

DEPARTMENT OF CIVIL AVIATION  
THE REPUBLIC OF MALAWI

PROJECT COMPLETION REPORT  
ON  
THE PROJECT FOR  
CAPACITY DEVELOPMENT  
FOR AIR NAVIGATION SERVICES  
IN THE REPUBLIC OF MALAWI

APRIL 2016

JAPAN INTERNATIONAL COOPERATION AGENCY

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## LIST OF ABBREVIATIONS

ACC	Area Control Center
ACS	Aeronautical Communication Service
ADL	Airport Development Company Ltd (Malawi)
ADS	Automatic Dependent Surveillance
ADS-B	Automatic Dependent Surveillance – Broadcast
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Services
AIM	Aeronautical Information Management
AIT	Advance Instructional Technique
AMHS	Aeronautical Message Handling System
ANSP	Air Navigation Service Provider
APCH	Approach
ATC	Air Traffic Control
ATM	Air Traffic Management
ATNS	Air Traffic Navigation Service (Johannesburg)
ATS	Air Traffic Services
ATSEP	Air Traffic Safety Electronics Personnel
CAA	Civil Aviation Authority
CNS	Communication, Navigation and Surveillance
C/P	Counterpart
CIA	Chileka International Airport (Blantyre)
CNS/ATM	Communication Navigation Surveillance/Air Traffic Management
DAC	Development Assistance Committee
DCA	Department of Civil Aviation (Malawi)
DME	Distance Measuring Equipment
DVOR	Doppler Very High Frequency Omni-Directional Range
EASA	European Air Safety Agency
EASA	East African School of Aviation (Nairobi)
E/M	Electrical & Mechanical
FAA	Federal Aviation Authority
FIR	Flight Information Region
FIS	Flight Information Services
GOJ	Government of Japan
GOM	Government of Malawi
ICAO	International Civil Aviation Organization
IDP	Instructor Development Program
ILS	Instrument Landing System
JCAB	Civil Aviation Bureau of Japan
JCC	Joint Coordination Committee
JFY	Japanese Fiscal Year
JICA	Japan International Cooperation Agency
JPY	Japanese Yen

KIA	Kamuzu International Airport (Lilongwe)
MET	Meteorology
MTPW	Ministry of Transport and Public Works
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OJT	On the Job Training
PANS-OPS	Procedures for Air Navigation Services - Aircraft Operations
PBN	Performance Based Navigation
PDM	Project Design Matrix
PO	Plan of Operation
R/D	Record of Discussions
RNAV	Area Navigation
SID	Standard Instrument Departure
SMS	Safety Management System
SOA	School of Aviation (Malawi)
SSP	State Safety Program
STAR	Standard Terminal Arrival Route
UPSS	Uninterrupted Power Supply System
USOAP	Universal Safety Oversight Audit Program
VHF	Very High Frequency
VOR	Very High Frequency Omni-directional Range
WGS84	World Geodetic System 1984

# **1 Basic Information of the Project**

## **1.1 Country**

The Republic of Malawi

## **1.2 Title of the Project**

“The Project for Capacity Development for Air Navigation Services”

## **1.3 Duration of the Project (Planned and Actual)**

The project was implemented for the period from June 2014 to April 2016 as planned.

## **1.4 Background (from Record of Discussions (R/D))**

Malawi Department of Civil Aviation (hereinafter referred to as “DCA”) has the mandate to inter alia regulate and facilitate the development of airports and air navigation facilities. Kamuzu International Airport (hereinafter referred to as “KIA”) was inaugurated in 1983 after the capital city was transferred from Zomba to Lilongwe. The Government of Japan (hereinafter referred to as “GOJ”) provided Japanese ODA loans for the construction of the airport terminal building and installation of air navigation facilities from 1977 to 1982 in three phases. Recently, GOJ also provided a grant aid for the replacement of new navigation systems.

However, DCA faces a serious shortage of trained staff for KIA as well as for the other airports in the Republic of Malawi. Also, upgrading of advanced training for current air navigation staff is deemed necessary to keep up with technological changes in air navigation services.

DCA, in recognition of these issues, plans to strengthen its training functions in order to utilize air navigation facilities that comply with international standards. Those improvements will help secure sustainability in both operation and maintenance of air navigation facilities, and comprises the essence of request from the Government of Malawi (hereinafter referred to as “GOM”) for the implementation of the Project for Capacity Development for Air Navigation Services (hereinafter referred to as “the Project”).

## **1.5 Overall Goal and Project Purpose (from Record of Discussions (R/D))**

### **1.5.1 Overall Goal**

The Project’s overall goal statement is: “Training by the trained instructors is sustainably conducted for officers of air navigation services”.

### **1.5.2 Project Purpose**

The Project’s purpose statement is: “Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities”.

## **1.6 Implementing Agency**

Department of Civil Aviation (DCA) of the Ministry of Transport and Public Works

## 2 Results of the Project

### 2.1 Results of the Project

#### 2.1.1 Input by the Japanese side (Planned and Actual)

##### a. JICA Experts

Table 2-1 shows the list of experts dispatched from Japanese side for the Project. A total of approximately 46.4 person-months of experts have been provided to the Project. This translates into an input of approximately 23.2 person-months per year.

Table 2-1: List of JICA Experts in Person-Months

<i>Position/Technical Field</i>	<i>Person-Months</i>	
	<i>Planned</i>	<i>Actual</i>
Chief Advisor	13.60 months	15.33 months
Deputy Chief Advisor/Capacity Development Specialist	5.40 months	5.42 months
ATC & AIS Training Specialist – 1	8.80 months	9.03 months
ATC & AIS Training Specialist – 2	7.40 months	6.23 months
CNS Maintenance Training Specialist	11.80 months	12.07 months
E/M Maintenance Training Specialist	2.50 months	2.47 months
Flight Procedure Design Specialist	2.50 months	2.50 months
Total	52.00 months	53.05 months

The number of days which the experts were engaged in the activities in Malawi is shown in Table 2-2.

Table 2-2: Dispatched Duration (days) of JICA Experts

<i>Position/Technical Field</i>	<i>Duration (days)</i>
Chief Advisor	427
Deputy Chief Advisor/Capacity Development Specialist	119
ATC & AIS Training Specialist – 1	238
ATC & AIS Training Specialist – 2	160
CNS Maintenance Training Specialist	329
E/M Maintenance Training Specialist	59
Flight Procedure Design Specialist	60
Total	1,392

##### b. Training Equipment

The following training equipment was procured for the implementation of the Project under the Grant Aid of Japanese Government.

Table 2-3: List of Training Equipment Procured under the Grant Aid

<i>Name of Product</i>	<i>Qty</i>	<i>Procured Date</i>
Computer Based Training for ATC (6 sets of PCs with CBT application)	1	November 2014
Test Instrument and Equipment (Oscilloscopes, Frequency Counter, Tester, Spectrum Analyzer, Signal Generator, etc.)	1	December 2014
PC-based Simulator Training System for ATC (Aerodrome Control, Radar Approach, Radar Area Control Function)	1	May 2015

Besides the above-mentioned training equipment, “Learning Aids and Office Equipment” to facilitate the trainings and overall operations of the Project were also provided in which the details are listed in Table 2-4.

Table 2-4: List of Learning Aids and Office Equipment Provided by Japanese Side

No.	Name of Item	Qty.	Procured Date
1	Display Monitor 40 inch / Hisense LEDN40K20DP	2	01/07/2014
2	A3 Inkjet Printer / CANON IX6840	1	12/07/2014
3	Laptop Computer / DELL DUAL CORE	1	23/06/2014
4	Laptop Computer / HP DC/4GB/500GB	1	27/06/2015
5	Laptop Computer / DELL 3542 13/6GB	2	26/10/2015
6	Microsoft Office Software	4	26/10/2015
7	Microsoft Visio Software	2	02/11/2015
8	Network Router	1	27/06/2014
9	Projector / EPSON EHTW410	1	08/05/2014
10	Projector / EPSON EB-1761/W	1	17/09/2015
11	Photocopy Machine / Gestetner MP2501	1	22/07/2014
12	UPS APC Smart/UPS 1000VA	1	23/06/2014
13	UPS APC-UPS 500VA	1	13/12/2014
14	UPS SU-KAM 2.5KVA/48V	1	16/05/2015
15	UPS SU-KAM 3.5KVA/48V	1	09/10/2015
16	UPS SU-KAM 5KVA/96V	1	07/11/2015
17	Security Alarm System	1	29/02/2016
18	ICAO 021 AIS Course Material	1	13/01/2015
19	ICAO 051 ATC Basic Course Material	1	13/01/2015

As of April 2016

**c. Overseas Training**

The list of overseas training conducted under Japanese budget is shown in Table 2-5. The number of overseas training was 4, and a total of 26 trainees participated. Out of the 4 trainings, 3 were conducted in Nairobi, Kenya at the East African School of Aviation (EASA) and 1 training was conducted in Johannesburg, South Africa at the Air Traffic & Navigation Services (ATNS).



Table 2-5: List of Overseas Training Conducted under Japanese Budget

<i>Name of Training</i>	<i>Target Persons</i>	<i>No. of Trainees</i>	<i>Remarks</i>
Team Resource Management <ATNS>	ATC/CNS/EM	8	26 <sup>th</sup> – 30 <sup>th</sup> January 2015
Supervisory Management <EASA>	Supervisors of ATM/CNS/EM	4	2 <sup>nd</sup> – 27 <sup>th</sup> February 2015
Instructor Development Program <EASA>	ATC/AIS/ACS/ CNS/EM	8	4 <sup>th</sup> – 21 <sup>st</sup> August 2015
Advanced Instructor Training <EASA>	ATC/CNS/EM	6	5 <sup>th</sup> – 23 <sup>rd</sup> October 2015
Total		26	

## 2.1.2 Input by the Malawi side (Planned and Actual)

### a. Counterpart Personnel (C/P)

The Counterpart personnel assigned for the Project are shown in Table 2-6.

Table 2-6: List of Counterparts

<i>Role in project</i>	<i>Name (Planned)</i>	<i>Name (Actual as of April 2016)</i>
Project Director	Mr. A. C. Mtilatila (Director of Civil Aviation, DCA)	No change
Project Manager	Mr. A. G. Matiya (Deputy Director (Operations), DCA)	*Co-project Manager (Mr. S. P. Galafa) is acting as the PM
Co-Project Manager	Mr. S. Galafa (Principal, School of Aviation, DCA)	No change
Project Coordinator	Mr. F. Kholowa (Chief Air Traffic Services Officer, Operation Division, DCA)	No change
	Mr. M.F.T. Bongwe (Chief telecommunications engineer, Operation Division, DCA)	Mr. R. C. Kanunkha, (Assistant Chief Aeronautical Telecommunications Engineer, Operation Division, DCA)
ATC and FIS training	Mr. S. P. Galafa (Principal lecturer of ATS, School of Aviation, DCA)	No change
AIS and ACS training	Mr. R. Y. Malanga (Lecturer School of Aviation, DCA)	No change
	Mr. S. Liundi (Lecturer School of Aviation, DCA)	No change
Electronic Engineering (CNS) training	Mr. R. Kanunkha (Senior CNS Lecturer, School of Aviation, DCA)	Mr. C. F. Betenigo (Electronics Engineer, KIA, DCA)
	Mr. C. F. Betenigo (Electronics Engineer, KIA, DCA)	
Electrical/ Mechanical Engineering training	Mr. T. P. M. Mtonga (Electrical Engineer, KIA, DCA)	No change

### b. Support Staff

The Support Staff, who act as instructors for respective fields, assigned for the Project are shown in Table 2-7.

