國家民用航空安全計畫

第3.2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

飛航安全監理是交通部民用航空局(以下簡稱民航局)主要工作項目。民航局承諾建立並實施有效策略、法規架構及作為，以確保在民航局督導下之所有飛航作業與活動，均能達到最高之安全水準。

為達成此目標，民航局將採用下列作為：

(一) 設定符合國際民航組織標準與建議措施之國家標準；

(二) 在適當情況下，採用資料導向及績效導向方式作為安全規範及對業者安全監督之依據；

(三) 識別航空業界之安全趨勢，並採用風險觀念處理具有較高安全疑慮或需要較高安全標準之區域；

(四) 透過設定整體安全指標以及航空服務提供者安全績效指標，持續監控並測量我國航空系統安全績效；

(五) 與航空業界共同合作以解決安全相關事務，並持續強化飛航安全；

(六) 依據健全的安全管理原則，促成業界良好的安全作業環境與正向的組織安全文化；

(七) 鼓勵蒐集、分析並分享所有相關組織及服務提供者之安全資訊，以達成航空安全管理目的；

(八) 配置充分的財務及人力資源以執行飛航安全監理工作；

(九) 使相關人員具備適當技能及專業，能勝任飛航安全監理任務。

凡參與國家民用航空安全計畫 (State Safety Program, SSP)相關作為之人員須理解、執行並遵守本政策。

交通部民用航空局局長

修訂紀錄表

版次	修訂記錄	更新者
01	2011/11/10	耿驊
02	2013/11/1	郭聖暉
03	2015/12/29	郭聖暉
03.01	2016/09/06	郭聖暉
03.02	2017/06/19	李偉綸

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：飛航安全調查委員會職責，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
- 第19號附約　–安全管理：飛航標準組、航站管理小組及飛航管制組職責

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、14及第19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。民國 101 年 5 月 20 日「行政院飛航安全委員會」更名為「飛航安全調查委員會」。

