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TRICHY INTERNATIONAL AIRPORT

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indiasales@skidata.com • www.skidata.com

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AIRPORTS INTERNATIONAL

Chief Editor

Daniel Ship
daniel@pdatradermedia.com

DGM - Publications

Binesh Viswanath
binesh@pdatradermedia.com

Advertisement Manager

Zindal Kumar
zindal@pdatradermedia.com

Corporate Sales Executive

Apratim Sarkar
apratim@pdatradermedia.com

Production Manager

Infant Vikas
vikas@pdatradermedia.com

Editor's Secretary

A.K.O Shamala
shamala@pdatradermedia.com

International Sales

Brodie Baxter
brodie.baxter@keypublishing.com

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A Division of Pradeep Deviah and Associates Pvt. Ltd.,
32/2 Spencer Road,
Frazer Town,
Bangalore, 560 005, India.
Tel.: +91-80-4250-5000
Fax: +91-80-2551-3078

Chairman

Pradeep Devaiah

Managing Director

Srinivasan S

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CONTENTS OCT/NOV 2012 VOL 5 NO 3

4 HEADLINE NEWS

6 INTERNATIONAL RISING STAR

Trichy International Airport, recently granted international status, also has plans to ramp up cargo operations in a big way.

12 THE SPUTTERING GROWTH OF TIRUCHIRAPPALLI AIRPORT

Several international carriers, including Air Asia, Sri Lankan and Tiger Airways, have taken advantage of Trichy's booming demand for international connectivity by opening new flights, while Indian carriers have largely overlooked the airport's potential. Habib Ubaidullah investigates.

16 IFATSEA GENERAL ASSEMBLY

The 42nd IFATSEA General Assembly was held at Hotel Ashok in New Delhi from 10th to 14th Sep, 2012.

18 ICAO CONFERENCE ON AVIATION SECURITY

At the recent Conference of the International Civil Aviation Organization, the seeds of a new plan for global civil aviation security were discussed.

20 A REGIONAL VIEW

Crisplant's Johan Rajczyk explains how the growth in passenger numbers and the latest security screening standards at regional airports are dictating the need for more high-speed, secure baggage handling.

22 A BRIGHTER FUTURE

Caroline Cook explores how LED airfield lighting can reduce costs in the Latin American region.

24 VIRGIN'S JFK CLUBHOUSE

Tom Allett sampled Virgin Atlantic's Clubhouse lounge at New York's JFK.

26 MAINTAINING MANCHESTER

Martyn Cartledge spent a night with the team resurfacing one of Manchester Airport's two runways.

30 MORE THAN A MAKEOVER

Tom Allett visited Phoenix Sky Harbor, Arizona, where multi-million dollar regeneration programmes are underlining the airport's recent success.

33 PRODUCTS & SERVICES

GVK enters into an Agreement for the Operation, Management and Development of Commercial Facilities at Denpasar International Airport, Bali, Indonesia

GVK holds the unique distinction of managing and operating two of India's busiest airports, the Chhatrapati Shivaji International Airport (CSIA) in Mumbai and the Bengaluru International Airport in Bangalore.

Adding another feather to its cap, GVK has signed an operations and management contract with The Airports Authority of Indonesia, (Angkasa Pura Airports AP1), the Indonesian government airport operator to manage the non-aeronautical commercial operations at Indonesia's second busiest Bali (Denpasar) International Airport.

The scope includes both the existing terminals and the new international terminal which is currently under construction and is expected to open in the third quarter of 2013 with a major make-over.

Over the years, Bali in Indonesia has emerged as a prime destination for tourist traffic from both Europe and Asia. However airport infrastructure and the revenue from non-aeronautical sources such as retail, F&B, duty free and other services has kept a slow pace with the exponential growth in passenger traffic. With immense tourism potential, the Government of Indonesia is focussed on developing and investing in new airport infrastructure across the country. Moreover, this prestigious project is expected to create a number of economic development opportunities in and around Bali and also foster greater



development of this region.

Speaking on the occasion, Dr. GVK Reddy, Chairman, GVK Power & Infrastructure Ltd. said: "This development is a true testament to GVK's established track record in the operation and management of India's leading airports in Mumbai and Bangalore. We are happy to strengthen our relationship with Indonesian government further with this association and we are committed to bring our expertise and experience in transforming the Denpasar International Airport in Bali as well."

Mr. G V Sanjay Reddy, Vice Chairman GVK Power & Infrastructure Ltd. said, "Retail, F & B and duty free are significant components of passenger experience at any airport. We are very excited by the opportunity to provide passengers at the Denpasar Airport in Bali a truly world-class shopping experience, across brands, product variety and price points. This is also in line with our stated endeavour to take this airport to international

standards and help Indonesia in realizing its growing potential as a key destination in the region."

GVK is also developing an international Greenfield airport in Yogyakarta in central Java in collaboration with the Government of Indonesia. This follows the MoU that GVK had signed in January 2011 with the Government of Indonesia. The MoU for the Yogyakarta airport is an agreement between Angkasa Pura Airports (Government of Indonesia owned Airport Operations and Management Company) and GVKPIL.

Back home, GVK has emerged as India's largest airport operator in the private sector. GVK's two airports in Mumbai and Bangalore together handled passenger traffic of about 44 million in the year 2011-12. With its capabilities, expertise and strong track record in the airports sector already well-established in India, GVK is slated to bring rapid improvements to operations and passenger services at Indonesian airports as well.

Declaration of Chaudhary Charan Singh Airport Lucknow, Lal Bahadur Shastri Airport Varanasi and Airports at Tiruchirappalli, Mangalore and Coimbatore as International Airports

On October 4th, the Union Cabinet approved the declaration of Chaudhary Charan Singh Airport, Lucknow; Lal Bahadur Shastri Airport, Varanasi; and airports at Tiruchirappalli, Mangalore and Coimbatore as international airports, to fulfil the demand of State Governments, and to offer improved international connectivity, wider choice of services at competitive cost to air travellers.

All these airports are capable of handling medium capacity long range type of aircrafts and are also equipped with facilities for night operations. Further, all works pertaining to upgradation of the airports to international Standards have been completed. The declaration is expected to provide impetus to domestic/international tourism and contribute to the economic development of the concerned regions.

Chaudhary Charan Singh Airport, Lucknow: The airport runway is suitable for operation of AB-300 type of aircraft in all weather conditions. The existing apron is suitable for parking 14 aircraft (2 B747, 1 B-767-400, 11 AB-321 type of aircraft), in Power

in/Push back configuration. Presently, Indian Airlines, Jetlite, Go Air, Indigo and Spice Jet airlines are operating domestic flights.

Lal Bahadur Shastri Airport, Varanasi: The airport has a runway suitable for operation of AB-320 type of aircraft in all weather conditions. The existing apron is suitable for parking 5 B767 and 4 AB-321 type of aircrafts. Presently, Air India, Jet Airways, Jetlite, Spice Jet and Kingfisher airlines are operating domestic services through this airport. Air India, Thai Airways and Cosmic Air are operating International flights through this airport.

Tiruchirappalli: The airport is suitable for operation of AB-320 / B-737-800 type of aircraft in all weather conditions. Night operations are permitted. Domestic and international flights are operating and the destinations covered are: Abu Dhabi, Chennai, Colombo, Dubai, Kuala Lumpur, Mumbai and Singapore. Airlines operating are: Air India Express, Air Asia, Kingfisher, Mihin Lanka, Sri Lankan and Tiger Airways. The airport is equipped with

navigational aids and visual aids.

Mangalore: It is suitable for AB-310 and B737-400 type of aircraft operations in all weather conditions. Night operations are permitted and domestic and international flights are operating and the destinations covered are: Dubai, Doha, Muscat, Kuwait, Calicut, Bangalore, Hyderabad, Chennai and Mumbai. Airlines operating are: Air India, Kingfisher, Spice Jet, Jet Airways and Air India Express. The runway is provided with instrument landing system (ILS).

Coimbatore: Coimbatore is presently handling limited international operations. The Airport is suitable for all weather operation of B-767-400 type of aircraft. Night landing operations are permitted at the airport. Destinations covered are: Bangalore, Chennai, Calicut, Delhi, Hyderabad, Mumbai, Sharjah and Singapore. Airline operators are: Air India, Air Arabia, Indigo, Jet Airways, Jetlite, Kingfisher, Silk Air and Spice Jet. The airport is equipped with navigational and visual aids including CAT-I Instrument Landing System (ILS).

International Rising Star

Tiruchirappalli Airport has been given international airport status. The airport in central Tamil Nadu has ten times more international than domestic traffic – moreover, international traffic has increased nearly fivefold in as many years.



The New Integrated Terminal Building at Trichy. (Vikas)

Tiruchirappalli (or Trichy) International Airport, located on the NH 210 Tiruchirappalli -Rameswaram highway, is 5km south of Trichy city centre in Tamil Nadu. An ISO 9001:2008 certified airport, Trichy has the distinction of having experienced significantly higher international than domestic

traffic ever since many decades. After the entry of Air Asia in 2007, Trichy Airport started becoming an LCC entry point, mostly serving the labour workforce in the South-East Asian and Gulf countries. As said by the Prime Minister of India, as a part of an infrastructure boost, Trichy Airport was given international

status on 4 October, 2012.

