國家民用航空安全計畫

第一版

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交通部民用航空局

分發：
航空安全檢查員
飛航服務安全查核員
機場檢查員

啟用:
局長

民用航空安全政策

飛航安全監理是我國民用航空局（以下簡稱民航局）主要的工作項目。民航局承諾建立、實施、維持並持續改進策略及作為，以確保在民航局督導下的所有飛航作業與活動，均能符合國內法規與國際標準，以達到可接受之安全水準。

所有航空服務提供者均應證明其管理體制充分具備安全管理系統（Safety Management System, SMS）的方法。預期成果包括改善其安全通報系統、安全管理與安全措施等事項。

民航局各階層的管理人員對於達成我國最高安全績效水準亦均負有責任。

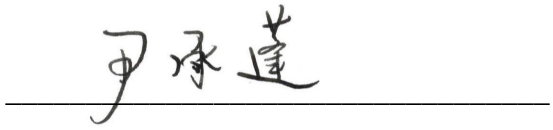
民航局承諾：

- 以全面性分析為基礎，在安全管理的準則上為民航體系建立法制架構與具體業務政策。
- 廣納航空業界各領域不同部門意見，建立法規。
- 支持安全通報與溝通體系之管理。
- 與航空服務提供者進行有效互動解決安全疑慮。
- 確保民航局內部有充分的資源配置，人員有適當的技能和訓練，以履行安全管理及其他職務。
- 依據安全風險分析配置資源優先順序，執行績效及法規符合導向之監督工作。
- 遵守且盡可能超越國際安全要求與標準。
- 對飛航服務、航空站、航空業界教育及促進安全管理觀念與原則。
- 監督我民航體系安全管理系統之實施。
- 確保監督之所有活動達到最高安全標準。
- 建置安全資料蒐集及處理系統是受法律保護之規定，進而鼓勵提供重要安全危害資訊，促進民航局和航空服務提供者間安全管理

資料持續互動與交流。

- 明確訂定安全指標與目標，建立並評估國家民用航空安全計畫的實際執行情況。
- 頒布強制執行政策，確保除非重大過失或是故意違規，否則任何依據國家民用航空安全計畫或安全管理系統建立之安全資料蒐集及處理系統所獲取之資訊，均不可用於強制執行。

凡民航局參與國家民用航空安全計畫（State Safety Program, SSP）安全監理相關作為所有人員須理解、執行並遵守本政策。



交通部民用航空局局長

目錄

第一章　概論

本計畫包含國家民用航空安全計畫的要項，此計畫為國家整體航空安全管理計畫之一部分。

民航局主要任務為提升飛航安全，降低失事率並維持於全球失事率水準以下。

除以上目標之外，本計畫亦將建立一個協助航空服務提供者實施安全管理系統的環境。准此，本計畫為業者有效實施安全管理系統之基礎，但不會作為民航局執行行政處分的依據。

依據國際民航組織標準與建議措施（ICAO Standards and Recommended Practices, SARPs）之規範，各會員國均應建立其國家民用航空安全計畫，其內容包含：

- 第1號附約　–人員證照：飛航標準組職責
- 第6號附約　–航空器作業：飛航標準組職責
- 第8號附約　–航空器適航：飛航標準組職責
- 第11號附約　–飛航服務：飛航管制組職責
- 第13號附約　–航空器失事及意外事件調查：行政院飛航安全委員會職責，民航局及業者係配合調查。
- 第14號附約　–航空站：航站管理小組職責

我國雖非國際民航組織之會員國，惟對國內與國際飛航安全以及國際民航組織標準與建議措施之遵守負有應盡的職責。因此，民航局將國際民航公約第1、6、8、11、13及14號附約內容納入我國法規，以符合國際標準，提升飛航安全。

國家民用航空安全計畫為提升飛航安全的管理體制。此計畫要求民航局以系統化的方式檢視法規、政策及流程，以確保飛航安全。

國際民航組織之標準與建議措施要求民航局建立可接受安全水準為目標，做為檢視國家民用航空安全計畫及航空服務提供者的安全管理系

統是否達到應有績效的方法。

國家民用航空安全計畫，認定民航局與航空服務提供者都有安全職責之要求，且提供航空服務提供者可據以建立安全管理系統之架構。

建立可接受安全水準的觀念與現行以符合績效指標為基礎的安全管理方式互相配合。

民航局國家民用航空安全計畫是依據國際民航組織國家民用航空安全計畫架構與指導文件及差異分析表所建置。

第二章　航空安全政策與目標

一、航空安全法規架構與航空安全政策

（一）我國民航發展主要法規依據為民用航空法（以下簡稱民航法）。該法第 1 章第 1 條即已確立其立法宗旨為保障飛航安全，健全民航制度，符合國際民用航空標準法則，促進民用航空之發展。同法第 1 章第 3 條並規定交通部為管理及輔導民用航空事業，設立交通部民用航空局（以下簡稱民航局），並依民航法授權訂定各項法規命令，以管理及輔導民用航空事業。

（二）制定民航法、訂定相關法規命令與函頒各類行政規則之目的，係為健全民航制度，符合國際標準法則，同時規範民航局之飛安監督管理機制，包括民航局對飛安管理特定作為之參與，以及所有體制內各組織的角色、職責與關係之建立。

（三）有關失事調查部分，係由民國 87 年 3 月行政院依民航法公布「航空器飛航安全委員會組織規程」，並於同年 5 月 25 日成立航空器飛航安全委員會負責處理相關業務。民國 90 年 5 月復發布「行政院飛航安全委員會組織規程」，將該會更名為「行政院飛航安全委員會」（以下簡稱飛安委員會）。民國 93 年 6 月「飛航事故調查法」公布實施，賦予該會獨立法源，獨立行使調查職權，調查民用航空器、公務航空器及超輕型載具之飛航事故。原民航法有關失事調查內容亦同步刪除。

（四）我國的飛安法規架構如下：

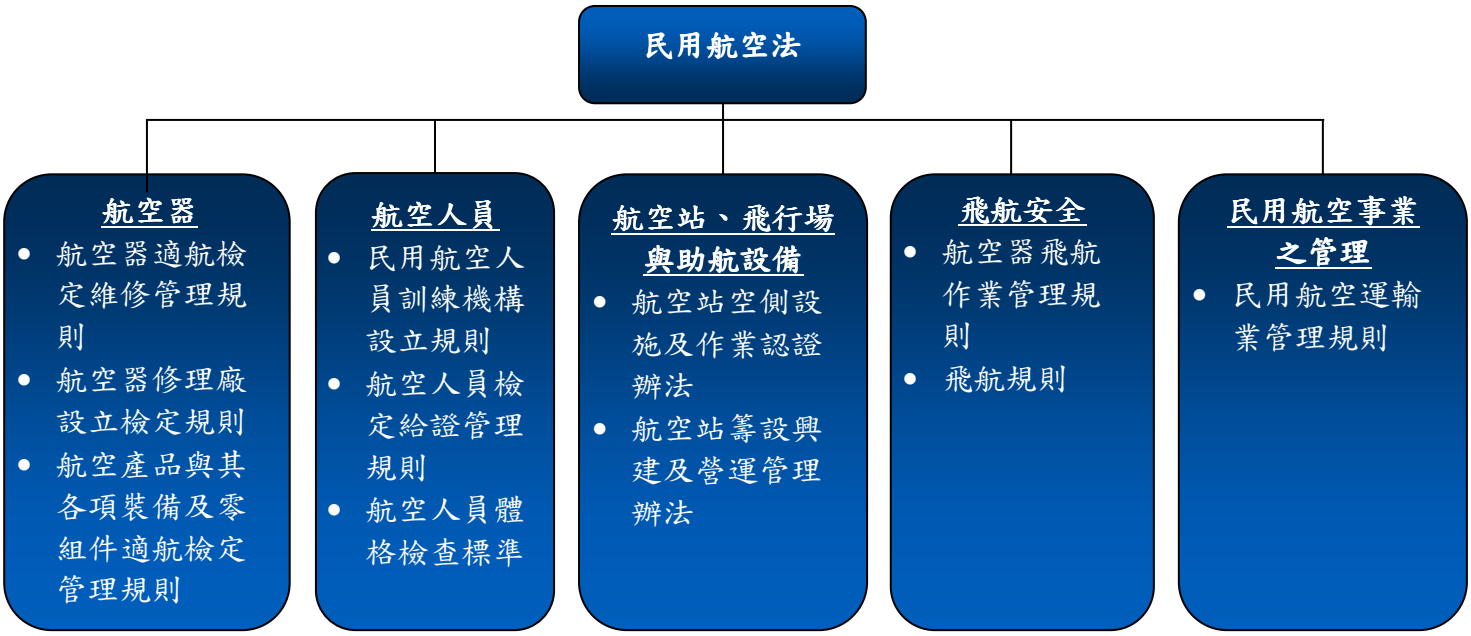


圖 1：民用航空法規架構（與 SSP 相關者）

圖 2：飛航事故調查法規架構

（五）面對當前急遽增加的民航運輸需求與運量成長，政府和業者仍有決心持續提升飛航安全以達到世界標準；藉由辨別潛在威脅與風險等措施，不斷尋求適當的改善方式。

（六）飛航安全監理為民航局主要的工作項目。民航局承諾建立、實施、維持並持續改進策略及作為，以確保所有在民航局監督下的航空相關活動，符合我國與國際標準，並達到最高安全水準。

（七）所有航空服務提供者均應證明其管理體制充分具備安全管

理系統（SMS）的方法。其預期成果包括改善其安全通報系統、安全管理與安全措施等事項。

（八）民航局各管理階層對於達成我國最高安全績效水準均有責任。

（九）民航局承諾：

1、以全面性分析為基礎，在安全管理的理論上為民航體系建立一般的法制架構與個別的作業原則。

2、於法制作業程序中，廣納飛航服務、航空站、航空業界各領域不同部門意見，以完善法規。

3、支持安全通報與溝通體系之管理。

4、與航空服務提供者（飛航服務總臺、航空站經營人、航空業界等）進行有效互動，以解決安全疑慮。

5、確保在民航局內部有充分資源配置，人員有適當的技能和訓練，以履行安全及其他方面的職務。

6、依據安全風險分析及資源優先順序，基於績效及法規符合導向執行監督工作。

7、遵守並儘可能超越國際飛航安全標準與要求。

8、向飛航服務提供者宣導並教育安全管理的觀念與原則。

9、監督航空組織內部安全管理系統的實施情形。

10、確保受監督之活動符合最高的安全標準。

11、建立維護安全資料蒐集及處理系統之規定，鼓勵提供重要安全危害資訊,促進民航局和航空服務提供者間安全管理資料持續互動與交流。

12、明確規定安全指標和安全目標，建立並評估國家民用航空安全計畫的實際執行情況。

13、公布強制執行政策，確保除非是重大過失或是故意違規，否則任何依據國家民用航空安全計畫或安全管理系統建立之安全資料蒐集及處理系統所獲取之資訊,均不可用於強制執行。