Table 2-7: List of Support Staff

<i>Role in project</i>	<i>Name (Planned)</i>	<i>Name (Actual as of April 2016)</i>
ATC and FIS Training Instructor	Ms. L. Manondo (Air Traffic Controller, KIA, DCA)	No change
	Mr. D. Zamaere (Air Traffic Controller, Chileka Airport, DCA)	Mr. Zamaere was transferred to KIA in August 2015.
	Mr. F. Chisepeya (Air Traffic Controller, KIA, DCA)	No change
	Mr. J. Kazito (Air Traffic Controller, KIA, DCA)	Mr. J. Kazito was transferred to Chileka International Airport (CIA)
AIS and ACS Training Instructor	Mr. R. Nkosi (Air Crew Briefing Officer, DCA)	No change
	Mr. N. B. Kaliyasi (Communication Officer, KIA, DCA)	No change
Electronic Engineering (CNS) Training Instructor	Mr. S. Kunje (Electronics Engineer, Chileka Airport, DCA)	No change
		Mr. F. N. Chisale (Electronics Engineer, KIA, DCA) was added as an CNS instructor from June 2015.
E/ M Training Instructor	Mr. O. Yokonia (Electrical Engineer, Chileka Airport, DCA)	No change

**c. Project Office Space**

Office space for the Project was provided in School of Aviation (SOA), DCA. DCA also provided air-conditioners for the Project office as well as for the CBT and simulator training rooms.

**d. Project Office Expenses**

Utility cost was paid by the Malawian side and DCA provided the following expenses for the project office as of March 2016.

Table 2-8: Project Office Expenses

<i>No.</i>	<i>Item</i>	<i>Cost (MWK)</i>
1	Purchase of two desktop computers:	1,055,000
2	Purchase and installation of two split air conditioners. (Project & CBT)	989,114
3	Purchase and installation of air conditioners for ATC simulator room	862,100
4	Purchase of desks and chairs for CNS Laboratory (May 2015)	951,105
5	Purchase of 2 desks and chairs for CBT (May 2015)	477,000
6	Advertising Cost	1,362,589
7	Installing 2 security doors for equipment room	70,000
8	Installing 4 Air-conditioner cages	90,000
9	Building material for class room	30,000
10	Labor charge for installation security items	43,000
11	ESCOM (Power) (Oct. 2015 – Mar. 2016)	1,000,000
12	Water (Oct. 2015 – Mar. 2016)	1,500,000
13	Stationery and Consumables (Oct. 2015 – Mar. 2016)	500,000
14	Fuel (Oct. 2015 – Mar. 2016)	440,000
	Total	9,369,908

**e. Travel Expenses, Allowance and Ration for Counterpart Personnel within Malawi**

The travel expenses, Subsistence Allowance for C/P to travel from outside the Lilongwe area provided by SOA and Ration for trainees at SOA were as follows (as of March 2016):

Table 2-9: Travel Expenses, Allowance and Ration

<i>No.</i>	<i>Item</i>	<i>Cost (MWK)</i>
1	CBT Training (Nov. 2014)	75,000
2	Test Equipment Training (Jan.2015)	126,000
3	Team Resource Management Course Internal Training (Jan.2015)	146,000
4	Electro-Mechanical Training (May 2015)	515,100
5	Microsoft Office PC Training (May 2015)	60,000
6	AIS & ACS Working Group (May 2015)	90,000
7	Flight Procedure Design Training (May 2015)	602,000
8	General Communication Training (May 2015)	577,500
9	ATC Aerodrome Control 052 Training (Jun 2015)	783,000
10	Park-Air VHF Maintenance Training (Jun. 2015)	466,000
11	CVOR/DVOR/DME/ILS/RADAR Concept Training (Jun. 2015)	703,100
12	ATC Basic 051 for Freshmen (Oct 2015 - Jan 2016)	7,660,800
13	NORMARC ILS Maintenance (Oct - Dec 2015)	302,400
14	Flight Procedure Design <Departure> (Nov 2015)	144,000
15	AIS for ACS (Nov 2015)	492,000
16	Microsoft Office PC Training II (Dec 2015)	21,600
17	New CNS/ATM (Feb 2016)	357,000
18	MARU DVOR/DME (Feb - Mar 2016)	334,800
19	Microsoft Office PC Training III (Mar 2016)	120,000
20	Basic ATSEP for CNS/EM Freshmen (Mar 2016)	606,400
	Total	14,182,700

### 2.1.3 Activities (Planned and Actual)

#### a. Activities Related to Output 1

There are 7 activities related to Output 1: “Training of Air Traffic Control (ATC) and Flight Information Services (FIS) are improved” in the PDM. The results of each activity are shown below.

Table 2-10: Progress of Activities related to Output 1

PDM Activities	Results
1-1. Review current training syllabus and training materials	<u>Completed:</u> All the training syllabuses and materials were reviewed. Most of them were made in 1980s.
1-2. Improve/develop training syllabus and training materials	<u>Completed:</u> Six training syllabuses and materials were developed or being developed for completion by April 2016.
1-3. Conduct training of instructors	<u>Completed:</u> Four courses (051 ATC Basic, 052 Aerodrome Control, Conventional Flight Procedure Design (Approach), and Conventional Flight Procedure Design (Departure)) for ATC and FIS instructors (including existing officers) were conducted.
1-4. Implement improved training courses	<u>Continuing:</u> Training of instructors for 053 Procedural Approach Control and 055 Procedural Area Control is continuing.  Twelve new students were recruited in October 2015. Course 051 for new students was completed. Course 052 is in progress. Courses 053 and 055 will be completed by December 2016.
1-5. Implement supervisor training	<u>Completed:</u> Team Resource Management Course, Supervisory Management Course, Instructor Development Course, and Advanced Instructor Training Course were conducted in January, February, August, and October in 2015 respectively.
1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	<u>Continuing:</u> 051 ATC Basic and 052 Aerodrome Control courses for new ATC students implemented by instructors were monitored and evaluated and all of 12 new students obtained more than 70% in the comprehension test. Monitoring and evaluation of the remaining courses (053 and 055) will be continuously conducted for in March, April and May 2016.

1-7. Improve the training courses based on the results from the monitoring and evaluation	<u>Continuing:</u> The evaluation results of 051 ATC Basic course was utilized for the improvement of the trainings. Course 052 is in progress while the other two courses 053 and 055 will be completed by December 2016.
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In summary, 4 out of 7 activities under Output 1 were completed, and the remaining 3 activities will be completed by December 2016.

**b. Activities Related to Output 2**

There are 7 activities related to Output 2: “Training of Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) are improved” in the PDM. The results of each activity are shown below.

Table 2-11: Progress of Activities related to Output 2

PDM Activities	Results
2-1. Review current training syllabus and training materials	<u>Completed:</u> All the training syllabuses and materials were reviewed. Most of them were made in 1980s.
2-2. Improve/develop training syllabus and training materials	<u>Completed:</u> Two Working Groups, consisting of 4 AIS and ACS officers, were established in May 2015 and one combined AIS/ACS training syllabus and materials were developed.
2-3. Conduct training of instructors	<u>Completed:</u> AIS course for ACS instructors/officers was conducted in November 2015.
2-4. Implement improved training courses	No new students were recruited, but retraining of existing officers were conducted as a part of restructuring of AIS/ACS divisions into AIM division.
2-5. Implement supervisor/advanced/specialist training	<u>Completed:</u> Team Resource Management Course, Supervisory Management Course, Instructor Development Course, and Advanced Instructor Training Course were conducted in January, February, August, and October in 2015 respectively.
2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	<u>Completed:</u> AIS course for ACS officers implemented by instructors was monitored and evaluated and all of the trainees obtained more than 70% in the comprehension test.
2-7. Improve the training courses based on the results from the monitoring and evaluation	<u>Completed:</u> The above evaluation results were utilized for the improvement of the trainings.

In summary, all 7 activities under Output 2 will be completed by the end of project period.

**c. Activities Related to Output 3**

There are 7 activities related to Output 3: “Training of Electronic Engineering is improved” in the PDM. The results of each activity are shown below.

Table 2-12: Progress of Activities related to Output 3

PDM Activities	Results
3-1. Review current training syllabus and training materials	<u>Completed:</u> All the training syllabuses and materials were reviewed. Most of them were made in 1980s.
3-2. Improve/develop training syllabus and training materials	<u>Completed:</u> Six training syllabuses and materials were developed.
3-3. Conduct training of instructors	<u>Completed:</u> Six courses (General Communications, Park Air T6 VHF Radio, CVOR/DVOR/ILS/DME/RADAR Concept, NORMARC ILS Maintenance, New CNS/ATM, and Maru DVOR/DME) for CNS instructors (including existing officers) were conducted.
3-4. Implement improved training courses	<u>Completed:</u> Training for 7 new students recruited in March 2016 has started.
3-5. Implement equipment-specific training	<u>Completed:</u> Test Equipment Course was conducted in January 2015. NORMARC ILS Maintenance and Maru DVOR/DME Maintenance training were conducted by use of knowledge gained with Test Equipment Course
3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	<u>Completed:</u> Abovementioned courses implemented by instructors was monitored and evaluated.
3-7. Improve the training courses based on the results from the monitoring and evaluation	<u>Completed:</u> The above evaluation results were utilized for the improvement of the trainings.

In summary, all 7 activities under Output 3 were completed.

**d. Activities Related to Output 4**

There are 6 activities related to Output 4: “Training of Electrical/Mechanical Engineering (E/M Eng.) is improved” in the PDM. The results of each activity are shown below.

Table 2-13: Progress of Activities related to Output 4

PDM Activities	Results
4-1. Review current training syllabus and training materials	<u>Completed:</u> All the training syllabuses and materials were reviewed. Most of them were made in 1980s.
4-2. Improve/develop training syllabus and training materials	<u>Completed:</u> Two training syllabuses and materials were developed or being developed by April 2016.
4-3. Conduct training of instructors	<u>Completed:</u> Electrical & Mechanical (UPS & Generator, Airfield Lightning) course for instructors (including existing officers) was conducted in April 2015. Training for 2 new electrical engineers and 1 new mechanical engineer recruited in March 2016 has started.
4-4. Implement improved training courses	
4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	<u>Completed:</u> The abovementioned course implemented by instructors was monitored and evaluated.
4-6. Improve the training courses based on the results from the monitoring and evaluation	<u>Completed:</u> The above evaluation results were utilized for the improvement of the trainings.

In summary, all 6 activities under Output 4 will be completed by the end of project period.

## 2.2 Achievements of the Project

### 2.2.1 Outputs and Indicators (Target values and actual values achieved at completion)

The achievements of the above-mentioned 4 project outputs are summarized in the following table according to the PDM indicators. As shown in the table 2-14, all of the training syllabuses and materials were developed and all of the target numbers of DCA officers successfully completed trainings (Comprehension test score of all trainees exceeded 80 %). Details of the test results of each trainee are shown in the Annex 1-3.

Table 2-14: Achievement of Output

Indicators for the PDM Outputs		Achievement as of April 2016
<b>Indicator No.1</b>		
Training syllabuses and training materials are improved or developed for the following number of courses:	ATC/FIS: 6	<u>Achieved:</u> 1. 051: ATC Basic: 100% 2. 052: Aerodrome Control: 100% 3. 053: Approach Control: 100% 4. 055: Area Control: 100% 5. CNS/ATM for ATC: 100% 6. Flight Information Service: 100%
	AIS/ACS: 2	<u>Achieved:</u> 1. AIS & ACS: 100% *AIS and ACS were combined into one AIS&ACS materials
	Electronic Eng.: 6	<u>Achieved:</u> 1. General Communication Equipment: 100% 2. Navigation Concept Course: 100% 3. Park Air VHF: 100% 4. Normarc ILS: 100% 5. Maru VOR/DME: 100% 6. CNS/ATM: 100%
	E/M Eng.: 2	<u>Achieved:</u> 1. Theory of Airfield Lighting: 100% 2. Theory of UPS: 100%
<b>Indicator No. 2</b>		
The following number of DCA officers successfully complete supervisor/advanced/specialist training:	Instructors: 10* <sup>1</sup> ATC/FIS: 4* <sup>1</sup> AIS/ACS: 4* <sup>1</sup>	<u>Achieved:</u> 26 instructors/officers successfully completed the following four overseas training courses. 1) 8 officers successfully completed “Team Resource Management Course” in South Africa. 2) 4 officers successfully completed “Supervisory Management Course” in Kenya. 3) 8 officers successfully completed “Instructor Development Course” in Kenya. 4) 6 officers successfully completed “Advanced Instructor Training Course” in Kenya.
	Aeronautical Cartography: 2* <sup>2</sup>	<u>Achieved:</u> 3 ATC officers and 1 AIS officer successfully completed “Conventional Flight Procedure Design (Approach)” conducted in May 2015, and “Conventional Flight Procedure Design (Departure)” conducted in November 2015.
	PANS/OPS: 2* <sup>2</sup>	
	ILS Maintenance: 4* <sup>2</sup>	<u>Achieved:</u> 6 CNS officers successfully completed “NORMARC ILS Maintenance Course” conducted in October 2015.

