



Combined ASIOACG/10 and INSPIRE/6 Meeting, 2015

Madagascar, 17th to 19th November 2015

Agenda Item 2: ANSP updates

Runway Utilization Improvement Group-Delhi

Lessons in Developing Industry Best Practices through Improved Coordination
among Airport Operator, Airlines and ANSP
(Presented by Airports Authority of India)

SUMMARY

History of Runway Utilization Improvement Group (RUIG) in India can be traced back to 2011, when the first RUIG was formed at CSI Airport Mumbai to increase runway throughput coupled with improved efficiency of flight operations. The synergy of concerted efforts by ATC Mumbai, M/s Mumbai Airports International Limited (MIAL) and a team of dedicated Commanders from Indian Registered Airlines, led to increasing of throughput of runways and as a by product many other issues restricting the realization of untapped potential of ATC Mumbai also got addressed. On same lines Runway Utilization Improvement Group (RUIG) has been formulated at IGI Airport to maximize the throughput and to meet the challenges of continuously increasing demand of air traffic at Delhi. On 16th October 2016, IGI airport handled 1068 air traffic movements !

1. INTRODUCTION

1.1 History of Runway Utilization Improvement Group (RUIG) in India can be traced back to 2011, when the first RUIG was formed at CSI Airport Mumbai to increase runway throughput coupled with improved efficiency of flight operations. The synergy of concerted efforts by ATC Mumbai, M/s Mumbai Airports International Limited (MIAL) and a team of dedicated Commanders from Indian Registered Airlines, led to increasing of throughput of runways and as a by product many other issues restricting the realization of untapped potential of ATC Mumbai also got addressed. The following paragraphs describe about a similar attempt to repeat the success story at IGI Airport.

The growth of aviation industry in India can be easily assessed by the following two paragraphs that have appeared in websites of India Brand Equity Foundation and Business Standard recently:

“India’s civil aviation industry is on a high-growth trajectory. India aims to become the third-largest aviation market by 2020 and the largest by 2030. The Civil Aviation industry has ushered in a new era of expansion, driven by factors such as low-cost carriers (LCCs), modern airports, Foreign Direct Investment (FDI) in domestic airlines, advanced information technology (IT) interventions and growing emphasis on regional connectivity. India is the ninth-largest civil aviation market in the world, with a market size of around US\$ 16 billion.

“The world is focused on Indian aviation – from manufacturers, tourism boards, airlines and global businesses to individual travellers, shippers and businessmen. If we can find common purpose among all stakeholders in Indian aviation, a bright future is at hand,” said Mr. Tony Tyler, Director General and CEO, International Air Transport Association (IATA).”¹

“ Domestic air traffic is on an upswing, with passenger growth rates and seat occupancy hitting a five-year high. Discretionary travel has spiked over the past six months, as fares declined 15-20 per cent. Inbound traffic tourist arrivals grew 4.8 per cent between January and July, is spurring passenger growth in the domestic market.

In fact, according to the International Air Transport Association, air traffic in India has grown 19.4 per cent between January and June, which is the highest amongst top seven domestic airline markets in the world, outstripping China that grew 12.3 percent in the same period.

According to Directorate General of Civil Aviation, domestic airlines flew 45 million passengers between January and July, compared with 37.6 million in the corresponding period last year, growth of 21 per cent.”²

1.2 **Interdependency of efficiency of airlines, airport and ANSP:** - A few industry personnel may argue that the data mentioned above, pertains to passenger traffic growth only, but ultimately the increase in passenger traffic translates into aircraft movements. To support such an ambitious growth of civil aviation it is imperative that the economics of flight operations also remain healthy. The operational efficiency of flight operations in terms of fuel consumption, on time performance, branding also contribute to the financial health of any airlines. The operational efficiency of flights, inter alia, **do** depend on the performance of airport and ATM also. Significant delays to any flight may disturb the economy of operations of that particular flight.