14、凡民航局參與國家民用航空安全計畫安全監理相關作為所有人員須理解、執行並遵守本政策。

二、航空安全責任與職責

（一）我國國家民用航空安全計畫經報請交通部備查後，由民航局負責主導、計劃、組織、發展、維持、控管，提供國家民用航空安全計畫所需資源並持續改善，以符合計畫目標。

（二）民航局局長為我國國家民用航空安全計畫的權責主管，並有以下職責：

1、國家民用航空安全計畫之執行。

2、國家民用航空安全計畫相關人力與財務資源之配置。

3、航空服務提供者之證照管理。

4、國家航空安全議題之擬訂。

（三）民航局局長應依據國家民用航空安全計畫適當協調國內各航空組織之作為。

三、飛航事故調查

（一）我國飛安委員會隸屬行政院，依據飛航事故調查法獨立行使調查職權，調查民用航空器、公務航空器及超輕型載具之飛航事故。

（二）飛安委員會負責調查航空器飛航事故，判定肇因及可能原因，並提出飛航安全改善建議。失事調查之目的為改善飛航安全並符合國際民航公約第 13 號附約。

（三）依據飛航事故調查法，「飛安委員會對於飛航事故之調查，旨在避免類似飛航事故再發生，不以處分或追究責任為目的。

飛安委員會獨立行使職權，有關機關本於其職權所為之調查及處理作業，不得妨礙飛安委員會之調查作業。

飛安委員會之調查報告，不得作為有罪判決判斷之唯一依據。」

四、強制執行政策

我國強制執行政策刻正修訂中。有鑒國家民用航空安全計畫/民航業者安全管理系統之成效與主動提報機制健全與否關係密切，民航局除依民用航空法第 112 條之 1/114 條，以局長飛安信箱、主動提報作業規定等管道，對於未發現之違規予以減輕或免除其處罰外，飛安委員會並設有飛安自願報告系統 (TACARE)，以獲得強制性報告系統可能蒐集不到之異常事件資訊，其系統機制均不以處分或追究責任為目的，且對資料來源提供保護，符合國際民航公約第 13 號附約之規定。未來民航局亦將研議如何以適切方式允許航空服務提供者於其安全管理系統內可處理及解決內部安全偏離事件，並確保於其安全管理系統所建置之內部危害通報系統或飛航資料監控系統所獲取之訊息，不被用於強制執行。藉由各種報告系統的分析及資訊分享，達到改善飛航安全的目的，並培養良好之報告文化與安全文化。

五、國家民用航空安全計畫文件

民航局將發展與建立我國航空安全資料庫，以建置與維持國家民用航空安全計畫文件之規定、責任與職責。航空安全資料庫將視需要維持、更新與國家航空安全法規架構相關之國家民用航空安全計畫文件、安全政策與目標、國家民用航空安全計畫規定、國家民用航空安全計畫流程與程序、各單位之權責、流程與程序之權責，以及國家民用航空安全計畫之可接受安全水準（如附件一）。

六、國家民用航空安全計畫執行架構與責任

（一）國家民用航空安全計畫執行架構包括民航局局長、安全保證小組、飛航標準組、飛航管制組及航站管理小組，其責任分別如下：

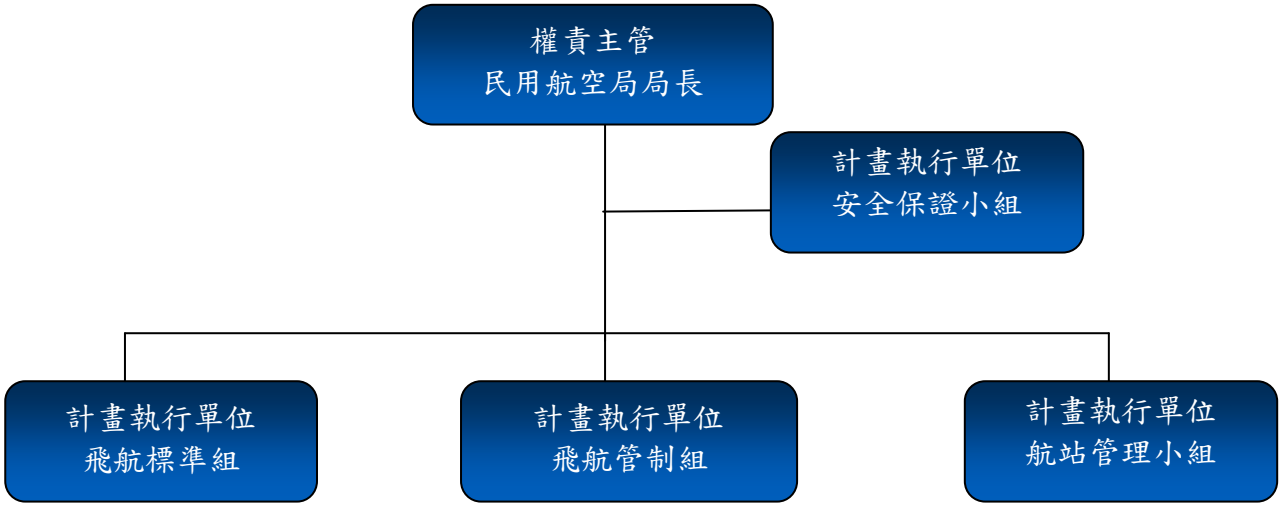


圖3：國家民用航空安全計畫架構

（二）權責主管－民航局局長

1、責任：民航局局長負責建置及控管國家民用航空安全計畫，並提供計畫執行所需資源，達成訂定之可接受安全水準，以使我國達到民航安全世界一流之目標。

2、職責：

（1）國家民用航空安全計畫之執行。

（2）國家民用航空安全計畫相關人力與財務資源之配置。

（三）計畫執行單位－飛航標準組

1、責任：飛航標準組組長負責執行我國航空器及航空業者之相關督導及管理作業，以持續提升我國飛航安全。

2、職責

（1）執行航務查核業務

（2）執行適航查核業務

（3）執行飛航測試業務

（4）執行適航驗證業務

（5）執行航空人員訓練及檢定給證業務

（6）訂定飛航安全政策

（四）計畫執行單位－飛航管制組

1、責任：飛航管制組組長負責執行我國飛航服務之相關督導及管理作業，以持續提升我國飛航情報區之飛航服務品質 。

2、職責

（1）執行飛航管制、助導航設施、航空情報、航空通信、航空氣象之督導業務

（2）執行儀航程序設計業務

（3）執行飛航服務安全查核業務

（五）計畫執行單位－航站管理小組

1、責任：航站管理小組組長負責執行我國航空站之相關督導及管理作業。

2、職責

（1）執行航空站營運相關管理業務

（2）執行航空站場面相關督導業務

（3）執行機場認證相關業務

（六）計畫執行單位－安全保證小組

1、責任：安全保證小組召集人與執行秘書負責執行國家民用航空安全計畫及相關作業，以確保安全管理系統持續有效及適用於我國航空服務提供者。

2、職責

（1）定期檢討國家民用航空安全計畫

（2）定期檢討民航局可接受安全水準

（3）定期檢討安全管理系統相關規定、作業規則及指導手冊

（4）定期檢視安全資訊、識別安全議題、提出改善計畫並進行風險管理

（七）SSP 實施計畫

各計畫執行單位將依差異分析表所統整之現行系統不足處與實施計畫（附件二）所列事項推動本計畫，並善用統計數據與風險分析工具輔助評估其執行成效，定期檢討修訂，以達成國家民用航空安全計畫設定之政策目標。

第三章　航空安全風險管理

一、對航空服務提供者安全管理系統之安全要求

（一）民航局為飛航服務、航空站、航空公司、維修廠及航空產品製造者等航空服務提供者應訂定標準與安全管理系統相關法規。

（二）「航空器飛航作業管理規則」、「維修廠設立檢定管理規則」及「民用機場設計暨運作規範」要求航空公司、檢定合格之維修廠及領有空側認證證書之航空站應建立及執行安全管理系統，並報請民航局備查後實施。另飛航服務規範亦要求飛航服務提供者實施安全管理系統，為國家民用航空安全計畫之一部分。所建立之安全管理系統應具有下列功能：

1、定義安全危害。

2、確保維持可接受安全水準之必要改正措施已實施。

3、提供持續監督（稽核）及定期評估達到安全水準。

4、持續改善並符合整體安全水準。

（三）為協助航空服務提供者實施安全管理系統與定義作業危害，民航局依據國際民航組織之安全管理系統手冊，公布航管安全管理系統指導文件、航空站安全管理系統手冊範本、安全管理系統之民航通告 AC 120-32C，供飛航服務、航空站、航空公司及維修廠使用。

（四）安全管理系統相關之規定、作業規則及指導手冊將由民航局設立之安全保證小組定期檢討，以確保持續有效並適用於航空服務提供者。

二、航空服務提供者安全績效之認可

（一）航空服務提供者安全管理系統之安全績效應納入民航局認可之可接受安全水準與安全指標，此安全績效係以一定時間內之風險項目發生率及減少量表示之，並經民航局與航空服務提供者相互確認並同意，並反映至國家民用航空安全計畫之可接受安全水準。風險管理應依據國際民航組織

最新版安全管理系統手冊之程序建置及管理。

（二）被認可之可接受安全水準應與該航空服務提供者作業之複雜度與資源一致，以表達其安全風險。

（三）被認可之可接受安全水準應透過監督機制定期檢視，以確保持續有效並適用於航空服務提供者

三、民航局航空安全保證小組

（一）民航局應設立安全保證小組以持續監督航空安全風險。該小組之工作目標為蒐集及檢視安全資訊、辨識足以影響整體策略的風險議題、尋求適當的行動計畫以降低風險，並向高階管理者提出安全計畫建議等。