\*1: Overseas trainings

\*2: In-country trainings



**2.2.2 Project Purpose and Indicators (Target values and actual values achieved at completion)**

The achievements of the Project Purpose: “Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities” are summarized in the following table according to the PDM indicators. As shown in the table 2-15, all of the target numbers of instructors appointed by DCA can conduct the improved/developed training courses and comprehension test score of all trainees who received the improved/developed training courses exceeded 70%. Details of the test results of each trainee are shown in the Annex 1-3.

Table 2-15: Achievement of Project Purpose

Indicators for the Project Purpose		Achievement as of April 2016		
<b>Indicator No. 1</b>				
The following number of instructors can conduct the improved/developed training courses (fulltime + part time) *Number in ( ) indicates original number of instructors at the beginning of the project.	ATC/FIS: 6 (1)	<u>Achieved:</u> 6 (4 ATC instructors including 1 original instructor + 2 ATC instructors selected among those who received Flight Procedure Design Training Courses)		
	AIS/ACS: 4 (2)	<u>Achieved:</u> 4 (2 new instructors + 2 original instructors)		
	Electronic Eng.: 4 (1)	<u>Achieved:</u> 4 (3 new instructors + 1 original instructor)		
	E/M Eng.: 2 (1)	<u>Achieved:</u> 2 (1 new instructor + 1 original instructor)		
<b>Indicator No. 2</b>				
Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 70%.	Achievement as of April 2016			
		Course Name	No.of Trainees	Average Score
		Computer Based Training (CBT) *	6	*Not scored
		Test Equipment	5	87.07%
		Electrical & Mechanical Training	6	93.72%
		Microsoft Office -1*	5	*Not scored
		Conventional Flight Procedure Design (Approach)	4	89.0%
		General Communications	6	89.61%
		Park Air T6 VHF Radio	6	85.31%
		052 Aerodrome	9	90.74%
		CVOR/DVOR/ILS/DME/RADAR Concept	5	86.82%
	051 Basic ATC (new students)	12	85.83%	

Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 70%.	NORMARC ILS MAINTENANCE	6	86.38%
	Conventional Flight Procedure Design (Departure)	4	89.58%
	AIS for ACS (Group1)	6	80.78%
	AIS for ACS (Group2)	6	88.50%
	Microsoft Office - 2	6	*Not scored
	New CNS/ATM	8	90.22%
	052 Aerodrome Control (new students)	12	**In progress
	Maru DVOR/DME	6	90.73%
	Microsoft Office - 3	6	*Not scored
	Total	124	

\*CBT and Microsoft Office Courses are not required in the activities of the project, therefore not scored. The trainees were evaluated based on their skills in developing questions using the CBT software and the level of performance in presentation skills using Microsoft Office.

\*\*052 Aerodrome Control Training for new students will be finished in May 2016.

### 2.3 History of PDM Modification

The Project revised the PDM twice from the PDM version 1 dated 30 May 2014 as shown below to suit to assistance needs. The revisions were all related to clarification of indicators and verification method. The details of the revisions are shown in Annex 3.

#### (1) The 1st revision dated 1 August 2014

- Indicators of Project Purpose: number of instructors was amended from “AIS: 4 and ACS: 4” to “AIS/ACS: 4”, and from “E/M Eng.: 4” to “E/M Eng.: 2”. Also, the target value of comprehension test score was set as “80 %” after the baseline survey.
- Means of Verification: amended from “Project Progress Reports” to “Monitoring Sheet”.
- Indicators of Outputs: number of officers was amended from “ATC: 4” to “ATC/FIS: 4”, and from “AIS: 4 and ACS: 4” to “AIS/ACS: 4”.

#### (2) The 2nd revision dated 5 June 2015

- Indicator of Overall Goal: defined as “The targeted number of trainees (serving officers and new staff) who will successfully complete the improved/developed training courses between 2016 and 2020 is at least 80”.
- Indicators of Project Purpose: minimum score of comprehension test was amended from “80%” to “70%” in accordance with international standard of ICAO.
- Means of Verification: amended from “Terminal Evaluation Report” to “Project Completion Report”. In addition, inserted “Results of comprehension test score of trainees”.
- Indicators of Outputs: deleted “Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 80%” as this indicator duplicates with that of the Project Purpose.

## 2.4 Others

### 2.4.1 New Students to School of Aviation

As an important assumption to the Project, it is assumed that DCA recruit new students for SOA during the project period. The following table 2-16 indicated the results of this assumption.

Table 2-16: New Students to SOA

<i>Planned</i>		<i>Actual as of April 2016</i>	<i>Remarks</i>
Air Traffic Controllers (ATC)	12 October 2015	12 October 2015	Recruited as planned in PDM.
Flight Information Services (FIS)	8 October 2014	0	DCA cancelled the recruitment of FIS officers. DCA will fill this position from ATC students.
Aeronautical Information Services (AIS)	10 October 2014	0	DCA plans to merge AIS and ACS to form AIM division. DCA cancelled the recruitment of AIS/ACS staff and plans to meet staff requirements for AIM with existing AIS/ACS officers with AIM Integration Training.
Aeronautical Communications (ACS)	6 October 2014	0	
Electronics Engineers (CNS)	8 April 2014	7 March 2016	Recruited as planned with delay. One resigned with no replacement.
Electrical/Mecha nical Engineers (E/M)	2/2 April 2014	2/2 March 2016	Recruited as planned with delay.
<b>TOTAL</b>	<b>48</b>	<b>23</b>	

As for the training of ATC officers, recruitment of new students was implemented and training for these students by trained instructors was conducted as planned. DCA changed the plan for recruitment of FIS, AIS and ACS officers during the project period. These changes did not influence to the project effects since the Project successfully developed capacity of relevant instructors, and trained existing officers of these fields. Impact of delays in recruitment of CNS and E/M officers to the project effects was also minimal since the instructors were trained during the Project, and those instructors are capable of training new students of CNS and E/M engineering. Therefore, this assumption in the PDM had only minimal impact to indicator of the project purpose.

### 2.4.2 Results of Environmental and Social Considerations

Not applicable.

### 2.4.3 Results of Considerations on Gender/Peace Building/Poverty Reduction

Not applicable.

### 3 Results of Joint Review

#### 3.1 Results of Review based on DAC Evaluation Criteria

The Project is reviewed jointly by both the Japanese side and the Malawian side from the viewpoint of Five Evaluation Criteria, defined by JICA which was originally proposed by DAC (OECD) shown in the following table. The Evaluation Grid is attached as Annex 6-1.

Table 3-1: Five Evaluation Criteria

	Criteria	Description
1.	Relevance	Relevance of the Project is reviewed by the validity of the Project Purpose and Overall Goal in connection with the Government development policy and the needs of the target group and/or ultimate beneficiaries in Malawi.
2.	Effectiveness	Effectiveness is assessed to what extent the Project has achieved its Project Purpose, clarifying the relationship between the Project Purpose and Outputs.
3.	Efficiency	Efficiency of the Project implementation is analyzed with emphasis on the relationship between Outputs and Inputs in terms of timing, quality and quantity.
4.	Impact	Impact of the Project is assessed in terms of positive/negative, and intended/unintended influence caused by the Project.
5.	Sustainability	Sustainability of the Project is assessed in terms of institutional, financial and technical aspects by examining the extent to which the achievements of the Project will be sustained after the Project is completed.

Source: JICA Project Evaluation Guideline (2010), JICA

##### 3.1.1 Relevance

The relevance of the Project is judged “High” for the following reasons:

- The “Malawi Growth and Development Strategy II” (2011-2016) positions the transportation infrastructure development as one of the priority areas, and states “Government recognizes the need to continuously improve air transport infrastructure and services to enhance trade, tourism and investment. In the medium term, a number of outcomes will be achieved, including improved air safety and management in line with international standards; improved regulatory and institutional framework, and improved security in airports.” Also the National Transport Policy positions the air transportation as one of the political priorities and mentions the importance of development and improvement of aviation infrastructures to promote economic activities. Therefore, the project is consistent with these policies.
- The Japanese “Country Assistance Policy for the Republic of Malawi” (April, 2012) establishes “Infrastructure development for fostering agriculture and the mining industry” as one of the priority areas, and states “the promotion of efficient movement of people and goods in an international corridor and surrounding regions, Japan also helps Malawi develop transportation infrastructure”. In addition, the JICA, in the JICA Country Position Paper, establishes the development of infrastructure that becomes the foundation of economic growth as a strategic framework for achieving the medium and long term

development goals of Malawi, and states the need to develop the infrastructure for economic development. Therefore, the project conforms to the Japan and JICA's assistance policy.

- Japan has sufficient experiences in introducing and operating the CNS/ATM and E&M systems, and has been providing various technical assistances in this field in several countries in Southeast Asia. Since Japan has technical advantages necessary for the Project, assistance to the Project is appropriate.

### **3.1.2 Effectiveness**

The effectiveness of the Project is judged “High” for the following reasons:

- As stated in Section 2.2.2, the Project Purpose has been almost achieved at the time of the project completion. All of the instructors obtained skills and knowledge through the Overseas and In-country Trainings and considered to be capable enough to conduct the improved/developed training courses. Most of the equipment (Simulator Training System for ATC, CBT, and Test Equipment) procured by the Project is being utilized effectively in trainings. Also, according to the results of the training evaluation sheet (5-rank evaluation), all of the trainee answer that skills and knowledge obtained through trainings are very useful to their job (average score exceeds 4).
- It is anticipated that the level for maintaining various equipment installed under “The Project for the Replacement of Air Navigation System at Kamuzu International Airport” in 2012, such as ILS, VHF, Air-field Lighting, will be improved and upgraded through the courses conducted under this Project which targeted CNS and E/M engineers at KIA.
- The Project was designed appropriately through amendments of the PDM in the past, and four Outputs in the current PDM are necessary and sufficient for achievement of the Project Purpose.

### **3.1.3 Efficiency**

The efficiency of the Project is judged “High” for the following reasons:

- The Project was designed appropriately through amendments of the PDM in the past, and all the activities in the current PDM are essential for achievement of the Outputs. In addition to the activities planned in the PDM, two courses (CNS Test Equipment and Microsoft Office Training) were added in order to supplement the capacity of instructors upon request of the C/P.
- Regarding the Input made by the Japanese side, the person-months of the JICA Experts were slightly increased from 52.00 to 53.05 in January 2016 in order to support activities under Output 2 and 3. The person-months for the Chief Advisor was increased by 1.7 MM in order to accommodate the realignment of trainings and extending the total period of activities in Malawi. The reason behind such change was due to the limited human resource which prevented from conducting the trainings simultaneously. In addition, the person-months for the Experts for Outputs 2 and 3 also required extension for 0.5MM due to the extended length of training courses. As for the Expert for Output 1, the training period was realigned and with the involvement of trained C/P as core instructors, the person-month was shortened by 1.1 MM. Among the three Experts for Outputs 1, 2 and 3,

a total of 1.05MM was increased. The additional input was essential to achieve the planned outputs.