HISTORY OF TIRUCHIRAPPALLI AIRPORT

The airport was built by the British during World War II; damaged Air Force planes landed in the airport and were taken to be repaired at a workshop in

nearby Ponmalai. The airport was given permission for civilian operations after the war. In 1936, Tata flew its first mail flight to Colombo from the airport. Air Lanka started weekly flights to Colombo in the early 1980s, and Indian Airlines started its operations to Chennai and the Middle East in the mid 1990s.

The airport now handles flights to various international

destinations including Abu Dhabi, Colombo, Dubai, Kuala Lumpur and Singapore and the domestic destinations including Chennai and Mumbai.

During the 1930-40's, the airport was used as a race course. It had no buildings other than ATC and had a runway length of 600m. At that time, Tiruchirappalli Airport hosted Tata's Dakota flight, which started from Mumbai via

Bengaluru, re-fuelled at Trichy and went on to Colombo. Usually 5 to 20 people traveled on this flight from Tiruchirappalli. Air Ceylon (Sri Lankan Airlines) started operations in the late 1940s while Indian Airlines' service started before 1980, both connecting Trichy to Colombo and Jaffna in Sri Lanka.



Tiruchirappalli INTERNATIONAL AIRPORT

IATA: TRZ ICAO: VOTR

Airport Type	Public		
Owner	Ministry of Civil Aviation, India		
Operator	Airports Authority of India		
Districts Served	Tiruchirappalli, Karur, Pudukkottai, Thanjavur, Ariyalur, Perambalur, Salem, Namakkal, Erode, Thiruppur, Dindigul, Thiruvarur, Nagappattinam, Cuddalore, Madurai, Sivagankai, Ramanthapuram and Karaikkal		
Location	Tiruchirappalli, Tamil Nadu, India		
Elevation ASML	288 FT / 88 M		
Coordinates	10°45′55″N078°42′35″E 10.76528°N 78.70972°E		
Runways			
Direction	Length		Surface
	M	FT	
09/27	2,444	8,136	Asphalt
Facilities	ILS and Runway Edge Lights. Category 1 Approach Lights, PAPI, HIRL, AFL, SAPL		

A bird's eye view of the airport.





The terminal building is a glass and steel structure having modern passenger friendly facilities.

TERMINALS

The airport has two adjacent terminals. The New Integrated Terminal Building, which was inaugurated in 2009, is being used for both international and domestic operations. The old terminal has been converted into an International Cargo Complex. The 4,000 m² (43,000 sq ft) cargo complex was commissioned for operations on 21 November 2011.

PASSENGER TERMINAL

The New Integrated Terminal Building, built at a cost of ₹80 crore (US\$15.12 million) was inaugurated on 21 February 2009 and started its

operations from 1 June 2009. The two storey terminal has a total floor area of 11,700 m² (126,000 sq ft). The terminal is designed to handle 400 passengers at any given point of time. Some of the features of the new terminal include:

- 12 check-in counters
- 4 Customs counters (1 departure + 3 arrival)
- 16 Immigration counters (8 departure + 8 arrival)
- 2 conveyor belts (47 m (154 ft) each)
- 5 X-ray scanners for baggage (3 for registered baggage and 2 for hand baggage)
- 2 security check units

- 6 aircraft stands:
- 3 for code D aircraft
- 3 for code C aircraft

The terminal building is a glass and steel structure having modern passenger friendly facilities such as:

- Central air conditioning system
- Aerobridges
- Baggage conveyor system
- Escalators
- Public address system
- Flight Information Display System (FIDS)
- CCTV for surveillance
- Airline front offices
- More than 300 car parking spaces



A reasonable variety of retail, food and beverage is available in the airport.



The terminal has a peak hour capacity of 400 passengers (200 arriving and 200 departing).



Two baggage carousels are a recent addition to the airport.



The old terminal building has been converted into a cargo complex.

CARGO TERMINAL

The old terminal at the airport has been converted into an International Cargo Complex at a cost of ₹1 crore. The 4,000 m² (43,000 sq ft) cargo complex was commissioned for operations on 21 November 2011. The Central Board of Excise and Customs had earlier approved and notified the airport as an air cargo complex. The one-time holding capacity of the cargo terminal is 250 metric tonnes. The airport is an important gateway for foreign export from the central region of Tamil Nadu.



Cargo may be classified as valuable and perishable cargo. Tiruchirappalli and surrounding region is rich in both perishable and valuable cargo. Perishable cargo includes fruit, eggs, vegetables and valuable cargo includes textile products, as well as automobile and boiler components.

At present four airlines, Air Asia, Sri Lankan Airlines, Mihin Lanka and Tiger Airways are handling the cargo movements by their passenger aircraft. Sri Lankan Airlines has maintained its lead as the single largest exporter of cargo from Trichy. The carrier exported a total of 1,429 tonnes for the 2011-12 fiscal. As the cargo terminal is presently operating at far under its capacity, goods are typically cleared in just a few hours.

A cargo facilitation committee including airline operators, customs officers, IATA agents, exporters and importers has been formed and it meets every

second Thursday. This is in order to facilitate trade needs of districts such as Trichy, Karur, Namakkal, Madurai, Erode, Pudukottai, Thanjavur for various non-perishable export items, and also serve coastal areas like Nagapattinam, Karaikkal, and Ramanathapuram for marine products, as well as to boost the export of green plantain from the largest banana producing region and of textiles from Karur.

The airport has begun accepting bonded trucking cargo in an effort to facilitate export from central Tamil Nadu. Recently the airport exported 2.3 metric tonnes of leather goods to Vietnam's Hanoi via Air Asia.

LINE MAINTENANCE

Air Works has a line maintenance facility under CAAS (Singapore) and CASL (Sri Lanka) to perform and certify transit checks on Airbus A320 type aircraft. Air Works currently offers transit support

to Singapore based Tiger Airways, Srilankan Airlines and Mihin Lanka, handling over 110 flights a month.

Air India Express has an engineering stores complex for service and repairs of its aircraft. It would help quick turnaround of the aircraft. Repair works could also be carried out here. Initially four licensed engineers and eight technicians are posted to meet the service and repair requirements of the aircraft. The stores would also have adequate spares and equipment.

PILOT TRAINING

The airport is also home to a flying training academy, VKN Aviation Academy, promoted by the VKN Group, operating out of a 10,000 sq. ft. plot on the airfield with five glass cockpit equipped four seater Cessna 172 R aircraft. The academy provides training for obtaining two types of licence:

- Commercial Pilot License (CPL)
- Private Pilot License (PPL)



AIRLINES AND DESTINATIONS (INTERNATIONAL)

Airlines	International Destinations	Number of Services per Week
Air Asia (AK)	Kuala Lumpur	11*
Air India Express (IX)	Dubai	07
	Kuala Lumpur	04
	Singapore	07
Mihin Lanka (MJ)	Colombo	04
Sri Lankan Airlines (UL)	Colombo	14
Tiger Airways (TR)	Singapore	11

*(To be increased to 14 per week from December 2 2012 onwards)

AIRLINES AND DESTINATIONS (DOMESTIC)

Airlines	Domestic Destinations	Number of Services per Week
Air-India Express (IX)	Chennai	07
Jet Airways (9W)	Chennai	14



AERONAUTICAL EQUIPMENT

Trichy International Airport is equipped with Non-Directional Beacons (NDB), Doppler Very High Frequency Omnidirectional Range (DVOR), and Instrument Landing System (ILS) CAT-1 for Runway 27. Other equipment includes a modern Voice Communication System, a Digital Airport Terminal Information System (DATIS), Digital Voice Tape Recorders (DVTR), a Dedicated Satellite Communication Network (DSCN) and Remote Works Station (RWS) for Aeronautical Fixed Telecommunication Network (AFTN) messaging.

SECURITY AND SAFETY

Trichy International Airport has advanced security equipment including X-Ray Baggage Inspection (X-BIS), Explosive Trace Detection System (ETDS) and Closed Circuit Television (CCTV), Flight Information Display System (FIDS), Public Address (PA) system, as well as an Interactive Voice Response System (IVRS) for flight information.

Trichy has a new Fire Station of Category VIII Building with required infrastructure facilities (Watch Tower, First Aid Room, etc.) as per Fire Order No. 4 and with 8 CFT Garages which house 4 Crash Fire Tenders and 4 Ambulances.

AIRPORT DIRECTOR

Shri S. Dharmaraj, the Airport Director at Trichy International Airport is an Engineer in Electronics and Communication with MBA in Personnel Management. He joined the Airport Authority of India in 1994 as an Electronics Officer and has served at various airports. He was on attachment to Indian Space Research Organization (ISRO), Bangalore for the GAGAN (GPS Aided Geo Augmented Navigation) project.



The Sputtering Growth of Tiruchirappalli Airport

By Habeebullah Ubaidullah

Over the past five years, international passenger traffic ex Tiruchirappalli International Airport has increased almost five-fold. Several international carriers, including Air Asia, Sri Lankan and Tiger Airways, have taken advantage of Trichy's booming demand for international connectivity by opening new flights, while Indian carriers have largely overlooked the airport's potential. Habeebullah Ubaidullah investigates.