（二）安全保證小組具體任務如下：

1、根據世界與我國安全數據，定義適用我國之安全趨勢，訂定優先順序以著重於最重要之安全議題。

2、檢視整合性安全議題，提出可能降低風險之計畫並由高階管理者核可。

3、依據安全數據評估結果，提出民航局可接受安全水準指標，視需要提出未來工作及評估減輕風險之行動。

4、定期檢視民航局可接受安全水準指標，以持續檢討其有效性。

5、在安全風險議題上，為法制作業提出建議與方向，並持續以風險管理方式，確保我國飛航服務、航空站、航空業者符合國際民航組織規定與我國法規要求。

6、執行評估以確保國家民用航空安全計畫之有效性。

7、檢視國家民用航空安全計畫修正草案之適用性，以持續改善國家民用航空安全計畫。

安全保證小組召集人應定期召開會議，討論各計畫執行單位所提之各項飛航安全改善建議，監控國家民用航空安全計畫之進展與有效性。

第四章　航空安全保證

一、安全監督

（一）民航局將擬定國內各航空服務提供者之年度安全監督計畫。此監督計畫應確保民航局各類政策及程序，依各特定組織提供服務之不同，落實於識別危害及管理安全風險中。

（二）安全監督計畫將包括檢查、查核及審視之機制，以確保安全風險管控措施已適當地整合於航空服務提供者之安全管理系統。

（三）安全保證小組將依安全監督計畫執行結果，主動評估我國國家民用航空安全計畫及可接受安全水準，是否與我國航空作業範圍及複雜度保持適切性。

（四）可能影響我國國家民用航空安全計畫及其可接受安全水準之變動，將由安全保證小組進行評估後，向權責主管提出並視需要修正。

二、安全資料蒐集、分析與交換

（一）民航局飛航安全事件通報系統包括飛安事件初報、保養困難報告、航空站安全危害通報系統，及航管事件通報系統。另有局長飛安信箱直接向局長通報違反安全規定事件。飛安委員會則使用符合國際民航公約第 13 號附約 ADREP 格式之失事及事件報告系統（ECCAIRS)，設置飛安資料庫以作為飛航事故調查報告分享及資料分析之平台，並且使用此系統向國際民航組織提報飛航事故初報及事故資料報告，以符合國際民航公約第 13 號附約之規定。

（二）航空安全事件通報系統目標乃藉由確保安全相關資料被通報、蒐集、分析、保存、保護及交換，以提升航空安全。其目的為預防失事與重大意外，而非用於究責。

（三）民航局將建置安全資料庫以整合分析飛安事件初報、保養困難報告、航空站安全事件與危害通報系統，以及航管事件通報系統內之資料。藉由通報資料中評估實際與潛在風險，民航局將發展一套飛安事件初報或保養困難報告的流

程。此風險評估流程使用飛安事件初報、保養困難報告、航空站安全事件與危害通報系統，以作為民航局安全風險管理流程提供最基本的資訊（如附件三）。

（四）安全資料的分析由提供安全資料之組室執行，其目的在於識別出顯著的趨勢，並定期向安全保證小組報告。

（五）計畫執行單位將對航空服務者之安全績效進行評量。安全保證小組將訂定國家民用航空安全計畫之可接受安全水準與安全評量。

（六）安全評量包括量化高等級或後果嚴重程度事件結果或高階國家功能，如航空器失事或重大意外事件之發生率、法規之符合度等。

（七）安全績效評量包括量化低等級或低嚴重程度輕微事件，可在失事率、法規符合外，用於評估國家民用航空安全計畫之實際執行狀況。

三、依安全資料導向決定高關注或高需求範圍之督導

（一）民航局依據本計畫，由安全保證小組依整體及個別安全指標，建立風險評估程序與風險管理機制，就作業危害和安全風險進行識別與分析，對於高關注或高需求之部分優先執行檢查、查核及審視。

（二）前項程序中，安全指標在於識別及改善監督機制之效率。

第五章　航空安全提升

一、安全資訊之內部訓練、溝通及傳遞

（一）民航局對員工提供內部訓練，利用安全相關資訊雙向溝通及認知，促進民航局內部正向組織文化，使安全計畫能有效發展。

（二）民航局訓練課程之內容是依據國際民航組織的指導文件所發展。針對不同的角色，有不同的訓練計畫，以確保民航局員工能得到職務所需的訓練與經驗。

二、安全資訊之外部訓練、溝通及傳遞

（一）民航局可對航空服務提供者提供具體作法之說明與相關之安全管理系統訓練，利用安全相關資訊建立雙向溝通及認知，促進民航空服務提供者正向組織文化，鼓勵安全習慣、安全溝通，並主動管理安全。

（二）重要之飛安公告、飛安監理強制執行資訊與保養困難報告均定期公布於民航局網站，以揭示相關安全資訊與狀態。

附件一 可接受安全水準（An Acceptable Level of Safety）

1、背景說明

1.1 國際民航組織（ICAO）於國際民航公約第 1、6、8、11、13 及 14 號附約中，要求國家訂定「可接受安全水準」 以創造績效為基礎之管理環境，並對本計畫之實際績效進行監控。

1.2 由於 ICAO Doc 9859 安全管理手冊中提出「人無法管理其無法衡量之事物」的觀念，故任何系統均需規定一系列可量測之績效數值，以評估系統是否依原設計預期地運作，或確認可能須採取之行動，使該系統運作效果達到設計預期之水準。經由「可接受安全水準」之訂定，對我國航空安全相關活動之管控措施及實際績效進行評估，確保本計畫有效地實施，以達成持續增進民航安全之目標。

2、ICAO 所定義的可接受安全水準

2.1 「可接受安全水準」所涉及之概念及其層級如下：

1. 安全：國家藉由持續之危害識別及風險管理程序，將可能造成人員傷亡或財產損失之風險,降低或維持在可接受水準（An Acceptable Level）以下。
2. 安全水準：代表系統之安全程度，以安全指標（Safety Indicators）表示。
3. 安全指標（Safety Indicators）：描述及/或反應系統安全水準之參數。
4. 安全目標（Safety Targets）：安全水準之具體目標。
5. 可接受之安全水準（ALoS）：在實際作業中，系統必須保證達到之最低安全程度。
6. 安全指標值：量化之安全指標。
7. 安全目標值：量化之安全目標。

2.2 選擇適當之安全指標，為確定可接受安全水準之關鍵。安全指標之選擇應依國家系統安全水準擬表示之詳細程度而定。國家若欲以廣義地、一般性地表現系統安全水準，應選擇高層級

/高嚴重後果/表示較高層級系統功能之系統安全指標；國家若欲具體地、狹義地表現系統安全水準，則應選擇低層級/低嚴重後果/表示較低層級系統功能之安全指標。有意義之安全指標須能反應系統安全狀況特性之結果、過程和功能。

2.3 安全指標之訂定，其詳細程度及以定量或定性之方式表示，視國家取得之安全數值資料而定。若國家已具備安全資料之蒐集及分析能力，可訂定定量之安全指標；若尚未具備前述能力，可選擇以定性之方式訂定安全指標，並於後續提升相關能力。本計畫分別依據飛航標準、飛航服務與航站管理三項專業，先期訂定安全指標，並於完整建構安全資料庫後，逐步建立定量之安全目標。

3、訂定可接受安全水準

3.1 ICAO Doc 9859 中列出以下航空系統安全指標訂定的範例：

1、航空器失事事件。

2、航空器重大意外事件。

3、跑道偏離事件。

4、地面相撞事件。

5、訂定航空法規。

6、訂定運作規定。

7、遵守規定之程度。

3.2 安全指標訂定後，便應確立應改進之相關安全目標。航空系統安全目標之訂定，ICAO Doc 9859 中列出以下範例：

1、減少航空器失事事件。

2、減少航空器重大意外事件。

3、減少跑道偏離事件。

4、減少地面相撞事件。

5、每季完成之檢查次數。

3.3 安全目標設定為「減少」或「維持」現有數值，必須考慮國

內相關資源及所需採取改善行動計畫之成本。

4、我國相關領域之航空安全指標與安全目標設定

4.1 航空安全指標：

1、國籍航空器失事率（次/百萬飛時）

2、國籍民航運輸業之重大意外事件發生率（次/百萬飛時）

3、飛航管制案件發生率(航管案件數/管制架次數)

4、誤失進場發生率(飛航管制因素造成誤失進場數/管制架次數)

5、車輛或其他地面設備與航空器擦撞導致航空器失事率（次/百萬起降架次）

6、因地面作業不當或裝備失效，導致航空器受損須停機檢修事件發生率（次/十萬起降架次）

4.2 安全目標

安全目標分為整體安全目標與依個別專業特性所設定之安全目標；依2001-2010年國籍航空器15,000公斤以上渦輪噴射飛機十年移動平均失事率為0.55次/百萬飛時，整體安全目標設定為五年內(2015年)之十年移動平均失事率逐年降低2%至0.50次/百萬飛時。個別安全目標設定如下：

1、民航運輸業飛機之重大意外事發生率十年移動平均為 5 次/百萬飛時以下

2、飛航管制案件發生率 1.50 次/十萬管制架次以下

3、飛航管制因素導致誤失進場發生率 1.45 次/萬管制架次以下

4、車輛或其他地面設備與航空器擦撞導致航空器失事維持於 1 次/百萬起降架次

5、因地面作業不當或裝備失效，導致航空器受損須停機檢修事件發生率 2 次/十萬起降架次以下

4.3 訂定安全指標及安全目標後，應依本計畫定期檢視、分析，並將整體安全目標值作為國家航空系統可接受之安全水準。

4.4 依 ICAO Doc 9859，本計畫之實施應符合國家法規及國際規範之要求，遵守法規及規範係安全管理之基礎；此外，可接受安全水準之安全指標值和安全目標值在於提供評估及確保本計畫有效實施之方法。

附件二 實施計畫（Implementation Plan）

1、背景

1.1 本實施計畫說明民航局航空安全管理系統建置方式，係先依據 ICAO Doc 9859 第 2 版-2009 安全管理手冊所列 4 類 11 項進行差異分析(Gap analysis)，經民航局檢視「航空安全政策與目標」、航空安全風險管理」、航空安全保證」及「航空安全提升」，檢討現狀與國際間差異及不足之處，再訂定策略並據以改進。

1.2 飛航標準組、航站管理小組及飛航管制組相互合作，依權責統合完成航空業者、機場服務及飛航服務等類別之安全管理系統建置指導原則，並整合相關實施程序、流程及方法，以利民航局全面實施國家民用航空安全計畫。

1.3 本實施計畫之預期目標為使民航局達到：

1. 民航局安全管理之系統性策略
2. 民航局航空安全權責單位之計畫執行流程
3. 建立航空服務提供者安全管理系統之控管方式
4. 確保航空服務提供者安全管理系統依其所建立之控管方式運作
5. 支援 SSP 與 SMS 運作之間互動

1.4 本實施計畫係依下列步驟執行：

1. 進行差異分析（Gap analysis）
2. 發展安全管理系統之訓練計畫
3. 發展航空服務提供者之安全管理系統規範，提供系統建置指導文件
4. 修訂國家航空安全強制執行政策