（四）我國的飛安法規架構如下：

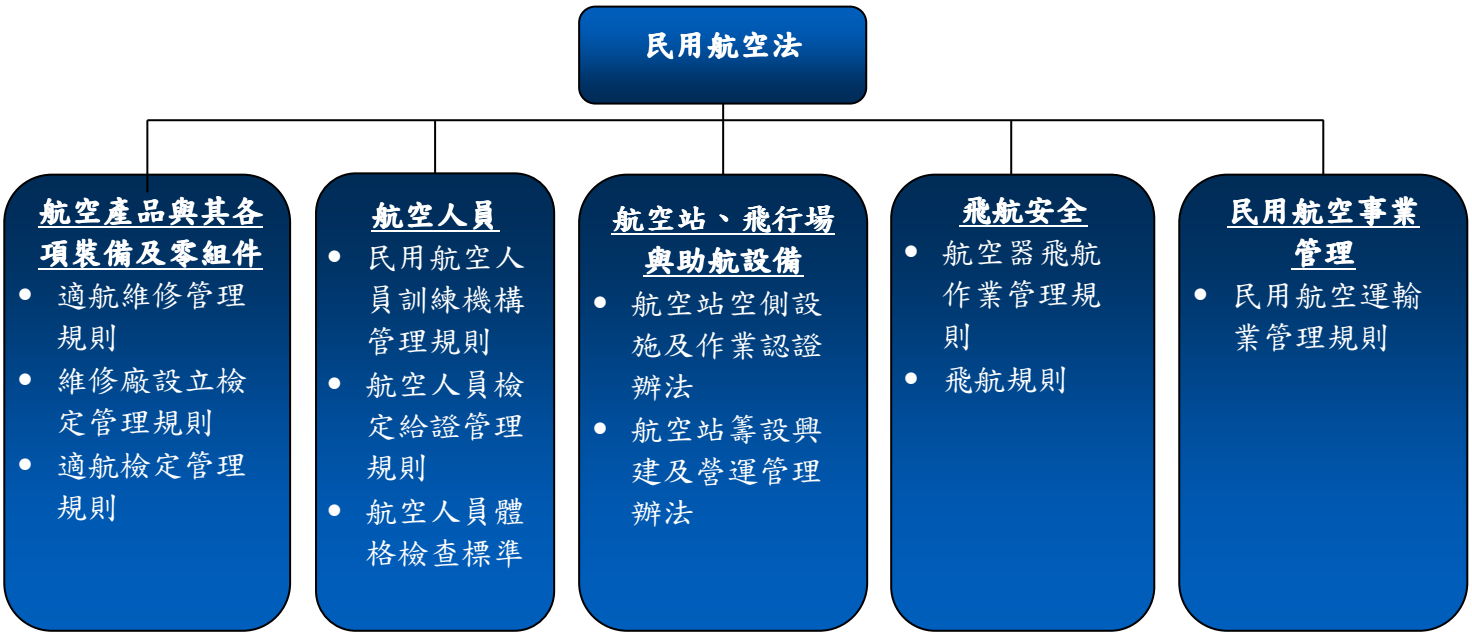


圖 1：民用航空法規架構（與 SSP 相關者）

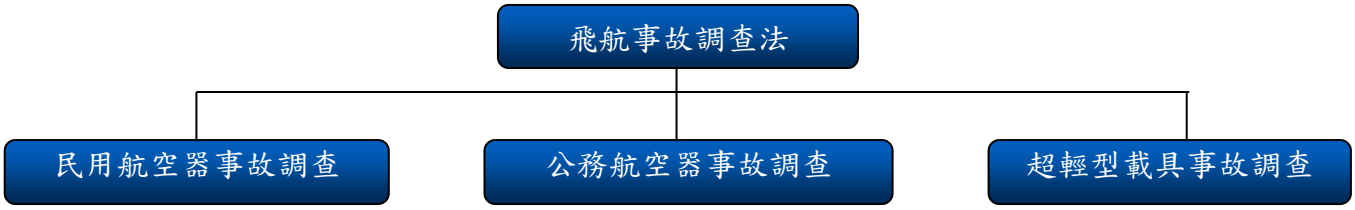


圖 2：飛航事故調查法規架構

（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，在安全管理的準則上為民航體系建立法制架構與個別作業原則。

2、於法制作業程序中，廣納飛航服務、航空站、航空業界等各領域部門之意見。

3、建立安全通報與溝通體系之管理。

4、加強與航空服務提供者（航空公司、維修廠、航空器製造廠、飛航服務總臺、航空站經營人、航空器駕駛員訓練機構等）之溝通互動，以解決安全疑慮。

5、確保民航局內部有充分的資源配置，相關人員具備適當技能且接受合適之訓練，以履行安全及其他方面的職務。

6、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。

7、遵守且盡可能超越國際安全要求與標準。

8、執行航空服務提供者（航空公司、維修廠、航空器製造廠、飛航服務總臺、航空站經營人、航空器駕駛員訓練機構等）之教育訓練及宣導，以促進安全管理觀念與原則之提升。

9、監督我國民用航空體系安全管理系統之實施。

10、確保受監督之所有活動均達到最高安全標準。

11、建立維護安全資料蒐集及處理系統之規定，鼓勵航空服務提供者(航空公司、維修廠、航空器製造廠、飛航服務總臺、航空站經營人、航空器駕駛員訓練機構等)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持續資料互動與交流。

12、明確訂定安全指標與安全目標，建立並評估國家民用航空

安全計畫的實際執行情況。

13、函頒「航空安全違規事件調查處理手冊」，除重大過失或故意違規之事件外，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，均不可用於航空安全違規事件調查處理。

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。

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、航空安全違規事件調查處理

有鑒國家民用航空安全計畫以及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 以及第 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，不被用於航空安全違規事件調查處理。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之組織架構

（一）為實施及推動國家民用航空安全計畫，依據「交通部民用航空局安全保證小組設置要點」設置安全保證小組，其架構如下：

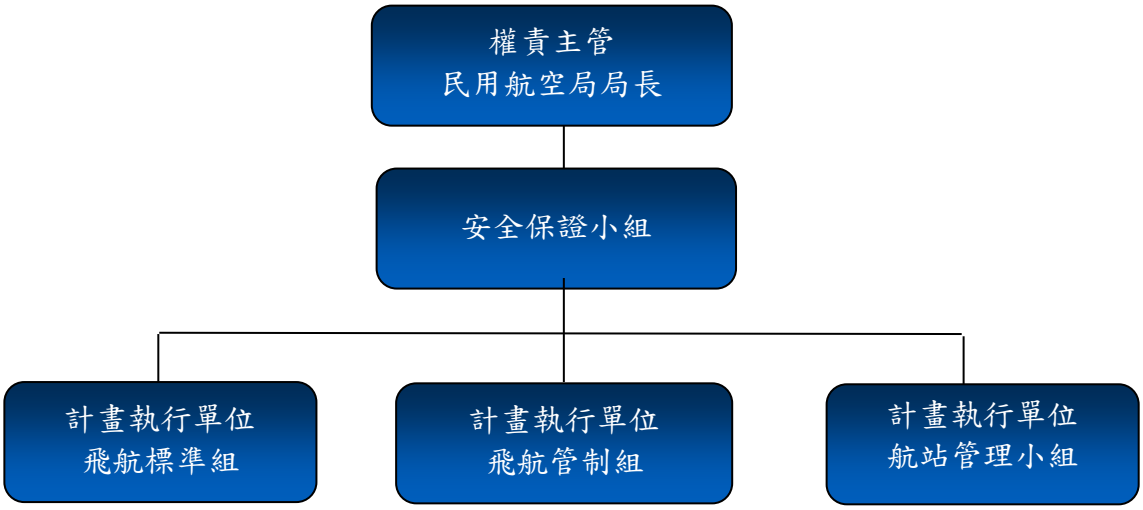


圖3：國家民用航空安全執行之組織架構

（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）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。