The Facts behind the Emerging Growth Scenario

Between 2006-07 and 2011-12, Trichy registered an increase of 6,25,266 passengers, almost equal to the growth at Hyderabad or Thiruvananthapuram airports, and rose from being the 13th to 10th busiest international airport in India. This has occurred despite several constraining factors:

- Trichy still has limited Gulf connectivity, with only Air India Express flying daily to Dubai from Trichy. Gulf carriers have a major influence on the Indian aviation industry; around 50% of international traffic depends on the Gulf routes.
- Except Sri Lankan, Trichy is only served by point-to-point (rather than hub) carriers.
- Trichy cannot accommodate wide bodied aircraft operations because of insufficient runway length (8,136").
- Only four international destinations are served by direct flights from Trichy: Colombo, Dubai, Kuala Lumpur and Singapore.

At present, TRZ is listed in India as the 10th busiest international airport with an average of 2200-2500 international passengers daily. An average of 700-800 passengers are travelling to Colombo daily; out of ten cities with direct flights to Colombo, Trichy is the second busiest (after Chennai). An average of 500-600 passengers are travelling from Trichy to Kuala Lumpur daily, again the second busiest after Chennai. Air Asia has announced

plans to increase the frequency of its Trichy-Kuala Lumpur flights from 11 to 14 per week beginning in December 2012, which could take Trichy to No.1 in this sector. An average of 600-700 passengers are travelling to Singapore per day, making Trichy the fourth busiest direct connection to Singapore after Chennai, Mumbai and Delhi. From this winter DGCA schedule onwards, Trichy-Dubai traffic is expected to have an average of 250-350 passengers per day.

What is driving the growth?

Located close to the center of Tamil Nadu, Trichy is the most easily accessed airport for about 40 million people. This region is home to many NRIs working in Gulf and South-East Asian

International passenger traffic ex Indian airports in FY 2011-12 and FY 2006-07

Rank No.	Airport Code	Runway Length (in feet)	No. of Passengers traveled in FY 2011-12	No. of Passengers traveled in FY 2006-07	Change in numbers	Growth in %	Rank Change	Growth Ratio
01	DEL	13,534	1,07,50,009	66,53,366	40,96,643	61.57	▲ +1	1.02
02	BOM	11,302	97,04,233	73,46,556	23,57,677	32.09	▼ -1	0.83
03	MAA	12,001	43,08,038	28,95,930	14,12,108	48.76	--	0.94
04	COK	11,155	25,86,658	14,28,632	11,58,026	81.06	--	1.14
05	BLR	13,123	23,53,821	12,73,932	10,79,889	84.77	--	1.17
06	CCJ	9,383	19,82,955	9,00,345	10,82,610	120.24	▲ +2	1.39
07	HYD	13,976	19,29,429	12,07,558	7,21,871	59.78	▼ -1	1.01
08	TRV	11,148	18,35,952	11,86,160	6,49,792	54.78	▼ -1	0.98
09	CCU	10,240	15,66,102	8,05,191	7,60,911	94.50	--	1.23
10	TRZ	8,136	7,85,844	1,60,578	6,25,266	389.38	▲ +3	3.09
11	AMD	11,831	7,44,946	4,26,439	3,18,507	74.69	--	1.10
12	GOI	11,345	5,78,256	4,03,357	1,74,899	43.36	--	0.91
13	ATQ	12,001	3,98,207	4,88,310	-90,103	-18.45	▼ -3	0.52
14	LKO	10,036	3,55,134	1,30,002	2,25,132	173.18	--	1.73
15	IXE*	8,038	2,64,622	--	--	--	--	--
16	JAI	9,177	2,32,649	1,95,711	36,938	18.87	▼ -2	0.75
17	Others		4,02,572	2,75,960	1,26,612	45.88	--	0.92
Total			4,07,96,403	2,57,78,027	1,50,376	58.26	--	--

Note: Others including Coimbatore, Pune, Nagpur, Bagdogra, Guwahati, Varanasi, Vishakapatnam and Gaya are the tiny contributors to the Indian international travel industry, which is less than 1% and less than 10,000 passengers per month. Also they have failed to keep their contribution to the Indian international travel industry. So we neglect these airports for statistical derivations.

* In IXE only international services commenced 2006-07 and stabilized in 2007-08 only. So it is not included in these statistics.

Tiruchirappalli Airport's growth between 2006-07 and 2011-12

Year	International			Domestic			Total		
	Passenger Flow	Change in %*	Net Change in %**	Passenger Flow	Change in %*	Net Change in %**	Passenger Flow	Change in %*	Net Change in %**
2006-07	1,60,578	--	--	54,366	--	--	2,14,944	--	--
2007-08	3,03,943	89.28	--	90,214	65.94	--	3,94,157	83.38	--
2008-09	3,77,725	24.27	--	88,171	-02.26	--	4,65,896	18.20	--
2009-10	5,94,087	57.28	--	98,312	11.50	--	6,92,399	48.62	--
2010-11	6,69,237	12.65	--	86,356	-12.16	--	7,55,593	09.13	--
2011-12	7,85,844	17.42	389.38	1,22,927	42.35	126.11	9,08,771	20.27	322.85

*Change in % refers the change in % compared the previous year

**Change in % refers the changes compared between the years 2006-07 to 2011-12

As per this data source TRZ has registered,

1. Nearly five times (489.38%) growth by international traffic during the periods
2. More than two times (226.11%) growth by domestic traffic during the periods
3. More than four times (422.85%) growth by total traffic during the periods

countries. Prior to 2007, these passengers were travelling via Chennai, Bangalore, Trivandrum or Cochin airports. When Air Asia started operating ex Trichy in 2007, international traffic from the airport nearly doubled within a year's time – a strong indication of the latent demand. Other airlines soon followed, each time leading to sharp increases in traffic.

How much untapped potential still remains?

Within the Asia Pacific region, to date only the Kuala Lumpur and Singapore sectors' potential has been revealed. The most probable excessive Gulf region potential is uncovered, with the exception of Dubai. The global Tamil diaspora is still unutilized by Trichy airport, in particular, more than a million Tamil people in Burma (Myanmar).

Other factors

Tiruchirappalli is an educational centre in India. Many Africans are currently studying in the region. Tamil Nadu has many UNESCO world heritage sites, pilgrimage centers of Hindu, Muslim and Christian religions, archaeological sites, sanctuaries and other tourist attractions. All these are easily accessible from Tiruchirappalli Airport.

Domestic Perspective

At present, Jet Airways operates ex Trichy with twice daily flights

to Chennai, with just 200 to 250 passengers per day. Air India Express also has seven flights per week to Chennai. However, their weekly Trichy-Mumbai service was curtailed despite having higher than average loads. Because of the absence of domestic services, excess transit time and lack of morning flights (even Jet Airways' existing flight time is not suitable), potential passengers are scattered mainly to Chennai; Karur and Namakkal district passengers are going to Coimbatore Airport; Pudukkottai, Dindugal, Namakkal and Salem passengers are travelling via Madurai and Bangalore airports.

Potential Growth Areas for Domestic Passengers

Delhi: Almost all the airports in India are connected with the national capital. A Trichy-Delhi service would attract many North India bound passengers if introduced.

Mumbai: Similarly, the country's commercial capital has plenty of passengers and is still uncovered and unutilized. Air India Express's successful weekly service was the best example.

Bangalore: Bangalore has Many Tamil migrants and a close connection with Trichy. The majority of Tamil software engineers in Bangalore are from the central districts of Tamil Nadu.

Kozhikode: A large population, particularly Muslims have

migrated from Malappuram district around Trichy to Kozhikode and **Mangalore**, another untapped source of potential passengers.

Kochi and Ernakulam: The congested Ernakulam-Mayiladuthurai Express (Tea Garden Express) is a clear example of how many passengers are wandering between Trichy and Kochi.

Thiruvananthapuram: The southern districts of Tamil Nadu and Thiruvananthapuram are too far from Trichy and these districts have surplus travelers. If air transport will be introduced definitely they will switch over because of their convenience. It is noteworthy that plenty of people from Kerala visit the Velankanni Shrine (a major pilgrim point for Christians) daily. Nearly two million are attracted to the annual nine-day Feast of the Nativity of the Blessed Virgin Mary there. Velankanni is 150km from Trichy.

Varanasi: As per the Hindu spiritual practice Kasi – Rameswaram yatra is an important pilgrimage. The heavily congested Varanasi-Rameswaram Express train demonstrates the potential of this route. Rameswaram is also around 150km from Trichy.

Strange but true

Trichy is the 10th busiest international airport in India, but its international identity is obtained only by the foreign carriers and not by the Indian carriers, particularly not by the national carrier Air India. Though it has surplus domestic and international potential, the Indian carriers have failed to take advantage.

Are they planned strategically? This is the time to redesign and rethink their strategies and policies.

About the Author

Habeeb Ubaidullah is a Trichy resident who has been associated with the aviation industry there for over eight years. He has an MBA in Airline & Airport Management from Anna University of Technology in Coimbatore. He is currently in the final stages of completing his PhD Thesis on Aviation Management, which includes complete Indian passenger data and data interpretation of both international and domestic passengers for the past decade.





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EXECUTIVE SUMMARY OF THE PROCEEDINGS OF 42ND IFATSEA GENERAL ASSEMBLY

IFATSEA (International Federation of Air Traffic Safety Electronics Associations) is the global body for the representation of ATSEPs (Air Traffic Safety Electronics Personnel) on professional matters. IFATSEA has more than 20,000 members from 60 countries worldwide and is recognised as representing the interests of ATSEPs by International bodies as International Civil Aviation organization (ICAO), International Labour Organization (ILO), EUROCAE, CANSO, etc.

CNS Officers' Guild of Airports Authority of India represents the ATSEPs of India and is an affiliate member of IFATSEA.