2、航空安全實施計畫之提交事項與執行項目

（參考 ICAO Doc 9859 CH11 App5-3）

2.1 航空安全政策與目標

提交事項
－提交國家航空安全政策 －建立國家航空安全人員之責任與職責 －權責主管簽署安全及實施政策 －發布國家航空安全政策予國家航空組織及航空服務提供者 －訂定國家民用航空安全計畫組織架構

執行項目	辦理內容	備註
1. 指定國家航空安全權責主管	指定國家民用航空安全計畫之權責主管及其相關權責	
2. 提出國家航空安全政策草案	(1)發展及實施國家安全政策	
	(2)指定國家民用航空安全計畫各項任務完成期程	
3. 建立航空安全人員責任與職責文件	(1)成立國家層級之安全管理小組並建立其角色及責任	
	(2)定義及文件化有關建立及維護國家民用航空安全計畫之需求、責任與職責	
	(3)建立國家民用航空安全計畫建置小組	
	(4)宣導國家民用航空安全計畫觀念予全體人員	
4. 提出國家民用航空安全計畫組織架構	(1)發展及發布國家安全立法架構及相關法規	
	(2)定期檢視國家安全相關法規及作業規範	
5. 編列國家民用航空安全計畫預算	提供建置國家民用航空安全計畫所需之相關資源	
6. 訂定強制執行政策	(1)發展及建立獨立事故及事件調查權責單位及程序	
	(2)建立危險報告系統執行程序	
	(3)提出安全偏異(safety deviation)程序	

2.2 航空安全風險管理

提交事項
－公布航空安全管理系統規範 －提供航空服務提供者關於航空安全管理系統建置指導文件 －與航空服務提供者協議訂定安全績效，並檢視其年度安全績效

執行項目	辦理項目	備註
1. 提供航空服務提供者「航空安全管理系統規範」及「航空安全管理系統指導文件」	(1)建立航空服務提供者之安全管理系統需求、法規、實施政策，並進行溝通與諮詢	
	(2)發布航空安全管理系統建置之指導文件	
	(3)建立定期檢視航空服務提供者之需求及作業規範時程	
2. 針對技術人員辦理危害識別與風險管理訓練	發展危害識別與風險評估程序及方法，並辦理相關訓練	
3. 完成與航空服務提供者安全績效協議程序	(1)定期檢視航空服務提供者安全績效指標與目標之適切性	
	(2)發展及建立個別航空服務提供者安全績效之協議程序(需考量航空服務提供者之複雜性及資源)	
	(3)決定不同航空服務提供者安全管理系統之可量測績效結果	

2.3 航空安全保證

提交事項
－訂定國家航空強制及主動提報系統 －完成國家航空安全政策與目標年度檢視 －完成國家航空安全執行政策年度檢視 －建立可接受安全水準(ALoS)

執行項目	辦理項目	備註
1. 國家層級之危險及安全風險之資料儲存及處理方式	建立國家層級之安全資料蒐集、分析及儲存方式，如:強制報告、主動提報系統、資料庫、資料分析機制、整合國家與個別航空服務提供者之蒐集危險項目方式,及建立改善	

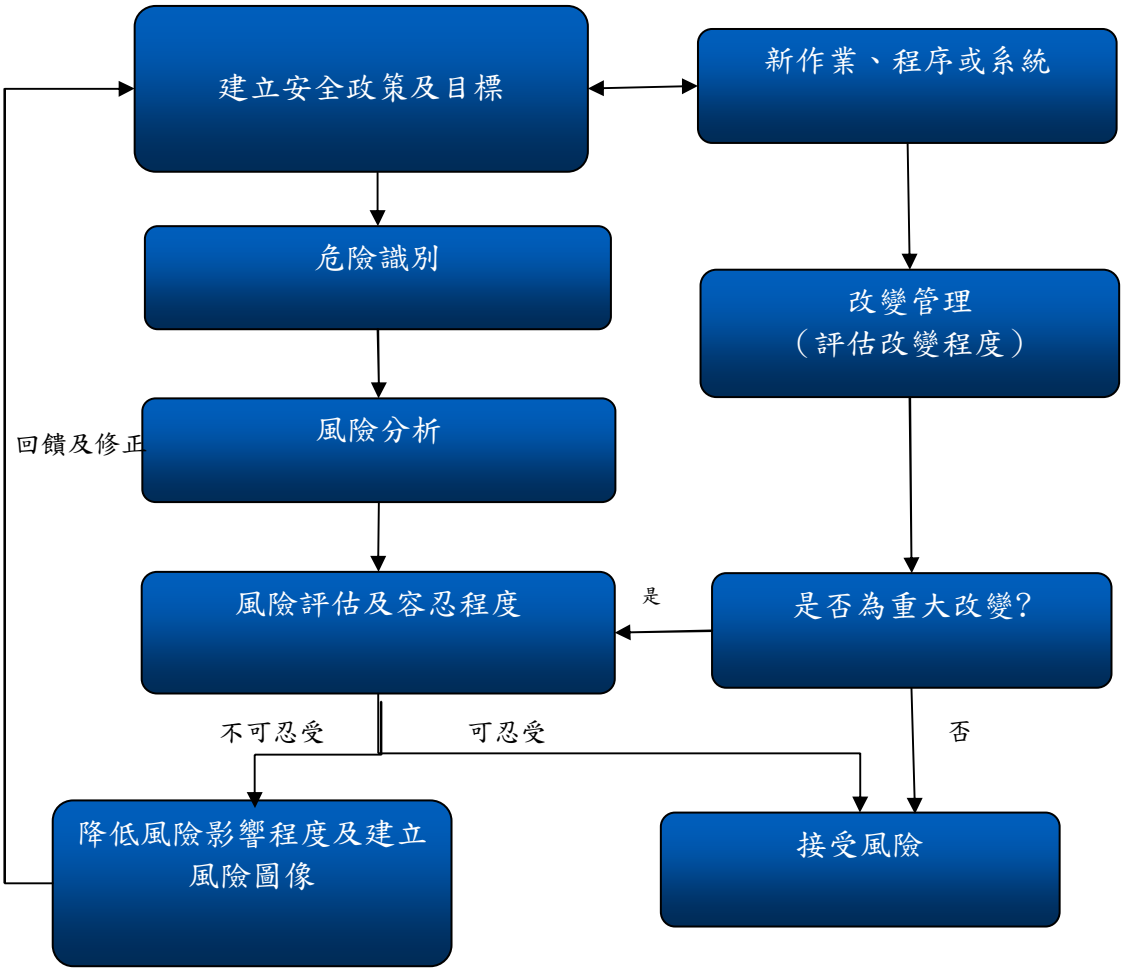
	行動計畫方式	
2. 整合國家層級及個別服務提供者層級之危害及安全風險資訊方式	建立國家層級與航空服務提供者有關危害識別及安全風險控制之整合機制	
3.訂定可接受安全水準(ALoS)	結合安全量測及安全績效量測，於國家民用航空安全計畫中訂定可接受安全水準	
4.檢視國家航空安全政策與目標及執行政策	(1)建立依國家民用航空安全計畫之內部查核	
	(2)建立有效之安全監督機制	
	(3)將危害識別及安全風險管理流程整合納入航空服務提供者之安全管理系統，並據以實施	
	(4)依危害及安全風險分析，建立優先檢查、查核及審視之程序	

2.4 航空安全提升

提交事項
－完成全體人員一般性之航空安全訓練 －針對國家民用航空安全計畫關鍵成員及航空安全管理系統技術及支援人員，完成相關訓練計畫 －提供建置國家安全管理系統之航空服務提供者相關訓練 －建立內部與外部安全相關資訊溝通方式

執行項目	辦理項目	備註
1. 建立航空安全監督技術人員最低之智能與經驗訓練計畫	(1)識別內部訓練需求	
	(2)實施全體人員之基礎安全訓練	
2. 國家航空組織及航空服務提供者之安全管理系統訓練計畫	發展國家民用航空安全計畫及安全管理系統之訓練計畫，包含：初始安全訓練、在職安全訓練及定期安全複訓	
3. 建立安全資訊分享平臺	(1)發展安全相關議題內部溝通方法，如安全政策及程序、業務通訊、佈告欄及網站	
	(2)建立「安全資料庫」及「安全資料蒐集及處理系統」	

附件三 安全風險分析流程（Safety Risk Management Process）



附錄一 國家民用航空安全計畫英譯文

CAA SAFETY POLICY STATEMENT

The management of civil aviation safety is one of the major responsibilities of Taiwan's Civil Aeronautics Administration (CAA). The CAA is committed to developing, implementing, maintaining and constantly improving strategies and processes to ensure that all aviation activities that take place under its oversight will achieve the highest level of safety performance, while meeting both national regulations and international standards.

All service providers shall demonstrate that their management systems adequately reflect an SMS approach. The expected result of this approach is improved safety management, and safety practices, including safety reporting within the civil aviation industry.

All levels of management within the CAA are accountable for the delivery of the highest level of safety performance within Taiwan.

Taiwan's CAA commitment is to:

- developing general rulemaking and specific operational policies that build upon safety management principles, based on a comprehensive analysis of the aviation system;
- consulting with all segments of the aviation industry on issues regarding regulatory development;
- supporting the management of safety reporting and communication systems;
- interacting effectively with service providers in the resolution of safety concerns;
- ensuring that within CAA, sufficient resources are allocated and personnel have the proper skills and are trained for discharging their responsibilities, both safety related and otherwise;
- conducting both performance-based and compliance-oriented oversight activities, supported by analyses and prioritized resource

allocation based on safety risks;

- complying with and, wherever possible, exceed international safety requirements and standards;
- promoting and educating the air traffic service, aerodromes, and aviation industry on safety management concepts and principles;
- overseeing the implementation of SMS within aviation organizations;
- ensuring that all activities under oversight achieve the highest safety standards;
- establishing provisions for the protection of safety data, collection and processing systems (SDCPS), so that people are encouraged to provide essential safety-related information on hazards, and there is a continuous flow and exchange of safety management data between CAA and service providers;
- establishing and measuring the realistic implementation of our SSP against safety indicators and safety targets which are clearly identified .
- promulgating an enforcement policy that ensures no information derived from any SDCPS established under the SSP or the SMS will be used as the basis for enforcement action, except in the case of gross negligence or willful deviation.

This policy must be understood, implemented and observed by all staff involved in activities related to the CAA safety oversight authority.

Yin Chen Pong

DIRECTOR GENERAL

CIVIL AERONAUTICS ADMINISTRATION

Chapter 1 Introduction

This manual contains the elements of the SSP which is a part of the CAA's overall Aviation Safety Management Plan.

The primary objective of the CAA is to reduce and maintain a lower than world-wide accident and fatality rate.