（四）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。

（五）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。

（六）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。

（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）民航局為航空公司、維修廠、航空器製造廠、飛航服務總臺、航空站經營人、航空器駕駛員訓練機構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」、「航空產品與其各項裝備及零組件維修廠設立檢定管理規則」、「航空產品與其各項裝備及零組件適航檢定管理規則」「民用航空人員訓練機構管理規則」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、航空器製造廠、航空器駕駛員訓練機構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航空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，頒發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 120-32D，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，確保我國航空公司、維修廠、航空器製造廠、飛航服務總臺、航空站經營人、航空器駕駛員訓練機構等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）安全評估包括高發生頻率、高嚴重後果之事件或國家重要行政功能，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度關注或高度需求範圍之督導

（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，對於高度關注或高度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、違規事件裁罰資訊與保養困難報告均公布於民航局網站，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 19 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、國籍民用航空運輸業渦輪噴射飛機失事率 (次/百萬離場次)

2、國籍民用航空運輸業渦輪螺旋槳飛機失事率 (次/百萬離場次)。

3、國籍民用航空運輸業之重大意外事件發生率 (次/百萬飛時)。

4、飛航管制案件發生率 (航管案件數/十萬管制架次)。

5、車輛或其他地面設備造成跑道入侵事件發生率(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；

整體安全目標設定如下：

1、國籍民用航空運輸業渦輪噴射飛機五年移動平均失事率為 0.35 次/百萬離場次以下。

2、國籍民用航空運輸業渦輪螺旋槳飛機五年移動平均失事率為 2.0 次/百萬離場次以下。

個別安全目標設定如下：

1、國籍民用航空運輸業飛機之重大意外事件十年移動平均發生率為 5.0 次/百萬飛時以下

2、飛航管制案件發生率 1.40 次/十萬管制架次以下。以逐年降低 0.1 次，於民國 110 年達到 1.0 次/十萬管制架次以下。

3、車輛或其他地面設備造成跑道入侵事件五年移動平均發生率 1 次/百萬起降架次以下。

4、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 國家民用航空安全計畫行動方案

1、 背景

本行動方案依 國際民航組織 Doc 9859 差異分析表,配合本國現有制度及狀況而擬定，其目的在使民航局能有效執行國家民用航空安全計畫確保在民航局監理下督導下之飛航作業與活動，均能達到最高之安全水準。

