

## **Minutes of the Taskforce-1**

### **Meeting for**

### **“The Project for Capacity Development in Air Traffic Services” in Tajikistan**

**Dushanbe, 13 November 2017**

The 9<sup>th</sup> TF-1 Meeting for “The Project for Capacity Development in Air Traffic Services” (hereinafter “the Project”) was held at 11:30-12:30 on 13<sup>th</sup> November 2017 at the meeting room of ACC.

Mr. Sakae (Aerodrome Simulator Expert), Mr. Davlon (TF1 Sub-leader), Mr. Mansuri (TF1 sub-leader), Two ATC / Sim staffs, Mr. Orita (PC) and Mr. Ulugbeck (PC’s TA) attended this meeting.

The objectives of this meeting are to organize the outcome of activity 1-7 in accordance with PDM and to make the participants to understand the objective of work shop and to confirm the names of attendees.

Mr. Orita (Project Coordinator) explained that expectation of outcomes by trained AD Sim trainers through this activity 1-7 by Expert, then TF-1 discussed realistic outcomes with taking everything into consideration and fully agreed things below. The participants of the meeting shared the concept of 1-7 in PDM and contents of Expert’s sub-activity by an attachment-1.

- 1) Project confirmed that 3 TAN officials Mr. Gulov Firdavs, Mr. Khusenov Payrav and Mr. Kurbanov Sarvardzhon will be defined the counterparts as AD simulator trainer those who have responsibility to achieve the outcomes on activity 1-7, although Project had provided 8 TAN officials with training opportunity on #211(GIT/BIT) in MAVA.
- 2) TF1 assigned Mr. Gulov Firdavs as a leader of this activity and Expert and 3 CPs have responsibility to achieve the output which was defined by PDM with using newly installed AD simulator system.
- 3) TF1 management agreed to make them participate the workshop by Expert in 13-17 Nov.
- 4) TF1 confirmed that there is no issue of a regulation or certification for trainers for using AD simulator. Trained those 3 trainers by Expert will be able to conduct their actual trainings same as existing radar simulator training.

Mr. Sakae (AD Sim Expert) explained following things.

#### 1) Work Shop (13<sup>th</sup> -17<sup>th</sup> Nov)

The Simulator Training Expert provides workshop to develop training materials including various scenarios and periodical training plans. The participants will be expected to make a realistic annual training plan for all ATCs. Also, Expert provides several topics (e.g. how to edit parameters for fitting new SID/STAR AIP) will be required to divert AD simulator system to radar trainings by TAN in the future for participants.

#### 2) Operation Management Rule Evaluation (20<sup>th</sup>-24<sup>th</sup> Sep)

During this period the Expert evaluate existing Management Rules and make recommendations to improve existing if necessary with Mr. Mansuri. This Management Rules will be required for reporting malfunction of the system to software vender by trainers.



3) Comment for diverting AD Sim system to radar training

Responding TAN's requirement and in order to fully make use this system, Expert mentioned that TAN may use this system for radar training with finding a way of filling the gap.

4) Wrap-up TF-1 Meeting is scheduled 24<sup>th</sup> Nov.

Expert will discuss the next mission schedule.

Dushanbe, Tajikistan  
13 November 2017

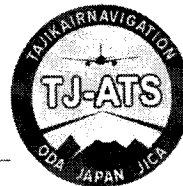
Mr. Davlon Radjyabov

Sub-Leader of Task force 1  
SUE "Tajikairnavigation"

Mr. Akio SAKAE

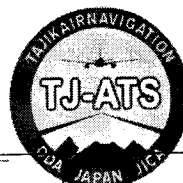
Aerodrome Simulator Expert  
JICA Expert team of the project  
Japan International Cooperation Agency

Attachment-1 : TF1 Activity 1-7



**TF1 Activity 1-5 and 1-7**

	活動	1-6	1-7
PDM	Overall goal	All ATC officers working at ATC units maintain ATC ratings in line with ICAO standards through TAN's continuing training program	
	Project purpose	All ATC officers working at ATC units have passed training in line with ICAO standards conducted by OJT instructors and simulator trainers.	
	Activity	To conduct OJT on aerodrome, approach and area control services	To conduct simulator trainings
	Output	Each of the OJT instructors has conducted OJT on aerodrome, approach and/or area control services at least 2 times.	Each of the simulator trainers has been conducting simulator training at least 3 times per month.
業務指示書 JICA order to ATCA-J	14-16 page	研修日程や場所の検討、研修内容の確認を支援。 第三国研修参加者の選定支援。 参加者に十分な英語能力があることの確認。	
	15 page	N/A	供与機材の十分な活用。 先方実施機関協力して管理。 効果的運営管理を TAN に指導。
	16-17 page	飛行場管制、進入及び航空路業務に係る OJT を実施する。 OJT 教官研修を了した研修員が各管制所で OJT が実施できるよう支援する。 これら研修員は各管制所の管制官に対する OJT 実施計画を作成し、これに基づいて OJT を実施する。	シミュレータ訓練を実施する。 TAN 研修センターに導入される AD SIM を使用して航空管制官の定期訓練を実施する。 一般教官研修(#211)を終了した SIM 教官が管制官に対して定期訓練を実施できるよう支援する。 SIM 教官は各管制所の管制官に対する定期訓練実施計画を作成し、これに基づき定期訓練を実施する。
第三国研修 training in Malaysia	Participant	ICAO #219 Mr. Oqilov Makhsudjon (H) Mr. Nabidzhonov Nizomdzhon (Q) Mr. Shukurov Shukhrat Mr. Kayumov Gulomdzhon Mr. Rakhimov Khotamzhon Mr. Makhmudov Umedzhon  (Mr.Hamidov Nurali (K) = cancelled)	ICAO #211 Mr. Sharipov Sino (K) Mr. Gafarov Bakhriddin (Q) Mr. Rashidov Firdavs (H) Mr. Oqilov Mansurjon (H) Mr. Khusenov Payrav Mr. Gulov Firdavs Mr. Tadzhibaev Akbardzhon Mr. Kurbanov Sarvardzhan
Sub-activity Plan	Instructor Training (Lecture / Exercise)	ATC-1 Expert provides training (lecture and exercise) for all OJT instructors including 6 trained ones in MAVa with using training materials by JCAB and with reference to #219 textbook which was used by instructors in MAVa.	
		Actual participants in 7-11 July. Mr. Rakhimov Khotamzhon Mr. Kayumov Gulomdzhon Mr. Makhmudov Umedzhon Mr. Nabidzhonov Nizomdzhon (Q) Mr. Oqilov Makhsudjon (H)	
		Actual participants in 12-15 Sep (full). Mr. Gafarov Bakhriddin Mr. Rashidov Fridavs Abdukayumovich Mr. Sharipov Sino Mr. Okilov Mansur Marufovich Mr. Khusenov Payrov Najmidinovich	
		18-22 Sep Mr. Sarvar Mr. Shukhrat Mr. Behruz Mr. Ali Mr. Urugbek Mr. Payror	25-29 Sep Mr. Odil Mr. Khushkadam Mr. Behruz Mr. Firuz Mr. Umed Mr. Suleimanov Mr. Mirzoev Mr. Shukurov Mr. Boev
			2-6 Oct Mr. Qayumov Mr. Firuz Mr. Khotam Mr. Oripov Mr. Otabek Mr. Payrov Mr. Sarvar Mr. Fridavs