In addition to this objective, the SSP will generate a context that supports the implementation of the service provider's SMS. Therefore, the SSP is a fundamental enabler of the implementation of an effective SMS program but will not act as any kind of means for enforcement.

ICAO Standards and Recommended Practices (SARPs) place responsibility on the State to have a State Safety Program (SSP). ICAO SARPs for the SSP are contained in:

Annex 1 – Personnel Licensing-FSD's responsibility,

Annex 6 – Operation of Aircraft-FSD's responsibility,

Annex 8 – Airworthiness of Aircraft-FSD's responsibility,

Annex 11 – Air Traffic Services' responsibility

Annex 13 – Aircraft Accident and Incident Investigation-ASC's responsibility. FSD is responsible for regulatory compliance, ATS and Airport Operation and Management Unit (hereinafter referred to as AOMU) assist the ASC for investigation and

Annex 14－aerodromes－AMOU's responsibility

The Republic of China is not an ICAO contracting state. However it has the responsibility for domestic and international aviation safety and full regulatory compliance with the SARPS. The CAA has adopted ICAO Annexes 1, 6, 8, 11, 13 and 14 into their regulatory system as standards to improve aviation safety.

An SSP is a management system for improving aviation safety. It requires the CAA to examine legislation, policies and processes in a systematic way to ensure safety of the aviation system.

SARPS require the CAA to establish an Acceptable Level of Safety (ALoS) to be achieved, as a means to verify satisfactory performance of the SSP and the service providers' Safety Management System (SMS).

The requirement for an SSP recognizes that the CAA as well as service providers have safety responsibilities and provides a framework for service providers to establish SMS.

The concept of establishing an ALoS complements the current approach to safety management based on regulatory compliance with a performance based approach.

The CAA's SSP is developed using the ICAO SSP framework and guidance material, including the ICAO SSP gap analysis document.

Chapter 2 Safety Policy and Objectives

1 Taiwan aviation safety legislative framework and safety policy

1.1 The legislation foundation of Taiwan's aviation development is the Civil Aviation Act. Article 1 of the Civil Aviation Act Chapter 1 is prescribed to insure the aviation safety, a sound civil aviation system, compliance with international civil aviation standards, and promote the development of civil aviation. Article 3 of the Civil Aviation Act Chapter 1 authorizes the Ministry of Transportation and Communications (MOTC) to establish the Civil Aeronautics Administration (CAA). The CAA enacts the civil aviation regulations to administer affairs relating to civil aviation in accordance with the authorization of the Civil Aviation Act.

1.2 The purpose of promulgating a national legislative framework and specific regulations is to facilitate a sound civil aviation system, to ensure compliance with international and national standards, and to define how the Civil Aviation Authority (CAA) will oversee the management of aviation safety in Taiwan. This includes the CAA's participation in specific activities related to the management of aviation safety in Taiwan, and the establishment of the roles, responsibilities, and relationships of organizations in the system.

1.3 For the purpose of improving aviation safety through independent investigation of aviation occurrences, the Executive Yuan of the Republic of China, R.O.C. has established an independent government agency - Aviation Safety Council (ASC) to perform such duties. Based on the R.O.C's Civil Aviation Law, chapter 8, articles 84, the birth of the ASC was officially declared on May 25, 1998 as an independent council, reporting directly to the Premier's office. The ASC conducts the independent investigation in accordance with the Aviation Occurrence Investigation Act which was promulgated on June 2, 2004. The scope of aircraft to be investigated under this Act consists of civil aircraft, public aircraft, and ultra-light aircraft.

1.4 The following are the framework of Taiwan aviation safety legislation：

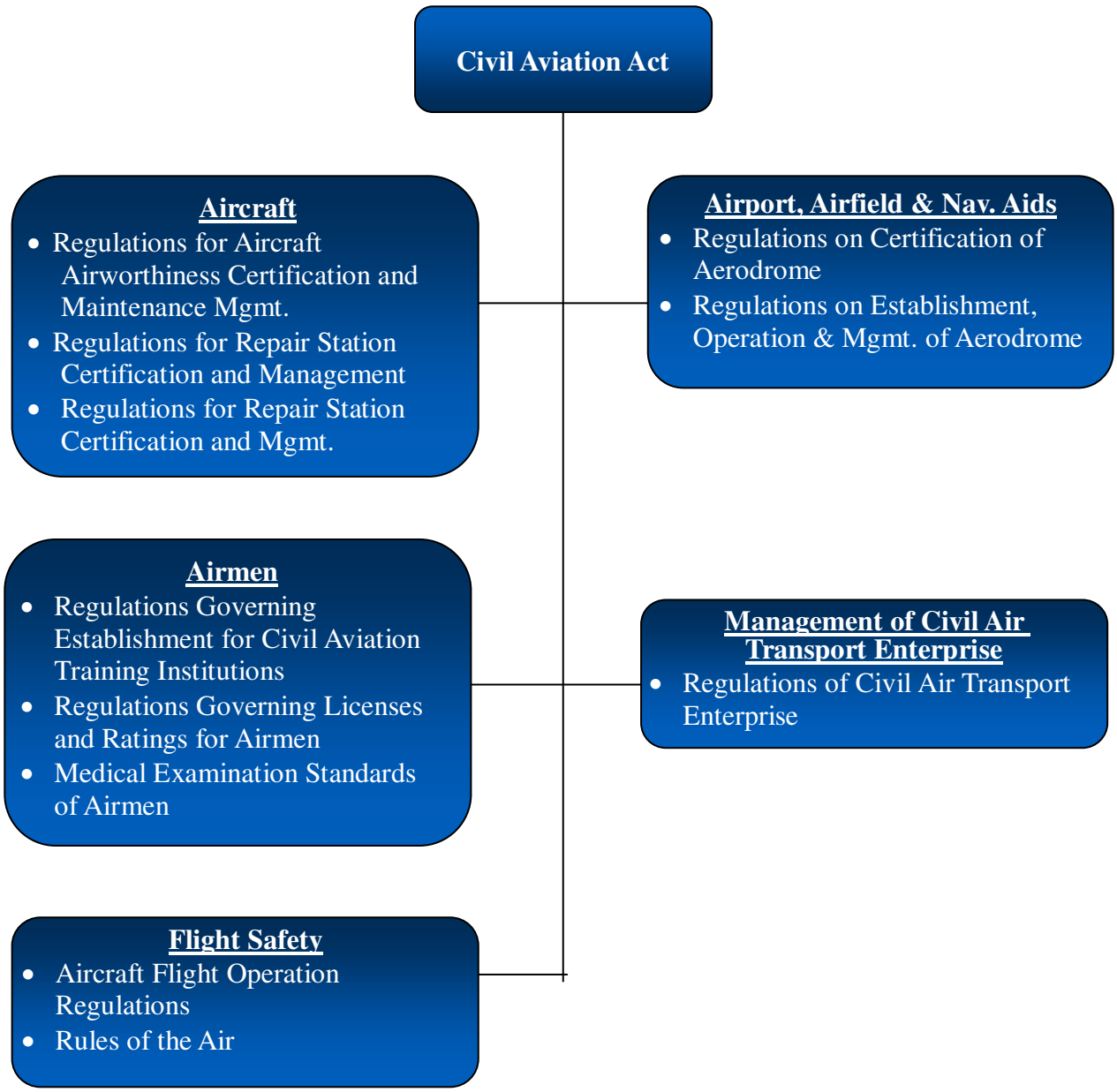


Figure 1. The structure of Civil Aviation Regulations system related to SSP

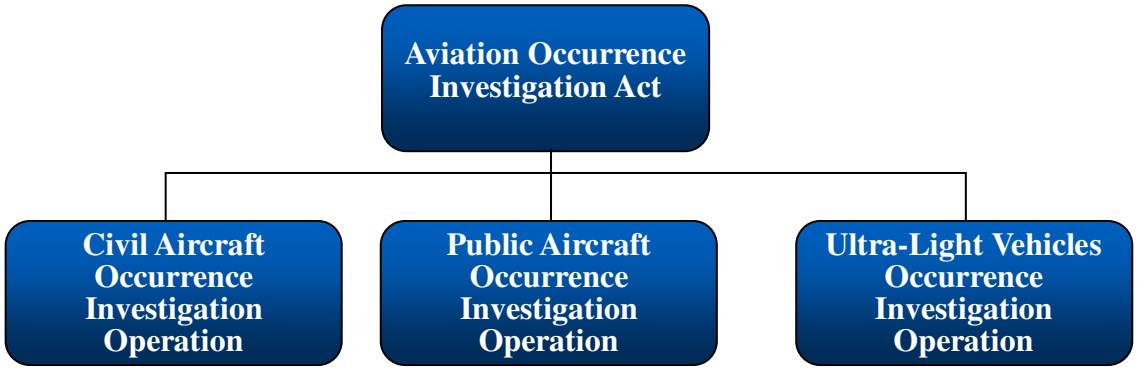


Figure 2. The structure of Aviation Occurrence Investigation Act

1.5 Even facing the tremendous increasing demands, the government and the industry are determined to constantly improve aviation safety, by identifying potential threats and continuously seeking appropriate improvements.

1.6 The management of civil aviation safety is one of the major responsibilities of Taiwan's Civil Aeronautics Administration (CAA). The CAA is committed to developing, implementing, maintaining and constantly improving strategies and processes to ensure that all aviation activities that take place under its oversight will achieve the highest level of safety performance, while meeting both national and international standards.

1.7 All service providers shall demonstrate that their management systems adequately reflect an SMS approach. The expected result of this approach is improved safety management, and safety practices, including safety reporting within the civil aviation industry.

1.8 All levels of management within the CAA are accountable for the delivery of the highest level of safety performance within Taiwan.

1.9 Taiwan's CAA commitment is to：

1) developing general rulemaking and specific operational policies that build upon safety management principles, based on a comprehensive analysis of the aviation system;

2) consulting with all segments of the air traffic services, aerodromes,

and aviation industry on issues regarding regulatory development;

3) supporting the management of safety reporting and communication systems;

4) interacting effectively with service providers (Air Navigation and Weather Services, aerodrome managers, and aviation industry) in the resolution of safety concerns;

5) ensuring that within CAA, sufficient resources are allocated and personnel have the proper skills and are trained for discharging their responsibilities, both safety related and otherwise;

6) conducting both performance-based and compliance-oriented oversight activities, supported by analyses and prioritized resource allocation based on safety risks;

7) complying with and, wherever possible, exceed international safety requirements and standards;

8) promoting and educating the air traffic services, aerodromes, and aviation industry on safety management concepts and principles;

9) overseeing the implementation of SMS within aviation organizations;

10) ensuring that all activities under oversight achieve the highest safety standards;

11) establishing provisions for the protection of safety data, collection and processing systems (SDCPS), so that people are encouraged to provide essential safety-related information on hazards, and there is a continuous flow and exchange of safety management data between CAA and service providers;

12) establishing and measuring the realistic implementation of our SSP against safety indicators and safety targets which are clearly identified.

