts. The service commenced from the first half of 2018. Singapore Airlines has already equipped B777-300ER with a latest-generation in-flight broadband service that will be installed in other aircrafts in its fleet as well. Qatar Airways already has high-speed connectivity whereas Saudia has plans to enhance its in-flight Wi-Fi products.

Our neighbor China is proving to be a market of significant interest to the in-flight connectivity suppliers. One of them is the Panasonic Avionics, which in recent years has worked with China Telecom Satellite to expand connectivity services over the country. Trials of onboard Wi-Fi connectivity has been already tried upon China Eastern Airlines, Air China, China Southern Airlines and Hainan Airlines.

Another neighbor India is also on the list of countries providing in-flight connectivity. Vistara became the first Indian carrier to offer in-flight connectivity. Although as an introductory offer, Vistara offered the service onboard international flights between Delhi and London operated by its Boeing 787-9

Dreamliner aircraft.

In India, Reliance Jio Infocomm Limited aka Jio, has already introduced Pre on Post Inflight IR Pack that are available on a per SIM card, per day, per applicable aircraft roaming network basis and can be used to send/receive emails, text or browse the internet while in-flight. The entitlements under the IFC packs can be used only during the flight, as permitted by the Airlines and the Pilot in command.

Back in 2010, Singapore Airlines was the hot cake with its announcement of a planned fleet-wide Wi-Fi rollout. So we can say Wi-Fi is not entirely new to the region. From 35000 feet, the drastic change in quality and improvement of in-flight connectivity is now a real life experience, which is expected to increase with time.

Features for In-Flight Connectivity:

- Internet Packages for Passengers (Data Packs, Time Limited, Parameters Based, etc.)
- High Performance Capacity Network
- Streaming Medias
- Connection between Cabin Crew and Passengers
- Customized Ad Platforms
- Multiple devices Connectivity within a flight

Concerns for In-Flight Connectivity:

With increasing demand for in-flight connectivity, the challenge of being under network breach is higher in air.

- A well-defined infrastructure is needed for providing in-flight service. The security measures for protection against malicious attack while being in the air needs to be well up to date and quite complex to be tampered with.
- Separation of Network Connectivity for both Passengers and Crew Members could be one thing. A common network could be a risky approach as some potential attacker could breach the network and interfere in the

communication between crew members and ground/tower control.

- To provide data services and proper bandwidth connectivity without compromising aircraft security and safety is a big challenge. Providing such service with protection may be costly. A cost-effective method is must.

- Instead of implementing in-flight connectivity as soon as it is operational, plenty of testing should be done. Testing should cover many aspects of security vulnerabilities such as confidentiality, authentication, and authorization.

Apart from that, connectivity itself outside the flight has been under concern. The reason we are continuously told to switch off or keep mobile in flight mode is simply a measure to prevent some interference between a flight communication and other signals generated from other external network systems. Nepal itself is in the phase of implementing 5g. Here is something I would like to share with.

Earlier in December, Aviation groups and the Federal Aviation Administration flagged concerns about interference with aircraft altimeters. The wireless trade group says the upgrade would not interfere with those altimeters, noting other countries have rolled out 5G without issues. The Federal Aviation Administration had raised concerns that the 5G service could interfere with aircraft radio altimeters. Earlier on December 2021, FAA issued an order that could prohibit pilots from using radio altimeters to land when visibility is low.

The above scenario is one example of how concerned Airlines are with providing in-flight connectivity. However, it should be noted and kept in mind that no one is willing to risk the safety of passengers and aircraft. For safety concerns, there should be rules & regulations laid out by CAAN which will act as a foundation for establishing in-flight connectivity in Nepalese air carriers. CAAN, Airlines and ISPs need to work together to find out any risks involved with providing in-flight connectivity. Soon enough with equal cooperation and collaboration we will be able to provide connectivity within the flight.

To Conclude:

The news of being a part of connected flight is not new. Since two decades, Wi-Fi and connectivity have become a part of in-flight service. This may be new for a country like ours where we have not been able to fully enjoy the privileges that could come from within an in-flight service. Just like the above mentioned examples and current scenarios, Nepalese Airlines can also coordinate with Nepal Telecom, Ncell or other ISPs for providing inflight connectivity. What we need is a good infrastructure for dispersing the required range of connectivity for the airlines. There's still a long way to go when it comes to the quality of Wi-Fi offered in the sky. We already are experimenting with 5g networks and other wide range of networking. Hopefully the day is not far when we will be able to go live from within the flight.

