



**Asia-Pacific
Economic Cooperation**

Airport Safety Evaluation Visit Program (ASEVP)

**General Report of the Safety Evaluation Site Visits at Da Lat Lien Khuong
International Airport and Da Nang International Airport in Viet Nam**

**APEC Transportation Working Group
Aviation Experts Subgroup**

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TABLE OF CONTENTS

1. INTRODUCTION	2
2. ASEVP TEAM AND AIRPORT SAFETY EVALUATION VISITS IN VIET NAM	2
2.1 SUMMARY OF THE VISIT TO DA LAT LIEN KHUONG INTERNATIONAL AIRPORT (DLI)	3
2.1.1 ACTIVITIES CONDUCTED DURING THE SITE VISIT	3
2.1.2 EVALUATION OF TRAINING AND ASEVP.....	4
2.2 SUMMARY OF THE VISIT TO DA NANG INTERNATIONAL AIRPORT (DAD)	6
2.2.1 ACTIVITIES CONDUCTED DURING THE SITE VISIT	6
2.2.2 EVALUATION OF TRAINING AND ASEVP.....	7
3. CONCLUSION.....	9
APPENDIX A. GUIDELINES ON THE ORGANIZATION AND FUNCTIONING OF A RUNWAY SAFETY ACTION TEAM (RSAT).....	10
APPENDIX B. COMMENTS FORMULATED BY PARTICIPANTS AT DA LAT LIEN KHUONG INTERNATIONAL AIRPORT	12
APPENDIX C. COMMENTS FORMULATED BY PARTICIPANTS AT DA NANG INTERNATIONAL AIRPORT	13

1. INTRODUCTION

The Asia-Pacific Economic Cooperation (APEC) Secretariat has decided to fund the “Airport Safety Evaluation Visit Program (ASEVP) TPT 01/2011A”. The ASEVP has two (2) objectives.

- i. The primary objective is **to enhance aerodrome safety oversight program** through advanced education, audit training, and information sharing on ICAO aerodrome requirements, and best practices for achieving the highest level of safety compliance, particularly in the areas of runway safety, lighting and marking, and emergency response.
- ii. The second objective is **to increase airport safety capabilities** by assisting to:
 - a) effectively implement all airport safety requirements in accordance with ICAO Annex 14, Aerodromes, Volume 1;
 - b) find cost effective solutions to build up safety capacity at airports;
 - c) introduce the Runway Safety Action Team (RSAT) concept as the best practice for identifying, mitigating, and continuous monitoring of runway safety risks on airport grounds.

This report presents a detailed, proprietary report for the benefit of Viet Nam as the Host Economy, including a summary of the visits and recommendations for safety enhancements at the airports visited.

2. ASEVP TEAM AND AIRPORT SAFETY EVALUATION VISITS IN VIET NAM

To execute the ASEVP, APEC has tasked the International Air Transport Association (IATA) with the formation of a team of four (4) airport safety experts to conduct site visits at two (2) medium-sized international airports in Viet Nam from 17 to 22 October 2011. The two (2) airports selected for the visits by the Civil Aviation Authority of Viet Nam (CAAV) were Da Lat Lien Khuong International Airport and Da Nang International Airport.

The ASEVP Team was composed of Mr. Gordon Griffiths from IATA, Singapore who acted as Team Leader and three (3) other Team members: Mr. Peter C. Hahn from the USA Federal Aviation Administration (FAA), Mr. Justin Toh from the Civil Aviation Authority of Singapore (CAAS) and Mr. Pierre Patry, independent private sector consultant.

Throughout the site visits, the Team was accompanied by Civil Aviation Inspectors designated by the CAAV namely, Mr. Hoang Duc Thuan, Mr. Nguyen Hong Hai and Mr. Ho Minh Tuan.

