



# ADVISORY CIRCULAR

**CAA-AC-AGA704**  
**December 2022**

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## ESTABLISHMENT OF RUNWAY SAFETY TEAMS

### 1. Purpose

The purpose of the advisory circular is to provide guidance and is developed to:

- (a) describe the components of an effective Runway Safety Team (RST);
- (b) serve as a single reference for RST activities; and
- (c) promote the sharing and exchange of safety information between stakeholders.

A successful RST requires all key stakeholders to cooperate in a collaborative manner. This document, therefore, is intended to serve as a reference for aerodrome operators, air traffic services organizations, commercial air operators, organizations representing the general aviation community, the regulatory authority, meteorological services and other stakeholders interested in improving runway safety.

This document supports the development of a general understanding of the processes involved in operating an effective Runway Safety Team and offers guidance in developing a “Terms of Reference” document. It contains also a guidance material in assisting the verification of minimum requirements for an operating Runway Safety Team.

### 2. Introduction

ICAO Assembly resolution A37-6 urged States to enhance runway safety. ICAO promotes and supports the establishment and enhancement of multi-disciplinary Runway Safety Teams at aerodromes. The ICAO Runway Safety Programme (RSP) promotes the establishment of Runway Safety Teams (RSTs) at airports as an effective means to reduce runway related accidents and serious incidents. The requirement for airports to establish a Runway Safety Team (RST) is one of the main outcomes of the ICAO Global Runway Safety Symposium held in Montreal, Canada, in May 2011.

RSTs have proven highly successful at mitigating the risks of runway incursions and excursions, providing a collaborative solution which regulators, air navigation service

providers, airline and airport operators have all positively contributed to. The creation of Runway Safety Teams (RSTs) to prevent and mitigate the effects of runway occurrences are also addressed in ICAO Doc 9870 - Manual on the Prevention of Runway Incursions. The correct establishment of local RSTs at individual aerodromes is key to the development and implementation of an effective action plan for runway safety and recommend strategies for hazard removal and mitigation of residual risks.

This advisory circular provides some guidance to the aerodrome operator about the implementation of the Airside Safety Committee/Runway Safety Team.

### 3. Definitions

When the following terms are used in this advisory circular they have the following meanings:

**Clearway.** A defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an airplane may make a portion of its initial climb to a specified height.

**Hazard.** A condition or an object with the potential to cause death, injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.

**Hot spot.** A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

**Risk mitigation.** The process of incorporating defences or preventive controls to lower the severity and/or likelihood of a hazard's projected consequence.

**Runway.** A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

**Runway confusion.** An error when an aircraft makes "unintentional use of a wrong runway or taxiway for landing or take-off".

**Runway end safety area (RESA).** An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway.

**Runway Excursion.** Any occurrence at any aerodrome involving the departure, wholly or partly, of an aircraft from the runway in use during take-off, a landing run, taxiing or manoeuvring.

**Runway Incursion.** Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft.

**Runway Safety.** The state in which risks associated with the operation of aircraft on runways are reduced and controlled to an acceptable level.

**Runway Safety Team.** A team comprised of representatives from the aerodrome operator, air traffic service providers, airlines or aircraft operators, pilot and air traffic controllers associations and any other group with a direct involvement in runway operations at a specific aerodrome that advise the appropriate management on the potential runway safety issues and recommend mitigation strategies.

**Safety.** The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

**Safety management system (SMS).** A systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures.

**Safety risk.** The predicted probability and severity of the consequences or outcomes of a hazard.

**Safety risk probability.** The likelihood or frequency that a safety consequence or outcome might occur.

**Safety risk severity.** The extent of harm that might reasonably occur as a consequence or outcome of the identified hazard.

**Stopway.** A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.

#### **4. Runway Safety Team (RST)**

##### **4.1 Goals and General Description of the RST Programme**

The primary role of a runway safety team is to advise relevant operators and service provider's management and operational staff on prevailing local conditions on the runway, taxiways and adjacent areas, other issues of concern and develop mitigating measures and solutions to identified issues.