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गौरी ढकाल
अधिकृत
नेपाल नागरिक उड्डयन प्राधिकरण

नागरिक उड्डयन प्रशिक्षण प्रतिष्ठानको

OPAC र ई - पुस्तकालय:
एक परीचय

"A Person Who Graduated Yesterday, Stops Learning Today, Will Be Uneducated Tomorrow."

– Annonymous

परिचय

पुस्तकालय शब्द 'पुस्तक' र 'आलय' मिलेर बनेको छ । आलय भन्नाले पुस्तक राख्ने ठाउँ, कोठा वा घर भन्ने हुन्छ । सामान्यतया पुस्तक, पत्रपत्रिका, रिपोर्ट, प्रतिवेदन, अडियो-भिडियो, सी.डी लगायत पछिल्लो समयमा विज्ञान प्रविधिको प्रयोगमा मानव जातिले हासिल गरेका सफलतासँगै विद्युतीय माध्ययमा उपलब्ध ज्ञान, सुचना र जानकारीमुलक सामाग्रीहरुको संग्रह गरिने घरलाई पुस्तकालय भनिन्छ । यसरी पुस्तकालयलाई पुस्तक राख्ने घरको रुपमा मात्र हेरियो भने अवश्य पनि पुस्तकालयप्रति अन्याय हुन्छ ।

सुचना तथा प्रविधिको विकासले गर्दा आधुनिक पुस्तकालयहरु एउटा पर्खालभित्र सिमित नरही भुमण्डलीकरण भइसकेको छ । मानव सभ्यताको विकास क्रममा मानिसहरुले सृजना गरेका ज्ञान सामाग्रीहरुको संकलन र संरक्षण गरिएको स्थानलाई पुस्तकालय भन्ने मान्यता आजको सन्दर्भमा संकुचन भैसकेको छ । त्यसैले पुस्तकालय एउटा खुल्ला विश्वविद्यालय हो, सुचना र ज्ञान सामग्रीको व्यवस्थित भण्डारण पनि हो ।

पुस्तकालयको मुख्य कार्य भनेको माग र आवश्यकता अनुसारका विभिन्न सुचना तथा ज्ञान सामाग्रीहरुको छनौट, संकलन, प्रशोधन, व्यवस्थापन, भण्डारण, संरक्षण तथा सम्प्रेषण गरी पाठकलाई सही सुचना, सही रुपमा सही समयमा उपलब्ध गराउनु नै हो । सुचना र सञ्चार प्रविधिको विकासले पुस्तकालयको क्षेत्रमा पनि ज्यादै, ठुलो क्रान्ति नै ल्याएको छ, जसले गर्दा आज कम्प्युटरको एक क्लिकको भरमा आफुलाई चाहेको सुचना छिनभर मा प्राप्त गर्न सम्भव भएको छ । सुचना तथा सञ्चार प्रविधिको विकासले हरेक क्षण लाखौं लाख ज्ञान सामाग्रीहरूको श्रृजना भइरहेको अवस्थामा त्यस्ता ज्ञान सामाग्रीहरूको सही छनौट, सङ्कलन, व्यवस्थापन, प्रसारण गर्ने र भावी पुस्ताका लागि संरक्षण साथै संवर्धन गर्ने महत्वपुर्ण जिम्मेवारी पुस्तकालयको हुन्छ । मुख्य गरी ज्ञान सामाग्रीहरु उत्पादन गर्ने क्रममा जसरी परिवर्तन हुँदै आएको छ त्यस्तैगरी ज्ञान सामाग्रीहरुको संकलन र व्यवस्थापनको आधारमा पुस्तकालयको विकासक्रम पनि हुँदै गएको देखिन्छ । जस्तै प्राचिन मानव सभ्यताको माटाको खबटादेखि विस्तारै विकसित हुँदै म्यानुअल पुस्तकालय, हाइब्रिड पुस्तकालय, डिजिटल पुस्तकालय र ई - पुस्तकालय सम्म विकसित भएको देखिन्छ ।