42nd IFATSEA General Assembly

The 42nd IFATSEA General Assembly, held at Hotel Ashok, New Delhi from 10th to 14th September 2012, was inaugurated by Mr. Ajit Singh, Hon'ble Minister of Civil Aviation in the august presence of Mr. Yaswant S. Bhawe, IAS, Chairman AERA, Mr. Arun Mishra, IAS, DGCA, Mr. V. Somasundaram, Member (ANS) and Mr. Daniel Boulet, President, IFATSEA.

Mr. Subit Kobiraj, General Secretary of CNS Officers' Guild in his welcome address said that this historical event will place a footprint for IFATSEA in India and will also mark the contribution of the ATSEPs of the Asia Pacific region on the global map. He also said that CNS Officers' Guild being a professional body would like to contribute and share their experiences, knowledge and expertise in the discussions and for any major decisions and changes in the developments and policy making for betterment in the air navigation services making Indian airspace safe and reliable.

In his inaugural address to the General Assembly, Hon'ble Minister of Civil Aviation emphasizing the need for focusing on maintenance aspects of CNS – ATM Systems, said that maintaining safety critical, real time



Shri. Ajit Singh, Honorable Minister of Civil Aviation, addressing the audience.

CNS-ATM systems at their optimum performance level is vital and that CNS Maintenance Engineers, who have been re-designated by ICAO as "Air Traffic Safety Electronics Personnel (ATSEP)" play a safety critical role. Underlining the challenges in maintaining CNS equipments and facilities, he said, that these are effectively overcome by CNS Maintenance Personnel by constantly updating their knowledge through training and innovations carried out at the "Specialized Maintenance Centers". He also said that, besides maintenance responsibilities and running training facilities, ATSEPs are also involved in installation of Navigational Aids and Instrument Landing Systems and in conducting routine and commissioning flight calibration of installed CNS facilities. Hon'ble Minister further added that these units enable value addition in maintenance aspects besides economic savings.

Approximately 200 delegates from 33 countries attended the 42nd IFATSEA General Assembly. The Inaugural function followed with the open session of the first day was attended by more than 400 Distinguished Dignitaries from Government departments, Regulatory bodies, Airports Authority of India, Aviation Industry, Vendors and Media. There were presentations and

discussions on the future generation technologies on India's GAGAN, USA's NEXTGEN, Europe's SESAR and Japan's CARATS. There were also presentations on the various CNS-ATM systems in use across the globe by companies like Raytheon, Indra, Harris, HITT, SAAB and Fuitsu.

Mr. Steve Bradford, Chief Scientist for Architecture and NextGen Development (FAA) – USA spoke on "NextGen" Update and Mr. Carlos from Portugal on "SESARJU" update

The other important issues that were on the Agenda of the Assembly on ATSEP profession were:

- ATSEP a new role for Tomorrow
- SAFETY and SECURITY at the heart of our job
- Stress, Fatigue and Health Hazards in the working environment of ATSEPs
- FAA Fatigue Study
- Update on ICAO Next Generation Aviation Professionals (NGAP)
- ICAO - IFATSEA Draft for ATSEP Competencies for ICAO PANS-TRG Doc 9868
- EASA - Specific Requirements for ATM/ANS providers regarding personnel training and competence assessment requirements
- European Aviation Safety Agency (EASA) Draft Rule

COMMUNIQUE OF THE ICAO HIGH-LEVEL CONFERENCE ON AVIATION SECURITY



The High-level Conference on Aviation Security, convened by the International Civil Aviation Organization (ICAO) at its Headquarters in Montréal, was held from 12 to 14 September 2012. The Conference was attended by over 700 participants representing 132 Member States, and 23 international and regional organizations and industry associations. Acknowledging the critical role of civil aviation in global economic development and the various security challenges which the international air transport sector faces today, the Conference highlighted:

- a) that credible threats exist and need to be addressed effectively to protect civil aviation;
- b) that terrorism does not respect borders and if not mitigated, can cause the loss of life and injury to persons, seriously disrupt international air transport

operations, result in significant damage to civil aviation equipment and facilities, and undermine public confidence in air transport;

- c) Resolution A37-17, the Declaration on Aviation Security, and the ICAO Comprehensive Aviation Security Strategy (ICASS), which further enhance aviation security for the safeguarding of international civil aviation against acts of unlawful interference;
- d) the Joint Statements adopted at ICAO Regional Aviation Security Conferences held in Bahrain, India, Malaysia, Russian Federation, Senegal and Venezuela;
- e) the importance of the cooperation and coordination between ICAO, its Member States, international and regional organizations, industry and all

other stakeholders to achieve a sustainable level of aviation security;

- f) that all ICAO Member States are committed to compliance with the aviation security Standards and Recommended Practices in ICAO Annexes 17 — Security and 9 — Facilitation to the Convention on International Civil Aviation, and other aviation security conventions; and
- g) that a balance should be maintained between the needs of security, facilitation, efficiency and effectiveness.

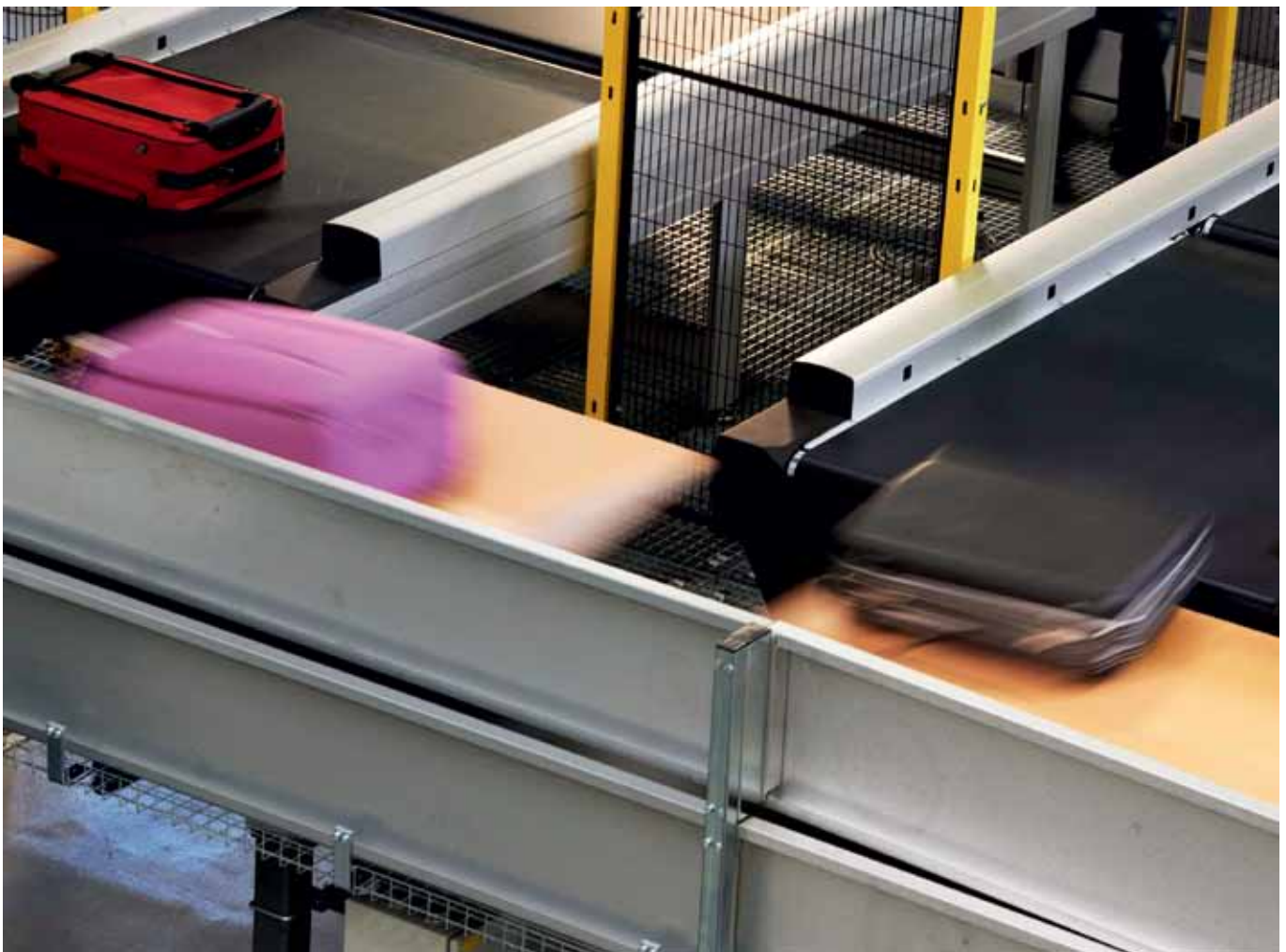
Mindful of these points, the Conference:

- 1) encouraged ICAO Member States and industry stakeholders to adopt a risk-based approach to aviation security;
- 2) welcomed the initiative taken