2.1 SUMMARY OF THE VISIT TO DA LAT LIEN KHUONG INTERNATIONAL AIRPORT (DLI)

Da Lat Lien Khuong International Airport (IATA: DLI, ICAO: VVDL) is owned and operated by the Southern Airports Authority of Viet Nam. It has a single 11,562 ft (3,250 m) asphalt runway 09/27. Its new 12,400 m² passenger terminal inaugurated on 26 December 2009 has a capacity of 1.5 to 2 million passengers per year. It enables the airport to serve more international flights in the near future. (*Note: The airport is currently serving 5 daily flights*)

The visit to DLI was carried out from Monday 17 October 2011 to Wednesday 19 October 2011. The Team met initially with Ms. Nguyen Thi Hong Phuong - Airport Director, the Airport Management and the CAAV Delegation to introduce the Team members and briefly reviewed the objectives of the ASEVP and the schedule of activities for the site visit. Arrangements for site visits of aerodrome facilities and training (number of participants, training room and equipment availability and location) were discussed and confirmed.

2.1.1 ACTIVITIES CONDUCTED DURING THE SITE VISIT

The following is an account of a day-to-day activities carried out by the Team during the site visit.

Day 1: Monday 17 October 2011		
No.	Description	Team members involved
1	Introduction by all team members providing an explanation of their backgrounds and experiences	Team (all members)
2	Airside inspection of runway, taxiways, signs, markings, lights, rescue and firefighting services (RFFS), aprons, control tower and general layout of airport	
3	Runway Safety Standards	Peter Hahn
4	Introduction to RSAT Membership Composition	Peter Hahn
5	Summary of day's activities	Team (all members)
6	Explanation of Day 2 program	Gordon Griffiths

Day 2: Tuesday 18 October 2011		
No.	Description	Team members involved
1	Questions and Answers (Q & A) session with Airport Management personnel on specific issues from Day 1 observations	Team (all members)
2	Introduction to ICAO & IATA Runway Safety Toolkits	Gordon Griffiths/Pierre Patry
3	Airside inspection of runways, taxiways, signs, markings, lights, apron and general layout of the airport	Peter Hahn/Justin Toh
4	Runway Safety Program and Runway Surface Friction Testing	Justin Toh
5	Summary of day's activities	Team (all members)
6	Explanation of Day 3 program including program evaluation	Gordon Griffiths

Day 3: Wednesday 19 October 2011		
No.	Description	Team members involved
1	IATA Runway Safety Action Team (RSAT)	Pierre Patry
2	Case studies on Safety Management Systems (SMS) & RSAT	Gordon Griffiths
3	Q & A session	Team (all members)
4	Review of observations	
5	Program de-brief to Airport Management personnel	
5	Completion of program evaluation and closure	

2.1.2 EVALUATION OF TRAINING AND ASEVP

During the visit, the Team delivered several training modules pertaining to the Runway Safety Action Team (RSAT), Safety Risk Management, Prevention of Runway Incursion/Excursion and other subjects concerning runway safety. At the end of the training, the twenty-three (23) airport personnel who participated were asked to complete a training evaluation form and a program evaluation form to evaluate the effectiveness of the training

and the site visit program conducted by the Team. The results of the evaluations are presented below.

A. EVALUATION OF TRAINING

Nineteen (19) out of twenty-three (23) airport personnel evaluated the training activity. They were most satisfied with usefulness of the training with their current work (85.22%). They were least satisfied with the training material (80.87%) and the duration of the training (80.87%). Overall, they gave the training activity a global appreciation of 82.61%. The table below provides a summary of the rating provided by the airport personnel.

	Summary of Training Evaluation	Average	%
1	Achievement of objectives	4.13	82.61
2	Relevance of Training	4.22	84.35
3	Duration of Training	4.04	80.87
4	Usefulness of Training in my current work	4.26	85.22
5	Quality of Instructors	4.22	84.35
6	Balance between Theory and Practice	4.09	81.74
7	Training Material	4.04	80.87
8	Global Appreciation	4.13	82.61

The participants also formulated written comments concerning the training activity which are presented in **Appendix B** to this report.

B. EVALUATION OF THE ASEVP

Twenty-two (22) program evaluations forms were completed. The usefulness of the activities in improving awareness on key issue concerning runway safety was ranked the highest (93.04%) followed by relevance of program activities and quality of team of experts performance (91.3%). The achievement of program objectives also received a favourable evaluation (90.43%). The duration of the site visit (86.96%) and the quality of the hand-out material (88.7%) received the lowest ranking. Globally, the site visit was very well received with a rating of 93.91%. The results are summarised in the table below.