पुस्तकालयको वर्गीकरण

राष्ट्रिय पुस्तकालय (National Library), सार्वजनिक पुस्तकालय (Public Library), शैक्षिक पुस्तकालय (Academic Library), विशिष्ट पुस्तकालय (Special Library) आदि जस्ता पुस्तकालयको वर्गीकरण गरिएको देखिन्छ । हाल डिजिटल (Digital) ज्ञान सामग्रीका रुपमा विभिन्न किसिमका पुस्तकालयको विकास भएको पाइन्छ । जसलाई निम्न बमोजिम वर्गीकरण गरिएको छ ।

१. म्यानुअल पुस्तकालय:

म्यानुअल पुस्तकालय भन्नाले कुँदिएका, कोरिएका, लेखिएका र छापिएका ज्ञान सामाग्रीहरुको छनोट, संकलन, व्यवस्थापन, प्रशासन, संरक्षण र संवर्धन गर्ने कार्यलाई बुभ्राउँदछ । यस्ता पुस्तकालयहरुको मुख्य उदेश्य ज्ञान सामग्रीहरुको संरक्षण गर्नँ हो ।

२. हाइब्रिड पुस्तकालय:

हाइब्रिडलाई अंग्रेजीमा, "Combination or Cross link of two or more types / formats." भनिन्छ । यस प्रकारका पुस्तकालयहरूमा छापिएका (printed) र नछापिएका (Non–printed) ज्ञान सामग्रीहरू रहेका हुन्छन्।

३. डिजिटल पुस्तकालय:

विद्युतीय ज्ञान सामाग्रीहरूमा संकलनगरिएका ज्ञान सामग्रीहरू) मात्र संकलन गर्ने र यो ज्ञान सामाग्रीहरुलाई पुस्तकालय तथा सुचना विज्ञानको नियमानुसार व्यवस्थित गरी निर्माण गरिएका पुस्तकालयलाई डिजिटल पुस्तकालय भनिन्छ। यस पुस्तकालयहरूमा छापिएका ज्ञान सामग्रीहरु सङ्कलन गरिदैन । त्यसैले यस्ता पुस्तकालयलाई कागजबिनाको पुस्तकालय (Paperless Library) पनि भनिन्छ ।

४. ई-पुस्तकालय:

विद्युतीय पुस्तकालयलाई छोटकरीमा ई-पुस्तकालय (E–Library) भनिन्छ । यदि कुनै पनि पुस्तकालयबाट सुचना सामाग्री (सिङ्गो पुस्तक पत्रिका र जर्नलका लेख रचना) कम्प्युटरका माध्यमले जुन सुकै ठाउँबाट डाउनलोड गरी अध्ययन गर्ने सुविधा प्राप्त गर्न सकिन्छ भने त्यस्ता पुस्तकालयलाई ई-लाइबेरी भनिन्छ । यो सुचना तथा सञ्चार प्रविधिको विकाससँगै विकास भएको पुस्तकालयको आधुनिक स्वरूप हो । यस किसिमको पुस्तकालयमा पाठकहरुले विद्युतीय ज्ञान सामाग्रीहरु विभिन्न माध्यमबाट (लेखक, शीर्षक, विषय, किबोड, प्रकाशक आदि) खोजी गर्दा पुर्ण पाठ (Full format) नै प्राप्त गर्न सक्दछन्।साथै पुस्तकालयहरुमा राखिएका ज्ञान सामाग्रीहरु इन्टर नेटका माध्यमबाट ज्ञान सामाग्रीहरु खोजी पुर्णअशं (Full Text) नै अध्ययन गर्न सकिन्छ । यसलाई Online Library (अनलाइन पुस्तकालय) पनि भनिन्छ । सबै websites ई-पुस्तकालय हुँदैन किन कि सबै websites हरुले चाहिएको ज्ञान सामाग्रीहरु खोजी गरी ई-पुस्तकालयमा जस्तो उपलब्ध गराउँदैनन्।तर ई-पुस्तकालयले खोजी गर्ने सुविधा साथै ज्ञान सामग्रीको उपलब्धताको सुनिश्चितता गराउँछ । वास्तवमा ई-पुस्तकालय सञ्चालन,

व्यवस्थापन साथै प्रयोग गर्न इन्टरनेटको आवश्यकता पर्दछ। ई-पुस्तकालयका दुई वटा मोडेलहरू रहेका छन् जुन निम्नानुसार छन्।

(१) अनलाइन मोडेल (Online Model)