The RST shall implement an action plan for runway safety, advise management as appropriate on potential runway safety issues and recommend strategies for hazard removal and mitigation of the residual risk. These strategies may be developed based on local occurrences or combined with information collected elsewhere.

Although not considered a regulatory authority or intended to replace any required component of a Safety Management System (SMS), the RST is aimed to improve and support runway safety by integrating the safety systems of the participating organizations (stakeholders). Interfacing service providers should document the interface between the SMS and the RST, where RSTs are available. RSTs can serve as an excellent tool for managing runways safety related risk identified by the service provider programs. In addition, the service provider SMS process should be used to evaluate possible risk posed by operational changes resulting from RST proposed corrective actions.

The RST's meeting schedule depends on the situation and environment of the aerodrome. For example, if major works are proposed, or runway hazards and incidents are increasing, then the RST may need to meet more frequently. However, if operations are stable, with few hazards identified, then the meetings may be less frequent.

The RST is built on the principles of a formal Hazard Identification and Risk Management (HIRM) process, in accordance with Civil Aviation (Safety Management) Regulations and ICAO Doc 9859— Safety Management Manual (SMM). The RST should be able to capture the HIRM results from its members, as most of them will have their own SMS's with differing HIRM processes.

The RST shall cover a wide range of issues related to runway safety, including but not limited to, the following occurrence categories:

- Abnormal runway contact;
- Bird strike;
- Ground collision;
- Ground handling;
- Runway excursion;
- Runway incursion;
- Loss of control on ground;
- Collision with obstacle(s);
- Undershoot / overshoot, aerodrome
- Use of the wrong runway (runway confusion)
- High Speed Rejected Take-Off
- Wildlife Event
- Damage from Foreign Object Debris (FOD )

ICAO Doc 9870 – *Manual on the Prevention of Runway Safety Incursions*, provides specific guidance on the establishment and objectives of a runway incursion programme.

## **4.2 Runway Safety Team Administrative Processes**

### **4.2.1 Terms of Reference**

To facilitate effective decision-making, organizations seeking to establish an RST shall agree to a set of procedural rules governing the actions of their representatives. Once formally documented and accepted, these rules will be referred to as the “Terms of Reference” (ToR) of the RST.

The suggested ToR's for the RST will include:

- a) Objectives, scope of oversight, and expected frequency of RST meetings;
- b) Membership selection processes;
- c) Roles and responsibilities of individual RST members;
- d) Processes and formal agreements governing sharing of safety data, safety reports, and safety information as well as the protection of the sources of information shared within the RST (protection from inappropriate use and protection against disclosure);
- e) Consultation, decision-making and conflict resolution processes;
- f) Regularly review the airfield to ensure its adequacy and compliance with Civil Aviation Regulations and ICAO SARPs;
- g) Ensure that the recommendations contained in the ICAO Doc 9870 - Manual on the Prevention of Runway Incursions are implemented;
- h) Documentation and reporting requirements;
- i) Monitor runway incidents by type, severity and frequency of occurrence;
- j) Identify risk factors and local issues, particular locations where risk exist (e.g., hot spots), and problems in daily operations and suggest improvements;
- k) Solicit assistance by safety experts from within the industry;
- l) Contribute to active development of solutions to these issues;
- m) Ensure that the best possible solution is implemented;
- n) Learn lessons from other incidents and consider the outcome of other investigation reports;
- o) Disseminate information on developed solutions to stakeholders;
- p) Confirming that communications between the ANSP and Aircrew/Drivers are satisfactory, or if any improvements could be suggested. For example, although standard ICAO phraseology may be utilised, some messages from ATC may be overlong or complex, which may have the potential to confuse drivers or aircrew;
- q) Driving on the airfield on a regular basis to ensure that all markings and signage are understandable by all parties, and that no possible ambiguity exists.
- r) Initiate a comprehensive safety-awareness campaign to ensure that all stakeholders' staffs are aware of safety issues, such as producing and distributing local hot spot maps or other guidance material;
- s) Assess periodically the airport SMGCS design to prevent inadvertent incursions. The RST will evaluate the visual aids, non-visual aids, procedures, control, regulation, management and information facilities taking into account the visibility conditions under

which the aerodrome authority plans to maintain operations and the traffic density.

