

AIRPORT OPERATIONS & SERVICE QUALITY

GROUP CAPTAIN P A NAIDU

AIRPORT PLANNING & DEVELOPMENT

TYPES OF AIRPORT STUDIES

Airport System Plan

- **The orderly and timely development of a system of airports**
- **Balanced and multimodal transportation system**
- **Protection and enhancement of the environment**
- **Airport programs consistent with the short- and long-range requirements**

AIRPORT PLANNING & DEVELOPMENT

TYPES OF AIRPORT STUDIES

Airport System Plan

- **Optimizing resources in an often constrained environment**
- **Airport financing within the governmental budgeting process**
- **Establishment of the mechanism for the implementation of the system plan through the normal political framework**

ELEMENTS IN A TYPICAL AIRPORT SYSTEM PLANNING PROCESS

- **Exploration of issues that impact aviation in the study area**
- **Inventory of the current system**
- **Identification of air transportation needs**
- **Forecast of system demand**

ELEMENTS IN A TYPICAL AIRPORT SYSTEM PLANNING PROCESS

- **Consideration of alternative airport systems**
- **Definition of airport roles and policy strategies**
- **Recommendation of system changes, funding strategies and airport development**
- **Preparation of an implementation plan**

IDENTIFICATION FOR AIRPORT SITE SELECTION

- **Screening:**
 - **Operational capability**
 - **Capacity potential**
 - **Ground access**
 - **Development costs**
 - **Environmental consequences**
 - **Compatibility with area-wide planning—impact on land use, effect on comprehensive land-use plans and transportation plans at the local and regional levels**
- **Selection**

AIRPORT MASTER PLAN

- **Developing:**
 - **Physical facilities at an airport**
 - **Land on and adjacent to the airport**
- **Determining the environmental effects of airport construction and operations**

AIRPORT MASTER PLAN

- **Establishing :**
 - **Access requirements**
 - **Technical, economic and financial feasibility of proposed developments through a thorough investigation of alternative concepts**
 - **Schedule of priorities and phasing for the improvements in the plan**
 - **Achievable financial plan to support the implementation schedule**
 - **Continuing planning process which will monitor conditions and adjust plan recommendations as circumstances warrant.**

GUIDELINES FOR COMPLETING AIRPORT MASTER PLAN: ICAO

- **Master plan vision, goals, and objectives**
- **Inventory of existing conditions**
- **Forecast of aviation demand**
- **Demand/capacity analysis and facility requirements**
- **Alternatives development**
- **Preferred development plan**

GUIDELINES FOR COMPLETING AIRPORT MASTER PLAN: ICAO

- **Implementation plan**
- **Environmental overview**
- **Airport plans package**
- **Stakeholder and public involvement**

AIRPORT PROJECT PLAN

- **Developing the specific physical facilities at an airport including the architectural and engineering design for these facilities**
- **Determining**
 - **Environmental effects of this development through the construction and operational phases**
 - **Detailed costs and financial planning for the development**
- **Establishing a schedule for the construction and phasing of the specific items of development in the plan**

LAND-USE PLANNING

Environmental Impact Assessment

- **Environmental impact of the proposed development**
- **Any adverse environmental effects which cannot be avoided should the development be implemented**
- **Alternatives to the proposed development**
- **Relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity**

LAND-USE PLANNING

Environmental Impact Assessment

- **Irreversible environmental and irretrievable commitments of resources**
- **Growth inducing impact**
- **Mitigation measures to minimize impact**

CONTINUING PLANNING PROCESS

- **Surveillance, maintenance, inventory, and update of the basic data such as aviation activity and socioeconomic and environmental factors relating to the existing airport system and master plan**
- **Review and validation of data affecting the airport system and master plan**
- **Reappraisal of the airport system and master plan in view of changing conditions**

CONTINUING PLANNING PROCESS

- **Modification of the airport system and master plan to retain its viability**
- **Mechanism for exchange of information between the system planning and master planning processes**

CONTINUING PLANNING PROCESS

- **Public feedback**
- **Redefinition of air transportation goals and policies**
- **Integration of airport system planning into a multimodal planning process**
- **Analysis of special issues**
- **Publication of interim reports and formal plan updates**

SERVICE QUALITY MANAGEMENT

Service Quality Indicators

- **Practical Hourly Capacity**
- **Gate Departure Delay**
- **Taxi Departure Delay**
- **Customer Satisfaction**
- **Baggage Delivery Time**
- **Security Clearing Time**
- **Check-in to Gate Time**