#	Summary of Training Evaluation	Average	%
1	Achievement of Program Objectives	4.52	90.43
2	Relevance of Program Activities	4.57	91.30
3	Duration of Site Visit	4.35	86.96
4	Usefulness of activities in improving awareness on key issue concerning runway safety	4.65	93.04
5	Quality of Team of Experts performance	4.57	91.30
6	Quality of Hand-Out Material	4.43	88.70
7	Global Appreciation	4.70	93.91

The participants also formulated the following written comments concerning the ASEVP which are presented in **Appendix B** to this report.

2.2 SUMMARY OF THE VISIT TO DA NANG INTERNATIONAL AIRPORT (DAD)

Da Nang International Airport (IATA: DAD; ICAO: VVDN) is owned and operated by the Central Airports Authority of Viet Nam and is used for both civil and military aviation operations. It is one of the three largest airports in Viet Nam and has a total area of 842 hectares – 150 hectares has been allocated for civil aviation operations.

DAD has two (2) 10,000 ft (3,048 m) paved, parallel runways (17-35 orientation) capable of handling large, modern aircraft such as Boeing 747s, 767s and Airbus 320s. Traffic volume at DAD averages 100 to 150 flights daily including military traffic. Annual passenger traffic was circa 1.45 million in 2007 and is expected to reach 4 million by 2020. A new 20,000 m² terminal building, with a capacity of 4 million passengers per year, is scheduled for completion in 2012?. Additionally, one of the airport's two runways will be extended from 10,000 ft (3,048 m) to 11,483 ft (3,500 m). Once this project is completed, the airport will have a total capacity of six million passengers per year.

The visit to Da Nang International Airport was carried out from Thursday 20 October 2011 to Saturday 22 October 2011. The Team met initially with Mr. Ha Van Kiem – Director of Airport Management and Operation Division, the Airport Management and the CAAV Delegation to introduce the Team members and briefly reviewed the objectives of the ASEVP and the schedule of activities for the site visit. Arrangements for visit of aerodrome facilities and training (number of participants, training room and equipment availability and location) were discussed and confirmed.

2.2.1 ACTIVITIES CONDUCTED DURING THE SITE VISIT

The following is an account of a day-to-day activities carried out by the Team during the site visit.

Day 1: Thursday 20 October 2011		
No.	Description	Team members involved
1	Introduction by all team members providing an explanation of their background and experience	Team (all members)
2	Development of a RSAT	Pierre Patry
3	Introduction to ICAO & IATA Runway Safety Toolkits	Gordon Griffiths
4	Airside inspection of runway, taxiways, signs, markings, lights, apron, control tower and general	Peter Hahn/Justin Toh

Day 1: Thursday 20 October 2011		
No.	Description	Team members involved
	layout of the airport	
5	Implementation of a RSAT	Peter Hahn
6	Airside inspection of RFFS	Pierre Patry/Justin Toh
7	Summary of day's activities	Team (all members)
8	Explanation of Day 2 program	Gordon Griffiths

Day 2: Friday 21 October 2011		
No.	Description	Team members involved
1	Airside inspection of runway, taxiways, signs, markings, apron, and general layout of the airport.	Gordon Griffiths/Pierre Patry
2	Runway Safety Program and Runway Surface Friction Testing	Justin Toh
3	Driver's training within the airside environment	Peter Hahn
4	Safety Responsibility and Accountabilities	Pierre Patry
5	Runway Safety Standards	Gordon Griffiths
6	Summary of day's activities.	Team (all members)
7	Explanation of Day 3 program including program evaluation	Gordon Griffiths

Day 3: Saturday 22 October 2011 (half-day)		
No.	Description	Team members involved
1	Q & A session	Team (all members)
2	Review of observations	
3	Program de-brief to Airport Management personnel	
4	Completion of program evaluation and closure	

2.2.2 EVALUATION OF TRAINING AND ASEVP

During the visit, the Team delivered several training modules pertaining to the Runway Safety Action Team (RSAT), Safety Risk Management, Prevention of Runway Incursion/Excursion and other subjects concerning runway safety. At the end of the training,

the fourteen (14) airport personnel who participated were asked to complete a training evaluation form and program evaluation form to evaluate the effectiveness of the training and the site visit program conducted by the Team. The results of the evaluations are presented below.