#### **4.2.2 Continuous improvement**

All team members will monitor the RST activities for areas in need of improvement and/or failure to achieving the conditions set forth in the ToR. Additionally, the chairperson will schedule the following activities:

##### **a) Internal reviews:**

The aerodrome safety committee/runway safety team shall meet on a quarterly basis to review and discuss all airside safety concerns (including runway incursion), operational concerns and maintenance concerns. Their responses will be recorded and maintained as part of the safety library for at least three years.

##### **b) External reviews:**

At least once per calendar year, the RST documentation should be audited. The results of this appraisal will be recorded and maintained as part of the safety library for a period described in the SMS of the aerodrome operator.

#### **4.3 RST Organizational Structure**

The organizational setup required for an RST depends on the number of participating members, their interaction and cooperation capabilities and any other local requirements. In any case, the initiator would be the aerodrome operator. This section provides basic concepts of leadership and administration sharing in order to assist RST as necessary. It may vary depending on the size and setup of each team.

Irrespective of the final RST set up, the team will require the designation of leadership and administration. One or more members of the RST; e.g. one Chairperson and one Rapporteur may carry out these tasks.

##### **4.3.1 The RST Chairperson**

The Chairperson serves as the coordinator and spokesperson for the team. The nomination and role of the Chairperson will be made by the aerodrome operator. The roles and responsibilities of the nominated Chairperson may also include a variety of administrative and/or organizational aspects, such as:

##### **a) Meeting planning:**

The Chairperson schedules the meetings and arranges the venue. He or she gathers input from the members in the weeks prior to the meeting and distributes an agenda one week prior to the meeting date.

**b) Meeting facilitation:**

The Chairperson ensures the meetings are conducted in a collaborative manner and in accordance with the ToR processes. He or she constantly strives to enhance the programme by regularly engaging in continuous improvement activities.

**c) Maintaining the safety library:**

- i. The Chairperson ensures the actions of the RST are properly documented and maintained in the RST safety library.
- ii. The Aerodrome Operator shall submit the minutes of Runway Safety Team meeting to UCAA within two weeks after the meeting.

**d) Coordinating with external agencies:**

The Chairperson serves as the point of contact with external agencies and ensures all RST activities are properly communicated to applicable agencies/organizations.

**4.3.2 Role of RST Members**

**a) Meeting planning:**

RST members will submit items for discussion at the next scheduled meeting as soon as possible, but not later than the date requested by the Chairperson. Each member presenting during the meeting should prepare briefing material and invite subject matter experts as necessary to provide the other members with a clear understanding of the issue they wish to discuss. The members should tour the airport just prior to the meeting to familiarize themselves with the current situation and identify potential safety hazards.

*Note: A tour of the airport during different times of the day and varying environmental conditions should be considered to allow identification of hazards specific to certain light and adverse weather conditions. The tour is for the identification of safety issues only and should not be used by any person external to the RST nor cause disruption to current operations.*

**b) Meeting participation:**

RST members will openly share information and strive to achieve consensus during decision-making activities. They will constantly strive to enhance the programme by engaging in continuous improvement activities.

**c) Contributing to the safety library:**

RST members should contribute safety data & analysis, reports, and information from the safety management systems or other safety relevant sources of their participating organizations to the

RST.

**d) Coordinating with participating organizations:**

RST members will communicate the findings and decisions of the RST within their respective organizations and ensure the recommendations are properly addressed.