1.3 Thus, it is observed that the overall efficiency of aviation industry is a product of complex interaction among interdependent variables linked to the each other, for example;

- i) efficient airport operation from city side through terminal, and in airside,
- ii) efficient airlines operations from marketing, ticketing to on time departure/arrival and through adoption of industry best practices by flight crew, cabin crew and ground support staff, and,
- iii) efficiency of ANSP – particularly the overall performance of air traffic management in airspace and airport.

1.4 The interdependency of airport, ANSP and airlines, is most visible in terms of runway capacities notified for airport. The total number of air traffic movements through a runway or runway system per hour (or even smaller units of time at very high traffic density runway/s) is loosely termed runway capacity or sometimes even airport capacity. The term ‘airport capacity’ used here has no bearing on passenger handling capacity of an airport.”

Speaking about the complex nature of interdependency among performance of airlines, airport and ANPS, for example at IGI Airport, if taxiway D-1, Z-6 or Z-7 is closed, - the runway occupancy time changes - and if runway occupancy time increases-- the spacing between successive arrival will have to be increased, and, for larger spacing between arrivals, the ATC will have to adopt strategies like speed control and/or longer vectors. At this stage

the variation in speeds maintained by arriving flights in intermediate and final approach segments, quite often becomes a matter of concern to the radar controller on channel. Instead of focusing on finer spacing needs, the controllers more often keeps on struggling with speed controlling techniques.

1.5 Interdependency of such nature affects overall airport capacity and efficiency of all stakeholders. So, to improve overall efficiency of airport, flight operations and ATM, a synergy in objectives and efforts is required for:

- Saving time and fuel of flights,
- Reducing carbon foot print of each flight,
- Serve the travelling public by improving On Time Performance (OTP) and thereby earn their confidence and business,
- Create new bench marks of performance in the aviation industry with respect to other similar airports, other competing airlines and other Air Navigation Service providers.

2. DISCUSSION

2.1 IGI Airport serving the National Capital Region, has emerged as a major hub for international/domestic flights. Recently FlightStats magazine ranked IGI Airport at number 6 in world Hub Airport On Time Performance (OTP) Ranking. Handling about 1000 movements per day is not without challenges, when the traffic is mostly concentrated during 18 hours 0530 IST to 2330 IST. Against an average of 980 movements per day, on 14th October 2015, IGI Airport handled 1044 movements through 3 runways.

2.2 There are challenges in handling such large number of flights and inefficiencies may creep into air traffic management system, if trends of increasing tolerances to errors, short cuts, half hearted read back or pure defiance to the regulatory provisions are not identified and arrested in time. The promulgated regulations, for example provisions of speed control remain in AIP India and over a period of time erosion/deviation/defiance in the compliance of such provisions start occurring. The aviation personnel also become complacent in observing strict compliance to such rules. Although occasional non-compliance may not lead to safety critical situations in aviation industry, but stray occurrences have potential to turn into unsafe situation, if trends are not detected in time. On another side, if not leading to safety critical situations, occasionally such deviations from rules result into increased workload for flight crew and/or controller in repeating the routine instructions say for example – “reduce speed to 180 kts”. It is just a question of developing good habits of complying with the rules and regulations that have direct impact on the capacity, efficiency, regularity and safety of aircraft operations and air traffic management.

2.3 When compared to other metro airports, Delhi airport is the biggest in size and assets, in terms of runways, taxiways, number of aprons, number and type of aircraft movements and probably variety of fleet mix also. It being located in national capital, different expectations are attached with it by – state VIPs, political leaders, government agencies whose operations can be listed under ‘state aircraft’, commercially important travellers, non schedule operators, air ambulance. The all requirement of all weather availability of Delhi Airport remains a challenge during fog season.