Online Model ई पुस्तकालयको वास्तविक मोडेल हो। यस model मा ई-पुस्तकालय सञ्चालन, व्यवस्थापन र यथावधिक गर्न इण्टरनेटको आवश्यकता पर्दछ। यस्ता model को पुस्तकालयमा रहेको ज्ञान सामग्रीहरु प्रयोग गर्न, प्राप्त गर्न (Download) पनि क्षतभचलभत को आवश्यकता हुन्छ। नेपालमा यस्ता मोडेलका पुस्तकालय विशेष गरी पाठ्यक्रम विकास केन्द्र, साभ्रा शिक्षा इ-पार्टी नेपाल शैक्षिक जनशक्ति विकास केन्द्र, सामान्य प्रशासन मन्त्रालय, कृषि अनुसन्धान परिषद, बन अनुसन्धान, नेपाल स्वास्थ्य अनुसन्धान काउन्सिल, नेपाल नागरिक उड्डयन प्राधिकरण, प्रधान कार्यालय, नागरिक उड्डयन प्रशिक्षण प्रतिष्ठान, सानो ठिमी, आदिले सञ्चालनमा ल्याएका छन्।

(२) अफलाइन मोडेल (Offline Model)

यो model को ई-पुस्तकालय पुस्तकालयको परिभाषा भित्र पर्दैन। यो model भनेको Internet को सुविधा नभएका अवस्थामा पनि चलाउन सकिने ई-पुस्तकालयलाई बुभ्राउँदछ। यस्ता पुस्तकालयमा ज्ञान सामग्रीहरुको व्यवस्थापन, सञ्चालन गर्न, Internet को आवश्यकता हुँदैन साथै ज्ञान सामग्रीहरु प्रयोग गर्न, प्राप्त गर्न (Download) पनि Online Model मा जस्तो Internet को आवश्यकता पर्दैन यस्ता किसिमका ई-पुस्तकालयहरु Local computer मा नै राखिएको हुन्छ र खोज्ने (Search) साथै प्राप्त गर्ने (Download) sfd Local Computer बाट नै गरिन्छ। Offline Model मा भने e – library update गरेपछि मात्र उपलब्ध हुन्छन। साभ्रा शिक्षा इ-पार्टी नेपालले (OLE Nepal) दुवै किसिमका मोडेलहरू भएको ई-पुस्तकालय निर्माण गरेको छ।

नागरिक उड्डयन प्रशिक्षण प्रतिष्ठान पुस्तकालय

नेपाल नागरिक उड्डयन प्राधिकरण अन्तर्गत नेपालमा रहेका विमानस्थलहरुमा आवश्यक दक्ष प्राविधिक एवं प्रशासनिक जनशक्ति उत्पादन गर्ने उद्देश्यले गठन भएको नागरिक उड्डयन प्रशिक्षण प्रतिष्ठान एउटा महत्वपूर्ण निकाय हो। वि.सं. २०३१ मा नागरिक उड्डयन तालिम केन्द्रका रुपमा रहेको यस संस्थालाई पछि UNDP (United Nations Development Programme), ICAO (International Civil Aviation Organization), ITU (International Telecommunication), TU (Tribhuvan University) र नेपाल सरकारको सहयोगमा गठित यस संस्था वि.सं. २०३३ देखि सञ्चालित हुन पुग्यो। यस संस्थाको नामाकरण तत्कालीन हवाई विभाग नागरिक उड्डयन प्राधिकरणमा रुपान्तरण भएसँगै वि.सं. २०५५ साल पौष १६ गतेदेखि नागरिक उड्डयन प्रशिक्षण प्रतिष्ठान (Civil Aviation Academy) हुन पुग्यो।

ना. उ .प्र प्रतिष्ठानको स्थापनाकाल देखि नै पुस्तकालयको अवधारणा रहेता पनि यसको सहि रुपमा व्यवस्थापन हुन सकेको थिएन। पुस्तकालयलाई परम्परागत ढङ्गमा सञ्चालन गरिदै आएको पाइन्छ। पुस्तकालयलाई एउटा पुस्तक भण्डार गर्ने थलोको रुपमा विकास गरिएको देखिन्छ। त्यतीबेला देखि नै पुस्तकालयको अवधारणा भएता पनि वि.स २०७२ सालदेखि पुस्तकालय तथा सुचना विज्ञान विषयको अध्ययन गरेको जनशक्ति उत्पादन गरेपछि मात्र CAAले पुस्तकालय व्यवस्थापनमा वैज्ञानिक पद्धती अपनाउन थालेको देखिन्छ। जुनसुकै विषयको पनि आ-आफ्नो विषय विज्ञ रहेता पनि पुस्तकालय व्यवस्थापनलाई वैज्ञानिक तथा पुस्तकालय विज्ञानको नियमानुसार व्यवस्थापन संकलन, संबर्धन, संरक्षण तथा सम्प्रेषण गर्ने कार्यको सुरुवात भने २०७२ /०७३ देखि मात्र शुरु भएको पाइन्छ।