**4.3.3 Role of UCAA**

The RST is considered an activity of the SMS of the aerodrome operator, which coordinates safety issues from all the users of that aerodrome. Although their participation is not required, a member of UCAA can participate in RST meetings to advise on regulatory matters, participate in the information sharing activities, understand the current hazards and risks associated with local operations, and interface with other government agencies (e.g. land use authorities) on behalf of the RST when appropriate.

**4.4 RST technical processes**

**4.4.1 Meetings**

The RST meeting is the most important component of the programme as it is the forum in which hazards are discussed, consequences determined, risks assessed, priorities determined, and recommendations developed. This type of face-to-face interaction leads to improved collaboration, problem-solving and risk management because the team members benefit from information sharing and the perspectives of representatives from other groups.

Given the RSTs operational focus, it shall include representatives from the following groups:

- (a) aerodrome operators;
- (b) air traffic services;
- (c) commercial air operators;
- (d) representatives of flight crew familiar with the aerodrome;
- (e) members from the general aviation community (if applicable);
- (f) technical experts of controller associations; and
- (g) technical experts of pilots associations.

The team may also include:

- (a) military operator (if applicable, based on joint use of the airport or other military roles);
- (b) support services (ground handling, Catering, etc.);
- (c) emergency response service providers;
- (d) subject matter experts (meteorologists, ornithologists, accident investigation authority,



etc.) (upon invitation); and

- (e) consideration may be given to periodically inviting members of other RSTs to enable sharing of information and learning.

In addition to the normal RST members, service providers operating at the aerodrome may participate in the RST process to address operational hazards identified by their internal SMS. In this regard, the service providers will interface with the RST as needed to address the specific concern.

The agenda for the meeting, as a minimum should include:

- an update on previous recommendations
- new hazards and associated consequences
- risk assessments of the consequences
- proposed recommendations of controls and mitigation measures for managing the risk
- monitoring of the effectiveness of controls and mitigation measures taken.

The RST safety team will send a copy of the RST minutes of meeting to UCAA all technical documents discussed during the meeting.

#### **4.4.2 Hazards and Associated Consequences**

Once the team members are identified, the Chairperson nominated, and the ToR and schedule are agreed to, the real work of the RST begins with the hazard identification process. It is anticipated that each member will come to the meeting prepared to brief on the hazards related to runway safety, as identified through their respective SMS or other aviation safety relevant systems (arising mostly from safety reporting, investigation and audit activities). Hazards identified through the SMS of service providers who may not be participating in person at the meeting should be presented for evaluation.

In addition to the hazard reporting systems of the member organizations, the RST shall also conduct periodic visits to various airport locations (i.e., tower facility, construction areas, taxiway intersections, etc.) and solicit input especially from organizations without formal representation at the meeting. These may include corporate operators, flight schools, industry organizations, ground services and others. By casting a wide net, the RST will develop a deeper understanding of the operational complexity associated with the airport environment and, therefore, be better able to identify hazards and determine operational risks.

As the team discusses the destructive potential of the hazard, it is important to keep in mind that these “consequences” shall be framed in realistic operational outcomes, as opposed to extremely remote and unlikely outcomes. A useful technique is to identify the top-level (or generic) hazard, then to list the related specific hazards and associated consequences. For example, a generic

hazard category might be “airport construction.” The specific hazards associated with a construction project at the airport might be “the presence of construction equipment” and “the closure of taxiways.” These, in turn, may result in the RST identifying the potential consequences of these specific hazards as “an aircraft colliding with the construction equipment” and “an aircraft taxiing onto a closed taxiway.” By correctly identifying (and documenting) the hazard and defining the associated consequences in operational terms, the RST is able to assess the safety risk.

Hazardous conditions can sometimes combine, resulting in an even greater severity and/or probability of outcome. For example, the hazards associated with airport construction, coupled with the hazards of low visibility and night operations, may result in a greater risk than just the airport construction hazard alone (in this situation, the probability of the risk would likely be increased).