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| <p>by ICAO to establish a Risk Context Statement which provides valuable information to its Member States and offers a robust methodology for States to use in further developing their own national risk assessments, should they choose to use this methodology;</p> <p>3) requested ICAO and its Member States to consider developing a more outcomes-based approach when regulating aviation security, as this would help them better define the security objectives of their measures;</p> <p>4) strongly encouraged ICAO to expedite the adoption of new security Standards and Recommended Practices to mitigate the risk to air cargo and mail, based on the implementation of secure supply chain systems, common baseline security measures for both passenger and all-cargo aircraft, and enhanced security measures for cargo and mail considered to be high risk;</p> <p>5) requested ICAO, the World Customs Organization, the Universal Postal Union and industry stakeholders to identify further synergies between aviation security, Customs and postal security requirements, with the objective of facilitating trade while assuring the security of air cargo and mail;</p> <p>6) acknowledged that threats posed by insiders are real, and therefore urged ICAO Member States to implement effective mitigation measures, and to adopt a revised ICAO Standard on the screening of persons other than passengers as soon as practicable;</p> <p>7) acknowledged the need for ICAO and its Member States to address the continued threat to international civil aviation posed by liquid, aerosol and gel (LAG) explosives, including the implementation of technological solutions needed to gradually lift restrictions on the carriage of</p> | <p>LAGs in cabin baggage;</p> <p>8) requested ICAO Member States to treat flights arriving from States where LAGs screening is applied in the same way as flights from States where LAGs restrictions are applied;</p> <p>9) supported the transition of the ICAO Universal Security Audit Programme (USAP) to a Continuous Monitoring Approach that combines a risk-based approach to auditing and continuous monitoring, while considering national and regional organization oversight capabilities;</p> <p>10) requested ICAO to make the best use of USAP audit results for defining and targeting aviation security capacity-building activities for the benefit of Member States in need;</p> <p>11) encouraged Member States to share USAP audit results in an appropriate and secure manner in order to target capacity-building and technical assistance efforts on those areas where they would do most good;</p> <p>12) acknowledged the progress made in the implementation of the ICAO Aviation Security Strategy on Capacity Building, and requested ICAO to strengthen its efforts, with additional focus to be given to air cargo and mail security capacity-building activities;</p> <p>13) encouraged ICAO Member States and relevant stakeholders such as regional organizations to enter into partnership agreements for the organization and delivery of capacity-building activities, encompassing all the parties concerned and including commitments to be made by all partners;</p> <p>14) highlighted the importance of defining security measures which are effective, efficient, operationally viable, economically sustainable, and take into account the impact on passengers;</p> <p>15) strongly encouraged ICAO Member States to explore with each other mutual recognition</p> | <p>arrangements, including one-stop security, which recognize the equivalence of their aviation security measures where these achieve the same outcomes, and which are based on an agreed comprehensive and continuous validation process and effective exchange of information regarding their respective aviation security systems;</p> <p>16) endorsed as key principles governing international aviation security cooperation: a) respect for the spirit of cooperation defined in bilateral and/or multilateral air services agreements; b) recognition of equivalent security measures; and c) focus on security outcomes;</p> <p>17) encouraged ICAO Member States to enhance aviation security by standardizing formats for travel documents and for the electronic transmission of passenger data to State authorities while ensuring the protection of passengers' privacy and civil liberties, and to enhance travel document security by participating in the electronic passport validation service known as the ICAO Public Key Directory (PKD);</p> <p>18) requested ICAO to further address emerging issues such as air traffic management security (i.e., the security of air navigation services and facilities), landside security, and cyber threats;</p> <p>19) supported initiatives undertaken by ICAO, in cooperation with industry stakeholders and equipment manufacturers, to develop the next generation of passenger and cargo screening processes, taking into account technology developments and desired security outcomes, and to make recommendations for the modernization of regulatory frameworks as necessary; and</p> <p>20) strongly encouraged States to ratify the latest aviation security international legal instruments, namely the Beijing Convention and the Beijing Protocol of 2010.</p> |
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A Regional VIEW

Crisplant's **Johan Rajczyk** explains how the growth in passenger numbers and the latest security screening standards at regional airports are dictating the need for more high-speed, secure baggage handling, which is not only cost-effective, but also combines energy efficiency and space-saving features.



Despite the recession, regional airports are doing well and having to modernise, update and invest to remain competitive and efficient. Over the last decade the growth in flights has been rapid, but many smaller regional airports were never built to handle the number of passengers they are now accommodating. Therefore, they have had to create long-term investment plans to deal with the growth which often includes expansion of the terminal, better technical infrastructure and improved security.

Many regional airports still operate a manual baggage handling system, but now see the need to adopt automated baggage handling to keep up with the increased passenger traffic and to remain competitive. Regional airports, however, have very different needs: baggage handling systems designed for large hubs simply aren't applicable to regional airports.

One key element is that regional airports don't normally have a lot of room in which to install new baggage handling systems. Cost is obviously another important factor: initial and operating costs must be kept low and, obviously, smaller airports will have fewer technical staff than large hubs. This means that any new automated baggage handling system must optimise the existing available space as well as have a low capital investment, easy out-of-the-box installation and low operating costs. Regional airports are adopting new technology and are looking to install advanced, high-speed baggage handling solutions that can be easily integrated into existing infrastructure and available space. They are focussed on energy-saving technologies: with regional airports often situated in areas of high industrial growth where there is pressure on them to strengthen their green profile, so finding ways to cut CO₂ emissions is vital.

Another driver is the need for

increased security. The latest baggage handling technologies must integrate with existing security systems and allow airports to comply with new standards for screening.

To meet these demands we have introduced the latest member of the LS-4000 family, the LS-4000econ, specifically for growing regional airports. Using technology that has been field-proven in major airports around the globe, the LS-4000econ integrates a loop sorter, inductions, chutes, conveyors and controls into a space-saving footprint that enables regional airports to improve their baggage handling efficiency and security, whilst reducing costs and minimising CO₂ emissions.

Regional airports would often be forced to choose a conveyor-based baggage handling solution as a loop sorter would simply be too advanced and expensive for their needs, but with the LS-4000econ, they can have the high-speed sorting functionality on a smaller scale. And the LS-4000econ is modular too, providing airports with flexibility to adapt to passenger and airline needs.

As well as having an ultra-small footprint, the LS-4000econ incorporates what we believe is the industry's most energy-efficient drive system based on linear synchronous motors. This enables airports to cut energy consumption by 75% compared with sorters driven by linear induction motors. It has also been designed to integrate fully with Explosive Detection Systems (EDS) allowing airports to comply with new security screening standards.

Security is constantly becoming more stringent and baggage handling technology must make it easy for airports to comply with the latest procedures. For example, baggage handling systems must now fully integrate with EDS to enable airports to adhere to the new TSA ECAC and EU standards for screening. The LS-4000econ has been designed to do this in a particularly effective way. The

control system makes sure that the load is balanced between available screening equipment, so if one machine is working slowly or there is a hold-up, the allocation is spread between other machines automatically. This provides the added benefit of helping to reduce the total number of EDS machines that are required.

Of course, no two airports are the same, whether you're talking about available space, passenger throughput or destinations. That's why we have designed the LS-4000econ to be based on standard modules, meaning the system can be configured to fit the specific footprint, baggage handling capacity and number of destinations in each airport. It's an automated system which is virtually out-of-the-box, so installation is fast and the LS-4000econ can be integrated into existing systems with little or no disruption to the normal operation of the airport.

What's more, being a member of the LS-4000 family of sorters means that the LS-4000econ system is particularly future-safe. Whenever improvements are made to the standard product, these will flow down to the econ too, meaning that the platform for all of our sorters incorporates the same proven technology, no matter which option an airport takes.

Looking forward, we see airports operating a higher baggage throughput so there will be a requirement to optimise their available space, without the need for new buildings. With increasing numbers of passengers passing through airports across the world, we believe they will be looking to achieve greater flexibility in their existing environment, which calls for a modular baggage handling system design; one that can be integrated quickly and efficiently, yet adapt as capacity increases. We also see more focus on OPEX: life-time cost; power consumption and spare part consumption, driven by political regulations and a demand for sustainability.

A Brighter FUTURE

Caroline Cook explores how LED airfield lighting can save costs and energy.

Hella's 0.25in (6.3mm) installation height results in a low contact point, making damage from ground support equipment less likely. (All images: Hella)



As the world moves towards more environmentally-friendly technology, the aviation industry in particular has plenty of opportunities to develop its 'green' factor. More and more airports are welcoming digital check-ins, fuel-efficient tow tractors, water-saving toilet facilities and renewable energy sources, in an attempt to protect the planet and keep costs down.

Light-emitting diode (LED) technology continues to lead the way for

ecologically beneficial airfield lighting. In comparison to halogen lights, LEDs are brighter, they last longer and they use less energy.

Originally involved in the automotive industry, German lighting company Hella began producing LED fixtures for airfield lighting solutions in 2009, and recently exhibited its products at April's Airport Infra Expo in São Paulo, Brazil.

A particular advantage of LED technology is its extended service life of approximately 50,000 hours. Although

LEDs in warmer countries will only last 30,000 hours, it is still a vast difference in comparison to halogen lighting's 'maximum' 2,000 hours.

Sonja Strand, Hella's Head of Airport Lighting, told *Airports International*: "A long service life means less maintenance costs. With 50,000 hours of service, the LEDs will not need to be replaced very often. In fact, an airport won't need to change their lights for around five years, depending on environment, utilisation and load."

Hella's lighting fixtures are also made with highly durable materials which are designed to prevent damage and further sustain service life. Made with shatter- and scratch-proof glass, the fixtures are resistant to temperatures between -55°C and 85°C, which mean they are ideal for the varying conditions at an airport. Hella claims the "core competencies" of its runway and taxiway lights are their minimal external diameters of 8in (20.3cm) and a 0.25in (6.3mm) installation height. Ms Strand commented: "Even our 12in [30.5cm] variants for the runway edge are designed with equally small dimensions."