यस प्रतिष्ठानले दक्ष जनशक्ति प्राप्त गरे सँगसँगै पुस्तकालयमा संकलन भएका पाठ्यपुस्तकको व्यवस्थापन र ज्ञान सामग्रीहरुको संकलन गरी त्यस्ता ज्ञान सामग्रीहरुको व्यवस्थापन संरक्षण र संवर्धन गर्न एउटा छुट्टै पुस्तकालय इकाईको व्यवस्था गरिएको छ। साथै यस प्रतिष्ठानले आफ्नो

छुट्टै इ-पुस्तकालयको विकास विसं २०७५ सालदेखि गर्दै आइरहेको छ जहाँ यस प्रतिष्ठानले उत्पादन गरेका विभिन्न समयका रिपोर्ट तथा Annex हरु Digital सामग्रीका रूपमा समाविष्ट गरिएको छ।

यस प्रतिष्ठानमा रहेको पुस्तकालयको मुख्य उद्देश्य भनेको CAAले प्रकाशन गरेका सबै प्रकारका ज्ञान सामग्रीहरु लगायत विश्वमा प्रकाशन भएका नयाँ नयाँ विविध विधाका ज्ञान सामग्रीहरुको संकलन, व्यवस्थापन साथै संरक्षण एवंम संबर्धन गर्दै पुस्तकालय तथा सुचना सेवा उपलब्ध गराउनु रहेको छ।

OPAC (Online Public Access Catalogue) को व्यबस्था

हाल यस प्रतिष्ठानको पुस्तकालयमा लगभग 2000 को संख्यामा विविध विधाका ज्ञान सामग्रीहरू रहेका छन्। सङ्कलनहरुलाई क्रमिक रुपमा आवश्यकता र बजेट अनुसार बढाउने कार्य भइरहेको छ। यस पुस्तकालयमा संकलन भएका ज्ञान सामग्रीहरुलाई पुस्तकालय तथा सुचना विज्ञानका नियमानुसार अनलाइन डाटाबेस (Online Public Access Catalogue– OPAC) साथै अफलाइन डाटाबेस निर्माण गरी व्यवस्थापन गरिएको छ। OPAC भन्नाले Internetको सहयोगमा कुनै पुस्तकालयका ज्ञान सामग्रीहरु खोज्नका लागि बनाइएको Online पुस्तकालय सुचीकरण (Online Library Catalogue) हो, जसले पुस्तकालयमा नगई पुस्तकालयमा के के ज्ञान सामग्रीहरु (लेखक, शीर्षक, विषयअनुसार खोजी गर्दा) छन्, पुस्तकालयको कुन स्थानमा छन् सो देखाउने साधन हो।

यस प्रतिष्ठानले निर्माण गरेको OPAC(ओपेक) मा नागरिक उड्डयन प्रशिक्षण प्रतिष्ठानको पुस्तकालयमा के के ज्ञान सामग्रीहरू छन्, पुस्तकालयको कुन स्थानमा रहेका छन् विब्लियोग्राफी विस्तृतीकरण (Bibliographic Details) विश्वको जुनसुकै स्थानबाट Internet मार्फत प्राप्त गर्न सकिन्छ। साथै World Cat Discovery को सामान्य विशेषता यसमा प्रयोग गरिएको छ, World Cat Discovery भन्नाले आफ्नो पुस्तकालयमा भएका ज्ञान सामग्रीको विब्लियोग्राफी विस्तृतीकरण (Bibliographic Details) लगायत अन्य स्थानमा रहेका विविध ज्ञान सामग्रीहरुको विवरण र पुर्ण अंश (Full Text) उपलब्धताको जानकारी उपलब्ध गराउनु हो। यस प्रतिष्ठानको ओपेक (OPAC) बाट ज्ञान सामग्रीहरु खोजी गर्दा Bibliographic Details र Full Text को विवरण एक साथ उपलब्ध गराउँछ। यसको व्यवस्थापनका लागि PMB (Php MyBibli) र Resource Space दुई वटा निशुल्क उपलब्ध हुने पुस्तकालय तथा सुचना व्यवस्थापन सम्बन्धी Software प्रयोग गरिएको छ।

