

**58th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

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**AGENDA ITEM 5: AVIATION SECURITY AND
FACILITATION**

**ENHANCING AVIATION SECURITY THROUGH THE USE OF
ADVANCED TECHNOLOGY**

(Presented by Bangladesh)

SUMMARY

This paper is intended to highlight the technological incorporation in setting up the security measures for the Terminal 3 of Hazrat Shahjalal International Airport (HSIA), Dhaka, Bangladesh. Such technological incorporation signifies the efforts of Civil Aviation Authority of Bangladesh towards a more compliant and process based preventive security measures safeguarding the civil aviation from acts of unlawful interferences.

ENHANCING AVIATION SECURITY THROUGH THE USE OF ADVANCED TECHNOLOGY

1. INTRODUCTION

1.1. The soft opening of terminal 3 at HSIA has been done in the beginning of this month i.e on 7 October 2023. Civil Aviation authority of Bangladesh (CAAB) hopeful that once the terminal enters into full-fledged operation in October 2024, there will be a significant increase in number of airlines operating from HSIA resulting in more passengers and aviation players using this new state of the art airport terminal. To accommodate the increased number of passengers and to ensure their safety, CAAB has been mindful of the need to solving the challenges of aviation security. In response to the evolving nature of threat to aviation security, the Government of Bangladesh has invested heavily to improve aviation security in all airports of Bangladesh especially in terminal 3 of HSIA through the introduction of new security technology. The terminal 3 will see the employment of all modern and advanced security technology. This paper aims to highlight the benefits of advanced security technology for enhancing aviation security standard at HSIA Terminal 3 and offer a seamless experience for all passengers travelling through terminal 3 of HSIA.

2. DISCUSSION

2.1. Passenger processing and passenger service are the two significant aspects in defining an airport's qualitative effectiveness and efficiency. These two functions are combinedly supported by an airport's operational management capability and airport assigned Ground handling agencies' performance capacity. A distinct set of functional processes exist in the delivery of passenger processing and passenger service. The functional process adopted by airport operational management and Ground handling agency is often characterized by number of touch points involving physical security and aviation security activities. Indeed, the measures related to access control of passenger, Hold baggage screening, cabin baggage screening, passenger screening, measures related to aircraft etc. all overlap with the measures taken by airport operational management and ground handling agency in their delivery of passenger processing activities and passenger service functions. Therefore, it is imperative that the technological and technical measures adopted within the aviation security functional processes compliment the faster, efficient yet effective functional processes of passenger processing and passenger services within an airport. In establishing the passenger processing and service functional processes, Civil Aviation Authority of Bangladesh (CAAB) has emphasized inclusion of smart, advanced and passenger friendly technologies to cater for passenger's minimal dwelling time while ensuring compliance of preventive security measures standards as laid down in Annex 17 of ICAO Chicago Convention. The following discussions provide a brief understanding on those technological features:

2.2. Access Control System (ACS) for Terminal 3 ACS (Access Control System)

2.2.1. System will be a fully automated computer-based system. The system will including the Central Database Computer(CDC), workstations, dual redundancy servers, fingerprint/contactless smart card readers, Reader Interface Modules (RIM), Intelligent System Controllers (ISC), Input / Output Control Modules, electro-magnetic locksets (EMLs), magnetic door contacts, emergency break glasses, conduit, enclosures, ID badging, software and associated licenses, network switches for its communication links with its field equipment's, mounting hardware and all other necessary equipment. Fiber Optics cables linking between communication equipment room to security control room

2.2.2. ACS Interfacing with other systems such as fire alarm systems to release security doors within the evacuation zones during the fire alarm activation. It also includes interfaces with CCTV cameras so as to activate the CCTV camera system upon a breach of security at the designated security doors.

2.2.3 The Integrated Access Control System (ACS) shall be a PC computer-based system designed to control access of doors for arriving and departing passengers in the remote gate lounges, Terminal gate lounges, security doors and passenger loading bridges of the Terminal Building.

2.2.4 Authorized staff shall use contactless smart cards along with fingerprint authentication to unlock the controlled doors. Each contactless smart card shall store the fingerprint template of the staff through an enrolment process at the Security Control Room. The ACS servers and enrolment station shall be located at the Security Control Room of the Terminal Building. The ACS Servers will dual redundancy (duty- hot standby configuration) design operating on industrial PC.

2.2.5 The ACS designed to provide the following key functions:

- a) Door Access Control;
- b) Intrusion Detection;
- c) Alarm Management;
- d) Report Generation and Logging;
- e) CCTV Interfacing;
- f) Card Personalization; and.
- g) Interface to Building's Addressable Fire Alarm System

2.2.6 In the event of an alarm, automatic activation of the system shall be equipped to provide the following:

- a) A means of raising local alarm sirens at the Security Control Room caused by intrusion;
- b) Continuous supervision of all other areas when an alarm is raised at a particular area;
- c) Logging;
- d) Display graphical illustration showing location of intrusion; and
- e) Activation of corresponding CCTV camera at the area of intrusion.