Workshop on Material and Training Plan Development (Workshop)	For enabling 6 trained OJT instructors to provide ICAO quality OJT to their trainees in 4 airports, ATC-1 Expert provides workshop for developing training materials and periodical training plans. The participants will be expected to make a realistic annual training plan in each of those 4 airports during this W/S.	For enabling 8 trained Simulator instructors to provide ICAO quality Aerodrome simulator trainings to their trainees in Dushanbe with using newly installed simulator system, Simulator Training Expert provides workshop for developing training materials including various scenarios and periodical training plans. The participants will be expected to make a realistic annual training plan for all ATCs in 4 airports those who need to take an Aerodrome Control Simulator Training during this W/S.	
Observation of OJT by CP Instructors	In accordance with annual training plans which made by 6 OJT instructors through "Workshop on OJT-I Material and Training Plan Development", ATC-1 Expert makes them have their OJT and Expert observes it for verifying the training quality is improved by Project activities. Experts provides the F/U lecture for 6 and other OJT instructors and their trainees for improving further the trainings and materials.	In accordance with annual training plans which made by 8 Simulator instructors through "Workshop on Simulator Trainer's Material and Training Plan Development", Simulator Training Expert makes them have their trainings with using newly installed Aerodrome Simulator in Dushanbe for all ATCs in 4 airports and Expert observes it for verifying the training quality is improved by Project activities. Experts provides the F/U lecture for 8 and other Simulator instructors and their trainees for improving further the Aerodrome Simulator trainings and materials.	





**Minutes of the Taskforce-1  
Meeting for  
“The Project for Capacity Development in Air Traffic Services” in Tajikistan  
Dushanbe, 24 November 2017**

The 10<sup>th</sup> TF-1 Meeting for “The Project for Capacity Development in Air Traffic Services” (hereinafter “the Project”) was held at 10:00-11:00 on 24<sup>th</sup> November 2017 at the Mr. Rajabov’s Office.

Mr. Davron, Mr. Sakae (Aerodrome Simulator Expert), Mr. Mansuri, Mr. Orita (PC), Mr. Ulugbek and Mr. Payrov attended this meeting.

The objective of this meeting is to confirm the output of the workshop and to discuss outstanding problems in the following agenda.

**Report on Scheduled Activities**

Work Shop (13<sup>th</sup> -17<sup>th</sup> Nov)

During the workshop trainees made various scenarios. They also produced training materials including AD Sim management rules.

**Agenda**

1. For four AD Sim Trainers in Regional airports who could not attend this WS will attend next activity “Observation of OJT by instructors”. During the activity specialist will provide the follow up for the Work Shop beside the original activities.
2. TAN will provide annual training plan. Mr. Orita will provide the sample Annual Training Plan for Aerodrome (Tower) Simulator for their reference.
3. Discussed the feasibility of the PDM output “Each of the simulator trainers has been conducting simulator training at least three times per month.” The meeting concluded that PDM output is attainable and will stick to this original one. As for possible means of confirming the PDM output, Mr. Orita provided the web based reporting system for AD Simulator Training.
4. Next activity (Observation of OJT by Instructors) will be held during the February 5-16<sup>th</sup> 2018.
5. Other matters

Dushanbe, Tajikistan  
24 November 2017

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Mr. Davron Rajabov  
Sub Leader of Task force 1  
SUE “Tajikairnavigation”

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Mr. Akio SAKAE  
Aerodrome Simulator Expert  
JICA Expert team of the project  
Japan International Cooperation Agency

**Attachment-1 Report on activity**

**Attachment-2 Tower Simulator activity plan 20180205-09**

**Attachment-3 AD Sim Supplementary manual**



## **Minutes of The Taskforce-1 & 2 Meeting for “The Project for Capacity Development in Air Traffic Services” in Tajikistan**

**Dushanbe, 1 December 2017**

The 11<sup>th</sup> TF-1 & the 8<sup>th</sup> TF-2 Meeting for “The Project for Capacity Development in Air Traffic Services” (hereinafter “the Project”) was held at 10:00-12:00 on 1 December 2017 in the Project office.

Mr. Watanabe (Chief Advisor), Mr. Sheraliev (Project Manager), Mr. Davlyatov (TF-1 leader), Mr. Mansuri, Mr. Orita (Project Coordinator) attended this meeting.

This meeting was the reporting opportunity of implemented TF-1 & TF-2 activities by Expert and coordinate next mission schedule by TF accordance with the Sub-activity list and AWP.

### **I. Activity of both side from 20<sup>th</sup> November to 1<sup>st</sup> December 2017**

During this period, the expert and Taskforce 2 team led by Mr. Bakhtiyor Sheraliev had a series of discussions and exchanged information on possible technical assistance to the Contingency Plan and Safety Management System part of the Project for Capacity Development of TAN.

The expert and Taskforce 1 team led by Mr. Davlyatov had a series of discussions and exchanged information on possible technical assistance to the Training on Air Traffic Control Officer part of the Project for Capacity Development of TAN.

- (1) The JICA expert has worked on the schedule as Attachment-1, Main activity as follow:
  1. To conduct W/S on OJT-I Material and Training Plan Development.
  2. To review SMS manual after improved in TAN.
  3. To hold on meeting of the WG reporting session of review operation manual in TAN.
  4. To discuss next dispatch and further activities.
  5. To discuss the project indicator of 1-3 and 1-5 to need to change PDM.
  6. To discuss how to improve review of operation manual.
  7. To lecture the ATS system capacity to at the request of TAN.
  