यस पुस्तकालयमा रहेको ज्ञान सामग्रीहरू खोज्नका लागि पुस्तकालयको Computer मा रहेको बिब्लियोग्राफी डाटाबेस (Bibliographic Database) बाट गरेको छ। साथै Internet का माध्यमबाट अनलाइन सुचीकरण (online Public Access Catalogue – OPAC) को व्यवस्था पनि वि.सं २०७५ देखि सुरु गरिसकेको छ। अनलाइन सुचीकरणबाट पुस्तकालयमा भएका ज्ञान सामग्रीहरु हामीले CAA को websites (https://academy.caanepal.gov.np) को URL कोगृहपृष्ठमा रहेको Library मेनुमा अष्िअप गरेपछि आएको Online पृष्ठ (OPAC) को Search Option बाट खोज्न सकिन्छ। यसपृष्ठमा लेखक, शीर्षक, विषयबाट पुस्तकालयमा रहेको ज्ञान सामग्रीहरू रहे नरहेको खोज्न सकिन्छ। यदि ज्ञान सामग्री रहेको भए त्यसको Bibliographic Detail देखिन्छ र सो Bibliographic Details मा दराजमा कहाँ रहेको ठेगाना call No (पुस्तकको ठाउँमा लेखिने नम्बर जस्तै 570 Rai–t,2011 जस्ता कुराहरु लेखिएको हुन्छ) उपलब्ध हुन्छ। सोहि Call no. अनुसार ज्ञान सामग्रीहरु हामीले दराजमा खोजी पढ्न सकिन्छ।

ई - पुस्तकालयको व्यबस्था

यस प्रतिष्ठानले स्थापनाकालदेखि नै पुस्तकालय तथा सुचना सेवा उपलब्धता गराउने उद्देश्यले पुस्तकालयको व्यवस्थापन गर्दै आएकामा वि.सं - २०७५ देखि सुचना तथा सञ्चार प्रविधिको प्रयोग गरी पुस्तकालय तथा सुचना विज्ञानको नियमानुसार ई-पुस्तकालयको व्यवस्थापन गरेको छ। यस ई-पुस्तकालयमा विशेषत ICAO ले प्रतिपादन गरेका १९ वटाAnnexes हरु