A. EVALUATION OF TRAINING

All fourteen (14) airport personnel evaluated the training activity. They were most satisfied with the quality of instructors (97.14%). They were least satisfied with the achievement of objectives (87.14%) and the duration of training (87.14%). Overall they gave the training activity a global appreciation of 92.86%. The table below provides a summary of the rating providing by the airport personnel.

	Summary of Training Evaluation	Average	%
1	Achievement of objectives	4.36	87.14
2	Relevance of Training	4.50	90.00
3	Duration of Training	4.36	87.14
4	Usefulness of Training in my current work	4.71	94.29
5	Quality of Instructors	4.86	97.14
6	Balance between Theory and Practice	4.57	91.43
7	Training Material	4.50	90.00
8	Global Appreciation	4.64	92.86

The participants also formulated written comments concerning the training activity which are presented in **Appendix C** to this report.

B. EVALUATION OF ASEVP

Fourteen (14) program evaluation forms were completed. The quality of the team of experts performance was ranked the highest (97.14%) followed by the usefulness of activities in improving awareness on key issue concerning runway safety (94.29%). The achievement of program objectives and duration of site visit (87.14%) received the lowest ranking. Globally the site visit was very well received with a rating of 90%.The results are summarised in the table below.

#	Summary of Training Evaluation	Average	%
1	Achievement of Program Objectives	4.36	87.14
2	Relevance of Program Activities	4.50	90.00
3	Duration of Site Visit	4.36	87.14
4	Usefulness of activities in improving awareness on key issue concerning runway safety	4.71	94.29
5	Quality of Team of Experts performance	4.86	97.14
6	Quality of Hand-Out Material	4.57	91.43
7	Global Appreciation	4.50	90.00

There were no written comments formulated by participants with regard to the evaluation forms.

3. CONCLUSION

The site visits to Da Lat Lien Khuong International Airport (DLI) from 17 to 19 October 2011 and Da Nang International Airport (DAD) from 20 to 22 October 2011 had met the two (2) objectives as stated in Section 1 of this report.

At DLI, the Team identified ten (10) observations related to runway safety whereas thirteen (13) observations were raised at DAD. The corresponding recommended measures when implemented, should address the observations identified.

Last but not least, the Team would also like to express its appreciation of the cooperation and patience demonstrated by the airport personnel. Future correspondence with the Team can be achieved through the APEC Secretariat.

APPENDIX A. GUIDELINES ON THE ORGANIZATION AND FUNCTIONING OF A RUNWAY SAFETY ACTION TEAM (RSAT)

1. Purpose of RSAT

A Runway Safety Action Team (RSAT) is established at an airport to develop a specific Runway Safety Action Plan for the airport. The RSAT's primary purpose is to address existing runway safety problems and issues. A secondary purpose is to identify and address potential runway safety issues.

2. Benefits of RSAT

The benefits of RSAT are to raise awareness of runway incursion/excursion issues for pilots, controllers and vehicle operators, and focus not only on the general concerns of runway safety, but on specific problem spots on the airport or related airspace. Other important benefits of RSAT include the identification and mitigation of potential safety hazards through collaborative work of airport, air traffic control, aircraft operators and a wide range of stakeholders and airport surfaces users. Finally, RSAT develop Runway Safety Action Plans that address site-specific issues and document best practices that can be shared with the aviation community.

3. Airport Runway Safety Program Manager Responsibilities

The Airport Runway Safety Program Manager:

- 1) Establishes the RSAT.
- 2) Schedules the RSAT meeting.
- 3) Provides team members with the material identified under RSAT Materials section 3 below.
- 4) Facilitates the team meeting.
- 5) Writes the Runway Safety Action Plan.
- 6) Coordinates with and obtains signed concurrence from team members and/or organizations that have been assigned action items in the plan.
- 7) Transmits the completed Runway Safety Action Plan to the Airport Accountable Executive for review and approval.

