



International Civil Aviation Organization

Runway and Ground Safety Working Group

**Fourth Meeting (RGS WG/4)
(Cairo, Egypt, 05-07 November 2017)**

**Agenda Item 4: Coordination between RASG-MID and MIDANPIRG in the area of
Aerodromes**

**INCREASE OF AERODROME CAPACITY ASSOCIATED WITH INCREASED
AIRSPACE CAPACITY**

(Presented by the Secretariat)

SUMMARY

The aim of this paper is to highlight the importance of a systematic and consultative approach for the best use of airport existing and future resources. States CAA/Airport Operators are encouraged to develop long term Airport Master Plans to assist, in the timely phased airport expansions thereby increasing capacity and enhancing safety and efficiency of aircraft operations.

The challenges of forecasting methodology, and cost-benefit analyses guidelines will not be addressed in details in this working paper.

Action by the meeting is at paragraph 3.

REFERENCES

- Annex 14 Volume I
- GANP 2016-2030 Doc 9750-Fifth Edition
- ICAO Airport Planning Manual Doc 9184 - Part 1-2nd Edition 1987

1. INTRODUCTION

1.1 Annex 14, Volume I, does not include specifications relating to the overall planning of aerodromes (such as separation between adjacent aerodromes or capacity of individual aerodromes), impact on the environment, or to economic and other non-technical factors that need to be considered in the development of an aerodrome. Information on these subjects is included in the Airport Planning Manual (Doc 9184), Part 1. Guidance material on the environmental and land use aspects of the development and operation of an aerodrome is included in the Airport Planning Manual (Doc 9184), Part 2.

1.2 ICAO Airport Master Planning (Doc. 9184, Part 1) provides guidance material to assist States in planning the expansion of existing international airports and the construction of new ones. Successful expansion of existing airports and the development of new airports will result from guidelines established in an Airport Master Plan.

1.3 The ICAO Global Air Navigation Plan, 2016–2030, presents all States with a comprehensive planning tool supporting a harmonized global Air Navigation system. It identifies all potential performance improvements available today, details the next generation of ground and avionics technologies that will be deployed worldwide, and provides the investment certainty needed for States and Industry to make strategic decisions for their individual planning purposes. The GANP's Block Upgrade planning approach also addresses user needs, regulatory requirements and the needs of Air Navigation Service Providers and Airports. This ensures a single source for comprehensive planning.

1.4 Flow planning is the basis of transport, and thus of airport development. Increasing of Airport Capacity associated with the increase of Airspace Capacity mandate recognizing the importance of long term development of an airport to cater to the growing air traffic volume and the need for a coordinated phased Airport Master Plan

2. DISCUSSION

2.1 Air transport plays a major role in driving sustainable economic and social development. It directly and indirectly supports the employment of 58.1 million people, contributes over \$2.4 trillion to global Gross Domestic Product (GDP), and carries over 3.3 billion passengers and \$6.4 trillion worth of cargo annually.

2.2 Aviation achieves its impressive level of macro-economic performance by serving communities and regions through clear cycles of investment and opportunity. Infrastructure development generates initial employment and the ensuing airport and airline operations generate new supplier networks, tourism influxes and access for local producers to distant markets. These burgeoning trade and tourism economies then continue to expand, fostering wider and more sustainable regional growth.

2.3 Unmanaged air traffic growth can lead to increased safety risks and delays, in those circumstances when it outpaces the regulatory and infrastructure developments that are needed to support it.

2.4 The Airport Planning Manual Doc 9184 - Part 1, provide for:

- airport planning including master planning which is vital in building the airport capacity timely in a phased approach, thus avoiding significant delays in the future due to capacity constraints. Airport capacity will be increased; and airport delays will be reduced through more precise and up-to-date airport planning;
- The importance of consultation and co-operative planning and the need to develop a systematic approach in determining future airport requirements and suggest significant features of the airport planning process; and
- The Airport Master Plan should be established as an effective, continuing programme capable of implementation and should provide guidance for infrastructure planning (and status) by indicating on a per-technology basis, the need for and readiness of existing infrastructure, ICAO Standards and guidance material, demonstrations and validations, initial operational capability of emerging technologies and global implementation.

2.5 The meeting may wish to note that, in today's complex business environment, many projects at airports run off course. The traditional design-driven approach is failing in the increasingly complicated stakeholder field and business environment and consequently several airport companies are now successfully shifting to a new approach on airport development. Decisive elements of this new approach include focusing on actual needs, preparing for changes, developing airports as holistic systems, creating a 'top-down' strategic fit of projects, engaging stakeholders, and aligning expertise. These success factors underpin the principles of a project management approach called 'Systems Engineering'.

2.6 The meeting is invited to note that lesson learnt from researched airport development projects of various kinds and scales, discovered that in many cases it is the fundamental issues that result in budget overruns, delays, quality issues, and lack of stakeholder acceptance. These issues include harmful and structural project routines such as jumping to solutions while neglecting intrinsic needs, overlooking the strategic fit of projects, misaligning expertise, creating a disconnection with stakeholders, and mismanaging the scope of the project and changes that occur. These routines have become increasingly problematic in our radically changing business environment, yet most airport companies continue to use old strategies of airport development. However, a small number of airports have successfully shifted their approach. These companies have built their success on the following six key principles:

- a. Focusing on intrinsic needs
- b. Preparing for changes
- c. Developing airports as holistic systems
- d. Creating a 'top-down' strategic fit for projects
- e. Engaging stakeholders
- f. Aligning expertise by means of early market involvement.

2.7 The meeting may wish to agree that Airports face numerous significant challenges such as unpredictable growth and incompatible demands of stakeholders. States and airport companies that are most successful at managing these challenges are those that recognise and adjust to these challenges. Those that passively continue with their old strategies are endangering their business and that States and Airport companies need to find new strategies and tactics to develop and operate their airports.

2.8 The meeting may wish to consider that creating airports of tomorrow in a changing aviation landscape necessitate a rethinking airport development and that there are six System thinking principles that are essential to abide by for airports that want to adopt this new approach:

- a. needs-driven rather than design-driven process;
- b. preparing for changes rather than preventing changes;
- c. focus on holistic integrated systems rather than technical details engaging rather than misaligning stakeholders;
- d. alignment of expertise rather than the silo mentality;
- e. top-down rather than bottom-up development; and
- f. systems Engineering supports policy-makers and decision-makers in focusing on needs rather than 'things'.

2.9 The meeting may wish to conclude that Systems Engineering is introducing an explicit, traceable and transparent method of decision-making. With Systems Engineering, decision-makers at all levels of the organisation have all the required information readily available to make the right decision at the right time.

2.10 Accordingly, the meeting is invited to agree on the following Draft Conclusion:

DRAFT CONCLUSION 4/X: AIRPORT MASTER PLAN

That, ICAO, to consider:

- a) review, and if necessary develop SARPS on airport master planning requirements for all aerodrome open for Public use to support airport capacity enhancements; and*
- b) update and amend, as appropriate, the guidance material contained at the Airport Planning Manual Doc 9184 - Part 1.*

That, States, to ensure:

- a) that aerodrome operators have in place an Airport Master Plan for all of its international airports as a first step; and*
- b) provide information to ICAO MID Office on the status of implementation of airport master plan requirement before end of March 2018 be presented to the next RGS WG/5 for further course of actions as appropriate.*

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the contents of this working paper; and
- b) agree on the Draft Conclusion at Para. 2.10.

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