#### **4.4.3 Safety Risk Assessment**

The reason for conducting safety risk assessments is to provide the RST with a method for appropriately managing the risks of identified hazards, developing effective risk mitigation strategies, and prioritizing their workflow. Given that time and financial resources are limited, the following process allows the RST to efficiently determine which areas require its immediate attention to reduce the runway safety risk to **As Low As Reasonably Practicable (ALARP)**.

The process of runway safety risk assessment and management should be in line with the guidance in ICAO Doc 9859. Once the hazards have been identified by the RST, the objective is for the aerodrome operator to make a determination of the safety risk severity in the context of the local system, accounting for current defences and mitigations in place at the time.

Based on the event that would be the worst consequence, the next step is to evaluate the relative probability (or likelihood) of that event occurring in the specific operational environment, after taking into account the current defences and risk mitigation strategies in place. The team shall consult associated safety and hazard report databases, incident & accident investigation reports, flight data monitoring and analysis, operational audit data and other historical sources to determine the likelihood of the identified consequence occurring.

The last step in the assessment process is to ensure that the resulting level of safety risk is acceptable. One of the advantages of using the RST to conduct the risk assessment is that all stakeholders have been involved in the risk assessment process, thus ensuring that the worst outcome and appropriate probability have been evaluated.

#### **4.4.4 Developing Recommendations and Action Plan**

Following the safety risk assessment, the RST should develop specific recommendations to reduce the risk, and an action plan to ensure the recommendations are implemented. In doing so, the following concepts should be considered:

**a) *Prioritization:***

The RST shall ensure their solutions are prioritized according to the “safety risk tolerability” assessment. For example, if they determine that “the operation may continue” with the assessed level of safety risk, their recommendations should reflect a strategy where improvements are implemented as resources become available. Conversely, if they determine “the operation may continue with mitigation,” their recommendations should reflect a strategy requiring immediate action(s) to address the consequences of the hazard. Thus, time frames for completing the actions must be commensurate with the risk levels involved.

**b) *Control strategies:***

Safety risk is controlled by addressing either:

- (1) the probability of the consequences occurring;
- (2) the severity level of the consequences; or
- (3) both simultaneously.

Key approaches to controlling safety risk include:

**1. *Avoidance:***

The operation or activity is cancelled because the safety risk exceeds the benefit of continuing the operation or activity.

**2. *Reduction:***

The frequency of the operation or activity is reduced, or action is taken to reduce the severity of the consequences of the risks.

**3. *Segregation:***

Action is taken to isolate the effects of the consequences of the hazard or build in redundancy to protect against them.

**c) *Evaluating alternative solutions:***

During the process, the RST shall explore several strategies for controlling safety risks. These strategies shall be evaluated against one another to find the most effective and efficient solution using objective and subjective measures. These measures may include criteria such as conducting a cost/benefit analysis, determining the enforceability of the proposal, assessing the acceptability to the affected stakeholder, and others. In all cases, however, the RST must conduct a risk assessment of their proposed solution and evaluate any potential hazards created by their strategy.

However, just because a solution is easy to implement, cost effective and acceptable to all stakeholders, it does not mean that it will reduce the risk level. The effectiveness of the strategy in reducing the risk is measured by the residual or remaining risk once the strategy has been activated. A risk assessment shall determine if the remaining (residual) risk is acceptable, or if more solutions and mitigations are required.

**d) Notification to Affected Stakeholder:**

If the RST determines that either a mitigation strategy is required or part of the operation should be modified or suspended, it should make a formal recommendation to the organization responsible for that part of the operation and include the rationale and risk assessment.

A summary of the entire process should include a master register of the hazards identified, current controls and defences, risk analysis and outcome, additional controls and mitigations, action plan for implementation (owner and timelines), and residual risk.

Appendix A contains the RSM Form, which may serve as the tool to accomplish the recording of hazard and associated mitigation processes.

**4.4.5 Record Keeping – Data Sharing**

Proper and structured record keeping of observed and identified hazards, safety events and corrective actions allow for trend analysis. The RST should identify a gatekeeper who is responsible for the maintenance of the database and can present reports and analysis upon request of the RST members.