OBJECTIVES OF QUALITY OF SERVICE MONITORING

- **To increase the transparency of airport operators' performance and**
- **To discourage them from excessively increasing prices and/or lowering standards of aeronautical services.**

AIRPORT ACTIVITIES

- **Passenger-related services and facilities associated with, for example, check-in, gate lounges and baggage processing**
- **Aircraft-related services and facilities associated with, for example, the runway, apron and taxiway system, gates, aircraft parking and ground service equipment and freight facilities**
- **Landside-related services and facilities associated with, for example, kerbside pick-up and drop-off**
- **Management performance and responsiveness**

PERFORMANCE INDICATORS FOR AIRPORT SERVICE QUALITY MGT

✓ Core

1. Passengers
3. Aircraft Movements
4. Freight or Mail Loaded/Unloaded
5. Destinations—Nonstop

PERFORMANCE INDICATORS FOR AIRPORT SERVICE QUALITY MGT (Contd...)

✓ Safety and Security

- 1. Runway Accidents**
- 2. Runway Incursions**
- 3. Bird Strikes**
- 4. Public Injuries**
- 5. Occupational Injuries**
- 6. Lost Work Time from Employee Accidents and Injuries**

PERFORMANCE INDICATORS FOR AIRPORT SERVICE QUALITY MGT (Contd...)

✓ Financial/Commercial

- 1. Aeronautical Revenue per Passenger**
- 2. Aeronautical Revenue per Movement**
- 3. Non-Aeronautical Operating Revenue as %of Total Operating Revenue**
- 4. Non-Aeronautical Operating Revenue per Passenger**
- 5. Debt Service as Percentage of Operating Revenue**
- 6. Long-Term Debt per Passenger**
- 7. Debt to EBITD Ratio**
- 8. EBITD per Passenger**

PRODUCTIVITY/ COST EFFECTIVENESS INDICATORS

- **Passengers per Employee**
- **Aircraft Movements per Employee**
- **Aircraft Movements per Gate**
- **Total Cost per Passenger**
- **Total Cost per Movement**

PRODUCTIVITY/ COST EFFECTIVENESS INDICATORS

- **Total Cost per Work Load Unit (WLU)**
- **Operating Cost per Passenger**
- **Operating Cost per Movement**
- **Operating Cost per WLU**

ENVIRONMENTAL INDICATORS

- 1. Carbon Footprint**
- 2. Waste Recycling**
- 3. Waste Reduction Percentage**
- 4. Renewable Energy Purchased by the Airport (%)**
- 5. Utilities/Energy Usage per Square Meter of Terminal**
- 6. Water Consumption per Passenger**

REVIEW OF SAFETY IN AND AROUND AIRPORTS

- **Lighting and marking (approach lighting, sign lighting, stop bar lighting, etc.)**
- **Runways and taxiways (runway length, obstructions, taxiway surface condition, etc.)**
- **Information (aerodrome hazard notifications, weather reports, runway information, etc.)**
- **External hazards (snow, fog, turbulence, wake vortex, etc.)**

REVIEW OF SAFETY IN AND AROUND AIRPORTS

- **Apron and ramp (apron/ramp congestion, apron/ramp surface condition, etc.)**
- **ATC operations and procedures (approach procedures, communication phraseology use, separation judgement, etc.)**
- **Aerodrome - other (aerodrome structures, VASI/PAPI, etc.)**

AIRPORT SAFETY & SECURITY

History of Airport Security

- Identification of an air operations area (AOA), that is, those areas used or intended for landing, takeoff, and maneuvering of aircraft
- Identification of those areas with little or no protection against unauthorized access because of lack of adequate fencing, gates, doors, or other controls
- A plan to upgrade the security of air operations with a timetable for each improvement project
- Mandatory airport licensing including a requirement to establish, maintain and ensure adherence to an integrated safety management programme

AIRPORT SAFETY & SECURITY

History of Airport Security

- **Mandatory collection of data on ground -based incidents, with appropriate emphasis on organizational and corporate culture factors**
- **Mandatory inclusion of third party risk in Environmental Impact Statements for airports**
- **The development of common standards for the safety assessment of operations**
- **Further research to bridge current gaps in knowledge.**

AREAS REQUIRING FURTHER RESEARCH

- **The establishment of common methods and tolerability criteria for third party risk**
- **The development of adequate methods and models to incorporate the role of human operator and procedural aspects in formal safety assessments**
- **The safety aspects of new technologies such as enhanced and synthetic vision systems, Head Up displays for civil cockpits**
- **Airport wind and turbulence environments and their dynamic effects on aircraft in take -off or landing**