2.4 Bigger the airport, with restricted airspace all around, the need to operate all three runways simultaneously has its own complexities, as compared to single runway airport. The multifaceted complexity involved in maintaining at least two streams of arriving traffic flow, with built in interdependency among departures and arrivals is quite demanding on the part of

radar controllers. Sometimes, the availability of three runways and many aprons in itself become the reason for limiting the runway throughput. With only two runways, one for arrival and another for departures, and all other usual operating conditions being normal, the runway capacity, (*with the existing orientation of runways and layout of taxiways*) reaches peak at about 66 movements per hour. Airlines are expanding their fleets, demand for slots particularly during peak hours has increased, ATC Delhi was not satisfied with limits posed by load balancing procedures (which had become inefficient within 5 years of implementation), increasing delays to flights in air and on ground. Some band aid solution was needed urgently.

2.5 **Opportunity:-** At Delhi airport recently a situation of *‘inefficiency that crept in ATM system due to several external factors’* was encountered wherein the procedures for load balancing of traffic on all the runways was found to be inefficient. Due reconstruction taxiway C is closed for a long period. Runway 28 is available for departures only. Non-availability of runway 28 for landing provided an opportunity to explore solutions for optimizing load balancing for arriving traffic between runways 27 and 29. It was observed that flights with parking at Terminal 3, were hesitant to land on the farthest runway 27 and flights with parking stands near Terminal 1 were equally hesitant to land on runway 29. The flight crew had apprehension, whether they would be made to wait at holding points for crossing active runway 28?

2.6 **Establishing RUIG-Delhi:** - The opportunity provided by closure of runway 28 was exploited to start negotiation with all the Indian Registered Airlines. An initial message was sent to all the airlines that: *“Operational Control Authority” of Pilot-in-Command notwithstanding, the insistence to land on the runway preferred by the flight crew leads to delays to flights in air. The flights to be parked in apron 31, 32, 33 and Cargo apron, in particular are still more suitable candidates for landing on runway 27 in case there appears to be no delay/less delay in accepting runway 27 over runway 29. Since runway 28 is not available for landing till 12th November 2015, to reduce the airborne delays, the option for accepting a runway for landing which is away from ‘their’ apron, can be examined by the Operational Heads of Airlines on priority. By sticking to the “historical-runway-preferred-so-far”, flights are burning extra fuel, contributing to avoidable extra Carbon emission, and ultimately the end user of flights, the travelling public is delayed. The travelling public watching their flights in “Google Earth,” making orbits carries the impression that “Delhi Airport is a DELAY AIRPORT”. Therefore, to discuss the issue of landing on the runway closest to ‘their’ apron, and other related issues to improve efficiency of flights operations at Delhi Airport.”*

2.7 The meeting was held 7th September 2015, in the presence of regulator and the myth of *“historical-runway-preferred-so-far”, was broken after intense discussion.* Thus was born the Runway Utilization Improvement Group-Delhi (RUIG-Delhi). *! s they say REST IS HISTORY!*

2.8 ATC Delhi Team follows ICAO’s Structured Meeting like approach for the meetings of RUIG-Delhi. A six pronged strategy, as mentioned below, was adopted right from the beginning. There were :-

- An invite-email with clear purpose of convening the first meeting,
- Constitution and Administration of RUIG-Delhi
- Terms of Reference (TOR) for the formation of RUIG-Delhi,
- Agenda Items for the first meeting,
- List of issues that could be taken up by the Group in future meetings.
- Preparation of and circulating List of Action Items on the issues discussed by the Group.

Leveraging on the previous experience, Delhi Team has managed first two meetings of RUIG-Delhi effectively and results are encouraging. M/s Delhi International Airports Limited is partner in RUIG-Delhi. IATA is a standing invitee to the RUIG-Delhi meetings. DGCA has kindly nominated Joint DG to Chair the proceedings of RUIG-Delhi.