Data exchange and sharing amongst RST members enhances the effectiveness of the RST. RSTs from different airports are encouraged to set a protocol in place that could allow for data sharing across various locations and will support the teams in identifying proper mitigation strategies.



The image shows a blue rectangular official stamp. At the top left is the logo of the Uganda Civil Aviation Authority (CAA), which consists of a stylized 'C' and 'A' with wings. To the right of the logo, the text reads 'UGANDA CIVIL AVIATION AUTHORITY' and 'UGAND.' below it. In the center, the word 'DIRECTOR' is printed. Below that, the text 'SAFETY, SECURITY AND ECONOMIC REGULATION' is printed. A handwritten signature in blue ink is written across the bottom left of the stamp.

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**Director Safety, Security and Economic Regulation**

## Appendix A

<b>Runway Safety Team Form</b>		
Reference: .....	Date opened: .../.../...	Date closed: .../.../.....
<b>General Information</b>		
Airport: .....	What area is affected: <input type="checkbox"/> runway <input type="checkbox"/> Taxiway <input type="checkbox"/> Ramp <input type="checkbox"/> General	
Specific Identifier (runway / taxiway identifier):		
<b>Safety outcomes</b>		
Safety Risk Type	<input type="checkbox"/> Runway Excursion <input type="checkbox"/> Runway Incursion-Aircraft <input type="checkbox"/> Wildlife Encounter <input type="checkbox"/> runway Confusion <input type="checkbox"/> Abnormal landing <input type="checkbox"/> Runway Incursion-vehicle <input type="checkbox"/> Birdstrike <input type="checkbox"/> Other (specify)	
Has the event occurred, or this a hazard (potential outcome)	<input type="checkbox"/> actual outcome (event occurred) <input type="checkbox"/> potential outcome (no event occurred)	Occurrence date: .../.../.....
Description of actual or potential outcome: ..... ..... .....		
Supporting Document Type : <input type="checkbox"/> Accident Report <input type="checkbox"/> Incident Report <input type="checkbox"/> Audit Report <input type="checkbox"/> Other (Specify)		
<b>Safety Issue</b>		
<input type="checkbox"/> Navigation Aids <input type="checkbox"/> Meteorological <input type="checkbox"/> Approach vectoring <input type="checkbox"/> other <input type="checkbox"/> Runway/Taxiway marking <input type="checkbox"/> Obstacles <input type="checkbox"/> Runway Surface Condition <input type="checkbox"/> VASI/PAPI <input type="checkbox"/> Approach Light <input type="checkbox"/> Airport Construction <input type="checkbox"/> Communications <input type="checkbox"/> Runway/Taxiway Lights <input type="checkbox"/> Procedures		
<p>Once you have completed the identification of safety issues please submit the form of to log this report.</p> <p>During the runway safety team meeting you should address each of the reports as an item on the agenda. The following sections are provided as a tool to manage the outcomes of the meeting.</p>		
<b>Risk Assessment</b>		

The risk assessment portion will be completed as part as Runway safety team meeting

What is the **Severity** of occurrence:

Catastrophic     Hazardous     Major     Minor     Negligible

What is the **Likelihood** of occurrence:  Frequent     Occasional     Remote     Improbable     Extremely Improbable

Risk Level (from below risk table) :                     High     Moderate     Low

		Likelihood				
		Certain / Frequent	Likely / Occasional	Possible / Remote	Unlikely / Improbable	Exceptional / Impossible
Severity	Catastrophic	High	High	High	Moderate	Moderate
	Major	High	High	Moderate	Moderate	Moderate
	Moderate	High	Moderate	Moderate	Moderate	Low
	Minor	Moderate	Moderate	Moderate	Low	Low
	Insignificant	Moderate	Low	Low	Low	Low

(the Correcting Action Plan is based on the recommendation of the Runway Safety Team and is completed as part of the Runway Safety Team meeting)

Action plan description :

Action description :

Executing Body:                    Implementation Date: .../.../.....    Status: .....