13) promulgating an enforcement policy that ensures that no information from SDCPS will be used for enforcement purposes except when gross negligent or willful deviation is involved.

14) This policy must be understood, implemented and observed by all staff members involved in activities related to the CAA safety oversight authority.

2 Safety Accountabilities and Responsibilities

2.1 The SSP should be accepted by the Minister of MOTC (Ministry of Transportation and Communications). The accepted SSP is then delegated to the CAA to direct, plan, organize, develop, maintain, control, provide resources and continuously improve the SSP in a manner that meets Taiwan's flight safety objectives.

2.2 The Director General of CAA is the Accountable Executive of the SSP and has the following functions:

1) ultimate responsibility and accountability, for the implementation of the SSP;

2) full authority on allocation of human resource and financial resource related to SSP;

3) service provider's certificate management; and

4) final responsibility for the resolution of all aviation safety issues of Taiwan.

2.3 The CAA Director General shall coordinate as appropriate, the activities of the various State aviation organizations under the SSP.

3 Aviation Occurrence Investigation

3.1 The Aviation Safety Council (ASC), which is under the Executive Yuan, carries out the duty of aviation occurrence investigation independently in accordance with the Aviation Occurrence Investigation Act. The ASC's investigation covers the aviation occurrence involving civil aircraft, public aircraft, and ultra-light vehicles.

3.2 The ASC shall investigate aviation occurrences to determine contributing factors, probable causes and to provide safety recommendations. The objective of such investigations is to improve aviation safety and comply with ICAO Annex 13.

3.3 In accordance with the Aviation Occurrence Investigation Act, "The objective of the ASC 's investigation of aviation occurrence is to prevent recurrence of similar occurrences. It is not the purpose of such investigation to apportion blame or liability.
The ASC shall carry out its duties independently. The parallel investigations and handling process conducted by other competent authorities concerned shall not impede the investigation of the ASC. The investigation report of the ASC shall not be used as the sole evidence for a criminal proceeding."

4. Enforcement Policy

The enforcement program is in the process of being revised. Since the success of the SSP and Service Providers' SMS closely relate to the integrity of the voluntary reporting system, the CAA in accordance with the Article 112-1 and Article 114 uses Director General's E-mail Box and voluntary reporting operation rules as communication channels to impose lesser penalty or grant exoneration. In addition, the ASC has established a voluntary, non-punitive and confidential aviation incident reporting system, Taiwan Confidential Aviation safety Reporting system, TACARE. TACARE provides a channel for reporting aviation incidents and safety deficiencies which are difficult to discover through the mandatory reporting system. The aim of TACARE is to elevate Taiwan's aviation safety by obtaining, distributing and analyzing safety-related reports. The establishment of these channels complies with the standards of ICAO Annex 13. In the future, the CAA will study to include the conditions and circumstances under which service providers are allowed to deal with, and resolve, events involving certain safety deviations, internally, within the context of the service provider's safety management system (SMS), and to the satisfaction of the appropriate State authority and to ensure that no information obtained from an internal hazard reporting system or a flight data monitoring system established under an SMS will be used for enforcement action. The objectives are improving aviation safety and cultivating reporting culture and safety culture through data analyzing and information sharing from various reporting systems.

5 SSP Documentation

5.1 The CAA is developing and establishing a Taiwan aviation safety

library that documents the requirements, responsibilities and accountabilities regarding the establishment and maintenance of the SSP. The aviation safety library will maintain and update, as necessary, the SSP documentation related to the national safety legislative framework, the Taiwan's safety policies and objectives, the SSP requirements, the SSP processes and procedures, the accountabilities, responsibilities and authorities for processes and procedures, and the Taiwan's Acceptable Level of Safety (ALoS) related to the SSP (see Attachment 1).

6 SSP Responsibilities and Accountabilities

6.1 The SSP is composed of five basic elements: Accountable Executive (Director General), Safety Assurance Team, Flight Standards Division, Air Traffic Service Division and Airport Operation and Management Unit.

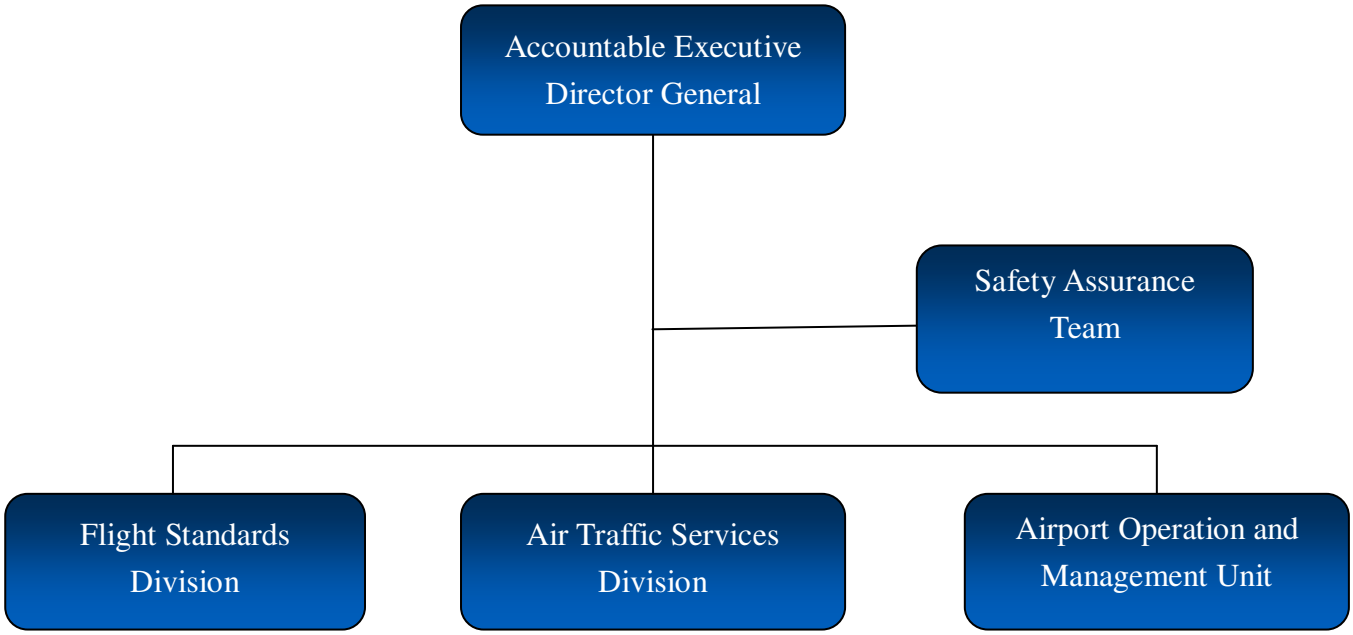


Figure 3：The Accountabilities and Responsibilities of SSP

6.2 Accountable Executive

1) Accountabilities：Pursuant to the object of "World-class flight safety and first-class customer service"，the CAA is chaired by the Director General who administers the State Safety Program and provides essential resources in order to achieve the Acceptable Level of Safety.

2) Responsibilities

- The implementation of SSP
- The allocation of financial and manpower resources of SSP

6.3 Flight Standards Division

1) Accountabilities：The Director of Flight Standards Division commences the supervision of the operations of national registered aircraft and air operators to improve flight safety.

2) Responsibilities

- Conducting Flight operations inspections
- Conducting Airworthiness inspections
- Conducting Flight check
- Certification of aviation products, appliances and parts.
- Airmen certification and licensing
- Establishment of flight Safety Policies

6.4 Air Traffic Services Division

1) Accountabilities ：The Director of Air Traffic Services Division commences the supervision of the operations of air traffic services to improve the quality of Taipei FIR.

2) Responsibilities

- Supervision the operations of air traffic control, navaids,

aeronautical information, aeronautical telecommunications and meteorology.

- Design and Construction of instrument procedures
- Conducting air traffic service inspection

6.5 Airport Operation and Management Unit

1) Accountabilities：The Director of Airport Operation and Management Unit commences the supervision of the operations of air ports.

2) Responsibilities

- Conducting the management of airports operations
- Conducting the supervision of airports surface management
- Certification of airports

6.6 Safety Assurance Team

1) Accountabilities：The Chairman of Safety Assurance Team and Executive Secretary commences the SSP and arrange the related activities to ensure the effectiveness of safety management system and the applicability of service providers.

2) Responsibilities

- Revised the SSP on regular basis
- Revised the ALoS on regular basis
- Amending the regulations, procedures and manuals related to safety management.
- Assessment of safety information, identification of safety concerns and providing improvement suggestions of safety risk management.

6.7 SSP Implementation Plan

In light of the gap analysis and implementation plan, all responsible

divisions and units should take all actions to achieve the goals of SSP, with the support of statistic data and risk analysis tools to evaluate the effectiveness of the program.

Chapter 3 Safety Risk Management

1 Safety requirements for service provider's SMS

1.1 The CAA establishes standards and SMS requirements for the air traffic services, aerodromes, Aircraft Operators, Approved Maintenance Organizations (Repair Stations), and Manufacturers of aviation products.

1.2 The regulations prescribed in the CAR 07-02A Aircraft Flight Operation Regulations (AOR), the CAR 06-02A Regulations for Repair Station Certification and Management and the Directions of Aerodrome Design and Operation require that an aircraft operator or a repair station, a certificated aerodrome shall establish and implement a safety management system acceptable to the CAA. The "Air Traffic Service directions" also requires that the air traffic services provider implement a safety management system acceptable to the State, as part of their State safety programme, as a minimum:

1) Identify safety hazards;

2) Ensure that remedial actions necessary to maintain an Acceptable Level of Safety are implemented;

3) Provide for continuous monitoring (auditing) and regular assessment of the safety level achieved; and

4) Aim to make continuous improvement to the overall level of safety.

1.3 To assist service providers on implementation of SMS and on methods to identify operational hazards, the CAA has, according to ICAO SMM, promulgated the ATS SMSM, Aerodromes SMSM template and the guidance document, AC 120-32C Safety Management System, to assist the aerodromes, aircraft operators and the repair stations;

1.4 The SMS requirements, specific operating regulations and guidance material are periodically reviewed by the Safety Assurance Team to ensure they remain relevant and appropriate to the service providers.

2 Agreement on the service provider's safety performance

2.1 The service provider's SMS will contain agreements between the CAA and the Service Provider for an Acceptable Level of Safety and (safety performance) in terms of the risk occurrence rates and reduction during a given timeframe. This item must be agreed between the CAA and the service providers and reflected in the ALoS of the SSP. Risk management will be developed and managed in accordance with the procedures contained in the ICAO Safety Management Manual (ICAO Doc. 9859 as revised).