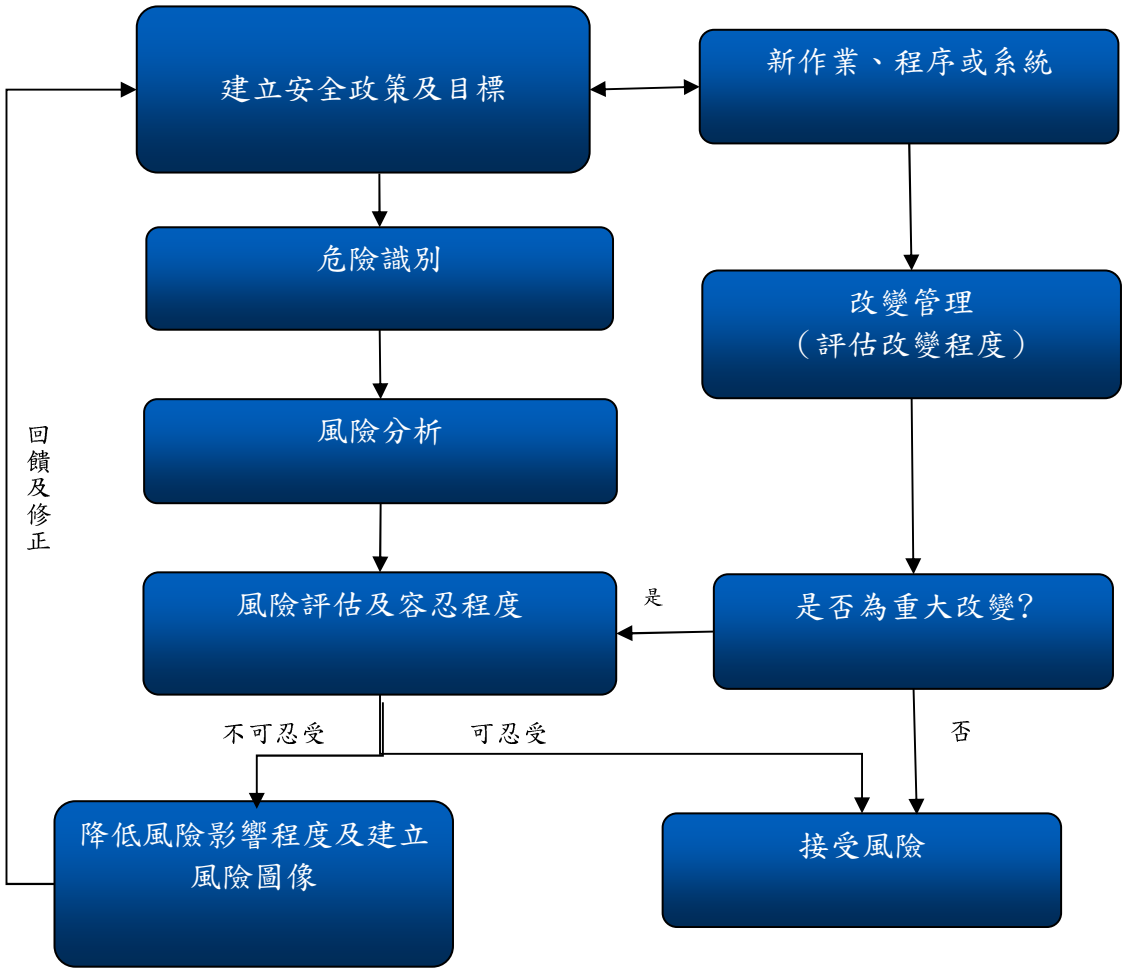
2、 行動方案

執行項目	辦理內容
1. 全面有效實施國家民用航空安全計畫	定期舉行安全保證小組幹事會議以及季會，有效追蹤安全目標以及研討安全議題。
2. 定期實施國家民用航空安全計畫以及安全管理系統之教育訓練 (4.1-1)	除對航空服務提供者、民航局檢查員與查核員定期實施安全管理系統教育訓練外，並對民航局所有職員實施國家民用航空安全計畫教育訓練。
3. 定期考核評估航空服務提供者所提之安全管理系統及安全績效指標與目標 (3.1-4) (3.1-5) (3.1-6)	要求航空服務提供者提報安全績效指標與目標，並依計畫執行定期監督，依評估工具表評估其安全管理系統有效性，以達成績效管理與風險管理之雙重目標。
4. 建置自願報告系統以加強蒐集未被強制通報系統發現的危害 (3.2-2)	加強現有民航局長飛安信箱之自願、保護、免責等系統特性，保護及免責為重點建置，以區隔其與民航局長民意信箱之差別。
5. 由航空服務提供者自行處理或解決安全或品質缺失 (1.4-3)	針對已完成 SMS 第四階段之航空服務提供者，在其 QMS/SMS 機制下自行處理或解決日常安全或品質缺失，並研擬事前核准要件與事後報備機

	制。
6. 提升飛安事件蒐集、分析及處理能力，強化資訊管理系統之效能 (3.2-3)	1. 加強宣導安全事件通報機制，持續累積相關安全資料 2. 要求業者依實際數據，建立相關安全績效指標及目標
7. 參與地區性與全球性航空安全資訊的交流與分享 (4.2-2)	積極參與國際機場協會 ACI、民用飛航服務組織 CANSO、美國聯邦航空總署 FAA 或其他相關航空組織所舉辦會議，並鼓勵國內相關服務提供者參與有關會議、訓練課程。
8. 建置跨專業資訊管理平臺，以儲存整理安全資訊並進行國際資料交換 (3.2-3)	整合相關安全管理資訊系統，建置航空安全資料庫，以蒐集並分析現有或潛在之安全缺失，提供要採取預防行動所需資料，並採用標準化格式以便於國際間資料交換。

● () 中標註者為國際民航組織差異分析表項目

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 establishing and implementing effective strategies, regulatory frameworks and processes to ensure that aviation activities under our oversight achieve the highest practicable level of safety.