- Regarding the Input made by the Malawian side, recruitment of new students of Electronic Engineers and Electrical/Mechanical Engineers was delayed due to lack of funds for recruitment. The delay in recruitment reduced the opportunities for instructors to train new students during the project; however, these instructors showed sufficient knowledge and skill when they teach existing officers during the project. It is highly estimated that SOA will continuously conduct trainings for new students by themselves after the completion of the Project.
- Other donors such as European Aviation Safety Agency (EASA) and European Investment Bank (EIB) are also engaged in enhancing the civil aviation safety in Malawi. Meetings were held with such agencies to exchange information on the on-going activities and to discuss future prospects and strategies. It allowed each party to avoid overlapping of activities and also to open discussions on possible areas of coordination and harmonization among their activities in air navigation services in Malawi.
- Answers to questionnaires to the C/P (5-rank self-evaluation) shows that appropriateness of inputs from Japan and Malawi sides are relatively good (average score 4.7 and 3.9 respectively).

#### **3.1.4 Impact**

The impact of the Project is predicted as “High” for the following reasons:

- The Project had already given positive impacts on the capacity of instructors in all areas and there is high possibility of achieving of Overall Goal: “Training by the trained instructors is sustainably conducted for officers of air navigation services”.

Other impacts of the Project are predicted as follows:

- Since the training system has been established through the implementation of the Project, there could be more staff with sufficient knowledge and experience related to aviation safety activities. Therefore, it is expected to improve the quality of safety of air transportation.
- Facilities and equipment in the airport will be operated and maintained properly and effectively by those trained engineers and staff.
- It is expected to reduce workloads of each officer since the quality of staff was improved and even more staff will be trained in the SOA, which will result in the improvement of working conditions in navigation services and safety of flights.
- The SOA used to send staff for training to the neighboring country but they can conduct trainings by themselves in Malawi now. Therefore, it will be economically effective.
- It is anticipated that the SOA will be able to fully train ATCs in a sustainable manner and that it will contribute to enhanced safety of air navigation services in Malawi.

There is no negative effect observed at the completion of the Project, and no negative impact

is foreseen.

### **3.1.5 Sustainability**

The sustainability of the Project is estimated as “Medium” based on the reasons stated below. The effect of the Project is expected to continue by the Malawi Government even after the Japanese technical cooperation terminates, but financial weakness of SOA should be overcome.

#### **(1) Policy Aspect**

As stated in Section 3.3.1, the Project is/will be in line with the policies of the Malawi Government as stipulated in “Malawi Growth and Development Strategy II” (2011-2016) and the National Transport Policy. It is not expected that drastic change in government policy will occur.

#### **(2) Financial Aspect**

The financial status of SOA is dependent on DCA since it is a subsidiary organization under DCA. Financial basis of DCA is weak. The Project experienced budget constraints, such as for the recruitment of new staff, the procurement of PC for instructors and provision of travel expense and daily allowance for trainees. Continuous efforts will be required to seek support of the MoTPW and top management of DCA in securing budget for achievement of the Overall Goal of the Project.

#### **(3) Technical Aspect**

The SOA developed capacity to provide trainings on the skills and techniques learned through the Project, and have already been conducting such training so as to secure sufficient number of serving officers and new staff to sustain the outcome of the Project. The planned structural reform of the civil aviation administration assisted by EASA, which will create autonomous Civil Aviation Authority (CAA) with air navigation service provider function, should have positive impact on the finance of SOA since the CAA will follow ICAO’s principle that aviation user charges should be used for the development and operation of civil aviation. Draft Act for creation of CAA will be under deliberation of the parliament soon.

### **3.2 Key Factors Affecting Implementation and Outcomes**

#### **(1) Input of Project Coordinator**

No Project Coordinator was assigned for the JICA expert team at the planning stage of this Project. However, due to the far location between DCA Headquarters and SOA, as well as the various operations affiliated with trainings and overall management of the Project, a Project Coordinator was dispatched from the second assignment to Malawi in November 2014 for a more efficient and smooth implementation of the Project.

#### **(2) Involvement of JCAB, FAA & ICAO official experienced experts**

Technical trainings carried out through this Project were aimed to upgrade and strengthen Air Navigation Services in Malawi, which is closely associated with National Licensing System and International Regulations. In order to provide sound advice and recommendations to DCA on licensing and rating procedures besides technical guidance, experts with various experience

working in such licensing and regulatory institutions, i.e. Japan Civil Aviation Bureau (JCAB), Federal Aviation Administration (FAA), and International Civil Aviation Organization (ICAO), were selected and dispatched.

### (3) Information Exchange with Other Donors

Other donors such as European Aviation Safety Agency (EASA) and European Investment Bank (EIB) are also engaged in activities\*<sup>1</sup> with the aim of enhancing the civil aviation safety in Malawi. On a regular basis, meetings were held with such agencies to exchange information on the on-going activities and to discuss future prospects and strategies. Through these exchanges, the Project members were able to acquire knowledge and increase awareness of the overall aviation safety situation in Malawi from another perspective aside from its own and DCA. Moreover, such consultation not only allowed each party to avoid overlapping of activities, but also opened discussions on possible areas of coordination and harmonization among their activities in air navigation services in Malawi.

### (4) Mutual Consultation with Counterpart Personnel

In order to facilitate effective and efficient progress of the Project, Project members and DCA consulted each other whenever any issues arose in the course of Project implementation. Monthly meetings were held and frequent visits to DCA Headquarters and SOA were made, which enhanced communication and higher level of involvement by the Counterparts to the Project. Good communication leads to timely resource allocation of finance and personnel which were vital to the sound implementation of the Project.

### (5) Additional Training Input-I: “Test Equipment” Training

Through interviews and visits to the workshops at KIA, it became clear that the engineers had limited knowledge on the Test Equipment, e.g. Oscilloscope and Digital Multi-Meter, etc., which were provided by JICA for the use in Navigation Equipment maintenance courses. Since such equipment is vital in airport operations which directly affects the safety of aviation in Malawi, JICA experts found it necessary to provide a 2 weeks course on “Test Equipment”, targeting electronic engineers and electricians of DCA. This in effect, became the basis of a smooth implementation of the succeeding trainings on navigation equipment maintenance.

### (6) Additional Training Input-II: PC Training.

Following the current trend in the use of digital course contents and interactive training, basic knowledge and skills on computer literacy are essentials in delivering effective trainings. Through interviews, such skills seemed limited/lacking in some of the assigned instructors. As a means to increase effectiveness of training the instructors and improving the training courses, both which are mandated in this Project, training course to introduce basic computer skills was conducted three times which was outside the scope of TOR.

### (7) Dissemination of Knowledge and Skills Obtained through Overseas Training

Trainees of “Team Resource Management Course” (held at ATNS in South Africa), gave a presentation to DCA officers and JICA experts to share the knowledge and skills obtained

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<sup>1</sup> Such activities are “Improvement of Aviation Safety and Oversight in Malawi (IASOM)” by EASA and “Airport Safety and Security Equipment Project” by EIB.



through the course. According to their feedbacks, the training experience also led to motivating and creating a spin-off effect for their daily operations. In addition, trainees of “Instructor Development Program” and “Advanced Instructor Training” (both held at EASA in Kenya) have been practicing their skills as instructors in various trainings at the School.

### **3.3 Evaluation on the results of the Project Risk Management**

The Project has taken several measures properly against risks occurred during the project implementation. Therefore, the results of the Project Risk Management are evaluated as “High” for the following reasons:

#### **(1) Visiting ATNS (South Africa) & EASA (Kenya) Training Center**

Since the schedules for the Overseas Trainings could have extensive impact on the progress of the Project, the Project team visited the training institutes in South Africa (ATNS) in August 2014 and Kenya (EASA) in April 2015 respectively with the aim of meeting the Dean and instructors, exchanging views and ideas on the training needs which are specific to Malawi, and observing the actual conditions of training facilities and accommodations. These visits, which were not included in the initial plan, enabled to establish a timely communication channel with the contact persons, to acquire necessary information and logistics on a timely basis, which lead to early preparation and sound implementation of overseas trainings.

#### **(2) Installation of appropriate UPS (Uninterrupted Power Supply) at Training Center**

Due to frequent power outage, common in Malawi, overhead projectors and lights in classes were affected that interfered/hampered the operation and trainings at the early stage of the Project. Therefore, several large UPS were installed so as to avoid any interference by such power outage. This enabled all training equipment and system, including the ATC Simulator System, to function/run all day despite the shortage of power/electrical power failure, electricity failure, blackout or power cut which in turned out to be highly effective to the Project operation.

#### **(3) Installation of Security System**

On 25th December 2015, there was an incident in which several burglars broke-in to SOA and stole a computer. If any of the equipment provided by JICA, i.e. ATC simulator system, CBT and test equipment were robbed or destroyed, it will have a devastating effect and may lead to irreparable damage that will impede further training activities at SOA. Therefore, higher security measures were taken, by installing intrusion sensors and burglar-bars, to upgrade and strengthen safety of the equipment and facilities, which are vital to conducting trainings at SOA.

#### **(4) Securing Sufficient Budget for the Project**

Due to the government procedures, securing funds from Malawian side may require many months. Thus, it should be noted that when requesting financial inputs from Malawian side, ample time is necessary.

### **3.4 Lessons Learnt**

#### **(1) Input of Project Coordinator**

A Project which includes trainings require extensive coordination and logistical arrangements among various people involved, i.e. trainees, instructors, C/Ps. Therefore, a Project Coordinator shall be assigned from the planning stage of such project.

#### **(2) Involvement of Experts as Policy Advisors to DCA**

Institutional support by DCA plays a key role in to what extent the inputs provided to SOA could be fully utilized. Enhancing institutional aspect of DCA is essential and, therefore, experts to be dispatched for such capacity building project should have a background not only in training but also in policy making related to training of officers in the air navigation services.

#### **(3) Information Exchange with Other Donors**

Exchanging information with other donors which are involved in the same aviation field, i.e. European Aviation Safety Agency (EASA) and European Investment Bank (EIB), is also important to acknowledge the various activities and to avoid overlapping of such projects and programs. Such coordination may also lead to harmonizing the activities and create a synergy effect in strengthening air navigation services in Malawi.

#### **(4) Assessment of Levels of Basic Skills & Knowledge of the Trainees**

It is important to have a good understanding on the levels of basic skills and knowledge of trainees at the initial stage, since it will affect the outcome and overall effectiveness of the Project. If considered necessary, there should be enough mobility and flexibility to include relevant trainings based on the needs, such as those which were included in this Project, i.e. computer skills training and Test Equipment Course.

#### **(5) Serving Refreshments**

Serving refreshments in the morning and afternoon sessions during trainings is part of Malawian custom. Understanding towards such socio-cultural norms is necessary and shall be communicated between DCA and the Project Team in advance, so as to secure budget pertaining to trainings.

#### **(6) Access to Public Transport**

Since public transportation to the village where most trainees reside is only available until at around 16:30 hrs, it is important to plan all trainings to end before the last transportation.

#### **(7) Addition of Project Evaluation Experts**

Addition of a project evaluation expert is necessary to conduct final evaluation of the Project for the Project Completion Report under the new monitoring system recently introduced to JICA Technical Cooperation Projects.

## 4 For the Achievement of Overall Goals after the Project Completion

### 4.1 Prospects to achieve Overall Goal

Prospect of achieving the Overall Goal: “Training by the instructors is sustainably conducted for officers of air navigation services” is summarized in the following Table 4-1. It is premature to make any conclusive statement in this regard; however, with DCA’s success in recruiting new officers despite the financial difficulties, and efforts in minimizing costs for conducting trainings by utilizing the existing dormitory and cafeteria at the SOA, it could be anticipated that target values may be achievable.

Table 4-1: Prospects and Indicators to Achieve Overall Goal

Indicators for the Overall Goal	Prospect of Achievement in 2020 (Planned as of March 2016)		
	Course Name	Field	No. of Trainees
The target number of trainees (serving officers and new staff) who will successfully complete the improved/developed training courses by between 2016 to 2020 is at least 80.	Basic ATSEP	CNS, E/M	10
	053 Procedural Approach Control	ATC	12
	055 Procedural Area Control	ATC	12
	AIM Integration	AIM	12
	Flight Data Processing	AIM	6
	AMHS	AIM	6
	054A Radar Approach Control	ATC	31
	054B Radar Area Control	ATC	31
	Radar Maintenance	CNS	25
	Total		145

### 4.2 Plan of Operation and Implementation Structure of the Malawian side to achieve Overall Goal

In order to achieve the Overall Goal, the Malawi side prepared the plan of operation by 2020 in the following Table 4-2. The instructors who were trained through the Project shall be allocated in each course properly so as not to disturb their daily work at the airport.