2.9 **Results:** - Generally, the fuel burnt during airborne holding is about 5 to 7 times more than the fuel burnt in taxiing on ground. Flight crew did realize that, but were reluctant to use distant runway. Once their basic apprehension that after landing arriving flights might have to wait at holding point for crossing the active runway 28 for long time was allayed, right from the next day after first meeting, the arriving flights, when tactically offered by controller, started accepting runway 'farthest from their stand'. A few flights, with parking stands in T3, even volunteered to land on runway 27. Suitable instructions were issued to the tower controllers for managing quick crossing of such flights across the active runway. Departing flights originating from T3 opted to depart from runway 28, instead of insisting runway 29. The on time performance of all flights at IGI Airport has improved. As confirmed by senior commanders during second meeting of RUIG-Delhi, they have saved time in accepting the runway offered by ATC Delhi.

2.10 It was agreed by Airlines and ATM Officers that whatever was agreed for implementation, it would be communicated to the line pilots and line controllers AND the same information will be shared between ATC and respective Airlines. This was done to achieve transparency of follow up actions. This action, in particular enhanced the mutual trust among participants.

2.11 The issue of speed control and runway occupancy time for arriving and departing flights were taken up primarily. The meeting decided to that revised preferred exit taxiways should be notified. There is appreciable change in the traffic handling scenario of terminal approach radar in Delhi.

2.12 The Watch Supervisory Officers were apprised about need for radar controller to achieve uniform spacing between arrivals for the arrivals-arrivals situations and arrival-departure-arrival situations. Even one mile saved from first five flights will lead to saving of five miles which can be accrued to the 6th flight.

2.13 **Future issues** :- Long taxi instructions by SMC, if get coupled with a incorrect read back, leads to repetitions of instructions and consumes at least twice the time on R/T from ATC as well as flight crew side. A group of young ATC Officers is working in close coordination of senior commanders to develop abbreviated Taxi Routing Designators called Standard Airport Taxi Routings (SATR) for IGI Airport. A core sub group comprising pilots, operations personnel from airlines, airside team of DIAL and ATCOs, has been constituted to develop the SATR. It is expected that after safety assessment, the SATR should reach the stage of promulgation in next few months. The RUIG-Delhi has identified several other operationally significant issues that need to be taken up on priority for further improving overall performance of ATM, airport and airlines operating through Delhi. Gradually, the issues restricting the full potential of SIDs/STARs, Fog-CDM, DA-CDM, Reduction of R/T load in various phases of flights – including CLD and enroute phase, High Intensity Runway Operations (HIRO) Procedures- adoption and adaptation Industry Best Practices, In Flight Fuel Management – declaration of Minimum Fuel and Mayday Fuel – discussion on interpretations by ATC and Flight Crew, review of Simultaneous Operations on Instrument Runways 27/28/29 and 09/10/11 – strategies to improve the operations, etc will be taken up for discussion.

2.14 **Conclusion:-** Recently in one of the workshops someone said that “if you walk alone you will go FAST. But if you walk together you will go FAR. The ATC Delhi team is a firm

believer in that “through talk discussion and negotiation among professionals there is no issue on earth that can not be addressed/resolved”. The efforts of RUIG-Delhi are being focused on important issues in step by step manner. RUIG-Delhi is taking baby steps but firm steps to enhance the efficiency of flight operations, airside-operations and Air Traffic Management. The success story scripted at Mumbai is being repeated at Delhi and **it is firmly believed that it can be repeated elsewhere also**, provided **AIRPORT OPERATOR, OPERATIONAL HEADS/SENIOR COMMANDERS of AIRLINES and ATCOs talk to each other and WALK TOGETHER TO GO FAAAAAR !!!**

References :-

1. <http://www.ibef.org/industry/indian-aviation.aspx> accessed on 15.10.2015
2. http://www.business-standard.com/article/companies/india-s-air-traffic-growth-ahead-of-others-in-hi-115082400005_1.html - accessed on 15.10.2015

3. **ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matters as appropriate.

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