2.2.7 Access control system will use a single seamlessly integrated database for both its access control and badging functionality. This integration will be operated under one operating environment.

2.3 Passenger and Cabin Baggage Screening

2.3.1 Terminal 3 of HSIA will have the provision of different layers of security screening for passengers. Security screening facilities for passengers and baggage like WTMD, HHMD, dual view X-ray machines will be installed at the passenger entry points to the terminal and also at points before proceeding to the central screening area. The boarding gate security screening of the present terminal 1 and 2 will be replaced by central screening systems. The Central security screening systems will have Security Scanners (Body Scanners), WTMD, HHMD, ETD, Dual view X-ray machines and also EDS. The EDS system will enable us to screen liquids more effectively. Depending on the result of National Threat and Risk Assessment required layers of security screening would be employed. The redundancy of security screening layers will allow the authority to use the appropriate level of screening and also cater for maintenance and unserviceability of a particular layer of screening. The Central Screening System for passengers will allow them to enjoy their free time in the sterile area of the airport with access to shopping area, food court, lounges and other facilities.

2.4 Hold Baggage Screening

2.4.1 HSIA is set to move from stand-alone hold baggage screening system to an inline hold

baggage screening system. The inline baggage handling and screening system will include a fully automated baggage handling system and a level 5 security screening system consisting of Explosive Detection System and Explosive Trace Detection. The fully automated baggage handling system will enhance the hold baggage handling capacity of HSIA and the level 5 screening system will have a significant improvement in the overall security of the hold baggage screening bolstering the confidence of airport operator, airline operators and the passengers in our system. We are aware that the operation of the system will need adequate planning and training of the operators of the system. CAAB is therefore doing the needful through an Operational Readiness and Airport Transfer (ORAT) program.

2.5 Baggage Reconciliation System

2.5.1 Baggage reconciliation is a key security requirement to ensure that checked baggage is reconciled with its passenger before it is loaded onto a flight. Bags checked in by passengers will be delivered to the baggage make-up area by the airport baggage handling system (BHS). As the bags are loaded, the bar-coded bag tags are read by staff using a mobile terminal and sent to the BMS database, where they loaded into either Unit Load Devices (ULDs) or baggage carts. Guidance will be given by a BMS response to staff as to whether they may or may not load the scanned bag. The BMS will be able to track which bags are contained in specific ULDs and carts if required to be offloaded later on. The BMS will await notification of boarded passenger at the departure gates. At flight closure BMS will provide the baggage handlers with the ULD location of any bags belonging to non-boarded passengers. No bag will be loaded onto an aircraft if passenger has not boarded. The aircraft will not depart until all bags have been reconciled with passengers.

2.6 Export Cargo Complex Operation

2.6.1 The newly built export cargo complex will be a fully automated one. You can see a touch of modernity everywhere from the arrival of goods to dispatch. A robust access control system will be incorporated for entry into the cargo complex area. Security equipment like X-ray machines, WTMD, HHMD, UVSS will be installed to prevent unauthorized entry of personal and vehicle in the cargo complex area. The vehicle entry will be controlled through Truck Control System. An additional access control will be implemented for staff requiring entry to the cargo complex itself through the use of body scanner, X-ray machine, WTMD, HHMD etc. Cargo will be screened based on cargo type though different screening system like EDS, Multi-view X-ray, EDD, ETD etc. All screened cargo will be loaded into the storage bin using a Handheld Terminal on the ASRS system depending on the flight schedule of the respective Cargo. The storage bin will be retrieved and collected from the ASRS conveyor belt and moved to the build-up area at the scheduled time. Staff will build up the cargo on the ULD/Pallet from the storage bin using a height-adjustable (Elevated) workstation for easy buildup of the cargo. Then the ULD/Pallet will be carried to the ULD/Pallet storage rack via an Elevated Transportation Vehicle (ETV). At the stipulated flight time, ETV will automatically bring down the ULD/Pallet from the storage area to the airside.

2.7 Central Monitoring and Controlling of Security Operation

2.7.1 There will be Airport Operations and Security Control Center (ASOCC) in terminal 3. All security activity will be monitored from Security control Room such as Security access system, CCTV, Facial Recognition system, security check equipment. The T3 will also have an Airport Operations Data Base (AODB) so as to enable the airport operations management to effectively steer performance, manage performance and analyze performance integrating source feeds of different touchpoints of airport operational processes involving security operations management using the 'on the moment data' and daily data pushing into the AODB and pulling onto the 'on the moment' and 'daily performances. This will form the inputs for the decision making to be conducted from ASOCC.

3. ACTION BY THE CONFERENCE

3.1. The Conference is invited to:

- a) Note the considerations and technological features that are used in setting up the security measures which facilitates the passenger processing and passenger service delivery.
- b) Note the importance of such security measures towards upholding ICAO preventive security measures standards
- c) Note the efforts and progress made by Bangladesh towards passenger processing and passenger service delivery while using a collaborative decision making Platform like ASOCC
- d) Encourage States/Administrations to share experiences of similar initiatives and systems in place and put these considerations in security designing for a new airport terminal.

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