Table 4-2: Plan of Operation and Implementation Structure by 2020

Year		2016	2017	2018	2019	2020
Field	Course					
ATC/ FIS	053 Procedural Approach Control	■				
	055 Procedural Area Control	■				
	054A Radar Approach Control		■	■	■	
	054B Radar Area Control		■	■	■	
AIS/ ACS	AIM Integration	■				
	Flight Data Processing		■			
	AMHS			■		
CNS & E/M	Basic ATSEP	■				
	Radar Maintenance			■	■	■

#### 4.3 Recommendations for the Malawian side

##### (1) Improve the Financial Structure

Revenues derived from aeronautical charges, i.e. Air Navigation Usage Charge, Landing Fee and Passenger Charge are used for the development and operation of civil aviation worldwide and are usually not diverted into general revenue as the case in Malawi. Therefore, it is highly recommended that the financial structure be arranged so as to ensure that such aeronautical revenues are used for the provision of airport and air navigation services including labor cost, equipment procurement costs, operation and maintenance costs, training costs and other expenses vital for aviation safety in Malawi. It is essential to realize creation of Civil Aviation Authority, of which draft ACT will be under deliberation of the parliament soon.

##### (2) Improve Recruitment Method

Along with the curriculum vitae, appropriate achievement tests and aptitude tests shall be used to examine and screen the candidates' abilities during recruitment.

The following tests are recommended for an improved recruitment process:

ATC: English, basic mathematics, aptitude tests (including physical examination and abstract ability);

AIM: English, general aptitude test;

CNS: English, basic mathematics and basic electronics;

E/M: English, basic mathematics and basic electrical/mechanical.

To secure fair and impartial recruitment and to ensure appropriate human resource development of DCA officers, the scores of abovementioned tests shall be the basis for enrollment to DCA.

### (3) Structural Change in Recruitment Plan

It is recommended that DCA recruits its officers on an annual or continuous basis rather than hiring a large number once in every several year time. Currently, there is a wide age gap between the senior and junior officers, which hinders appropriate technical transfer of knowledge and skills in every aspect of air navigation services. If the numbers of newly recruited officers are reduced and recruited annually or at shorter intervals, more attention could be placed on each trainee, increasing efficiency and quality of trainings, as well as the load of expenditures could be alleviated on an annual basis which could facilitate budget planning.

#### **4.4 Monitoring Plan from the End of the Project to Ex-post Evaluation**

Monitoring Plan was prepared to check if the effects generated by the Project continue after completion of the Project. The Project members agreed on that they would report the progress status by the use of Post-Project Monitoring Format in Annex 7 to DCA and JICA Malawi Office every 6 months until the time of ex-post evaluation planned 3 years after completion of the Project, i.e. April 2019.

Major items of the monitoring are as follows:

- (1) Progress of training for air navigation services at SOA;
- (2) Status of maintenance of major equipment procured by the Project;
- (3) Budget allocation for the human resource training at SOA;
- (4) Progress of reorganization from DCA to CAA and revenue reform.

# **ANNEX 1**

## **Results of the Project**

ANNEX 1-1: List of Dispatched Experts

ANNEX 1-2: List of Counterparts and Support Staff

ANNEX 1-3: List of Trainings

ANNEX 1-4: Comprehension Test Score Results

## ANNEX 1-1 List of Dispatched Experts

- List of Dispatched Experts

<b>Name</b>	<b>Role in the Project</b>	<b>Assigned Period (Person-Month)</b>
Hiroshi MIZUMASA	Chief Advisor	15.33 months
Mie NAGAYASU	Deputy Chief Advisor/ Capacity Development Specialist	5.42 months
Kiichiro HIRANO	Air Traffic Controller (ATC), Aeronautical Information Service (AIS) Training Specialist - 1	9.03 months
Daniel Paul DIGGINS	Air Traffic Controller (ATC), Aeronautical Information Service (AIS) Training Specialist – 2	6.23 months
Reynaldo Alido BATAKAN	Communications, Navigation and Surveillance (CNS) Maintenance Training Specialist	12.07 months
Kiyoshi SUZUKI	Electrical/Mechanical Maintenance Training Specialist	2.47 months
Yumi HOSOYA	Flight Procedure Design Specialist	2.50 months

## ANNEX 1-2 List of Counterparts & Support Staff

- List of Counterparts

<b>Role in the Project</b>	<b>Name</b>	<b>Affiliation (Division, Section, Unit)</b>
Project Director	Mr. A. C. Mtilatila	Director of Civil Aviation, DCA
Project Manager/ Co-Project Manager	Mr. S. P. Galafa	Principal, School of Aviation, DCA
Project Coordinator	Mr. F. Kholowa	Chief Air Traffic Services Officer, Operation Division, DCA
Project Coordinator	Mr. R. Kanunkha	Assistant Chief Aeronautical Telecommunications Engineer, Operation Division, DCA
ATC and FIS Training	Mr. S. Galafa	Principal Lecturer of ATS, School of Aviation, DCA
AIS and ACS Training	Mr. R. Y. Malanga	Lecturer School of Aviation, DCA
	Mr. S. Liundi	Lecturer School of Aviation, DCA
Electronic Engineering (CNS) Training	Mr. C. F. Betenigo	Electronics Engineer, KIA, DCA
Electrical/ Mechanical Engineering Training	Mr. T. P. M. Mtonga	Electrical Engineer, KIA, DCA

- Support Staff

<b>Role in the Project</b>	<b>Name</b>	<b>Affiliation (Division, Section, Unit)</b>
ATC and FIS Training Instructor	Ms. L. Manondo	Air Traffic Controller, KIA, DCA
	Mr. D. Zamaere	Air Traffic Controller, KIA, DCA
	Mr. F. Chisepeya	Air Traffic Controller, KIA, DCA
	Mr. J. Kazito	Air Traffic Controller, Chileka Airport, DCA
AIS and ACS Training Instructor	Mr. R. Nkosi	Air Crew Briefing Officer, DCA
	Mr. N. B. Kaliyasi	Communication Officer, KIA, DCA
Electronic Engineering (CNS) Training Instructor	Mr. S. Kunje	Electronics Engineer, Chileka Airport, DCA
	Mr. F. C. Chisale	Electronics Engineer, KIA, DCA
E/ M Training Instructor	Mr. O. Yokonia	Electrical Engineer, Chileka Airport, DCA



## ANNEX 1-3 List of Trainings

### ● List of Trainings

<Overseas>

Course Title	No. of Trainees	Duration
Team Resource Management (ATNS, South Africa)	8	2015/01/26-30 1 week
Supervisory Management (EASA, Kenya)	4	2015/02/02-2/28 3 weeks
Instructor Development Program (EASA, Kenya)	8	2015/08/04-8/21 3 weeks
Advanced Instructor Training (EASA, Kenya)	6	2015/10/05-10/23 3 weeks
Total	26	

<Malawi>

Course Title	No. of Trainees	Duration
CBT Training	6	2014/11/24
Test Equipment	5	2015/01/12-23 2 weeks
Electrical & Mechanical (UPS & Generator, Airfield Lighting)	6	2015/04/20-30 2 weeks
Microsoft Office -1	6	2015/04/21-23 4 days
Conventional Flight Procedure Design (Approach)	4	2015/05/05-29 4 weeks
General Communications	6	2015/05/18-06/04 3 weeks
Park Air T6 VHF Radio	6	2015/06/08-19 2 weeks
ICAO Course 052, Aerodrome	9	2015/06/01-07/03 5 weeks
CVOR/DVOR/ILS/DME/ RADAR Concept	5	2015/06/22-07/10 2 weeks
051 ATC Basic Course for Freshmen	12	2015/10/12-2016/01/29 13 weeks
NORMARC ILS MAINTENANCE	6	2015/10/26-12/04 6 weeks
Conventional Flight Procedure Design (Departure)	4	2015/11/02-11/26 4 weeks

Course Title	No. of Trainees	Duration
AIS for ACS (Group 1)	6	2015/11/02-11/13 2 weeks
AIS for ACS (Group 2)	6	2015/11/16-11/27 2 weeks
Microsoft Office -2	6	2015/12/01-12/03 3 days
New CNS/ATM	8	2016/02/01-02/12 2 weeks
Aerodrome Control 052 for Freshmen	12	2016/02/01- <i>In progress</i>
MARU DVOR/DME	6	2016/02/15-03/24 6 weeks
Microsoft Office -3	6	4 <sup>th</sup> & 7 <sup>th</sup> March 2016 2 days
Total	124	

*\*The total number of trainees in both overseas and Malawi is 150 as of April 2016.*

## ANNEX 1-4 Comprehension Test Score Results

<Overseas>

Course Name	No. of Trainees	Trainee	Field	Score	Period
<b>Team Resource Management</b> <i>Venue: ATNS (South Africa)</i>	8	No. 1	CNS	96.00%	2015/01/26-30 1 week
		No. 2	ATC	97.00%	
		No. 3	ATC	98.00%	
		No. 4	ATC	98.00%	
		No. 5	AIS	99.00%	
		No. 6	E&M	100.00%	
		No. 7	E&M	99.00%	
		No. 8	ATC	98.00%	
<b>Supervisory Management</b> <i>Venue: EASA (Kenya)</i>	4	No. 1	CNS	90.75%	2015/02/02-2/28 3 weeks
		No. 2	CNS	95.75%	
		No. 3	ATC	96.38%	
		No. 4	ATC	81.00%	
<b>Instructor Development Program</b> <i>Venue: EASA (Kenya)</i>	8	No. 1	CNS	84.40%	2015/08/04-8/21 3 weeks
		No. 2	ATC	89.00%	
		No. 3	ATC	83.10%	
		No. 4	CNS	82.40%	
		No. 5	AIS/ACS	85.60%	
		No. 6	AIS/ACS	83.30%	
		No. 7	E&M	87.50%	
		No. 8	E&M	88.00%	
<b>Advanced Instructor Training</b> <i>Venue: EASA (Kenya)</i>	6	No. 1	CNS	91.20%	2015/10/05-10/23 3 weeks
		No. 2	ATC	95.90%	
		No. 3	CNS	97.60%	
		No. 4	ATC	98.20%	
		No. 5	E&M	97.20%	
		No. 6	ATC	98.20%	
<b>Total</b>	<b>26</b>				

<School of Aviation Malawi>

Course Name	No. of Trainees	Trainee	Field	Score	Period
<b>CBT Training</b>	6	No. 1	CNS	Not scored	2014/11/24 1 day
		No. 2	ATC		
		No. 3	CNS		
		No. 4	ATC		
		No. 5	AIS/ACS		
		No. 6	AIS/ACS		
<b>Test Equipment</b>	6	No. 1	CNS	93.20%	2015/01/12-23 2 weeks
		No. 2	CNS	83.86%	
		No. 3	CNS	78.02%	
		No. 4	E&M	93.00%	
		No. 5	CNS	87.29%	
<b>Electrical &amp; Mechanical (UPS &amp; Generator, Airfield Lighting)</b>	6	No. 1	E&M	91.76%	2015/04/20-30 2 weeks
		No. 2	E&M	90.00%	
		No. 3	E&M	93.89%	
		No. 4	E&M	97.22%	
		No. 5	E&M	93.33%	
		No. 6	E&M	96.10%	
<b>Microsoft Office - 1</b>	5	No. 1	ATC	Not scored	2015/04/21-23 4 days
		No. 2	ACS/AIS		
		No. 3	ACS/AIS		
		No. 4	ACS/AIS		
		No. 5	ATC		
<b>Conventional Flight Procedure Design (Approach)</b>	4	No. 1	ATC	90.00%	2015/05/05-29 4 weeks
		No. 2	ATC	95.00%	
		No. 3	ATC	82.00%	
		No. 4	AIS	89.00%	
<b>General Communications</b>	6	No. 1	CNS	82.63%	2015/05/18-06/04 3 weeks
		No. 2	CNS	92.70%	
		No. 3	CNS	87.53%	
		No. 4	CNS	94.10%	
		No. 5	CNS	92.05%	
		No. 6	CNS	88.67%	