To this end we will:

1) Setting national standards in line with the Standards and Recommended Practices(SARPs) of the International Civil Aviation Organization;
2) Adopting a data-driven and performance-based approach to safety regulation and industry oversight activities where appropriate;
3) Identifying safety trends within the aviation industry and adopting a risk-based approach to address areas of greater safety concern or need;
4) Monitoring and measuring the safety performance of our aviation system continuously through the State's aggregating safety indicators as well as service providers' safety performance indicators;
5) Collaborating and consulting with the aviation industry to address safety matters and continuously enhance aviation safety;
6) Promoting good safety practices and positive organization safety culture within the industry based on sound safety management principles;
7) Encouraging safety information collection, analysis and exchange amongst all relevant industry organizations and service providers, with the intent that such information is to be used for safety management purposes only;
8) Allocating sufficient financial and human resources for safety management and oversight;
9) Equipping staff with the proper skills and expertise to discharge their safety oversight and management responsibilities competently.

All staff involving in activities related to the State Safety Program shall understand, implement and follow this policy.

Lin, Kuoshian

Director General

Civil Aeronautics Administration, MOTC

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,

Annex 14－Aerodromes－AMOU's responsibility, and

Annex 19－Safety Management－FSD, ATSD, and AOMU'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, 14 and 19 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 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 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：