- (2) W/S on OJT-I Material and Training Plan Development.
  1. Expert lectured Training Material of Kumamoto Airport because it is very similar to Dushanbe Airport such as surrounded by mountains, one runway.
  2. They thought that such materials were necessary for TAN. However, there are many volumes, it cannot be created in this workshop. In the future, we decided to create it after reviewing the contents. Therefore, in this workshop, we decided to create an OJT-I handbook in TAN.
  3. The handbook is important for instructors to understand easily and easy to use.
  4. Basically, when using this handbook, it is necessary to confirm the operation manual and the Regulation in RT such as Rule of Air, so describe it.
  5. Experts reported about the training system of TAN. He found that there are two Refreshing Training and Obtaining Rating Training. The refreshing training is divided into what is carried out by the Russian Aviation University and what is done every shift on a monthly basis. We decided to prepare an annual plan concerning Obtaining Rating Training because another training are not done periodically such as recruitment of new employees and the team is



- arbitrarily conducting training per shift.
6. TAN has plans that all controllers may have all ratings in Dushanbe from next year.
  7. We tried to make a draft of the Annual Obtaining Rating Training Plan for 2018.
  8. We calculated that the number of controller who will need training in the future is about 40~50 people. Considering the number of instructors, training place, training period (3 months), past results etc., we decided that training of 3 controllers is feasible every three months.
  9. We made the draft of OJT-I Hand book in TAN and the draft of Annual Obtaining Rating Training Plan for 2018 on 24 November 2017.
  10. TF-1 will improve an arrangement of training materials in TAN in January 2018.
  11. The OJT-I Hand book in TAN will be approved in January 2018.
- (3) Discussion on the project indicator of 1-3 and 1-5
1. Expert, Mr. Bakhtiyor and Mr. Orita discussed the project indicator (1-3 and 1-5) to clarify how many instructors will make completion of the indicator on Monday 27 November.
  2. Considering the current situation, regarding 1-3, six OJT instructors will conduct training at least two times per year (UTDK UTDT upon need); for 1-5, three AD simulator instructors will train using the AD simulator at least three times a month as same as PDM.
  3. In consideration of this conclusion, we decided that it is not necessary to change PDM.
- (4) Review of SMS manual (SMM) after improved in TAN
1. TF-2 improved the SMM according to Finding & Conclusion of SMM made by the expert.
  2. TF-2 discussed the progress on SMM to improve it.  
Progress on SMS manual as follows;
    - 1) Documents that are expected to change are separated from SMM and stored in electronic libraries with QMS code.
    - 2) Safety Policy is described only basic concept in SMM with link to Safety Policy in electric library QMS code ST-b-001(standard of safety).
    - 3) Safety objective is to separate from SMM, it will be in electric library QMS code ST-b-002.
    - 4) The work sheet of Hazard Identification and Risk assessment is to separate from SMM, and input electric library QMS code PRC-T-025 (procedure of TAN).
    - 5) Expert proposed the example of SPI (safety performance indicator) for SMM.
    - 6) Safety-related Investigation and remedial actions are to separate from SMM, remedial actions are in electric library QMS ST-T-011(standard of TAN).
    - 7) SMS records management is to separate from SMM, and made coding ID number for SMM documents to electric library QMS code ST-T-008.
    - 8) SMS Training schedule and curriculum will be approved by DG in December 2017.
- (5) The WG reporting session of review operation manual (OM) in TAN.
1. The OM had almost finished considering it at the WG, but review by the management not organized and it is now in a state of being stacked.
  2. We held a meeting including management side to improve this situation.
  3. WG Leaders will send the OM 's Findings to Head of ATS. Head of ATS will sent to supervisor and senior controllers on 6 December 2017. They will consider the OM 's Findings, and reply to Head of ATS.
  4. Experts will review and make appropriate advice based on OM 's Findings after reviewing OM's Findings on the management side.
  5. The W/S on operation manual review in TAN will be held in January 2018.
6. Remarks
- The expert would like to continue to observe ATC operation. Mr. Davlyatov will arrange radar data with voice because it will be needed pick up the traffic in mid night for English speaking airline. That is very reasonable plan for the expert.



7. W/S ATS system capacity included 1-4 sub-activity.

## II. Next dispatch of the expert

- (1) Experts proposed tentatively that the next dispatch of expert will be as follow;  
/From 22<sup>th</sup> January to 16<sup>th</sup> February: Mr. WATANABE (TF-1 & 2)
- (2) TF-1&2 agreed the schedule of the next dispatch.

As a result of the activity, both sides confirmed the matters referred to in the documents attached hereto

Dushanbe, Tajikistan

1 December 2017

Mr. Bakhtiyor SHERALIEV  
Safety and Quality Manager  
Project Manager  
Leader of Task force 2  
SUE "Tajikairnavigation"

Mr. Hideo WATANABE  
Chief Advisor  
JICA Expert team of the project  
Japan International Cooperation Agency

Mr. Davlat DAVLYATOV  
Head of ATS  
Leader of Task force 1  
SUE "Tajikairnavigation"

- Attachment-1: TF-1 & 2 Activity Plan**
- Attachment-2: The activities report (2-1~2-2)**
- Attachment-3: Obtaining Rating Training Annual Plan**
- Attachment-4: A draft of OJT-I HANDBOOK IN TAN 20171124 (pdf)**
- Attachment-5: Finding & Conclusion & Progress of SMM**
- Attachment-6: Next TF-1 & 2 Activity Plan**

## TF-1 Activity Plan (20 Nov to 1 Dec 2017)

Date		AM	PM	Remarks
18	S			Arrive at Dushanbe
19	S			
20	M	W/S on OJT-I Material & Training Plan Development		entering pass is required at 8:50
21	T	W/S on OJT-I Material & Training Plan Development		
22	W	W/S on OJT-I Material & Training Plan Development		
23	T	W/S on OJT-I Material & Training Plan Development		
24	F	W/S on OJT-I Material & Training Plan Development		
25	S			
26	S			
27	M	Review of Operation Manual in TAN (improvement of English translation)		
28	T	Review of SMS Manual in TAN (improvement in TAN)		
29	W	WG reporting session for Operation manual ( TWR WG, APC WG)		
30	T	WG reporting session for Operation manual (ACC WG, Expert Review)		
1 Dec	F	TF1 Meeting / MM signing	Report to JICA office	entering pass return
2	S			
3	S			Depart from Dushanbe

**Report on Activity****General:**

TF and Activities	Taskforce-1, ATC, Activity 1-5
Title	Workshop on OJT-I Material and Training Plan Development
Terms	20-24 November 2017 (5 days)
Type	Workshop
Expert	Hideo Watanabe

**Lists of participants:**

Name	Position			
Mr. R. Khotamzhon imakhmadovich	OJT-I	20-24		Certificate
Mr. M. Umedjon Akbarovich	OJT-I	20-24		Certificate
Mr. S. Shuhrat Abdukhalikovich	OJT-I	21-24		Certificate
Mr. Hideo Watanabe	Expert			

**Input from Experts and Output from Activity:**

Input based on agenda at notification letter	Output	Follow-up
Expert Lecture OJT-I material in Japan and how to make training material and training plan in TAN.	Reflect them in OJT-Instructor to train their trainee based on ICAO standard.	