राखिएको छ । संस्थाको उद्देश्य अनुरूप यसलाई अरु आवश्यक Audio, Video तथा Aviation सँग Related DOC हरु पनि थपिदै लैजाने योजना रहेको छ । यसमा राखिएका सबै ज्ञान सामग्रीहरू पुर्ण रुपमा नि:शुल्क रूपमा प्रयोग गर्नँका साथै प्राप्त गर्न (Download) सकिन्छ । विशेषत यस ई -पुस्तकालयको एउटा प्रमुख विशेषता OPAC र ई-पुस्तकालयलाई एकै ठाउँमा समायोजन गरिएको छ । एक ठाउँमा समायोजनको अर्थ Online पुस्तकालयको Home Pageमा रहेको Search Option बाट शीर्षक, लेखक, विषय, प्रकाशक आदिबाट नै OPAC र ई - पुस्तकालयको सेवा प्राप्त गर्न सकिन्छ । त्यस्ता ज्ञान सामग्रीहरूको डिजिटल सामग्री बनाउने कार्य निरन्तर भैरहेको र चाडै नै त्यस्ता ज्ञान सामग्रीहरुलाई ई-पुस्तकालयको संकलनमा राख्दै जाने कार्य भइरहेको छ ।
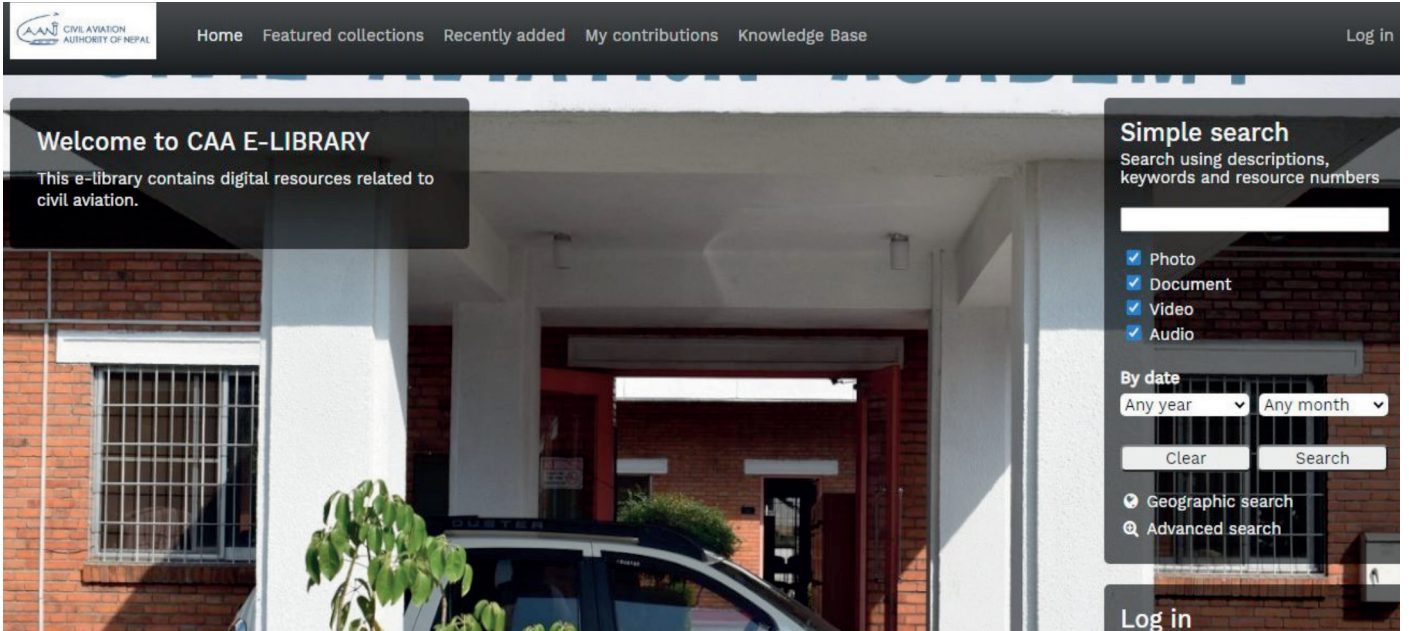
ज्ञान सामग्री खोज्ने विधि

ई-पुस्तकालय OPAC मा ज्ञान सामग्रीहरू खोज्न र प्राप्त गर्न पुस्तकालयको Website हुनुपर्दछ । सोही बमोजिम यस प्रतिष्ठानको ई-पुस्तकालयबाट ज्ञान सामग्रीहरू खोज्दा सर्व प्रथम CAAको Website https://academy.caanepal.gov.np/ मायिनष्ल गर्नँपर्दछ । यसपछि CAAको Home page मा रहेको Library भन्ने एउटा Menu मा Click

अनलाइन सुचीकरण (OPAC) पृष्ठ

खोजी गरी देखिएको Bibliographic Detail र Call no.

ई-पुस्तकालयको गृह पृष्ठ
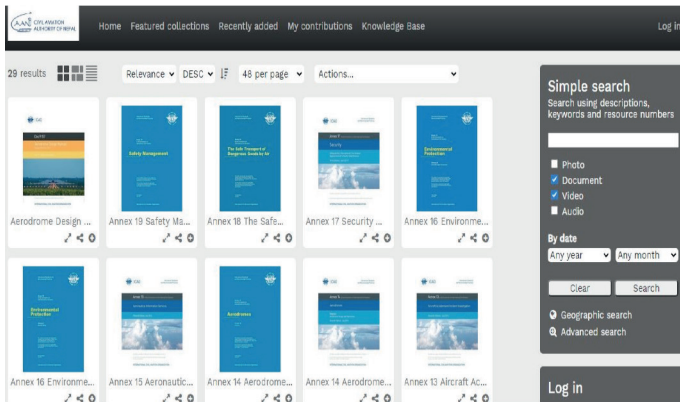
ई-पुस्तकालयमा ज्ञान सामग्री खोजि गर्दाको परिणाम