The height in particular avoids unnecessary damage by offering a low contact point for ground support equipment, such as snow ploughs, and by collecting less dirt. Further benefits include an easy initial installation, as the LED fixtures don't require new leads, bases or additional components. Furthermore, they comprise decoupled light modules and aluminium housing.

This, Hella states, provides "effortless replacement" of the light source at any time, meaning that the systems can be up-to-date with the latest standards. Altogether, the company claims that maintenance costs can be reduced by up to 70%.

The lights contain no harmful substances, such as mercury or lead, and they cut carbon dioxide (CO₂) emissions by up to 85%. Ms Strand explained that LEDs save much more energy than halogen bulbs, and even have adjustable brightness levels. "For example, an airport can have brighter LEDs during bad, cloudy weather, and then reduce the dim level for good weather, which means that more energy is saved."

Meanwhile, Hella's range of products cover numerous inset applications with LED technology, including taxiway centreline, the stopbar and touchdown zone, among others. Additionally, Hella has numerous elevated lights refitted with LED technology such as taxiway

edge, obstruction lights, runway end and runway edge. Runway centreline lights are also available, although some countries may require approval for the technology. Hella has already installed these fixtures at four Norwegian airports including Stavanger and Kristiansand, Luxembourg Airport in Luxembourg, and Paderborn Lippstadt Airport in Germany.

At the Airport Infra Expo, the company was promoting its latest product, the LED Approach Light. The product was launched at inter airport Europe 2011 and is available in red as siderow, or white as approach with more than 20,000 candle power (cd).

According to the company, this LED fixture spends only 40 watts (W) of energy at its highest dim level compared to 150W or 200W in existing halogen bulbs. The light is easily adjustable, due to its patented ballpoint, and can be mounted on tube, pole or base plates.

Speaking at the show, Ms Strand explained that the Latin American region was an important market. "We have made lots of good contacts and had a lot of interest in the equipment. There are no other companies producing LEDs of this quality."

In terms of finance, LED lighting products can cost around 35% more than the halogen lights, although Ms Strand believes that this is outweighed by the savings in energy and maintenance costs. When asked about delivery times, she stated that the company organises a business case for each airport, to judge the duration depending on the customer's requirements and Hella's stock. However, she said, most deliveries take between six and 12 weeks.



The LED Approach Light is available in red as siderow, or white as approach.

The JFK CLUBHOUSE

Tom Allett sampled Virgin Atlantic's Clubhouse lounge at New York's JFK.

Virgin Atlantic unveiled its \$7 million Clubhouse facility at New York's JFK International Airport in March this year and journalists were given the chance to experience the facility in the summer. Located inside Kennedy's International Air Terminal (IAT) it lies beyond the TSA security checkpoint and directly above gates A4 and A5 used by the airline.

Luke Miles, Head of Design for Virgin Atlantic Airways, is responsible for initiatives on the ground and in the air, including brand design, events, clubhouses, in-flight entertainment, seating and service design. He took time out to give me a one-to-one tour of the JFK Clubhouse, explaining the thought processes behind the new lounge as we walked through. Starting with the first sight of the Clubhouse's entrance, Mr Miles explained that the white wall behind its front desk is deliberately minimalistic as this makes the lounge's most important asset – its staff – stand out as much as possible. Beyond the welcoming smiles, as you enter the JFK Clubhouse the 'horizon' opens out into a subtle image of the New York skyline. The lounge was co-designed by New York-based Slade Architecture working with Virgin's in-house design team and is marketed as being 'Understatedly Uptown, Unmistakably New York'. The facility certainly fits the description as even the toilets and showers are decorated with a representation of the 'Big Apple's' streets and skyline.

FROM ONE ANGLE...

There are no solid walls to separate the various sections of the lounge; the facility is effectively divided into its



TOP The New York/JFK Clubhouse lounge opened in March 2012 having cost a cool \$7 million. (All images: KEY – Tom Allett)
ABOVE LEFT Representations of the New York skyline greet you wherever you look.
ABOVE RIGHT A sofa that's too good to sit on! This is just one of the Clubhouse's remarkable design features.

various dining, relaxation and work areas by the clever use of widely-spaced vertical bars that run from floor to ceiling. From one angle they are hardly noticeable, almost lost amongst the flood of natural light that bypasses them; from another position, when the

bars line-up, they create the illusion of a dividing wall. The overall effect is that the room appears to change shape as you walk around it. Glass walls on the left- and right-hand walls provide a superb view of the airside activity below. As you



ABOVE A room with a view; the lounge is directly above the airline's gates. Virgin Atlantic Airways is introducing a fourth daily service between London Heathrow and New York's John F Kennedy airports from October 24.

BELOW Though the lounge has no central walls, its cocktail bar effectively divides the facility in two.

walk in a clockwise direction you are shown a representation of what the airline describes as a gentleman's club – complete with a pool table. Adjacent to this is a huge sofa built from innumerable red spheres. It is a very striking design and, to be honest, I didn't want to sit on it because it seemed like something you should only admire from a distance; look but don't touch!

Against the entrance wall of the lounge was a completely different relaxation concept. Here, shallow 'caves' cut into the wall at the same height as a normal chair, give passengers' the opportunity to partially 'retreat' from their surroundings, having only a forward view after settling down in their own private space. It's very clever and very futuristic. My initial reaction was that the setting reminded me of a scene from the Stanley Kubrick movie, *2001: A Space Odyssey*. Other sections in the central area also featured the concave seat shape, though within large sofa-type layouts rather than set into a wall.

WORK, REST, AND PLAY

A large cocktail bar effectively divides the room in two, but the Clubhouse isn't all about leisure; a Mac desktop bar is provided for those that need to work, or perhaps play.

For those seeking a makeover



or just some pampering, JFK offers the first Clubhouse Spa outside London. Though they are unlikely to attract anyone as follicly-challenged as myself, renowned New York hairstylists Bumble & Bumble takes centre stage alongside skincare specialists, Dr Hauschka. Virgin Atlantic describes the latter as being a "brand perfectly suited to night time flying" stating that their natural and beautiful products provide a "relaxing approach to health and wellbeing" that will help passengers to sleep onboard the aircraft.

When it comes to dining, you can order your food anywhere in the Clubhouse, but its brasserie area provides a more traditional/formal experience, complete with a selection of à la carte meals.

MARKETING TOOL

Towards the end of the tour, Steve Ridgeway, Virgin Atlantic's CEO arrived to catch a flight to London. Commenting on the new Upper Class cabin and JFK Clubhouse he said: "Virgin has always used design as a marketing tool," adding, "New York has always been an important market to Virgin Atlantic – it's where it all started with our first flight from London to Newark in 1984, and last year we carried more than half a million passengers between Heathrow and JFK."

"Virgin Atlantic is famous for its pioneering products, and this [cabin/lounge] investment will again establish our position as the leader in airline innovation customer experience."

It is hard to argue about the last part of that statement. I have been privileged to visit numerous airport lounges around the world, and I can honestly say that the JFK Clubhouse is the most impressive I have yet seen. You can certainly see why it cost \$7 million.

MAINTAINING Manchester

Martyn Cartledge spent a night with the team resurfacing one of Manchester Airport's two runways.



The ADM and the PMO both make runway checks when work has been completed to ensure it is safe for aircraft operations. (All images via author)

It's the early hours, it's raining and I'm standing on a windswept building site... and I'm beginning to wonder why. However, this is no ordinary building site, it is the main runway at a major international airport and currently it is full of holes and machinery, with flights inbound in just a few hours.

ESSENTIAL REPAIRS

There have been several batches of works on Manchester Airport's (IATA – MAN) runway in the past, from re-grooving the asphalt to

A PROGRAMME WAS DESIGNED TO NOT ONLY REPLACE THE 'SKIN' OF THE RUNWAY BUT ALL ITS MAJOR ORGANS, ARTERIES AND BLOOD VESSELS AS WELL.

lessening the famous 'hump' in the middle (it is still not possible to see from one end of the runway to the other).

However, over time everything degrades. Water seeps into places

it shouldn't and corrodes the wiring; drainage systems don't work as well as they used to; and the lighting systems begin to need more than a spruce-up; not to mention the runway surface, which although it gets regular maintenance, eventually requires complete renewal. So, as the existing approach and runway lighting system in the airport's principal runway (05L/23R – Runway 1) was more than 30 years old, and reaching the end of its design life, the Manchester Airports Group (MAG)

decided it needed to be replaced entirely to ensure continued safe and efficient operations. So it made good sense to complete other works that were also on the horizon. A programme was designed to not only replace the 'skin' of the runway but all its major organs, arteries and blood vessels as well, often using cutting-edge technology and equipment rarely seen in the UK or even the world.

One of the critical components in the decision to go ahead with such a massive and costly programme was the opening of the second runway (23L/05R – Runway 2) in February 2001, because CAA requirements dictate that no aircraft movements can take place when major works are being carried out on or adjacent to a runway. Consequently, by using R2 (which is normally closed overnight) MAN could continue to operate a normal service.

It was decided to work during the quieter overnight period, because while R1 can accommodate around 55 movements per hour when used in single operating mode, R2 can manage just over 20. So between January and August 2011, R1 05L/23R was closed to all traffic between 21:30 and 06:00, from Sunday to Thursday nights inclusively.