**List of Presentation Material and Handout (Available in web-side)**

OJT-I Hand Book in TAN.pdf  
 Training in TAN.pdf  
 Training Material in Japan.pdf

**The criteria for the issuance of certificates (if any)**

The criteria for the issuance of certificates has an attendance rate of 80% or above for W/S on OJT-I Material and Training Plan Development

**Record of discussion**

The handbook needs to be written so that the instructor can understand it.  
 Basically, when using this handbook, it is necessary to confirm the operation manual and the Regulation in RT such as Rile of Air, so describe it.  
 There is no need to put too many figures.  
 Experts reported about the training system of TAN. He found that there are two Refreshing Training and Transition Training. The refreshing training is divided into what is carried out by the Russian Aviation University and what is done every shift on a monthly basis. We decided to prepare an annual plan concerning Transition Training because there are not done periodically such as recruitment of new employees and the team is arbitrarily conducting training per shift.  
 TAN has plans that all controllers may have all ratings in Dushanbe next year.  
 We tried to make the Annual Transition Training Plan in 2018.  
 We calculated that the number of controller who will need training in the future is about 40~50 people.  
 Considering the number of instructors, training place, training period (3 months), past results etc., we decided that training of 3 controllers is feasible every three months.

**Conclusion and Recommendations**

We made the draft of OJT-I Hand book in TAN and the draft of Annual Transition Training Plan in 2018.



**Report on Activity****General:**

TF and Activities	Taskforce-2, ATC, Activity 2-2-2
Title	W/S on Developing SMS manual
Terms	28 November 2017 09:30-12:00 (0.5days)
Type	Workshop
Expert	Hideo Watanabe

**Lists of participants:**

Name	Position			
Mr. Bakhtiyor	PM			
Mr. Ulugbek				
Mr. Watanabe	Expert			

**Input from Experts and Output from Activity:**

Input based on agenda at notification letter	Output	Follow-up
Expert work in collaboration with counterpart to discuss improvement points and additional items for making it possible to improve the quality of the SMS manual to obtain TAN approval and CAA endorsement or approval, and organize in the table.	Evaluating the completeness of the TAN side draft version analyzed. Developed plan of further activity to improve SMS manual	Approval process in TAN

**List of Presentation Material and Handout (Available in web-side)**

Finding & Conclusion, progress of SMM.pdf

**Record of discussion**

TF-2 improved the SMM according to Finding & Conclusion of SMM made by the expert.

TF-2 discussed the progress on SMM to improve it.

Progress on SMS manual as follows;

- \* Documents that are expected to change are separated from SMM and stored in electronic libraries with QMS code.
- \* Safety Policy is described only basic concept in SMM with link to Safety Policy in electric library QMS code ST-b-001(standard of safety).
- \* Safety objective is to separate from SMM, it will be in electric library QMS code ST-b-002.
- \* The work sheet of Hazard Identification and Risk assessment is to separate from SMM, and input electric library QMS code PRC-T-025 (procedure of TAN).
- \* Expert proposed the example of SPI (safety performance indicator) for SMM.
- \* Safety-related Investigation and remedial actions are to separate from SMM, remedial actions are in electric library QMS ST-T-011(standard of TAN).
- \* SMS records management is to separate from SMM, and made coding ID number for SMM documents to electric library QMS code ST-T-008.
- \* SMS Training schedule and curriculum will be approved by DG in December 2017

**Conclusion and Recommendations**

TF-2 will continue to improve SMM in TAN.

## Attachment-3

### Annual Obtaining Rating Training Plan

2017.12.1

Year	2018											
Months	1	2	3	4	5	6	7	8	9	10	11	12
Duration	←————→				←————→				←————→			
Plan	3				3				3			
Actual												
Trainee 1												
Instructor 1												
Trainee 2												
Instructor 2												
Trainee 3												
Instructor 3												

<b>Obtaining Rating Training</b>	300hr
*Theoretical Training :	180hr
*Simulator Training :	75hr
*On The Job Training :	45hr
*Examination :	2~4days

<p><b>Remarks</b></p> <p>3 X 3times = 9 Controllers get a new rating.</p> <p>*Three controllers will be trained every three months, but it is also possible to change the number of people as needed.</p> <p>*The Instructor should be assigned for training to prepare an environment to concentrate on training.</p> <p>*Administration section should support the Transition Training Plan.</p>
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**Obtaining Rating Training** : it is a training for one or more rated air traffic controllers to get new ratings.



## SMS Manual analysis

Progress was updated on 28 November 2017

Section	Finding	Conclusion	Progress
<u>Contents of manual</u>	(1) The contents items of the English version of the SMS manual were arranged according to the ICAO SMS Manual. (2) There is item related to SMS training, but no contents.		
<u>1. Document control</u>	(1) To describe approval and regulatory acceptance process	Already added QMS document standard 007 and 008.	
<u>2. SMS regulatory requirements</u>	(1) The requirement of regulations related to SMS is satisfied. (2) In the future, it is necessary to add or modify in accordance with the progress of the SMS implementation plan.	Agreed	
<u>3. Scope and integration the SMS</u>	(1) All criteria are satisfied		
<u>4. Safety Policy</u>	(1) There are descriptions of all items under the provisions of ICAO. (2) Describe regular review.	Deleted only the contents of safety policy, input basic policy concept if needed. To check ICAO SMM and ANNEX19.	<i>Safety Policy is described only basic concept in SMM with link to Safety Policy in electric library QMS code ST-b-001(standard of safety).</i>
<u>5. Safety objectives</u>	(1) To describe the public relations activities of safety goals. (2) To take links with safety indicators.	To check the proposal and look for SPI on ICAO SMM and ANNEX19. We continue to consider whether it input a text of SMM or attachment.	<i>Safety objective is to separate from SMM, it will be in electric library QMS code ST-b-002.</i>