गरेपछि CAA को Online Catalogue पृष्ठ देखापर्छ, Online Catalogue पृष्ठमा रहेको विभिन्न मेनुहरुबाट विभिन्न प्रकारका ज्ञान सामग्रीहरू खोज्न सकिन्छ। साथै Online Catalogue पृष्ठमा रहेको Search Option मा हामीलाई आवश्यक परेका ज्ञान सामग्रीहरू लेखक, शीर्षक, विषय (by Authors, Titles, subjects, keywords etc आदिबाट खोजी गरी प्राप्त गर्न सकिन्छ। यस्तैगरी Online Catalogue पृष्ठमा E–Library मेनुमा क्लिक गरेपछि CAA को ई-पुस्तकालयको पृष्ठ देखापर्छ। अब ई-पुस्तकालय पृष्ठमा रहेको Search Options बाट आवश्यकता अनुसार (by Author titles, subjects or keywords) ज्ञान सामग्रीहरु खोजी नि:शुल्क प्राप्त गर्नुका साथै पढ्न   पनि सकिन्छ।

प्रयोगको अबस्था

जुनसुकै किसिमका पुस्तकालय भएता पनि यसको प्रमुख उद्देश्य भनेको सही सुचना सही समयमा, सही पाठकलाई सही स्वरुपमा उपलब्ध गराउनु हो। यसरी यस प्रतिष्ठानको वि.सं २०७५ देखि आधुनिक पुस्तकालयको उदेश्य अनुरूप अनलाइन सुचीकरण (OPAC) र प्रशिक्षण प्रतिष्ठानले विकास गरेका ज्ञान सामग्रीहरुलाई सही समयमा आवश्यक भएका पाठक समक्ष उपलब्ध गराउन ई-पुस्तकालयको व्यवस्था गरेको हो। यसको प्रयोगका साथै आवश्यकताको विषयमा चर्चा गर्दा यस प्रतिष्ठानबाट विकास गरिएका ज्ञान सामग्रीहरु प्राप्त गर्न छिटो छरितो साथै Internet भएको विश्वको जुनसुकै कुनाबाट पनि प्राप्त गर्न सजिलो भएको देखिन्छ। वि.सं २०७५ मा विकास गरिएको ऋब्ब को ई-पुस्तकालयको प्रयोग भने बिस्तारै हुन थालेको पाइन्छ र यस संस्थानका कर्मचारिहरुको पुस्तकालय प्रयोग प्रतिको अभिरुचि बढ्ने क्रममा नै देखिन्छ।यसकारण आधुनिक पुस्तकालय निर्माणमा के कस्ता जनशक्तिको आवश्यक पर्छ ,पुस्तकालय व्यवस्थापन भित्र के के काम पर्दछन

कसरी पुस्तकालयकर्मीले पाठकलाई सेवा दिने वेला सम्म के कस्ता प्राविधिक कार्य गरे मात्र पाठक समक्ष सही सुचना सम्प्रेषण गर्न सक्छ भन्ने कुरा बुभ्रन आवश्यक देखिन्छ ।

निश्कर्ष:

यस प्रतिष्ठानले स्थापना कालमा परम्परागत रूपमा पुस्तकालयको व्यवस्थापन गर्दै आएको देखिएता पनि विस्तारै सुचना प्रविधिको विकास सँगै दक्ष जनशक्ति उत्पादन गर्दै ई-पुस्तकालयको प्रयोगकर्ता बढाउन सम्पुर्ण पाठक कर्मचारीहरुले एक पटक आफ्नो संस्थाको Website Check गरी प्रतिष्ठानको ध्मदकष्तभ (https://academy.caanepal.gov.np) मा गएर Home Page को Library menu मा Click गरि आफ्नो संस्थामा के कस्ता ज्ञान सामग्रीहरु उपलब्ध रहेछन् भनी क्भबचअज गरी हेरेको खण्डमा पुस्तकालयले असल पाठक प्राप्त गरी आफ्नो भुमिका निभाउन सफल हुने देखिन्छ । Library Is Growing Organism यस पेशामा कहिल्यै पनि कामको अन्त्य हुँदैन । त्यसैले भनिन्छ "The Profession Of A Library Is Not The Bed Of Roses". आगामि समयमा पुस्तकालयको दिगोपनाका लागि ज्यादै महत्वपुर्ण कामहरू अभ्रै गर्नपर्ने देखिन्छ।

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