Course Name	No. of Trainees	Trainee	Field	Score	Period
<b>Park Air T6 VHF Radio</b>	6	No. 1	CNS	79.40%	2015/06/08-19 2 weeks
		No. 2	CNS	84.40%	
		No. 3	CNS	86.60%	
		No. 4	CNS	88.00%	
		No. 5	CNS	85.43%	
		No. 6	CNS	88.03%	
<b>ICAO Course 052, Aerodrome</b>	9	No. 1	FIS	87.00%	2015/06/01-07/03 5 weeks
		No. 2	FIS	92.00%	
		No. 3	FIS	84.00%	
		No. 4	FIS	79.00%	
		No. 5	AIS	87.00%	
		No. 1 Instructor	ATC	87.69%	
		No. 2 Instructor	ATC	100.00%	
		No. 3 Instructor	ATC	100.00%	
		No. 4 Instructor	ATC	100.00%	
<b>CVOR/DVOR/ILS/DME/ RADAR Concept</b>	5	No. 1	CNS	85.83%	2015/06/22-07/10 2 weeks
		No. 2	CNS	86.00%	
		No. 3	CNS	90.63%	
		No. 4	CNS	85.83%	
		No. 5	CNS	85.83%	
<b>051 Basic ATC (new students)</b>	12	No. 1	ATC	88.80%	2015/10/12-2016/01/29 13 weeks
		No. 2	ATC	82.00%	
		No. 3	ATC	91.30%	
		No. 4	ATC	90.10%	
		No. 5	ATC	76.00%	
		No. 6	ATC	81.80%	
		No. 7	ATC	86.30%	
		No. 8	ATC	84.70%	
		No. 9	ATC	88.80%	
		No. 10	ATC	88.80%	
		No. 11	ATC	87.40%	
		No. 12	ATC	90.30%	

Course Name	No. of Trainees	Trainee	Field	Score	Period
<b>NORMARC ILS MAINTENANCE</b>	6	No. 1	CNS	86.16%	2015/10/26-12/04 6 weeks
		No. 2	CNS	83.00%	
		No. 3	CNS	86.72%	
		No. 4	CNS	86.96%	
		No. 5	CNS	87.80%	
		No. 6	CNS	87.64%	
<b>Conventional Flight Procedure Design (Departure)</b>	4	No. 1	ATC	95.00%	2015/11/02-11/26 4 weeks
		No. 2	ATC	96.66%	
		No. 3	ATC	81.67%	
		No. 4	AIS	85.00%	
<b>AIS for ACS (Group 1)</b>	6	No. 1	ACS	75.00%	2015/11/02-11/13 2 weeks
		No. 2	ACS	74.65%	
		No. 3	ACS	89.00%	
		No. 4	ACS	75.00%	
		No. 5	ACS	79.00%	
		No. 6	ACS	92.00%	
<b>AIS for ACS (Group 2)</b>	6	No. 1	ACS	90.00%	2015/11/16-11/27 2 weeks
		No. 2	ACS	88.00%	
		No. 3	ACS	88.00%	
		No. 4	ACS	86.00%	
		No. 5	ACS	97.00%	
		No. 6	ACS	82.00%	
<b>Microsoft Office - 2</b>	6	No. 1	CNS	Not scored	2015/12/01-12/03 3 days
		No. 2	ATC		
		No. 3	CNS		
		No. 4	E&M		
		No. 5	E&M		
		No. 6	ATC		

Course Name	No. of Trainees	Trainee	Field	Score	Period
<b>New CNS/ATM</b>	8	No. 1	ATC/ATM	90.78%	2016/02/01-02/12 2 weeks
		No. 2	CNS	82.75%	
		No. 3	ATC/ATM	88.54%	
		No. 4	FIS/ATM	91.77%	
		No. 5	ATC/ATM	92.04%	
		No. 6	CNS	90.61%	
		No. 7	CNS	92.51%	
		No. 8	E&M/CNS	92.74%	
<b>052 Aerodrome Control (new students)</b>	12	No. 1	ATC	In progress	2016/02/01-02/12 2 weeks
		No. 2	ATC		
		No. 3	ATC		
		No. 4	ATC		
		No. 5	ATC		
		No. 6	ATC		
		No. 7	ATC		
		No. 8	ATC		
		No. 9	ATC		
		No. 10	ATC		
		No. 11	ATC		
		No. 12	ATC		
<b>MARU DVOR/DME</b>	6	No. 1	CNS	91.04%	2016/02/15-03/24 6 weeks
		No. 2	CNS	80.86%	
		No. 3	CNS	89.79%	
		No. 4	CNS	93.16%	
		No. 5	CNS	95.61%	
		No. 6	CNS	93.93%	
<b>Microsoft Office - 3</b>	6	No. 1	CNS	Not scored	4 & 7 March 2016 2 days
		No. 2	CNS		
		No. 3	CNS		
		No. 4	ATC		
		No. 5	ATC		
		No. 6	CNS		
<b>Total</b>	<b>124</b>				

## ANNEX 2

### List of Products Produced by the Project



## ANNEX 2: List of Products Produced by the Project

- Reports

<i>Name of Products</i>
Inception Report
Work Plan
Monitoring Sheet I
Monitoring Sheet II
Monitoring Sheet III

- Training Materials & Syllabus

<i>Name of Products</i>
<b>1. ATC &amp; FIS [6 Courses]</b> (1) Basic Training for Air Traffic Controllers (2) Aerodrome Control Services (Non-Radar) (3) Procedural Approach Control Services (Non-Radar) (4) Procedural Area Control Services (Non-Radar) (5) New CNS/ATM Technology for Air Traffic Controllers (6) Basic Training for Flight Information Officers
<b>2. AIM (AIS/ACS integrated) [1 Course]</b> (1) Basic Training for AIM Officers
<b>3. Electronic Engineers (CNS) [7 Courses]</b> (1) Test Equipment (2) General Communication Maintenance (3) Concept Course for ILS, DVOR, DME and Radar (4) Maintenance Course for Park Air VHF (5) Maintenance Course for Normarc ILS (6) Maintenance Course for Maru DVOR/DME (7) New CNS/ATM Technology for Electronic Engineers
<b>4. Electrical/Mechanical Engineers [2 Courses]</b> (1) Concept Course for Airfield Lighting System (2) Concept Course for Uninterrupted Power Supply System (UPSS)

## **ANNEX 3**

### **PDM (All versions of PDM)**

ANNEX 3-1: PDM Version 1 (30 May 2014)

ANNEX 3-2: PDM Version 2 (1 August 2015)

ANNEX 3-3: PDM Version 3 (5 June 2015)

ANNEX 3-4: Plan of Operation (1 April 2016)

Project Design Matrix

**Project Title: The Project for Capacity Development for Air Navigation Services in the Republic of Malawi**

**Implementing Agency: DCA**

**Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**

**Period of Project: 2 years (24/04/2014-20/05/2016)**


**Project Site: School of Aviation**

**Model Site:**

Version 1

Dated 30, May, 2014

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p><b>Overall Goal (Long-term objective)</b> Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p>Number of officers who have successfully completed the improved/developed training courses for each year</p>	<p>- Training records</p>			
<p><b>Project Purpose (Objective at the end of the Project)</b> Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.</p>	<p>Number of instructors who can conduct the improved/developed training courses (fulltime + part time)  <input type="checkbox"/> ATC/FIS: 6 (1)  <input type="checkbox"/> AIS: 4 (1)  <input type="checkbox"/> ACS: 4 (1)  <input type="checkbox"/> Electronic Eng.: 4 (1)  <input type="checkbox"/> E/M Eng.: 4 (1)                      Number in ( ) indicates current situation.                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least XXX %. (Target value "XXX %" will be set with the results of a baseline survey.)</p>	<p>- Project Progress Reports - Terminal Evaluation Report</p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		
<p><b>Outputs (Objectives to be realized by Activities to achieve the Project Purpose)</b>                      1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.                      2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.                      3. Training of Electronic Engineering is improved.                      4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.</p>	<p>- Training syllabus and training materials are improved or developed for the following number of courses:  <input type="checkbox"/> ATC/FIS: 6  <input type="checkbox"/> AIS/ACS: 2  <input type="checkbox"/> Electronic Eng.: 6  <input type="checkbox"/> E/M Eng.: 2                      - The following number of DCA officers successfully complete supervisor/ advanced/specialist training:  <input type="checkbox"/> Instructors: 10  <input type="checkbox"/> ATC: 4  <input type="checkbox"/> AIS: 4  <input type="checkbox"/> ACS: 4  <input type="checkbox"/> Aeronautical Cartography: 2  <input type="checkbox"/> PANS/OPS: 2  <input type="checkbox"/> ILS Maintenance: 4                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least XXX %.</p>	<p>- Project Progress Reports  - Results of completion tests for supervisor/ advanced/specialist training courses</p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		

Activities (Specific actions to produce each Output by use of Inputs)	Inputs		Pre-Conditions
	The Japanese Side	The DCA Side	
<u>Improvement of ATC and FIS Training</u> 1-1. Review current training syllabus and training materials 1-2. Improve/develop training syllabus and training materials 1-3. Conduct training of instructors 1-4. Implement improved training courses 1-5. Implement supervisor training 1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 1-7. Improve the training courses based on the results from the monitoring and evaluation	- Experts <input type="checkbox"/> Chief Advisor/Training Manager <input type="checkbox"/> ATC Training Specialist <input type="checkbox"/> AIS/ACS Training Specialist <input type="checkbox"/> Electronic Maintenance Training Specialist <input type="checkbox"/> Electrical/ Mechanical Maintenance Training Specialist <input type="checkbox"/> Others as necessary - Training materials - Training equipment - Overseas training	- Counterpart Personnel - Support Staff - Project Office Space - Project Office Expenses - Travel Expenses of Counterpart Personnel within Malawi - The others mentioned in Appendix 1, II, 6, of R/D - DCA implements the Project with sufficient ownership.	- DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project. - New trainees are recruited as scheduled.
<u>Improvement of AIS and ACS Training</u> 2-1. Review current training syllabus and training materials 2-2. Improve/develop training syllabus and training materials 2-3. Conduct training of instructors 2-4. Implement improved training courses 2-5. Implement supervisor/advanced/specialist training 2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 2-7. Improve the training courses based on the results from the monitoring and evaluation			
<u>Improvement of Electronic Engineering Training</u> 3-1. Review current training syllabus and training materials 3-2. Improve/develop training syllabus and training materials 3-3. Conduct training of instructors 3-4. Implement improved training courses 3-5. Implement equipment-specific training 3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 3-7. Improve the training courses based on the results from the monitoring and evaluation			<p style="text-align: center;"><b>&lt;Issues and countermeasures&gt;</b></p>
<u>Improvement of Electrical/Mechanical Engineering Training</u> 4-1. Review current training syllabus and training materials 4-2. Improve/develop training syllabus and training materials 4-3. Conduct training of instructors 4-4. Implement improved training courses 4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 4-6. Improve the training courses based on the results from the monitoring and evaluation			