**Attachment-5**

<p><u>6. Safety accountabilities and key personnel</u></p>	<p>(1) To clarify the responsibility and accountability of the SMS system and establish. (2) To describe the organization chart, include Safety Committees and Action Groups.</p>	<p>To add the organization chart, if we can find or make the appropriate one.</p>	<p>Done. TF-2 made a draft of organization chart.</p>
<p><u>7. Safety reporting and remedial actions</u></p>	<p>(1) To use Illustration of the reporting system as easy to understand. (2) It is necessary to describe on periodic review.</p>	<p>To add flow chart of voluntary reporting system if necessary.</p>	<p>Flow chart of reporting system was founded, it will be input the manual.</p>
<p><u>8. Hazard Identification and Risk assessment</u></p>	<p>(1) To use Illustration of the flow chart from hazard identification to risk assessment as easy to understand. (2) To describe the tools (work sheet, forms, software, etc.) used for risk assessment.</p>	<p>To add the organization chart, if we can find or make the appropriate one.  To input an example of work sheet and forms using QMS.</p>	<p><i>The work sheet of Hazard Identification and Risk assessment is to separate from SMM, and stored electric library QMS code PRC-T-025 (procedure of TAN).</i></p>
<p><u>9. Safety Performance Monitoring and measurement</u></p>	<p>(1) To describe the safety performance monitoring and measurement component of the SMS. (2) To describe the organization ' s SMS safety performance indicators (SPIs).</p>	<p>To separate a document from SMM, and check ICAO SMM and ANNEX19</p>	<p><i>Expert proposed the example of SPI (safety performance indicator) for SMM.</i></p>
<p><u>10. Safety-related Investigation and remedial actions</u></p>	<p>(1) To describe the conditions clearly under which internal investigation is carried out. (2) To use Illustration of the investigation process as easy to understand.</p>	<p>It is sufficient in this description.</p>	<p><i>Safety-related Investigation and remedial actions are to separate from SMM, remedial actions are in electric library QMS ST-T-011(standard of TAN).</i></p>
<p><u>11. Safety training and</u></p>	<p>(1) To describe the implementation of SMS training</p>	<p>To add Training schedule and curriculum program of main contents on SMS.</p>	<p><i>Training schedule and curriculum will be approved by DG in</i></p>

Attachment-5

<u>communication</u>	for staff. (2) To describe the method of maintaining the training record, the training plan and the preparation of the curriculum.		<i>December 2017.</i>
<u>12. Continuous improvement and SMS audit</u>	(1) To use Illustration of the internal audit process as easy to understand.	Quality and Safety Committee will review safety assessment reports.	Quality and Safety Committee was already approved by regulation of committee.
<u>13. SMS records management</u>	(1) To describe record lists such as hazard reports, risk assessment reports, minutes of meeting, SPI charts, etc.	All documents have ID number, so link it to e-library in TAN.	<i>SMS records management is to separate from SMM, and made coding ID number for SMM documents to electric library QMS code ST-T-008.</i>
<u>14. Management of change</u>	(1) To use Illustration of the management change process as easy to understand.	To add the management change process, if we can find or make the appropriate one.	<i>Done the management change process is described in SMM.</i>
<u>15. Emergency/Contingency Response Plan</u>	(1) To describe processing procedure for media. (2) To describe emergency preparation and response training for victims. (3) To describe processing procedures of accident aircraft and damaged equipment in consultation with airline companies, airport management companies, etc. (4) To describe the method for recording	We will coordinate with Airport Emergency Plan in UTDD, Emergency Response Plan in SomonAir and TajikAir, Contingency Plan in TAN.	TF-2 coordinated with Tajik AIR, Somon AIR and NSA for ERP. We know what to do, but it is not finalized yet.

## Next TF-1 &amp; 2 Activity Plan (22 January – 26 February)

Date		AM	PM	Remarks
20 Jan	S			Arrived by OZ202
21	S			
22	M	Internal meeting	TF 1 & 2 meeting	entering pass is required at 8:50
23	T	SMS manual approval process		
24	W	Runway Safety Team (RST) hand book in TAN development		
25	T	RST hand book in TAN development		
26	F	RST hand book in TAN development		
27	S			
28	S			
29	M	Follow up training material and annual training plan		
30	T	F/U the OJT-I Hand book in TAN		
31	W	W/S ATS system capacity in TAN		
1 Feb	T	W/S ATS system capacity in TAN		
2	F	Making Report and preparation for W/S Operation Manual Review		
3	S			
4	S			
5	M	W/S Operation Manual Review		
6	T	W/S Operation Manual Review		
7	W	W/S Contingency Plan (CP) exercise (Plan)		
8	T	W/S CP exercise (Scenario)		
9	F	W/S CP exercise (Scenario)		
10	S			
11	S			
12	M	Observation of Risk Management implementation		
13	T	Runway Safety Plan coordination meeting		
14	W	Preparing for establishment of RST		
15	T	Study SMS implementation plan in TAN		
16	F	TF1 & 2 meeting and MM signing	Report to JICA office	entering pass is returned
17	S			
18	S			Departed by OZ201

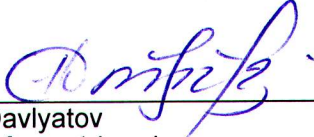


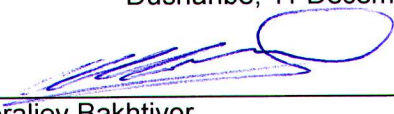


**Minutes of the twelve Taskforce-1 Meeting (TF1M/12) for  
“The Project for Capacity Development in Air Traffic Services” in Tajikistan  
Dushanbe, 12 December 2017**