AREAS REQUIRING FURTHER RESEARCH

- **The operation of safety systems in a multi-organisational environment**
- **Methods of analysis of organisational precursors of accidents and incidents**
- **Evaluation of planning for disasters**

RECOMMENDATIONS FOR ACTION

- **Mandatory airport licensing including a requirement to establish, maintain and ensure adherence to an integrated safety management programme**
- **Mandatory collection of data on ground -based incidents, with appropriate emphasis on organisational and corporate culture factors**
- **Mandatory inclusion of third party risk in Environmental Impact Statements for airports**
- **The development of common standards for the safety assessment of operations**
- **Research support on the issues identified above**

GROUND HANDLING AT AIRPORT

- ✓ *Ramp services*
- ✓ *On-ramp aircraft services*
- ✓ *Onboard servicing*

Cleaning

Catering

In-flight entertainment

Minor servicing of cabin fittings

Alteration of seat configuration

GROUND HANDLING AT AIRPORT

- ✓ *External ramp equipment*

 - Passenger steps, Catering loaders

 - Cargo loaders, mail and equipment loading

- ✓ *Equipment*

 - Tow-bars

 - Push-back tractors:

 - Forklifts:

 - Steps: they are available with or without canopy

 - GPU, Loader, Dollies, Belts, Tractors

GROUND HANDLING AT AIRPORT

- ✓ ***Operational analysis***

- Layout of operations**

- Timing**

- Management and organizational issues**

PASSENGER MANAGEMENT AT AIRPORTS

Check-In Process

Bio-Metric Identification and Registered Passenger Schemes

There are three key stages to an RP scheme that need to be considered when assessing the most promising approach to international recognition:

- Enrollment
- Risk Assessment and
- Identification at the airports

PROCESS OF SETTING AIRPORT CHARGES

- **Accounting**
- ***Financial Statements***
- ***Revenues***
 - ✓ **Revenues from Ground-Handling Charges**
 - ✓ **Revenues from Non-Aeronautical Activities**
 - ✓ **Bank and Cash Management Revenues**
 - ✓ **Administrative Revenues**

DETERMINING THE COST BASIS FOR CHARGES ON AIR TRAFFIC

Factors To Be Taken Into Account

- **Implications of organizational structure**
- **Transfers of costs to and from other departments**
- **Difference between costs recorded in airport accounts and costs used for determining the cost basis for charges**
- **Arriving at the revised costs forming the basis for charges on air traffic (and for costs attributable to non-aeronautical activities)**

DETERMINING THE COST BASIS FOR CHARGES ON AIR TRAFFIC

Factors To Be Taken Into Account

- **Adjustment for costs attributable to non-aviation off-airport utilization**
- **Adjustment for costs when the airport provides en-route utilization of airport facilities and services**
- **Adjustment for costs attributable to exempted flights**

COST BASIS FOR INDIVIDUAL CHARGES ON AIR TRAFFIC

- ✓ **Basic Aspects**
- ✓ **Landing Charges**
- ✓ **Lighting Charges**
- ✓ **Approach and Aerodrome Control Charges**
- ✓ **Aircraft Parking Charges**
- ✓ **Aerobridge Charges**
- ✓ **Hangar Charges**

COST BASIS FOR INDIVIDUAL CHARGES ON AIR TRAFFIC

- ✓ **Passenger Service Charges**
- ✓ **Cargo Charges**
- ✓ **Security Charges**
- ✓ **Noise-Related Charges**
- ✓ **Emissions-Related Aircraft Charges To Address Local Air Quality Problems At Or Around Airports**
- ✓ **Other Charges**
- ✓ **Pre-Funding Charges**
- ✓ **Aggregation Of Cost Bases For Setting Charges**

DETERMINING THE COSTS ATTRIBUTABLE TO CONCESSIONS AND OTHER NON- AERONAUTICAL ACTIVITIES

- ✓ **Determining the Cost Basis for Individual Non-Aeronautical Activities**
- ✓ **Concessions Directly Associated With the Operation of Air Transport Services**
- ✓ **Cost Basis for Fuel Concessions**

DETERMINING THE COSTS ATTRIBUTABLE TO CONCESSIONS AND OTHER NON- AERONAUTICAL ACTIVITIES

- ✓ **Cost Basis for In-Flight Catering Concessions**
- ✓ **Cost Basis for Ground Handling**

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SETTING CHARGES FOR AIR TRAFFIC OPERATIONS

✓ *Economic Pricing*

- Objectives
- Application of economic pricing for cost recovery
- Congestion management

✓ *Differential charges*

- Non-discrimination
- Transparency
- No cross subsidization
- Time-limitation