CHALLENGES

The use of R2 brought considerable operational challenges. In contrast to the UK's other major airports, such as Heathrow and Gatwick, Manchester remains fully open each night of the year. So the work had to be undertaken while normal flight operations continued. In particular, the layout of the runways at Manchester means all aircraft going to and from R2 must cross R1 to reach the terminals. Additionally, with 100-160 operatives and 50 to 120 pieces of equipment present on R1 each

night, there is clearly potential for vehicle/aircraft conflicts. To minimise the risk of such an event, a significant amount of pre-planning was needed to ensure the works and site would be managed in the safest way possible, and rigorous procedures were put in place.

The basis of the procedures comes from another form of transport and dates back to the 19th century, when it was used to great effect on the railways when trains running in both directions needed to use a single piece of track ('single line working'). To get round the rather obvious problem of trains meeting head on, any train traversing that section had to be in possession of a 'token'. Once a token was released by the signalman the system was locked to prevent another being released (at either end) until the issued one was given to the signalman at the other end of the affected section. It is this notion of possession that guides the use of the runway at night, albeit by use of a single document rather than a piece of metal.

HANDOVER

As is the case at all airports, under normal operating conditions ATC has control of the runways at all times even if one is operationally closed, as was the case with R2 for long periods of the day and night. However, this cannot be the case while the runway is under refurbishment, so possession of the runway passes from ATC to the contractor.

The process of handover started at about 13:00 each day with a check on the weather conditions to see if it was possible to carry out the work. This was dependent on the forecast for the evening because if LVP (Low Visibility Procedures) were expected, the night's tasking would be cancelled. The final decision would be made later in the day at any time until 20:00. However, if some resurfacing was

scheduled, then the production of the material, or 'batching' as it is known, would start quite early, necessitating an even earlier decision on whether to cancel to avoid unrecoverable costs.

At 19:00 the day shift Airport Duty Manager (ADM) handed over to the night man. The next meeting was at 19:30, which brought together all agencies such as operations (ops) and fire service aiming to ensure everybody was briefed about the night's works and to check for potential conflicts. At 20:00 things started to hot up: a meeting was held with the ADM and the contractors, chaired by the Possession Manager Operations (PMO), who is a current ADM at the airport but not the ADM on duty. The final decision to proceed would then be made. Potential weather issues were discussed, such as wind direction, which could affect the crossing points on R1, or how the airfield lighting was set at transition. By 21:30 everybody knew exactly what was happening, right down to the last aircraft to use the runway before it closed.

At approximately 21:30 each night after the pre-arranged aircraft had landed, the ATC watch manager began officially handing over possession of the runway to the ADM via radio.

This triggered the safety procedures for single runway (R2) use. The pre-arranged lighting configuration to guide aircraft to and from their terminals was introduced, and the crossing points were guarded by the use of barriers and manned vehicles with what amounted to traffic lights. When the ADM was happy that all was ready, he obtained the PMO's signature on the possession document. The PMO liaised with the contractor to ensure they were ready to start work and possession passed to the contractor again by signing the same document. Then, and only then, could the many ►

RUNWAY MAINTENANCE MANCHESTER

vehicles and manpower enter the runway to start the night's work at 21:40.

Despite the massive amount of work required by the ops team there were only two extra members of staff employed each night; one was the PMO and the other manned the main crossing point. The second crossing point was only used until the night rush was over and was manned by the PMO. The crossing points needed manning by experienced members of the ops team with good situational awareness to anticipate movements before they occur. The PMO's primary role during the works and handover was the control of site safety (COSS), and constant hazard analysis to ensure any problems are dealt with quickly. In simple terms, asking the question 'what if?' and applying a solution.

PROJECT

So what exactly happened during those hours of darkness? The project comprised the following key elements:

- Constructing a new sub-station to provide power to the new runway lighting system.
- Creating a new 'pit and duct' system around R1, which provided infrastructure for new lighting cables. This involved fabricating and installing 400 pre-cast pits and 6 miles (10km) of duct-lines around the periphery of R1 and outside the airfield boundary.
- Installing new primary and secondary lighting cables 621 miles (1,000km) and other electrical infrastructure (eg transformers) throughout the pit and duct system.
- Removal of existing light fittings.
- Inserting new light fittings (1,000+) into the existing runway and on approach.
- Miscellaneous drainage repairs ranging from dislodged joints to deformed, cracked and broken pipes and, in some instances, partial collapse or blockages. Delethalisation of structures on

the runway was also required in 'Cleared and Graded Area' (CGA) – delethalisation being a regulatory safety requirement set out in Chapter 3 Para 4 [Runway Strips] of Cap 168 that states that drainage channels, catch pits and other essential design features at aerodromes should not constitute hazards to aircraft.

- Resurfacing the full length and width of runway.

The most interesting of the elements was resurfacing and the lighting systems. The standard grooved surface of a runway requires constant attention and rubber deposits have to be removed from the grooves and the removal process affects the integrity of the surface and generates periodic re-grooving to a limited number of times. Manchester's R1 was approaching this limit and it was decided to resurface the majority of it apart from the younger extension at the 05 end and the hard shoulders, which do not get any real usage. Rather than simply replacing standard materials, Manchester chose a revolutionary surface that had only been used at smaller airports in the UK, such as the Isle of Man and Jersey, but which was first applied at Paris/Charles de Gaulle.

This surface, known as BBA, is un-grooved, and did away with constant rubber removal and re-grooving to provide a longer lasting surface while maintaining friction standards to help aircraft stop, particularly in wet or icy conditions.

The runway lighting was even more impressive. Manchester, in conjunction with the CAA, has been running a trial of LED units on a section of which provided feedback from both aircrew and CAA test flights. The lights used less energy (bringing a cost and environmental saving) and also provided a clear, crisp, bright white light that does not deteriorate over time. Existing halogen light fittings tend to

become warmer in colour over time and need testing to ensure they remain within the correct parameters, but LED lights work to full effect until they fail, reducing the amount of testing. The airport became the first in the UK to introduce the lights – on a test basis; initially on Runway 23L, then 23R – when they became available last December.

A new ice alert system has also been installed, with sensors all around the airfield. Not only does this feed back into the weather forecasting system, but also helps to make the application of 3,434 gallons (13,000ltrs) of anti-icing fluid more efficient.

DESPITE THE MASSIVE AMOUNT OF WORK REQUIRED BY THE OPS TEAM, THERE WERE ONLY TWO EXTRA MEMBERS OF STAFF EMPLOYED EACH NIGHT.

CONTRACTOR

Costain was the main contractor on the project and it also maintains the airfield civil engineering infrastructure through a framework agreement that was won by competitive tender in 2004. This has since been extended by five years on top of the initial five, and will expire in 2014. Guy Wooley, Costain's Framework Manager on site, explained the works were not technically difficult; the re-surfacing was easier – being quicker to lay without grooving. However, the real challenge was getting up to 160 people and 120 pieces of plant and machinery on and off the functioning airport each night and ensuring the site was handed back in a fully serviceable state at the time promised.

One of the major, daily challenges was the ground condition, with old and disused



Each night up to 160 people and 120 pieces of equipment and machinery had access to the site.

cabling running all around the work area and the old electrical system had to remain in place while the new one was constructed to maintain continuity.

The next key time on the shift's clock was 04:00 when the ADM, PMO and key Costain staff met to review the works, gauge the runway reinstatement time and to identify any issues that might lead to a delay. This early morning slot was chosen because it allowed sufficient time to rectify any problems, the most common of which was inadvertent cutting of myriad lighting cables running in and around the runway. However, if there was likely to be a delay, it also allowed for liaison with NATS and ATC to implement flow control by pushing back departures from European destinations (the long-haul flights would already be in the air). As aircraft generally carry less holding fuel these days, there was less leeway for diversions – with obvious negative PR and loss in revenue.

END OF THE SHIFT

Once the night's work was complete, including a thorough sweeping, checks were made for

A NEW ICE ALERT SYSTEM HAS ALSO BEEN INSTALLED, WITH SENSORS ALL AROUND THE AIRFIELD. NOT ONLY DOES THIS FEED BACK INTO THE WEATHER FORECASTING SYSTEM, BUT ALSO HELPS TO MAKE THE APPLICATION OF 3,434 GALLONS (13,000LTRS) OF ANTI-ICING FLUID MORE EFFICIENT.

foreign object damage (FOD), surface defects and to confirm work sites had been completed correctly. The checks were made by the contractors, the PMO and finally the ADM. There were several key items that needed to be completed and in the correct order before possession of the runway could be handed back to ATC. No assumptions were made in the process and over-familiarity was avoided by the use of checklists.

The wording used over the radio was set down rigidly to avoid confusion. If one person did not hear what they should

in response to their own transmission it was not accepted, thereby avoiding any potential dangerous situation.

Possession of the runway was handed back with the same modern-day version of the steam-age token process, only in the exact reverse of what happened the previous evening. The ADM was the very last person off the runway before finally handing it back to ATC, maintaining ADM/ATC contact. This was particularly important as the ADM was ultimately accountable for the airfield, and he or she had to be sure that all jobs had been done correctly.

MAN has built up a considerable knowledge and experience in runway works requiring closure and this procedure no doubt helped tremendously to ensure the nightly process ran smoothly.