1. The TF1M/12 for “The Project for Capacity Development in Air Traffic Services” (hereinafter “the Project”) was held at 10:00-12:00 on 12 December 2017 in the Project Manager’s office.
  2. Project Manager organized this meeting, Mr. Sheraliev Bakhtiyor (PM), Mr. Davlyatov Davlat (TF1 Leader), Mr. Mansuri Makhmad (TF1 Sub-leader Simulator), M. Firuz (TF3 Sub-leader/AIS Department) and Mr. Orita(PC) participated.
  3. The purpose of this meeting is accelerating TF1 activities as listed below.
    - Finalizing the OJT annual training plan for 2018
    - Finalizing the AD Sim annual training plan for 2018
    - Decision making on AD Sim. diversion in to Radar Training.
    - Data arrangement for ATS capacity assessment
  4. TF1 had faced difficulties to fill the form of “Annual Obtaining Rating Training Plan” as Attachment-3 in the TF1M/11 in the last week due to the lack of space for filling essential information. PM, TF1 and PC discussed existing ATC Ratings and OJT structures with using Attachment-A, then improved an annual plan format as Attachment-B. TF1 recognized what outcomes are expected from Activity 1-5, and they promise to finalize this annual training plan for OJT as ICAO recommended periodical training plan by 15 December.
  5. PM explained that a positioning of “AD Simulator training” in the OJT structure, also Refresh (Seasonal) and Prolong trainings in outside. Meeting confirmed that 3 AD Sim instructors team already designed 8 scenarios in UTDD and they are making several scenarios for other three airports. TF1 promised to finalize the annual training plan for AD Simulator as Attachment-C by 15 Dec.
  6. Regarding the AD Simulator diversion into Radar Simulator Trainings, PC explained the findings by study team in the last two weeks as listed below.
    - Creating bilateral En-routes with existing waypoints by an editor in ULANS are easy.
    - Maneuverability of airplanes by instructors as pseudo-pilot using letter commands against A.I. is not user friendly but acceptable by practiced instructors.
    - The “Hand-over” functions and behaviors are not able to reproduce similar as a radar console display in MASTER. If simulate it by other ways, the training will be quite difference from the actual system.
    - The system allows trainee to move the ship symbols by “Drag & Drop” in radar console.
- TF1, PM and PC carefully discussed usability of ULANS for the Radar, Approach and Area trainings taking findings above into consideration. TF1 made conclusion that the ULANS software has capability to make use as Radar simulator, but lacked “Hand-over” functions in trainee’s radar console is definitive barrier to remain training integrity at this situation. TF1 has determined to use this system as AD simulator for the time being and after installing Topsykay in UTDD by 2019, TF1 will reconsider this issue for optimization of training capability. Reforming ULANS software is one of possible option.
7. PM advised TF1 to reply acknowledgment to new ATC-1 Expert for receiving a list of “Data Collection for airport capacity” as Attachment-D, and to request same lists for assessing ATS capacity in “Radar” “Approach” and “Area” as well.

Dushanbe, 11 December 2017

  
D. Davlyatov  
Taskforce-1 Leader  
TAJIKAIRNAVIGATION

  
Sheraliev Bakhtiyor  
Project Manager  
TAJIKAIRNAVIGATION

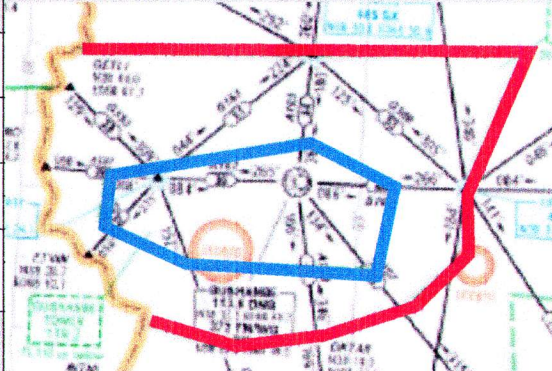
Attachment-A: ATC ratings and OJT structure  
Attachment-B: OJT Annual Training Plan format  
Attachment-C: AD Sim. Annual Training Plan format  
Attachment-D: List of “Data Collection for airport capacity”

  
Tomonori Orita  
Project Coordinator JICA



# Summary of TAN's ATC Ratings and OJT/ Sim Training Strictures

## ATC Ratings

ATC ratings ICAO Annex-1, chapter-4	ATC ratings by TAN	Responsibility Areas (TAN)		Areas (UTDD case) 
		Departure (UTDD case)	Arrival (UTDD case)	
Aerodrome	Tower(+GND) 4 airports each	From push-back to take-off Visible Flight and VFR Flight	After landing report by a pilot Visible Flight and VFR Flight	
Approach (Precision radar)	Radar 2 airports each	within Radar Area (blue) From take-off to 3,300m	From 3,300m till landing report Till specified points (VFR)	
Approach (Procedural)	Approach *1)	within Approach Area (red)	From 5,700m to 3,300m	
Approach (Surveillance)	2 airports each	From 3,300m to 5,700m	From specified points (VFR)	
Area (Procedural)	Area *1)	From 5,700m	From 5,700m	
Area (Surveillance)	2 areas each	All domestic Flights	All domestic Flights	
Uzbekistan, Afghanistan and Kyrgyz FIRs		Hand-over (off) (Yellow)	Hand-over (in)	

\*1) In UTDL, Approach and Area are integrated one Area(ACC) rating.

## TAN's Training structures for obtaining ATC ratings and instructor's training

	Project Purpose "ICAO in-line"	Premises Preparation Trainings in Aviation Academy		OJT (Theoretical should be done first, then mix Simulators and Practical Trainings)			Instructor Training Trainers of Training to AD Sim / OJT	
				Theoretical Trainings (Man to Man)	Simulator Trainings	Practical Trainings		
Location	-	Outside Tajikistan	Newly hired ACT by TAN or obtaining additional ratings.	All airports	UTDD/UTDL	UTDD (2018/1-)	All airports	TAN / MAVa
Instructors	-	Academy's		OJT instructors	Radar Sim. trainers	AD Sim. trainers	OJT instructors	TF1 Experts / MAVa
Periodical Training Plans	Yes	N/A		Finalizing within 2017/12/15	No	Finalizing within 2017/12/15	(Included Theo)	No Plan
Training Duration	Better to optimize	2.5-3 years		290-400hrs (inc Prac.)	75hrs	10(GND)+10(TWR)	(See Theo.)	170 hours Need to verify
Programs (syllabus?)	Yes	all ratings (general trainings)		"Training Diary" *A) Need to improve	Training programs by TAN	Yes Need to verify by Ex.	OJT-I handbook (Draft)	draft OJTI handbook Approving by 2018/1
Training Materials (Develop W/S)	Yes	depend on academy		Operation Manuals Need for all airport, ratings each by 2018/1	Existing scenarios by TAN's trainers	UTDD 8 scenarios were designed by 3. Others on-going.	Operation Manuals (same as Theo)	Supplementary Manual for AD Sim. on 2017/11
Evaluation (exam) System	Better to improve	depend on academy		Check, Need to improve	Yes	?	Check by Instructors	Need to improve
Inst & Trainee's Certificate or Ratings	Yes	Academy provides own diploma						TAN: Internal ratings MAVa: #211, 219 Project: Certificates

### Factors for complying with ICAO standard:

Certified OJT & AD Sim. Instructors (+Approval System) + Periodical Training Plan for 2018  
+ Training Materials (Comply with ICAO standard by Activity 1-4(O/M Review))

+  
Refresh/ Seasonal  
Trainings (w/o OJT)  
by using AD Sim.

Project provided 18 ATCs  
#052, 053, 054 and 055 in MAVa for  
improving Operation Manuals by 1-4.