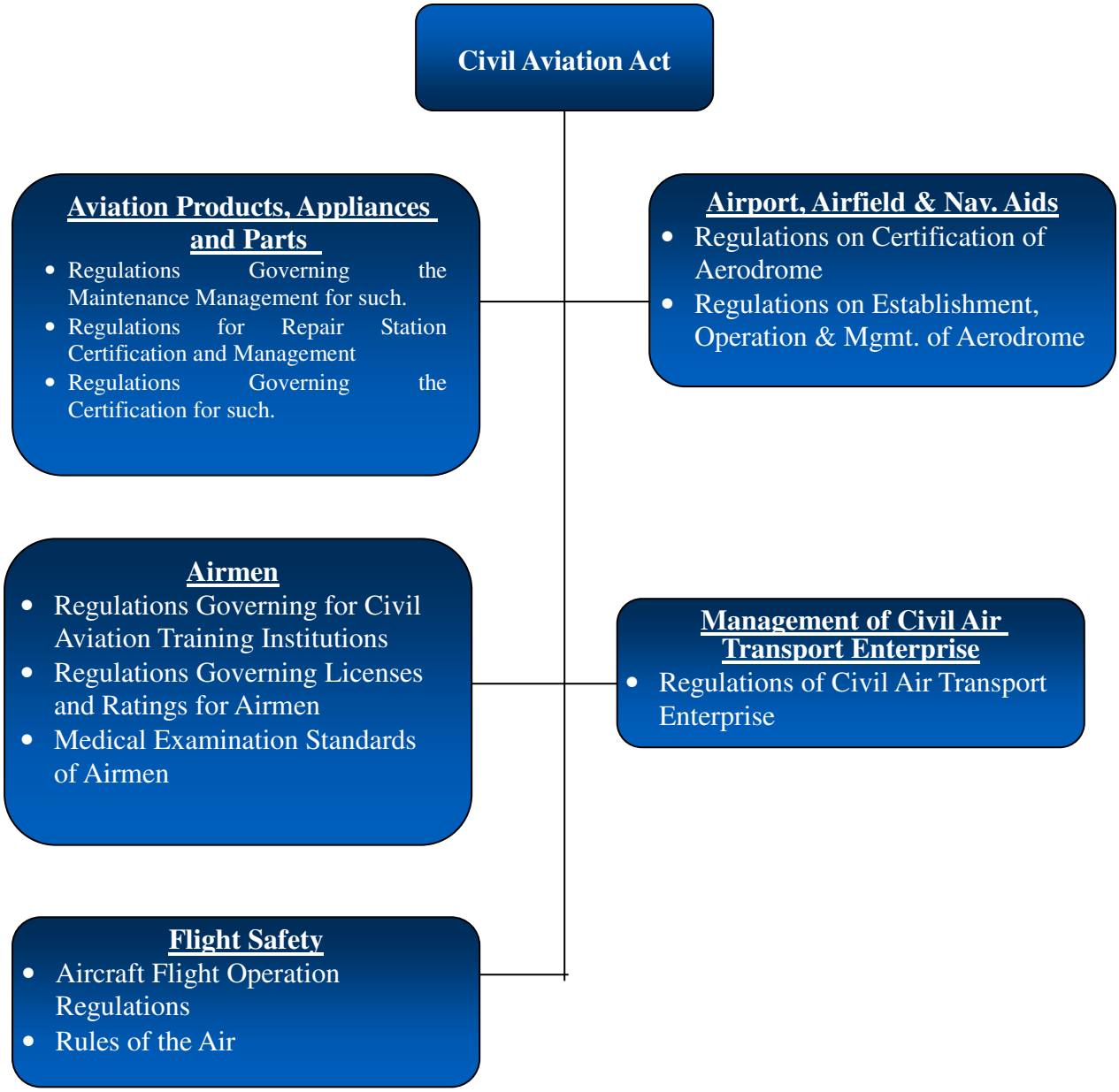


Figure 1. The structure of Civil Aviation Regulations system related to SSP

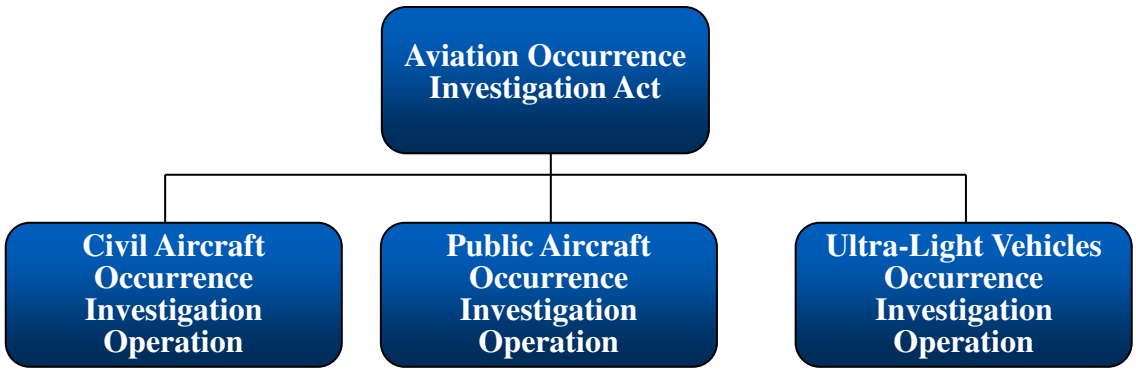


Figure 2. The structure of Aviation Occurrence Investigation Act

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 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 CAA is committed 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) Establishing the management of safety reporting and communication systems;
4) Enhancing interaction effectively with service providers (Aircraft operator, Repair station, Aircraft manufactory, Air Navigation and Weather Services, Aerodrome managers, and Aircraft pilot training institutions) 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 Aircraft operator, Repair station, Aircraft manufactory, Air Navigation and Weather Services, Aerodrome managers, and Aircraft pilot training institutions 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 (Aircraft operator, Repair station, Aircraft manufactory, Air Navigation and Weather Services, Aerodrome managers, and Aircraft pilot training institutions);
12) Establishing and measuring the realistic implementation of our SSP against safety indicators and safety targets which are clearly identified.
13) Promulgating an “Aviation Safety-related Events Investigation and Enforcement Handbook” that ensures that no information from SDCPS will be used for enforcement purposes except when gross negligent or willful deviation is involved.

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

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 organizational structure

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.