Next time you land on Manchester's main runway, look out the window at the pristine new surface and remember this was no mere facelift. What you see is the result of a highly coordinated, multi-million pound operation employing cutting-edge technology.

MORE THAN A Makeover

Tom Allett visited Phoenix Sky Harbor, Arizona, where multi-million dollar regeneration programmes are underlining the airport's recent success.

Phoenix Sky Harbor, home to the AAAE 2012 annual gathering, is riding high on a combination of good passenger figures and extensive improvement programmes. (PHX)

Phoenix Sky Harbor (PHX) led the top ten US airports last year in terms of passenger growth. By handling 40,591,948 travellers in 2011 it achieved ninth place in the US and 23rd position in the world. It is the airport's highest figure since 2007 – it represented a very healthy 5.2% rise over 2010 and marked four consecutive years of steady growth. It also achieved a 16-month spell of consecutive growth during 2010 to 2011, which according to the airport's management team, was largely driven by the welcome news that business travel is back. This March, Sky Harbor's Aviation Director, Danny

Murphy, said: "Our 2011 passenger numbers indicate that we need to continue our planning efforts to meet the demand as the economy bounces back. As one of the top ten airports in the country, our facilities must be ready to serve our passengers well."

Those sentiments are certainly being reflected in the airport's ongoing development. If you are standing outside one of its three terminal buildings, the most eye-catching project is the automated PHX Sky Train people mover. Due to enter service in January 2013, this free-to-use electrically-powered train will link the city's regional light rail system, the airport's largest car park – the East Economy Parking lot – and Terminal 4, which currently handles about 80% of passengers, on a 24/7 basis. Later phases of the PHX Sky

Train's development will link all three of the airport's terminals (Terminals 2, 3 and 4; there isn't a Terminal 1 at the moment) by early 2015 and the rail system will be complete when it connects to the airport's massive Rental Car Center by 2020. The new asset is more than just a train though; it has its own baggage check-in services, boarding pass kiosks and even 'pet parks' for four-legged travellers at the stations. Trains will arrive and depart about every three to four minutes, depending on how quickly the doors are able to shut, and the journey time to East Economy Parking train station and Terminal 4 will be approximately two minutes. Architectural firm HOK is collaborating with Gannett Fleming, the prime engineer, on the PHX Sky Train's design and three of its



US FEATURE

PHOENIX SKY HARBOR

elevated passenger stations covering a total of 200,000sq ft (18,580m²). HOK was contracted for the complete architectural design and construction administration and maintains an overview of the design for the entire initial stage.

Retail

Though PHX Sky Harbor is owned and operated by the city of Phoenix, no tax dollars are being used to pay for its upgrade projects. All the required funds are generated from non-aviation revenue, such as airport shops, restaurants, taxis, parking and rental cars. The next large project to take place indoors is the redevelopment of Terminal 4's (T4) food and beverage outlets. T4 is home to US carriers Southwest, AirTran, US Airways and WestJet, as well as international airlines Aeromexico, Air Canada and British Airways.

The original T4 building opened in 1990 with five concourses and 48 gates but it was built with future growth in mind, providing enough space for up to eight concourses. Currently it has seven concourses and the eighth and last, to be located west of Concourse D, will be built when passenger numbers require it.

In the meantime, T4's food and beverage facilities are in the process of being completely revitalised. The first-phase contract was won by HMS Host International last year. Some of

the HMS Host restaurants are already open and all are due to be operational by the end of 2012. Now, following SSP America's \$800 million-dollar contract win in May this year, it will begin a ten-year second construction phase in January 2013. The five deciding factors for the contract were: food & beverage concepts; financial return to the city; management, marketing, operational plans and contracting arrangements; design quality of tenant improvements; and last but not least, qualifications and experience.

Whether the traveller wants to sit down for a bite to eat or purchase take-away items there will be widespread choice on offer on both sides of the security check as the new outlets open on a staged basis throughout next year.

This is SSP's first project at Phoenix and in the State of Arizona, though it has worked at the relatively nearby (in US terms) San Diego, California, and Reno, Nevada. SSP told *Airports International* that it considers its work at Toronto Pearson to be the closest match to what the customer will see at Phoenix because both airports will showcase local food & beverage 'talent'. Despite the fact that it already has business at more than 140 airports and over 250 rail stations, the contract was a 'big win' for SSP as it seeks to replicate its widespread European success in the North American market.

To meet expectations its T4 portfolio includes 18 unique Phoenix area-based local businesses. The mix also incorporates five national brands that are deemed to be easily recognisable on the streets of Phoenix.

Rehabilitation Project

More good news for Phoenix came through as this edition went to press. On October 1, 2012, Sky Harbor announced it will receive a Federal Aviation Administration grant to fund an apron rehabilitation project near its busiest terminal. Coming from the FAA Airport Improvement Program (AIP), a \$16 million payment will allow the airport to begin the first phase of a project to replace 25-year-old paving outside Terminal 4. The work will begin this autumn and is expected to take about four years to complete. In recent years Sky Harbor has taken temporary measures to slow down the pavement's deterioration in the area; now the grant will enable a permanent solution.

"We appreciate the support of the Federal Aviation Administration," said Phoenix Aviation Director, Danny Murphy. "As one of the ten busiest airports in the United States, improvements like this are vital to us and our airline partners."



Terminal 4, handling around 80% of Sky Harbor's passenger traffic, is in the middle of a huge retail improvement programme. (SSP)

Tyco Fire and Security Undertakes 'Tyco Tech Connect' across India

Enhancing awareness to prevent fire accidents and security incidents by using intelligent technology and latest innovations.

Tyco Fire and Security, part of US-based Tyco International, successfully undertook its road show – 'Tyco Tech Connect' across major cities in India. The initiative was launched by Tyco to raise awareness and bring technology within reach of customers, architects, consultants and stakeholders across industry in the wake of the recent spate of fire mishaps and security incidents across the country.

Tyco Tech Connect platform helped educate, spread awareness on the latest developments in the Fire and Security Industry and on utilising technology to help save lives and assets. The road show showcased products, conducted technology demonstrations



and held interactive seminars. It also provided opportunities for delegates to interact with technical personnel from Tyco to understand customised solutions for their requirements.

Mr. Sharad Bohra, MD and Country Leader, Tyco Fire and Security India said, "We started Tyco Tech Connect aiming to enhance awareness among industry leaders, customers and

the general public on technology that can help protect lives and save assets leading to enhanced quality of life. We are happy with the response we received from stakeholders for our initiative and aim to continue our efforts to bring technology closer to the lives of our customers and ensure that 'what is preventable must be prevented'. Tyco wants to play a leading role in alleviating ignorance, enhancing awareness and bringing global standards to Indian customers."

"The road show provided an opportunity to interact and engage with industry leaders and to introduce the latest range of exclusive and sophisticated products and services. With investments in sales teams, new offices across geographies, innovative solutions and delivery capabilities, Tyco is a pan India solution provider in the Fire and Security Industry," added Mr. Bohra.



Asia's largest cleaning trade show is back in the IT hub, Bengaluru

The 9th edition of Clean India Show to demonstrate innovations in Cleaning Technology



The much bigger and wider Clean India Show is back in Bengaluru this year with newer technologies and cleaning solutions for industries, institutions, municipal corporations, hospitals, hotels and retail segments. Supported by the Karnataka Urban Development Ministry and the Central Pollution Control Board, the three-day show will commence from December 13 at the KTPO Exhibition Complex and will showcase solutions for commercial cleaning, industrial cleaning, city cleaning, waste management, wastewater and sewage management, laundry, pest management and housekeeping.

The show covers an area of over 2246m² with participation from experts/companies from India and abroad. The highlights of this year's event include participation of industrial cleaning companies

showcasing industrial cleaning equipment. Some of the leading exhibitors include Diversey India, Karcher India, Eureka Forbes, Charnock Equipments Pvt. Ltd., Ion Exchange India, Pest Control India, Lanxess India Pvt. Ltd., Unger India, Bosch India, 3M India, Surie Porex, TSM India, Best Practice Washroom, Inventa Cleantech Pvt. Ltd. and others.

Mr. Jayaraman Nair, Chairman, Virtual Info Systems Pvt. Ltd., said, "South India has grown exceptionally well over the years, excelling in technology, infrastructure, steel, automobile, education, tourism, etc. With steady advancement in technology it becomes imperative to also advance in cleaning techniques. The show is geared to showcase newer technologies and wider solutions on cleanliness to match up to the region's ever-growing development."

Mr. Jayaprakash Nair, Managing Director, Virtual Info Systems Pvt. Ltd., added, "We are extremely overwhelmed with the response that we have been able to generate over the years. Starting with 20 stalls we have now grown to showcasing more than 120 national and international brands. We are extremely happy to be the pioneers in India and Asia's largest

show on cleanliness. It has been a remarkable journey so far and we are glad to provide a platform to industry professionals to devise strategies to make India a hygienically advanced country."

Said Ms Mangala Chandran, Editor-in-Chief of Clean India Journal, India's only monthly dedicated to cleanliness and hygiene, "For the first time the show has attracted over 20 new companies representing almost all verticals: equipment/ tools, chemicals, facility management, hygiene solutions, laundry and waste and wastewater treatment. Another highlight is that the show is having a separate laundry pavilion for the first time with seminar sessions on laundry happening in parallel."

The three-day seminar that will cover topics on hygiene in hospitals, industrial cleaning, housekeeping and municipal waste management has already received good response.

The Last Words...



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