Attachment - A 1/2



# Training Diary \*A)

## ДНЕВНИК

СТАЖИРОВКИ И ДОПУСКА К РАБОТЕ ДИСПЕТЧЕРА  
СЛУЖБЫ УВД

ФИЛИАЛА ГУП "ТАДЖИКАЭРОНАВИГАЦИЯ" г. ХУДЖАНД

### II ПРЕДВАРИТЕЛЬНАЯ ПОДГОТОВКА

по плану \_\_\_\_\_ ч фактически \_\_\_\_\_ ч

№	ЭТАПЫ ПОДГОТОВКИ	Время	Дата	Оценка и подпись инструктора
1	Изучение руководящих документов регламентированных деятельности ГА в РТ ВВП ИТ, Положение о ДЛА РТ, НП ПГА, АПН ВВП ИТ.			
2	Изучение организационной структуры службы УВД за/д			
3	Ознакомление с общим технологическим процессом УВД на диспетчерском пункте			
4	Изучение инструкций по прояс полетов на А и в других документах регламентирующих работу данного пункта			
5	Ознакомление со справочным материалом, используемым на диспетчерском пункте			
6	Изучение порядка и особенностей взаимодействия со смежными диспетчерскими пунктами (включая ВВС и ГВО)			
7	Изучение порядка взаимодействия со смежными диспетчерскими пунктами (включая ВВС и ГВО)			
8	Ознакомление с методическими материалами диспетчерского пункта			
9	Ознакомление с РТС обеспечения полетов в УВД на диспетчерском пункте			
10	Ознакомление с наземными средствами связи			
11	Изучение диспетчерского пункта (оборудование и его эксплуатация)			
12	Изучение технологии работы диспетчера			
13	Изучение правил и процедур радиосвязи			
14	Проверка усвоения предварительной подготовки: - требования и положения научных документов и особенностей УВД в контролируемом воздушном пространстве - ПД РТС, используемых при УВД			

# Required Training duration by TAN's regulation \*B)

ОБЪЕМ СТАЖИРОВКИ ПЕРСОНАЛА ОВД НА ДИСПЕТЧЕРСКИХ ПУНКТАХ ПРИ ПОЛУЧЕНИИ ДОПУСКА К РАБОТЕ

Должность	Время стажировки, час		Время ознакомления с работой смежных диспетчерских пунктов, час.
	На рабочем месте	На тренажере	
Диспетчер ДПР	90	10	40 (АДП, СДП, ВСДП)
Диспетчер СДП, ВСДП	200	10	70 (ДПК, ПДП, ДПСП, ДПР)
Диспетчер ДПП (КДП, АДЦ)	300(400)	75	45 (ДПК, ПДП, ДПСП, СДП, РЦ, ДПР)
Диспетчер ДПК (ДПК МВЛ, Вышка)	300(400)	75	45 (ДПП (ВДПП), ПДП, СДП, ВСДП)
Диспетчер РЦ, ВРЦ ЕС ОрВД с правом ОВД	300(400)	75	45 (ДПК, КДП МВЛ, КДП) взаимодействующие РЦ (ВРЦ) ЕС ОрВД и другие смежные пункты ОВД)
Диспетчер МДП (ВМДП), КДП МВЛ, СДП МВЛ, ВРЦ ЕС ОрВД без права ОВД	200	20	45 (СДП, ДПК (ДПСП), ДПП (ВДПП), КДП, смежные секторы РЦ (ВРЦ) ЕС ОрВД)
Старшие диспетчеры, руководители полетов, диспетчеры - инструкторы	170		100 (все диспетчерские пункты ОВД данного аэродрома, (данного района ОВД - для руководителя полетов района), смен взаимодействующих при ОВД служб аэропорта)
Диспетчер посадочного радиолокатора (ДПСР)	300	75	45 (ДПК, СДП (ВСДП), КДП МВЛ)

**Примечания.** Объем стажировки, указанный в скобках (410), предназначен для стажировки выпускников учебных заведений ГА, которые не прошли технологическую подготовку в центрах АС ОВД и курсов подготовки специалистов службы движения, направленных на работу в органы ОВД, оборудованные АС ОВД.

### I ОБЩИЕ ДАННЫЕ

Инструктор \_\_\_\_\_ (должность, ф и о.)

Допущен к инструкторской работе приказом № \_\_\_\_\_ от \_\_\_\_\_

#### Основные данные о стажере

(фамилия) \_\_\_\_\_ (имя) \_\_\_\_\_ (отчество) \_\_\_\_\_

Допущен к стажировке в качестве диспетчера \_\_\_\_\_ (дисп пункт) \_\_\_\_\_

приказом Генерального директора ГУП "Таджикэроавиация" № \_\_\_\_\_ от \_\_\_\_\_ г.

Год рождения \_\_\_\_\_ национальность \_\_\_\_\_ партийность \_\_\_\_\_

Общее образование \_\_\_\_\_ Специальное образование \_\_\_\_\_ В службе УВД \_\_\_\_\_

работает с \_\_\_\_\_ г Ранее занимаемые должности \_\_\_\_\_

в службе УВД \_\_\_\_\_

Звание диспетчера службы УВД присвоено приказом № \_\_\_\_\_ от \_\_\_\_\_ г.

Заключение В.ТЭК \_\_\_\_\_ (выписка из свидетельства)

Дата медицинского освидетельствования \_\_\_\_\_ г.

Общее количество часов стажировки по плану \_\_\_\_\_ фактич \_\_\_\_\_

из них: на ознакомление с работой смежных диспетчерских пунктов \_\_\_\_\_ ч

АДП \_\_\_\_\_ ч СДП \_\_\_\_\_ ч ВРЦ \_\_\_\_\_ ч ДПСП \_\_\_\_\_ ч

Срок стажировки по плану с \_\_\_\_\_ г по \_\_\_\_\_ г

фактически с \_\_\_\_\_ г по \_\_\_\_\_ г

С личным делом стажера ознакомился \_\_\_\_\_ г.

Результат ознакомительной беседы со стажером:

- уровень теоретической подготовки \_\_\_\_\_

- знание основных документов регламентирующих УВД \_\_\_\_\_

\_\_\_\_\_ г Инструктор \_\_\_\_\_ (фамилия) (подпись)

- умение на память вычислять необходимые суммы и маршруты полетов, кроме а.д. воад траексы и коридоры, расположение РТС ВН и УВД			
- знание и расстояния до исполнительных при УВД ОДР, характерные параметры МП, отдаленных участков связи, аэродромов и трасс, лет. пригодности			
- умение наизусть составления и выбора высоты, корректировки приоритетов, безопасные высоты по трассам, коридорам и в контролируемом воздушном пространстве			
- умение пользоваться справочным материалом, необходимым для работ на диспетчерском пункте			
- порядок и особенности взаимодействия со смежной дисп пунктами, ВВС ГВО и другими службами			
- особенности обеспечения в УВД летных и полетных работ, а также полетов воздушных судов инструктором в командной			

Общая оценка за предварительную подготовку \_\_\_\_\_

Заключение инструктора о допуске к практической стажировке \_\_\_\_\_ г.