Project Design Matrix

**Project Title: The Project for Capacity Development for Air Navigation Services in the Republic of Malawi**

**Implementing Agency: DCA**

**Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**

**Period of Project: 2 years (24/04/2014-20/05/2016)**


Version 2

Dated 1, Aug, 2014

**Project Site: School of Aviation**

**Model Site:**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p><b>Overall Goal (Long-term objective)</b> Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p>Number of officers who have successfully completed the improved/developed training courses for each year</p>	<p>- Training records</p>			
<p><b>Project Purpose (Objective at the end of the Project)</b> Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.</p>	<p>Number of instructors who can conduct the improved/developed training courses (fulltime + part time)  <input type="checkbox"/> ATC/FIS: 6 (1)  <input type="checkbox"/> AIS/ACS: 4 (2)  <input type="checkbox"/> Electronic Eng.: 4 (1)  <input type="checkbox"/> E/M Eng.: 2 (1)                      Number in ( ) indicates current situation.                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.</p>	<p>- Monitoring Sheet - Terminal Evaluation Report</p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		
<p><b>Outputs (Objectives to be realized by Activities to achieve the Project Purpose)</b>                      1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.                      2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.                      3. Training of Electronic Engineering is improved.                      4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.</p>	<p>- Training syllabus and training materials are improved or developed for the following number of courses:  <input type="checkbox"/> ATC/FIS: 6  <input type="checkbox"/> AIS/ACS: 2  <input type="checkbox"/> Electronic Eng.: 6  <input type="checkbox"/> E/M Eng.: 2                      - The following number of DCA officers successfully complete supervisor/ advanced/specialist training:  <input type="checkbox"/> Instructors: 10  <input type="checkbox"/> ATC/FIS: 4  <input type="checkbox"/> AIS/ACS: 4  <input type="checkbox"/> Aeronautical Cartography: 2  <input type="checkbox"/> PANS/OPS: 2  <input type="checkbox"/> ILS Maintenance: 4                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.</p>	<p>- Monitoring Sheet  - Results of completion tests for supervisor/ advanced/specialist training courses</p>	<p>- No major change of the international standards on air navigation services is occurred.</p>		

Activities (Specific actions to produce each Output by use of Inputs)	Inputs		Pre-Conditions
	The Japanese Side	The DCA Side	
<u>Improvement of ATC and FIS Training</u> 1-1. Review current training syllabus and training materials 1-2. Improve/develop training syllabus and training materials 1-3. Conduct training of instructors 1-4. Implement improved training courses 1-5. Implement supervisor training 1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 1-7. Improve the training courses based on the results from the monitoring and evaluation	<ul style="list-style-type: none"> <li>- Experts</li> <li><input type="checkbox"/> Chief Advisor/Training Manager</li> <li><input type="checkbox"/> ATC Training Specialist</li> <li><input type="checkbox"/> AIS/ACS Training Specialist</li> <li><input type="checkbox"/> Electronic Maintenance Training Specialist</li> <li><input type="checkbox"/> Electrical/ Mechanical Maintenance Training Specialist</li> <li><input type="checkbox"/> Others as necessary</li> <li>- Training materials</li> <li>- Training equipment</li> <li>- Overseas training</li> </ul>	<ul style="list-style-type: none"> <li>- Counterpart Personnel</li> <li>- Support Staff</li> <li>- Project Office Space</li> <li>- Project Office Expenses</li> <li>- Travel Expenses of Counterpart Personnel within Malawi</li> <li>- The others mentioned in Appendix 1, II, 6, of R/D</li> </ul>	<ul style="list-style-type: none"> <li>- DCA implements the Project with sufficient ownership.</li> </ul>
<u>Improvement of AIS and ACS Training</u> 2-1. Review current training syllabus and training materials 2-2. Improve/develop training syllabus and training materials 2-3. Conduct training of instructors 2-4. Implement improved training courses 2-5. Implement supervisor/advanced/specialist training 2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 2-7. Improve the training courses based on the results from the monitoring and evaluation			<p style="text-align: center;"><b>Pre-Conditions</b></p> <ul style="list-style-type: none"> <li>- DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.</li> <li>- New trainees are recruited as scheduled.</li> </ul>
<u>Improvement of Electronic Engineering Training</u> 3-1. Review current training syllabus and training materials 3-2. Improve/develop training syllabus and training materials 3-3. Conduct training of instructors 3-4. Implement improved training courses 3-5. Implement equipment-specific training 3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 3-7. Improve the training courses based on the results from the monitoring and evaluation			
<u>Improvement of Electrical/Mechanical Engineering Training</u> 4-1. Review current training syllabus and training materials 4-2. Improve/develop training syllabus and training materials 4-3. Conduct training of instructors 4-4. Implement improved training courses 4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 4-6. Improve the training courses based on the results from the monitoring and evaluation			

Project Design Matrix

**Project Title: The Project for Capacity Development for Air Navigation Services in the Republic of Malawi**

**Implementing Agency: DCA**

**Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**

**Period of Project: 2 years (24/04/2014-20/05/2016)**


**Project Site: School of Aviation**

**Model Site:**

Version 3

Dated 5 June 2015

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p><b>Overall Goal (Long-term objective)</b> Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p>The targeted number of trainees (serving officers and new staff) who will successfully complete the improved/developed training courses by between 2016 and 2020 is at least 80.</p>	<p>- Training records</p>			
<p><b>Project Purpose (Objective at the end of the Project)</b> Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.</p>	<p>Number of instructors can conduct the improved/developed training courses (fulltime + part time)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ATC/FIS: 6 (1)</li> <li><input type="checkbox"/> AIS/ACS: 4 (2)</li> <li><input type="checkbox"/> Electronic Eng.: 4 (1)</li> <li><input type="checkbox"/> E/M Eng.: 2 (1)</li> </ul> <p>Number in ( ) indicates current situation.</p> <p>- Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 70%.</p>	<p>- Monitoring Sheet - Project Completion Report</p> <p>- Results of the comprehension test score of trainees.</p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		
<p><b>Outputs (Objectives to be realized by Activities to achieve the Project Purpose)</b></p> <ol style="list-style-type: none"> <li>1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.</li> <li>2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.</li> <li>3. Training of Electronic Engineering is improved.</li> <li>4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.</li> </ol>	<p>- Training syllabus and training materials are improved or developed for the following number of courses:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ATC/FIS: 6</li> <li><input type="checkbox"/> AIS/ACS: 2</li> <li><input type="checkbox"/> Electronic Eng.: 6</li> <li><input type="checkbox"/> E/M Eng.: 2</li> </ul> <p>- The following number of DCA officers successfully complete supervisor/advanced/specialist training:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Instructors: 10</li> <li><input type="checkbox"/> ATC/FIS: 4</li> <li><input type="checkbox"/> AIS/ACS: 4</li> <li><input type="checkbox"/> Aeronautical Cartography: 2</li> <li><input type="checkbox"/> PANS/OPS: 2</li> <li><input type="checkbox"/> ILS Maintenance: 4</li> </ul>	<p>- Monitoring Sheet</p> <p>- Results of comprehension test score of supervisor/ advanced/specialist training courses</p>	<p>- No major change of the international standards on air navigation services is occurred.</p>		

Activities (Specific actions to produce each Output by use of Inputs)	Inputs		- DCA implements the Project with sufficient ownership.  <b>Pre-Conditions</b> - DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project. - New trainees are recruited as scheduled.
	The Japanese Side	The DCA Side	
<u>Improvement of ATC and FIS Training</u> 1-1. Review current training syllabus and training materials 1-2. Improve/develop training syllabus and training materials 1-3. Conduct training of instructors 1-4. Implement improved training courses 1-5. Implement supervisor training 1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 1-7. Improve the training courses based on the results from the monitoring and evaluation  <u>Improvement of AIS and ACS Training</u> 2-1. Review current training syllabus and training materials 2-2. Improve/develop training syllabus and training materials 2-3. Conduct training of instructors 2-4. Implement improved training courses 2-5. Implement supervisor/advanced/specialist training 2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 2-7. Improve the training courses based on the results from the monitoring and evaluation  <u>Improvement of Electronic Engineering Training</u> 3-1. Review current training syllabus and training materials 3-2. Improve/develop training syllabus and training materials 3-3. Conduct training of instructors 3-4. Implement improved training courses 3-5. Implement equipment-specific training 3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 3-7. Improve the training courses based on the results from the monitoring and evaluation  <u>Improvement of Electrical/Mechanical Engineering Training</u> 4-1. Review current training syllabus and training materials 4-2. Improve/develop training syllabus and training materials 4-3. Conduct training of instructors 4-4. Implement improved training courses 4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 4-6. Improve the training courses based on the results from the monitoring and evaluation	- Experts <input type="checkbox"/> Chief Advisor/Training Manager <input type="checkbox"/> ATC Training Specialist <input type="checkbox"/> AIS/ACS Training Specialist <input type="checkbox"/> Electronic Maintenance Training Specialist <input type="checkbox"/> Electrical/ Mechanical Maintenance Training Specialist <input type="checkbox"/> Others as necessary - Training materials - Training equipment - Overseas training	- Counterpart Personnel - Support Staff - Project Office Space - Project Office Expenses - Travel Expenses of Counterpart Personnel within Malawi - The others mentioned in Appendix1, II, 6, of R/D	





5. Project Office																																
5-1	Project Office	Plan																														
		Actual																														
5-2	ATC Simulator Room	Plan																														
		Actual																														
5-3	CBT Room	Plan																														
		Actual																														
5-4	Electronic Training Laboratory	Plan																														
		Actual																														
Project office & training rooms are used properly																																
<b>Activities</b>		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Responsible Organization		Achievements	Issue & Countermeasures
<b>Sub-Activities</b>		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	Japan	Malawi		
<b>Output 1-A: Improvement of Air Traffic Control Assistant/ Basic Course Training</b>																																
1-A-1	Review current training syllabus/materials	Plan																											JICA		Training materials to be used as a base for developing basic Air Traffic Control Course have been procured. The materials are being localized by JICA Expert & SOA Instructors to suit Malawian context.	
		Actual																											JICA			
1-A-2	Improve/develop training syllabus/materials	Plan																											JICA			
		Actual																											JICA	DCA		
1-A-3	Conduct training of instructors	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-A-4	Implement improved training courses	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-A-5	Implement supervisor training (Overseas training)	Plan																												DCA		
		Actual																												DCA		
1-A-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA		
		Actual																												DCA		
1-A-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA		
		Actual																												DCA		
<b>Output 1-B: Improvement of Aerodrome Control Training</b>																																
1-B-1	Review current training syllabus/materials	Plan																											JICA		Training materials for Aerodrome Control Training were developed by JICA Expert.	
		Actual																											JICA			
1-B-2	Improve/develop training syllabus/materials	Plan																											JICA			
		Actual																											JICA	DCA		
1-B-3	Conduct training of instructors	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-B-4	Implement improved training courses	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-B-5	Implement supervisor training (Overseas training)	Plan																												DCA		
		Actual																												DCA		
1-B-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA		
		Actual																												DCA		
1-B-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA		
		Actual																												DCA		
<b>Output 1-C: Improvement of Approach Control (Procedural) Training</b>																																
1-C-1	Review current training syllabus/materials	Plan																											JICA		Training material for Approach Control Procedural Training is being developed by JICA Expert and was finished in February 2016.	
		Actual																											JICA			
1-C-2	Improve/develop training syllabus/materials	Plan																											JICA			
		Actual																											JICA	DCA		
1-C-3	Conduct training of instructors	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-C-4	Implement improved training courses	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-C-5	Implement supervisor training (Overseas training)	Plan																												DCA		
		Actual																												DCA		
1-C-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA		
		Actual																												DCA		
1-C-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA		
		Actual																												DCA		
<b>Output 1-D: Improvement of Area Control (Procedural) Training</b>																																
1-D-1	Review current training syllabus/materials	Plan																											JICA		Training material for Area Control Procedural Training is being developed by JICA Expert and was finished in February 2016.	
		Actual																											JICA			
1-D-2	Improve/develop training syllabus/materials	Plan																											JICA			
		Actual																											JICA	DCA		
1-D-3	Conduct training of instructors	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-D-4	Implement improved training courses	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-D-5	Implement supervisor training (Overseas training)	Plan																												DCA		
		Actual																												DCA		
1-D-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA		
		Actual																												DCA		
1-D-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA		
		Actual																												DCA		
<b>Output 1-E: Improvement of CNS/ATM Technology for ATC Training</b>																																
1-E-1	Improve/develop training materials	Plan																											JICA		Base material for CNS/ATM for ATC training is being prepared by JICA Expert.	
		Actual																											JICA			
1-E-2	Conduct training of DCA staffs	Plan																											JICA			
		Actual																											JICA	DCA		
1-E-3	Conduct monitoring and evaluation of the trainings	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-E-4	Improved training based on the result from the monitoring and evaluation	Plan																											JICA	DCA		
		Actual																											JICA	DCA		
1-E-5	Implement supervisor training (Overseas training)	Plan																												DCA		
		Actual																												DCA		
1-E-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA		
		Actual																												DCA		
1-E-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA		
		Actual																												DCA		
<b>Output 1-F: Improvement of Aeronautical Cartography Training</b>																																
1-F-1	Conduct training of DCA staffs	Plan																											Change to training by JICA Expert in Malawi		Departure Procedure & Cartography was conducted in November 2015.	
		Actual																														
<b>Output 1-G: Improvement of Flight Procedure Design (Conventional Flight Procedure) Training</b>																																
1-G-1	Conduct training of DCA staffs	Plan																											Change to training by JICA Expert in Malawi		Conventional Flight Procedure Design (Approach) training was conducted in May 2015.	
		Actual																														