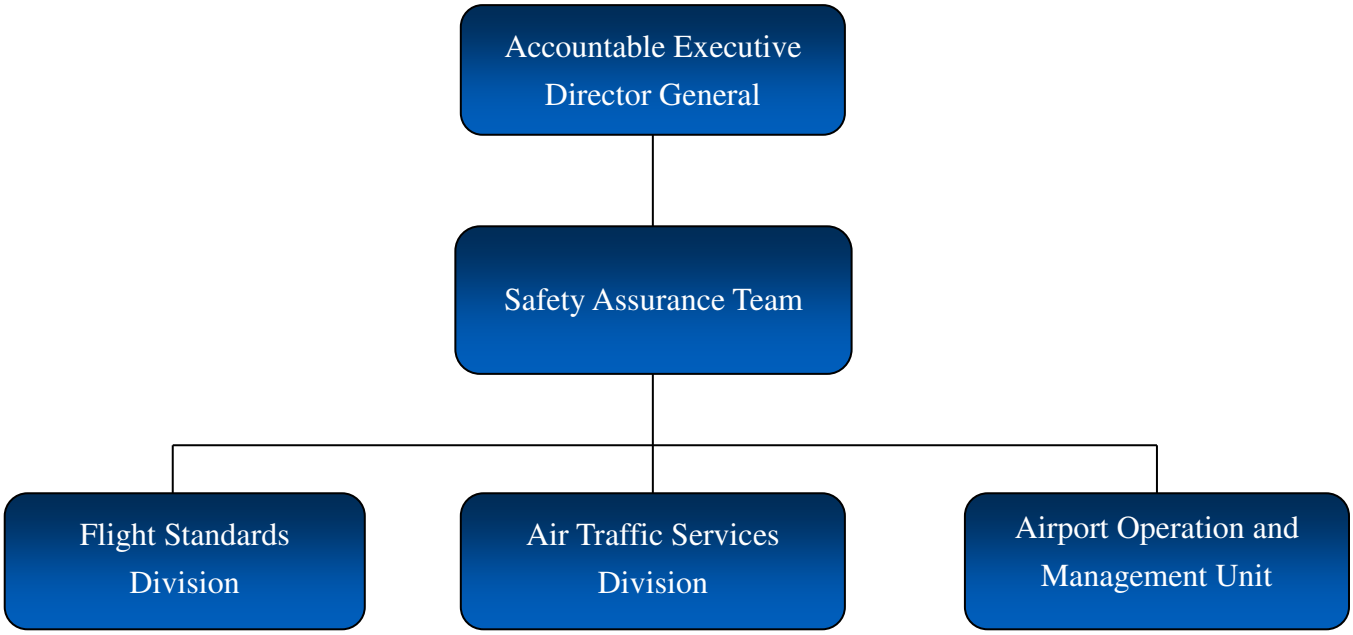


Figure 3：The organizational structure of SSP

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 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.

6.4 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

6.5 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

6.6 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

6.7 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 Aircraft operator, Repair station, Aircraft manufactory, Air Navigation and Weather Services, Aerodrome managers, and Aircraft pilot training institutions.

1.2 The regulations prescribed in the CAR 07-02A Aircraft Flight Operation Regulations (AOR), the CAR 06-02A Regulations of Repair Station Certification and Management for Aviation Products, Appliances and Parts, the CAR 06-07A Regulations Governing the Certification for Aviation Products, Appliances and Parts, the CAR 05-02A Regulations Governing Establishment of Civil Aviation Training Institutions, and the Directions of Aerodrome Design and Operation require that an aircraft operator, Repair station, Aircraft manufactory, Aircraft pilot training institutions, 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 120-32D 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 Aircraft operator, Repair station, Aircraft manufactory, Air Navigation and Weather Services, Aerodrome managers, and Aircraft pilot training institutions 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 l 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 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 on the CAA website. This 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 Annex 19 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 national airline turbine aircraft accident (per million departures).
2. Rate of national airline turboprop aircraft accident (per million departures).
3. Rate of national airline aircraft serious incidents (per million

flight hours).

4. Rate of air traffic control incidents (Numbers per 100 thousand controlled flights).

5. Runway incursion rate caused by vehicles or equipment (Numbers per million operations).

6. Event of damage to the aircraft which requires a repair due to ground handling mishaps or system failure (Numbers per 100 thousand operations).

4.2 Aviation Safety Targets

Aviation safety targets include integral safety targets and specialty safety targets;

Integral safety targets include:

1. Reducing the 5 year moving average of accident rate of national airline turbine aircraft bellow 0.35 per million departures.

2. Reducing the 5 year moving average of accident rate of national airline turboprop aircraft bellow 2.0 per million departures.

Specialty safety targets include:

1. Reducing the 10 year moving average of serious incidents rate of national airline aircraft below 5.0 per million flight hours.

2. Rate of air traffic control incidents below 1.4 per 100 thousand controlled flights and by Reducing 0.1 every year until 1.0 per 100 thousand controlled flights in 2021.

3. Reducing the 5 year moving average of runway incursion rate caused by vehicles or equipment below 1 time per million operations.

4. Reducing the number of events of damage to the aircraft which requires a repair due to ground handling mishaps or system failure below 2 times per hundred thousand operations.

4.3CAA 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

   This plan is based on ICAO Doc 9859 Gap Analysis checklist and take current system and conditions into account. Based on the plan, CAA can effectively implement the SSP and ensure the aviation operations and activities achieving the highest level of safety.