Инструктор \_\_\_\_\_ (должность) (ф и о.) (подпись)

#### РЕЗУЛЬТАТ ПОВТОРНОЙ ПРОВЕРКИ ЗНАНИЙ

Проверяющий \_\_\_\_\_ (должность) (ф и о.) (подпись)

Аттификат - А 2/2



# 2018 Annual Training Plan for OJT

	OJT Instructors				Training Mode			OJT Trainees				Materials	OJT Schedule						
	Instructor Name Certificate / Approval	Existing Ratings		Working Position	Obtaining Ratings	Add New	Training Hours	Candidates of Trainees		Existing Ratings	Working Position	Training Materials	Theoretical Trainings	Simulator Trainings	Practical Trainings				
UT	I: ICAO #219 O: OJT-I training (Ack) W: Material/ Plan WS(C) T: TAN OJT-I approval (remarks)	Tower	Radar	Approach	Area	Super-V Tower Radar ACC Briefing Others	Tower Radar Approach Area-DD Area-DL	"A" or "N" or "-"	Theoretical + Simulator + Practical (hours)	Name	Tower	Radar	Approach	Area	Super-V Tower Radar Approach Area Others	D/L/T/K + Tower Radar Approach Area	2018/ MMDD- MMDD	T: Tower R: Radar + 2018/ MMDD- MMDD	2018/ MMDD- MMDD
DD	Kayumov Gulomjon I/O/W	D	D	D		Tower Radar Radar	Tower	A	150+20+150	Ergashev Abdurahmon			D	Approch	D-Tower	0115-0215	R/0220-0325	0301-0410	
	Makhmudov Umedjon I/O/W	D		D	D	ACC ACC ACC		A		Nishonov Abdumutolib			D	Area					
	Rahimov Hotamjon I/O/W	D	D	D	D	ACC ACC ACC		A		Shonazarov Shahboz			D	Area					
	Shukurov Shuhrat I/O	D		D	D	ACC ACC ACC		N		Azimov Khurshed				new					
DL	Okilov Makhsudjon I/O	L	L	L		ACC ACC ACC													
DT	Nabijonov Nizomjon I/O	T				Super-V Super-V	-	-	-	-									
DK	xxx ( )					- -	- -	- -	- -	- -									

## Required Training hours

ОБЪЕМ СТАЖИРОВКИ ПЕРСОНАЛА ОВД НА ДИСПЕТЧЕРСКИХ ПУНКТАХ ПРИ ПОЛУЧЕНИИ ДОПУСКА К РАБОТЕ

	Должность	Время стажировки, час		Время ознакомления с работой смежных диспетчерских пунктов, час.
		На рабочем месте	На тренажере	
(GND) Tower	Диспетчер ДПР	90	10	40 (АДП, СДП, ВСДП)
	Диспетчер СДП, ВСДП	200	10	70 (ДПК, ПДП, ДПСП, ДПР)
Approach	Диспетчер ДПП (КДП, АДЦ)	300(400)	75	45 (ДПК, ПДП, ДПСП, СДП, РЦ, ДПР)
Radar	Диспетчер ДПК (ДПК МВЛ, Вышка)	300(400)	75	45 (ДПП (ВДПП), ПДП, СДП, ВСДП)
Area	Диспетчер РЦ, ВРЦ ЕС ОрВД с правом ОВД	300(400)	75	45 (ДПК, КДП МВЛ, КДП) взаимодействующие РЦ (ВРЦ) ЕС ОрВД и другие смежные пункты ОВД)

Practical Sim

	Practical	Sim
Approval on OJT Instructor	170	
Старшие диспетчеры, руководители полетов, диспетчеры - инструкторы		100 (все диспетчерские пункты ОВД данного аэродрома, (данного района ОВД - для руководителя полетов района), смен взаимодействующих при ОВД служб аэропорта)

ATC Head, Davlyatov Davlyat

December 12, 2017

ATC Head - B



### 2018 Annual Training Plan for Aerodrome (Tower) Simulator

Plan	Training	2018 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total	Plan	18	16	15									
	Actual												
UTDD (23 AD)	Refresh/S	12	14	12	12	14							
	Prolong	3	0	0	2								
	Obtaining	0	2	0	2								
<b>Training by trainers</b>													
Mr. G. Firdavs		5	5										
Mr. K. Payrav		5	6										
Mr. K. Sarvardzhan		5	5										
UTDL (? AD)	Refresh/S	0	0	0									
	Prolong	0	0	1									
	Obtaining	1	0	0									
<b>F/U by trainers</b>													
Mr. R. Firdavs		1	0	1									
Mr. O. Mansurjon		0	0	0									
UTDT (? AD)	Refresh/S	0	0	0	0								
	Prolong	0	0	1									
	Obtaining	0	0	0									
<b>F/U by trainers</b>													
Mr. G. Bakhridin		0	0	1									
UTDK (? AD)	Refresh/S	0	0	0									
	Prolong	1	0	1									
	Obtaining	1	0	0									
<b>F/U by trainers</b>													
Mr. S. Sino		2	0	1									

Refresh/S: Refresh training including seasonal training once per month (not mandatory)

Prolong: Training for prolonging TWR rating once per two years (mandatory)

Obtaining: Newly obtain TWR rating

Attachment - C

## Data Collection for airport capacity

### Decide what measurements to make

These include items such as runway occupancy time, line up times and arrival/departure separations, taxiway patterns, routing, speeds and hotspots and apron gate areas.

### Runway movements

- Time between two arrivals at the Final Approach Fix (FAF)
- Time arriving aircraft touchdown and the line-up clearance for departing aircraft
- Time between runway vacate and landing clearance for following aircraft
- Time to line up from clearance
- Time between the take-off clearance and take-off roll
- Time between touchdown and vacation of the runway

### Taxiway movements

- Time held at intersections
- Taxi time from runway exit A to apron B (and reverse)
- Time in departure queue
- Time between estimated or target take-off time and actual

### Apron Movements

- Time between in block time and off block
- Time in held in apron waiting for gate to clear
- Time between start and push approval and off block