4. RSAT Materials

The Airport Runway Safety Program Manager (or Officer designated for this position at the airport level) will provide each member of the RSAT with the following materials, as appropriate, prior to the RSAT meeting:

- 1) The existing Runway Safety Action Plan and information on the current status of each action item contained in the plan.
- 2) A listing and, if possible, a depiction of runway incursions and surface incidents (involving the runway) that have occurred at airports in the recent past, accompanied by a narrative/information on each event.
- 3) The current airport diagram for the airport.
- 4) If possible, actual or summaries of Aviation Safety Reporting System reports on surface events at the airport up to 3 years prior to the RSAT.

5. Airport RSAT Composition

The Airport RSAT will normally be comprised of people at the local level who represent the Airport Operator, the Airlines, Air Traffic Control, Fixed Base Operators, Ground Handlers, Aircraft Operators, Other Airside Tenants, Labour Organizations and the local CAA Office. RSATs will not always include, or need, representatives from the above-listed organizations. In some cases, invited organizations may choose not to participate. As a minimum, however, the team must have representatives from the Airport Operator and Air Traffic Control. Some organizations may have more than one representative on the team.

6. Scheduling of RSAT Meetings

An airport RSAT meeting will be held no later than 12 months after the airport's last RSAT meeting. Where increased numbers of runway safety incidents are registered or when a heightening of safety risk is perceived the RSAT should hold quarterly or even monthly meetings as necessary.

7. Preparation, Coordination and Submission of Runway Safety Action Plans

The Airport Runway Safety Program Manager or other designated Officer being responsible for the preparation of the Airport Runway Safety Action Plan has 30 days from the completion of the RSAT meeting to:

- 1) Prepare the plan. The plan cannot include items involving nonstandard procedures or airport facilities, e.g., signs, markings, and lights until the proper CAA approvals have been obtained.
- 2) Coordinate the plan with other RSAT members.
- 3) Obtain concurrence from team members or organizations having action items.
- 4) Submit the plan to the Airport Accountable Executive for approval.

APPENDIX B. COMMENTS FORMULATED BY PARTICIPANTS AT DA LAT LIEN KHUONG INTERNATIONAL AIRPORT

A. Participants' Comments on Training Activity

1. What are the stronger points of the training?

- More useful experiences / more reality
- Apply good technique to reduce the risk and find the best solutions to solve problems
- The same Danang airport and strategy points that I very like is understand direct RSAT and this part

2. What are the weaker points of the training?

- Duration of training is short
- It is not easy to apply on some small airports in Vietnam (refer to back of training form)

3. Do you have other comments or suggestions?

- More time for training
- The same Danang airport

B. Participants' Comments on the ASEV Program

1. What are the stronger points of the Program?

- You're very professional
- You are good. Measure friction of pavement airside safety control system
- Get much helpful information to improve the safety of our airport
- Help clear about runway safety program
- Have many solutions to ensure runway safety program
- Give good experience to evaluate the safety of the airports
- You are very professional
- Evaluation about safety runway
- Standards for deliver when operations & actions for airports

2. What are the weaker points of the Program?

- Some docs can't share for us. What a pity!
- We do not have document during the course

3. Do you have other comments or suggestions?

- We want to thank you for contacting you later!
- Thank you! And see you again.
- This program need more time to discuss about real situation.
- We want you have presentation about runway safety program at Tan Son Nhat International Airport
- Documents for references
- I thought that for taxi lane not only one lane, next taxi lane is yellow to amendment 2 lanes are black

APPENDIX C. COMMENTS FORMULATED BY PARTICIPANTS AT DA NANG INTERNATIONAL AIRPORT

A. Participants' Comments on Training Activity

- 1. What are the stronger points of the training?**
 - Evaluation in the outside is more practical
- 2. Do you have other comments or suggestions?**
 - Hope to organise more such programme