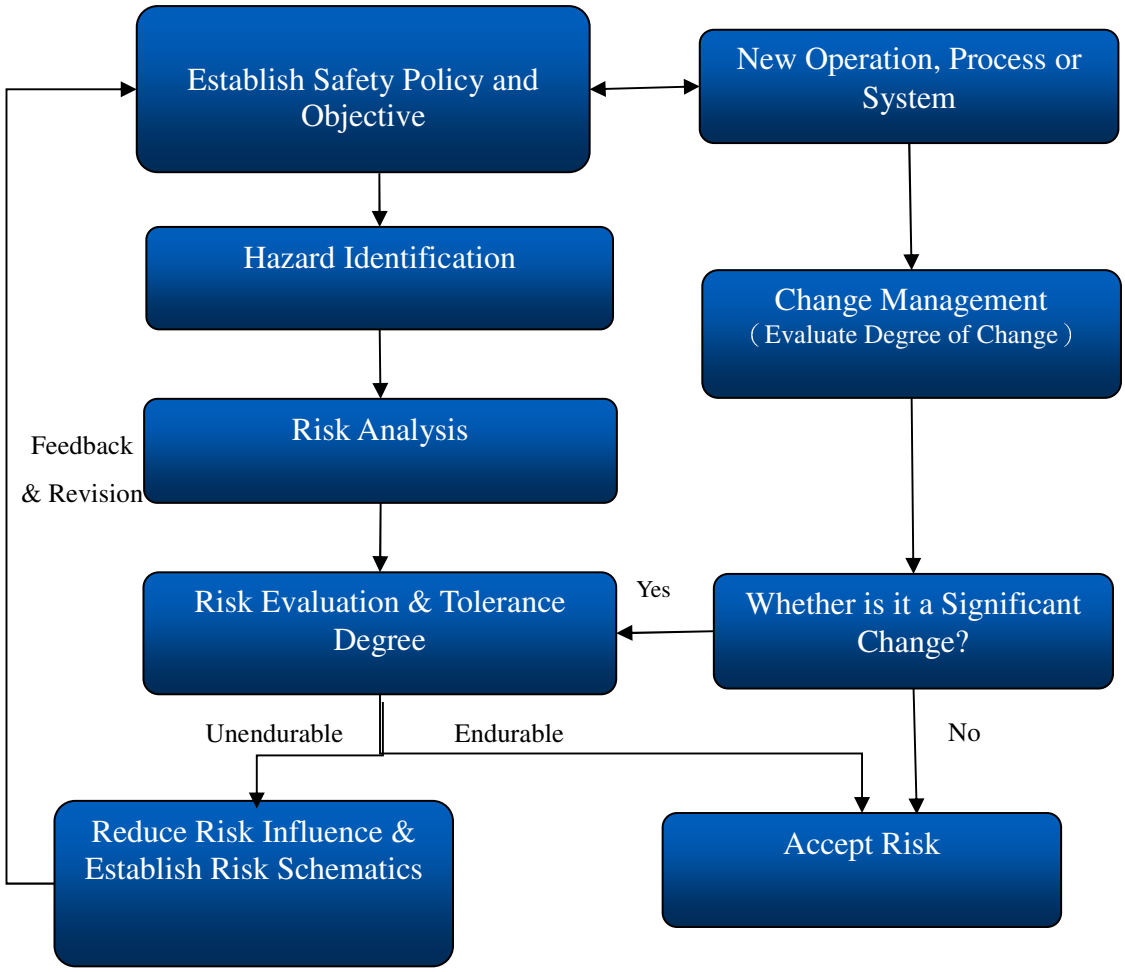
2. Implementation Plan

Milestones	**Executive Items**
1. Full implementation of SSP	By holding periodical SAT meeting to trace safety target and discuss safety issues.
2. Conduct of SSP and SMS training periodically (4.1-1)	Conducting SSP training to all CAA staff in addition to service providers, inspectors and auditors.
3. Periodically assess for the SMS, its corresponding safety performance indicators and relevant target provided by aviation service providers (3.1-4) (3.1-5) (3.1-6)	Requiring a service provider to report its safety performance indicator and target. CAA will conduct periodical surveillances. In addition, CAA will evaluate the SMS effectiveness of service providers by a checklist to complete the requirement for both performance management and risk management.
4. Establishing a voluntary reporting system to facilitate the collection of data on hazards that may not be captured by a mandatory incident reporting system (3.2-2)	Enhancing the features of voluntary, protected, and penalty free to current “Director General’s E-Mail box”.
5. Service providers deal with, and resolve safety or quality deviations internally (1.4-3)	To develop pre-approved and post-report mechanism for those service providers who have completed SMS phase 4 and authorized to manage safety or quality deficiency internally by their QMS/SMS.
6. Promote ability in collecting, analyzing and	1. Propagate the incident report system to

processing incident. Improve efficiency of information management system. (3.2-3)	collect safety data. 2. Require service providers to establish safety performance indicator and target.
7. Participate in regional and global aviation safety information sharing and exchange (4.2-2)	Participate meeting hosted by ACI, CANSO, FAA, or other aviation organizations. Encourage national service providers to attend relevant meeting or training.
8. Develop cross-platform information management systems to store data and to share safety information internationally (3.2-3)	Integrate related safety management information systems to setup the aviation safety database. Collect and analyze existing or potential deficiencies and provide information needed for taking proactive actions. Use standard data format for the purpose of data sharing.

- () denotes the item number of the Gap Analysis checklist

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