2.2 The agreed Acceptable Level of Safety shall be commensurate to the complexity of individual service provider's specific operational contexts and commensurate with the availability of individual service provider's resources to address safety risks.

2.3 The agreed Acceptable Level of Safety of individual service providers shall be periodically reviewed through the oversight mechanisms to ensure it remains relevant and appropriate to the service providers.

3 State Safety Assurance Team (SAT)

3.1 To oversee aviation safety risks, the CAA shall establish the State Safety Assurance Team (SAT). The SAT is tasked to seek and review safety information and identify risk issues that are of strategic importance, ensure appropriate action plans are identified to mitigate these risks, and propose documented safety plans to senior management for their approval.

3.2 The SAT is tasked to:

1) draw upon worldwide and Taiwan safety data to define safety trends applicable to Taiwan aviation, prioritizing this information to focus on the most significant safety issues;

2) review safety issues raised by relevant divisions of the CAA and constitute cross-division to access safety issues and recommend potential mitigation action plans to senior management approval;

3) initiate the CAA Acceptance Level of Safety Indicators based on

the safety data assessment, sponsoring further work where required and assess mitigating actions;

4) periodically review of the CAA Acceptance Level of Safety Indicators for continuing validity where applicable;

5) propose guidance and direction to rulemaking committee on matters of safety risk and continue to use a risk-management-based approach to ensure that Taiwan air traffic services, aerodromes, aviation industry comply with ICAO provisions, Taiwan legislation and requirements; and

6) perform evaluations to ensure the effectiveness of the State Safety Program.

7) contribute to improve the Taiwan State Safety Program by reviewing proposals to change the SSP.

The resulting safety improvement initiatives will be captured in the CAA Quarterly Safety Meeting and will be evaluated as a means of monitoring progress and effectiveness.

Chapter 4 Safety Assurance

1 Safety Oversight

1.1 The CAA will develop an annual safety oversight program for each service provider in Taiwan. These oversight programs will be detailed in CAA policies and procedures for each specific type of organization and ensure that the identification of hazards and management of safety risks by service providers follow the established regulatory requirements.

1.2 The safety oversight programs will include inspections, audits and surveys to ensure that regulatory safety risk controls are appropriately integrated into the SMS of service providers.

1.3 The SAT will develop and conduct an audit to assess that Taiwan SSP and ALoS remain appropriate to the scope and complexity of the aviation operations in Taiwan.

1.4 Any changes that could affect the SSP and its ALoS will be reviewed by the SAT. The SAT will submit the review results to senior management for their approval.

2 Safety data collection, analysis and exchange

2.1 CAA's aviation safety occurrence reporting system includes the Flight Safety Event Initial Report (FSEIR), the Service Difficulty Report (SDR), Aerodromes Safety Events and Hazards Reporting System (ASEHRS), ATC safety incident events database, and safety incident report to ATSD. There is also a Confidential Flight Safety Reporting System for reporting deviations from safety requirements directly to the CAA Director General. The ASC has established and maintained a safety occurrence information database by using an ADREP-compatible system, ECCAIRS (European Co-ordination Centre for Accident and Incident Reporting System) software which complies with the standards of ICAO Annex 13. The purpose of the database is to facilitate the effective analysis of safety information obtained through the investigation reports published by the ASC. The ASC also uses this system to submit occurrences preliminary reports

and occurrence data reports to ICAO which also complies with the standards of ICAO Annex 13.

2.2 The objective of this safety occurrence reporting system is to improve aviation safety by ensuring that relevant information on safety is reported, collected, analyzed, stored, protected and exchanged. The sole objective of occurrence reporting is the prevention of accidents and incidents and not to attribute blame or liability.

2.3 The CAA will establish a safety library for integrating and analyzing the data contained in FSEIR, SDR, and ASEHRS so as to determine any preventative actions required. The CAA will develop a process that assesses the actual and potential risk posed by each FSEIR or SDR. This risk-assessment process of FSEIR, SDR, and ASEHRS data provides essential information for the CAA's Safety Risk Management Process (see Attachment 3).

2.4 Analysis of this data is carried-out by the division which provides the safety data. The purpose is to identify any significant trend and to advise the SAT of the safety performance by means of regular reports.

2.5 The SAT will establish the Acceptable Level of Safety (ALoS) related to the SSP. This comprises of a combination of safety measurement assessed by the SAT and safety performance measurement evaluated by the responsible divisions or units of CAA.

2.6 Safety measurement includes the quantification of the outcomes of high-level, high-consequence events or high-level State functions, such as accident rates, serious incident rates and regulatory compliance.

2.7 Safety performance measurement includes the quantification of the outcomes of low-level, low-consequence processes that provides a measure of the realistic implementation of an individual SSP beyond accident rates and/or regulatory compliance.

3 Safety data driven targeting of oversight of areas of greater concern and need

3.1 The CAA will establish procedures to prioritize inspections, audits and surveys towards those areas of greater safety concern or need, as identified by the analysis of data on operational hazards and safety risks areas.

3.2 Through these procedures the safety indicators will be to identify and improve the effectiveness of the oversight mechanisms.

Chapter 5 Safety Promotion

1 Internal training, communication and dissemination of safety information

1.1 The CAA provides training, awareness, and two-way communication of safety relevant information to support, within the CAA, the development of a positive organizational culture that fosters the development of an effective and efficient safety program.

1.2 The CAA has developed training programs in line with ICAO guidance. The CAA has defined Training Programs for different roles such that the training plans are agreed with each staff member to ensure the staff member has the necessary training and experience to conduct the role they are assigned.

2 External Training, Communication and Dissemination of Safety Information

2.1 The CAA provides education, awareness of safety risks and two-way communication of safety relevant information to support services providers. They also develop a positive organizational culture that fosters safe practices, encourages safety communications and actively manages safety.

2.2 Significant SDR's are listed periodically on the CAA website. This periodically report provides valuable feedback to service providers on recent SDR's and ASB's.

Attachment 1 An Acceptable Level of Safety

1 Background

1.1 ICAO Annexes 1, 6, 8, 11, 13 and 14 require that the Acceptable Level of Safety (ALoS) which shall be established by the State, for creating a performance-based management environment and monitoring the actual performance of SSP.

1.2 The basic management axiom that one cannot manage what one cannot measure is discussed in ICAO Doc 9859 Safety Management Manual (SMM). In any system, it is necessary to define a set of measurable performance outcomes in order to determine whether the system is truly operating in accordance with design expectations, also identifying where action may be required to bring operational performance of the system to the level of design expectations. Thus, through establishing the ALoS permit the actual performance of activities critical to safety to be assessed against existing organizational controls, and ensure efficient implementation of SSP to achieve the objective of improvement of aviation safety.

2 ICAO Acceptable Level of Safety

2.1 The concepts of Acceptable Level of Safety involved and their hierarchy are as follows:

1. Safety: The state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management.

2. Level of safety：Level of safety is the degree of safety of a system. It is expressed through safety indicators;

3. Safety Indicators：Safety Indicators are the parameters that characterize and/or typify the level of safety of a system;

4. Safety Targets：Safety Targets are the concrete objectives of the

level of safety;

5. Acceptable Level of Safety：Acceptable Level of Safety is the minimum degree of safety that must be assured by a system in actual practice;

6. Safety indicator value：Safety indicator value is the quantification of a safety indicator;

7. Safety target value：Safety target value is the quantification of a safety target.

2.2 The selection of appropriate safety indicators is a key to the development of ALoS. Such selection should be a function of the detail to which the level of safety of the system is intended to be represented. If the level of safety is to be represented in broad, generic terms, the selection of safety indicators representing high-level/high-consequence system outcomes (quantitative) and/or high-level system functions (qualitative) is appropriate. If the level of safety of the system is to be represented in specific, narrow terms, then the selection of indicators representing low-level/low-consequence system outcomes and lower level system functions is required. In both cases, meaningful safety indicators must be representative of the outcomes, processes and functions that characterize system safety.

2.3 To establish safety indicators represents safety measurement by quantitative or qualitative depends upon the maturity of the SSP. Initially, immediately following development and implementation of an SSP, the safety indicator values and the safety target values related to ALoS will likely be expressed through quantitative action statements on selected high-level/high-consequence outcomes. CAA has established aviation safety indicators by specialty of flight standards, air traffic service and airports management in advance, and will establish quantitative safety indicators gradually after safety database integrated.

3 Establishing an Acceptable Level of Safety

3.1 Typical examples in ICAO Doc 9859 of safety indicators in the aviation system include, among others:

1. fatal airline accidents;
2. serious incidents;
3. runway excursion events;
4. ground collision events;
5. development/absence of primary aviation legislation;
6. development/absence of operating regulations; and
7. level of regulatory compliance.

3.2 Typical examples in ICAO Doc 9859 of safety targets in the aviation system include, among others:

1. reduction in fatal airline accidents;
2. reduction in serious incidents;
3. reduction in runway excursion events;
4. reduction in ground collision events; and
5. the number of inspections completed quarterly.

3.3 CAA shall consider applicable resources and costs of taking action plans when setting “reduction” or “maintenance” in safety targets.

4 Establishing Aviation Safety Indicators and Aviation Safety Targets

4.1 Aviation Safety Indicators

1. Rate of fatal national airline accidents (per million flight hours)
2. Rate of serious national airline incidents (per million flight hours)
3. Rate of air traffic control incidents (number of incidents per number of flights)

4 Rate of missed approach (number of missed approach due to air traffic control per number of flights))

5. Aircraft accidents caused by collisions between aircraft, vehicles or other ground equipments; and

6. Events of damage to the aircraft which requires a repair due to ground handling mishaps or system failure.

4.2 Aviation Safety Targets

Aviation safety targets include integral safety targets and specialty safety targets; integral safety targets are defined as reducing the 10 year moving average of accident rate of national turbine aircraft over 15,000 kg mass from 0.55/million flight hours by 2% each year to 0.50/million flight hours in the year of 2015.

Specialty safety targets include:

1. Reducing the 10 year moving average of serious incidents rate of national airline aircraft by 5/million flight hours.

2. Rate of air traffic control incidents below 1.5 per 100,000 flights

3. Rate of missed approach (due to ATC factor) below 1.45 per 10,000 flights

4. Maintain aircraft accidents caused by collisions between aircraft, vehicles or other ground equipments for 1 time per million operations.

5. Maintain events of damage to the aircraft which requires a repair due to ground handling mishaps or system failure for 2 time per hundred thousand operations.

4.3 CAA shall review and analysis the aviation safety indicators and aviation safety targets periodically, and take the integral safety targets as the Acceptable Level of Safety.

4.4 The implementation of SSP shall comply with national regulations and international specifications and take them as the foundation of safety management which described in ICAO Doc 9859. The

aviation safety indicators value and aviation safety targets value of the Acceptable Level of Safety provide methods to evaluate and ensure that implementation of SSP efficiently.

Attachment 2 Implementation Plan

1 Background

1.1 The implementation plan describes the method of implementation of CAA Safety Management System. According to ICAO SMM (9859 Section Edition-2009) which is list of 4 components and 11 elements, CAA conducts Gap Analysis of reviewing State safety policy and objectives, State safety risk management, State safety assurance and State safety promotion. By Gap analysis, CAA can understand the deficiencies and differences from international standards and makes strategies to improve.

1.2 CAA coordinates Flight Standards Division, Airport Operation and Management Unit and Air Traffic Services Division to complete the implementation guidelines of SMS of airlines, aerodromes and air traffic services. By integrating the implementation procedures, process and method, CAA can comprehensively implement State safety management system.

1.3 The expected objectives of SSP are as follows：

1. Formulate an overarching strategy for the management of safety in the State;
2. Coordinate the processes executed by the different State aviation organizations under the SSP;
3. Establish the controls that govern how the service provider’s SMS will operate;
4. Ensure that the operation of the service provider’s SMS follows established controls; and
5. Support the interaction between the SSP and the operation of the service provider’s SMS.

1.4 The steps of implementation of SSP are as follows:

1. Conduct a gap analysis of the SSP.

2. Develop an SMS training programme for staff of the State's safety oversight authority.

3. Develop SMS regulations for service providers, and prepare guidance material for the implementation of SMS.

4. Revise the State's enforcement policy.

2 The deliverables, milestones and executive items of SSP

2.1 State safety policy and objectives

deliverables
－State safety legislative framework promulgated －State safety responsibilities and accountabilities established, documented and published －State safety and enforcement policies signed by Accountable Executive －State safety policies distributed within the aviation organizations of the State and among service providers －SSP organizational structure in place

milestones	executive items	remark
1.Accountable Executive identified	Delegate Accountable Executive of SSP and whose accountabilities and responsibilities	
2.Proposed safety policy drafted	(1)Develop and promulgate State safety policy	
	(2)Propose deadline of tasks of SSP	
3.Lines of safety responsibility and accountability established	(1)Establishment of State level of safety management team and its role and accountabilities	
	(2)Establish and maintain definition and documentation of SSP, including its requirement, accountabilities and responsibilities.	
	(3)Establish SSP implementation team	
	(4)Promote the concept of SSP to all staff	
4.Proposed SSP organizational structure approved	(1)Develop and promulgate state safety legislative	

	framework and its related regulation	
	(2)Review State safety-related legislation and its regulation regularly	
5.Budget for SSP processes approved	Provide resources of SSP required	
6.Proposed enforcement policy	(1)Develop and establish independent accountable unit and procedures of accident and incident investigation	
	(2)Establish executive procedures of hazard reporting system	
	(3)Propose safety deviation procedure	

2.2 State safety risk management

deliverables
－SMS regulations promulgated －Guidance material on implementation of SMS distributed to service providers －Review of the agreed safety performance of service providers completed

milestones	executive items	remark
1.Draft proposal of SMS regulations distributed to service providers for review	(1)Establish the requirement, legislation, enforcement policy of SMS, and communicate with service providers	
	(2)Promulgate guidance of implementation of SMS	
	(3)Establish the requirement and schedule of reviewing service provider	
2.Training of State technical personnel in hazard identification and safety risk management completed	Develop hazard identification and risk assessment procedure, and related training	
3.Procedure for agreement on the safety performance of service providers completed	(1)Review the fitness of Safety performance indicator and target of service providers regularly	
	(2)Develop and establish individual agreement of	

	safety performance of service providers (depend on complexity and resources of service providers)	
	(3)Decide the indicator of measurable performance of service provider's SMS	

2.3 State safety assurance

deliverables
－State mandatory and confidential hazard reporting system in place －Review of the safety policy and objectives conducted －Review of the enforcement policy conducted －ALoS established

Milestones	executive items	remark
1.Data storage and processing of hazards and safety risks at the State level	Establish means of State level of safety data collection, analysis and storage, such as mandatory and confidential hazard reporting system, hazard library, data analysis mechanism, both the aggregate state level and individual service provider's level collected, and corrective action.	
2.Information on hazards and safety risks at both the aggregate State level and the individual service provider's level collected	Establish the aggregate hazard identification and safety risk control of State level and individual service provider	
3.ALoS established	Propose ALoS on SSP by combination of safety measurement and safety performance measurement	
4.Review of the safety policy, objectives and enforcement policy	(1)Establish internal audits to SSP	
	(2)Establish effective safety oversight mechanism	
	(3)Implement aggregate hazard identification and safety risk management procedure into service provider's SMS	
	(4)Establish the procedure of priority to inspection, audit	

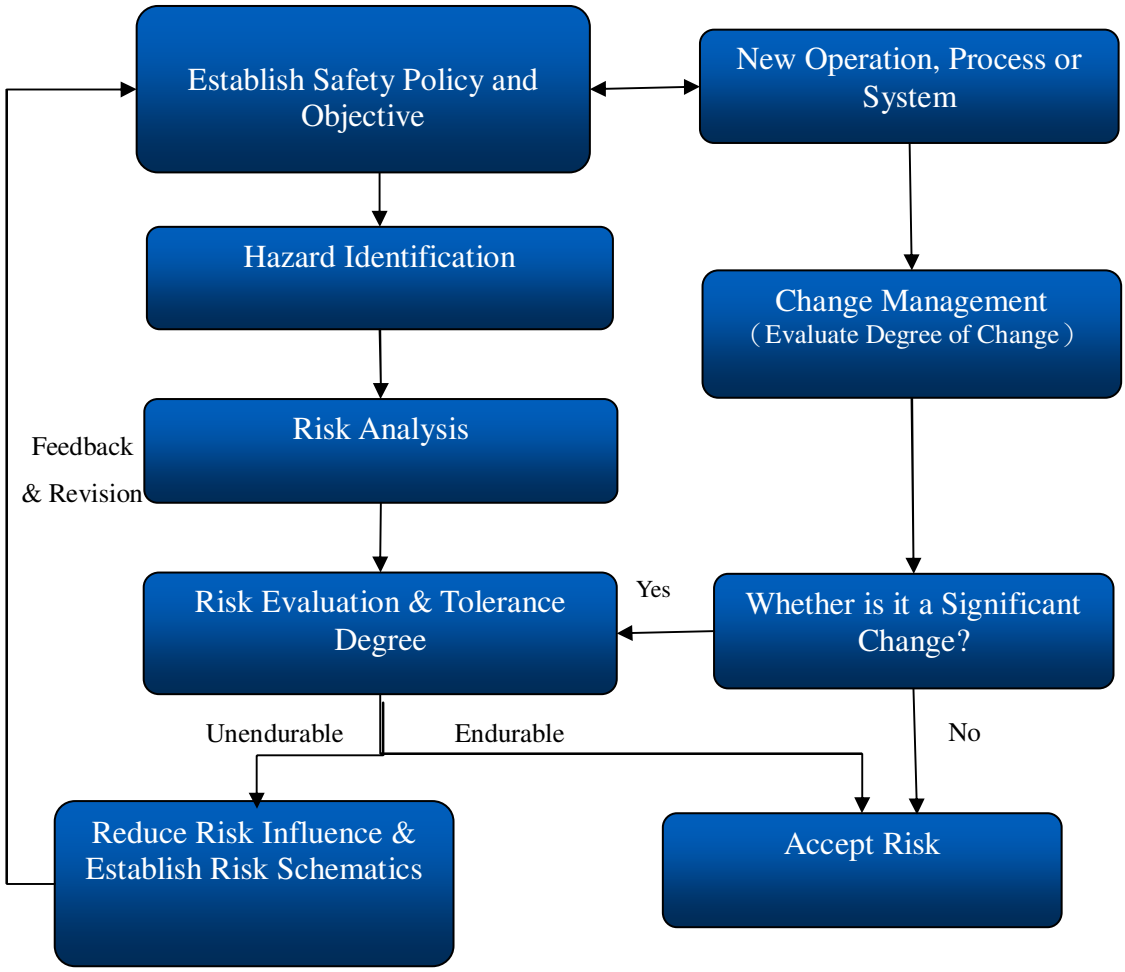
	and survey according to hazard and safety risk analysis	

2.4 State safety promotion

Deliverables
－Generic safety training for staff completed －Training programme on key components of an SSP and an SMS for technical and support staff completed －First cycle of training for service providers on implementation of SMS completed －Means to communicate safety-related information, internally and externally, established

milestones	executive items	remark
1.Minimum knowledge and experience requirements for technical personnel performing safety oversight functions established	(1)Identify the requirement on internal training	
	(2)Conduct generic safety training for all staff	
2.Training programmes on SMS for State aviation organizations and service providers developed	Develop training programmes on SSP and SMS, including initial safety training, on-the-job safety training and regular recurrent safety training	
3.State safety information platform developed	(1)Develop means of communicating internal Safety-related issue, such as Safety policy and procedures、newsletter, bulletins and website	
	(2)Establish safety library and SDCPS	

Attachment 3 Safety Risk Management Process



附錄二 中英名詞對照

中英名詞對照

中文名詞	英文對照
可接受安全水準	Acceptable Level of Safety, ALoS
責任	Accountability
權責主管	Accountable Executive
航空站安全事件與危害通報系統	Aerodromes Safety Events and Hazards Reporting System, ASEHRS
民航運輸業	Air transport industry
查核	Audit
航空事業	Aviation industry
航空組織	Aviation organization
航空安全	Aviation safety
飛航安全	Flight safety
差異分析表	Gap analysis
危害	Hazard
識別	Identify/identification
檢查	Inspection
管理體制	Management system
作業	Operation
監督	Oversight
績效	Performance
政策	Policy
提升	Promotion
職責	Responsibility
風險	Risk
法制作業	Rulemaking committee
安全資料	Safety data
安全評量及安全績效評量	Safety measurement and safety performance measurement
安全資料蒐集及處理系統	Safety data, collection and processing systems, SDCPS
安全管理系統	Safety management system, SMS
航空服務提供者	Service provider
航空安全資料庫	SSP library
國際民航組織之標準與建議措施	Standards and Recommended Practices, SARPs
政府民航組織	State aviation organization
安全保證小組	State safety assurance team, SAT
國家民用航空安全計畫	State safety program, SSP
審視	Survey