Activities		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Responsible Organization		Achievements	Issue & Countermeasures	
Sub-Activities		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	Japan	Malawi			
<b>Output 3-E: Improvement of Maintenance Courses for Maru DVOR/DME</b>																																	
3-E-1	Improve/develop training materials	Plan																													JICA		Training material is being developed by JICA Expert and the training were conducted by DCA Instructor and JICA Expert in February 2016.
3-E-2	Conduct training of DCA staffs	Actual																												JICA			
3-E-3	Conduct monitoring and evaluation of the trainings	Plan																													DCA		
3-E-4	Improved training based on the result from the monitoring and evaluation	Actual																													DCA		
<b>Output 3-F: Improvement of New CNS/ATM Technology for Electronic Engineer Training</b>																																	
3-F-1	Improve/develop training materials	Plan																												JICA		Training material is being developed by JICA Expert. Training for instructor on New CNS/ATM for Engineer was conducted in February 2016.	
3-F-2	Conduct training of DCA staffs	Actual																												JICA			
3-F-3	Conduct monitoring and evaluation of the trainings	Plan																													DCA		
3-F-4	Improved training based on the result from the monitoring and evaluation	Actual																													DCA		
<b>Output 4-A: Improvement of Concept Courses for Airfield Lighting System</b>																																	
4-A-1	Review current training syllabus/materials	Plan																												JICA		Training for instructors on Airfield Lighting was conducted in April 2015. Training material was developed by DCA Instructor & JICA Expert in 2015 & 2016.	
4-A-2	Improve/develop training syllabus/materials	Actual																												JICA			
4-A-3	Conduct training of instructors	Plan																												JICA			
4-A-4	Implement improved training courses	Actual																													DCA		
4-A-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																													DCA		
4-A-6	Improved training based on the result from the monitoring and evaluation	Actual																													DCA		
<b>Output 4-B: Improvement of Concept Courses for Uninterrupted Power Supply System (UPSS)</b>																																	
4-B-1	Review current training syllabus/materials	Plan																												JICA		Training for instructors on UPS was conducted in April 2015. Training material was developed by DCA Instructor & JICA Expert in 2015 & 2016.	
4-B-2	Improve/develop training syllabus/materials	Actual																												JICA			
4-B-3	Conduct training of instructors	Plan																												JICA			
4-B-4	Implement improved training courses	Actual																													DCA		
4-B-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																													DCA		
4-B-6	Improved training based on the result from the monitoring and evaluation	Actual																													DCA		
Monitoring Plan		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Remarks		Issue	Solution	
Monitoring		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th					
Joint Coordination Committee		Plan			▲		▲					▲	▲																				
Set-up the Detailed Plan of Operation		Actual					▲	▲																									
Submission of Monitoring Sheet		Plan										▲	▲																				
Reports/Documents		Actual			▲							▲	▲																				
Project Completion Report		Plan																															
		Actual																															

## **ANNEX 4**

### **R/D, M/M, Minutes of JCC (copy)**

ANNEX 4-1 R/D

ANNEX 4-2 M/M

ANNEX 4-3 Minutes of JCC1

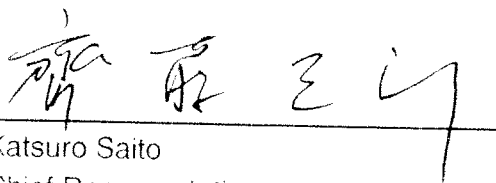
ANNEX 4-4 Minutes of JCC2

ANNEX 4-5 Minutes of JCC3

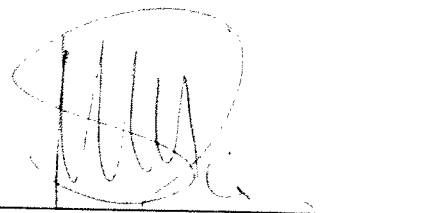
ANNEX 4-6 Minutes of JCC4

**RECORD OF DISCUSSIONS**  
**ON**  
**THE PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION**  
**SERVICES**  
**IN**  
**THE REPUBLIC OF MALAWI**  
**AGREED UPON BETWEEN**  
**THE MINISTRY OF TRANSPORT AND PUBLIC WORKS**  
**AND**  
**JAPAN INTERNATIONAL COOPERATION AGENCY**

Lilongwe, 13<sup>th</sup> January 2014



Katsuro Saito  
Chief Representative  
Malawi Office  
Japan International Cooperation Agency



Hon. Mohammed Sidik Mia, (MP)  
Minister of Transport and Public Works  
Government of Malawi

Based on the minutes of meetings on the Detailed Planning Survey on the Project for Capacity Development for Air Navigation Services (hereinafter referred to as "the Project") signed on 6 September 2013 between Department of Civil Aviation (hereinafter referred to as "DCA"), under the Ministry of Transport and Public Works, and Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with DCA and relevant organizations to develop a detailed plan of the Project.

Both parties agreed on the details of the Project and the main points discussed as described in Appendices 1 and 2 respectively.

Both parties also agreed that DCA, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of the Republic of Malawi.

The Project will be implemented within the framework of the Agreement on Technical Cooperation signed on 1 March 2006 (hereinafter referred to as "the Agreement") and the Note Verbales to be exchanged between the Government of Japan (hereinafter referred to as "GOJ") and the Government of the Republic of Malawi (hereinafter referred to as "GOM").

- Appendix 1: Project Description
- Appendix 2: Main Points Discussed
- Appendix 3: Minutes of Meetings on the Detailed Planning Survey on the Project for Capacity Development for Air Navigation Services

## PROJECT DESCRIPTION

Both parties confirmed that there is no change in the Project Description agreed on in the minutes of meetings on the Detailed Planning Survey on the Project for Capacity Development for Air Navigation Services signed on 6 September 2013 (Appendix 3).

### I. BACKGROUND

Department of Civil Aviation (hereinafter referred to as "DCA") has the mandate to inter alia regulate and facilitate the development of airports and air navigation facilities. Kamuzu International Airport (hereinafter referred to as "KIA") was inaugurated in 1983 after the capital city was transferred from Zomba to Lilongwe. The Government of Japan (hereinafter referred to as "GOJ") provided Japanese ODA loans for the construction of the airport terminal building and installation of air navigation facilities from 1977 to 1982 in three phases. Recently, GOJ also provided a grant aid for the replacement of new navigation systems.

However, DCA faces serious shortage of trained staff for KIA as well as for the other airports in the Republic of Malawi. Upgrading of training for current air navigation staff is also deemed necessary to keep up with technological progress in air navigation services.

DCA, in recognition of these issues, plans to strengthen its training functions in order to utilize air navigation facilities in compliance with international standards and to secure sustainability in operation and maintenance of air navigation facilities, and requested GOJ for the implementation of the Project for Capacity Development in Air Navigation Services.

### II. OUTLINE OF THE PROJECT

Details of the Project are described in the Logical Framework (Project Design Matrix: PDM) (Annex 1) and the tentative Plan of Operation (Annex 2).

#### 1. Input

##### (1) Input by JICA

##### (a) Dispatch of Experts

- Chief Advisor/Training Manager
- Air Traffic Controller (ATC) Training Specialist
- Aeronautical Information Service (AIS) Training Specialist
- Communications, Navigation and Surveillance (CNS) Maintenance Training Specialist
- Electrical/Mechanical Maintenance Training Specialist
- Flight Procedure Design Specialist
- Others as necessary



- (b) Overseas Trainings
- (c) Machinery and Equipment
  - Training equipment

In case of importation, the machinery, equipment and other materials under II-1 (1) (c) above will become the property of GOM upon being delivered C.I.F. (cost, insurance and freight) to the Republic of Malawi authorities concerned at the ports and/or airports of disembarkation.

Input other than indicated above will be determined through mutual consultations between JICA and DCA during the implementation of the Project, as necessary.

## (2) Input by DCA

DCA will take necessary measures to provide at its own expense:

- (a) Services of DCA's counterpart personnel and administrative personnel as referred to in II-2;
- (b) Suitable office space with necessary equipment;
- (c) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the equipment provided by JICA;
- (d) Information as well as support in obtaining medical service;
- (e) Credentials or identification cards;
- (f) Available data (including maps and photographs) and information related to the Project;
- (g) Running expenses necessary for the implementation of the Project including the project office expenses and travel expenses of DCA staff within the Republic of Malawi;
- (h) Expenses necessary for transportation within the Republic of Malawi of the equipment referred to in II-1 (1) as well as for the installation, operation and maintenance thereof; and
- (i) Necessary facilities to JICA experts for the remittance as well as utilization of the funds introduced into the Republic of Malawi from Japan in connection with the implementation of the Project

## 2. Implementation Structure

The Project organization chart is given in the Annex 3. The roles and assignments of relevant organizations are as follows:

### 1) DCA

- (a) Director, DCA, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
- (b) Deputy Director, DDCA (Operations), as the Project Manager, will be responsible for the managerial and technical matters of the Project.
- (c) Principal, School of Aviation, DCA, as the Co-Project Manager, will be responsible for the managerial and technical matters of the Project.
- (d) The Project Coordinators, Heads of Divisions, DCA, will assist the Project Manager for respective fields of management.

#### (2) JICA Experts

The JICA experts will give necessary technical guidance, advice and recommendations to DCA on any matters pertaining to the implementation of the Project.

#### (3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held at least once a year and whenever deems it necessary. JCC will approve an annual work plan, review overall progress, conduct monitoring and evaluation of the Project, and exchange opinions on major issues that arise during the implementation of the Project. A list of proposed members of JCC is shown in the Annex 4.

#### 3. Project Site(s) and Beneficiaries

The project sites are DCA, School of Aviation, airports and relevant facilities. Beneficiaries of the Project are Air Traffic Controllers, Flight Information Officers, AIS Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA. The Project will benefit airlines and air travelling passengers flying Malawi airspaces.

#### 4. Duration

The duration of the technical cooperation for the Project under the attached documents will be two (2) years from the date of arrival of the first expert.

#### 5. Reports

DCA and JICA experts will jointly prepare the following reports in English.

- (1) Progress reports on semiannual basis until the project completion.
- (2) Project completion reports at the time of project completion.

#### 6. Environmental and Social Considerations

DCA agreed to abide by JICA Guidelines for Environmental and Social Considerations in

order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

### **III. UNDERTAKINGS OF DCA AND GOM**

DCA and GOM will take necessary measures to;

- (1) ensure that the technologies and knowledge acquired by the Republic of Malawi nationals as a result of Japanese technical cooperation contributes to the economic and social development of the Republic of Malawi, and that the knowledge and experience acquired by the personnel of the Republic of Malawi from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and
- (2) grant privileges, exemptions and benefits to JICA experts referred to in II-1 (1) (a) above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in the Republic of Malawi.

Other privileges, exemptions and benefits will be provided in accordance with the Agreement on Technical Cooperation signed on 1 March 2006 between the Government of Japan and GOM.

### **IV. EVALUATION**

JICA and DCA will jointly conduct the Terminal evaluation during the last six (6) months of the cooperation term.

Subsequently JICA will conduct the following evaluations and surveys to mainly verify sustainability and impact of the Project and draw lessons. DCA is required to provide necessary support for them.

1. Ex-post evaluation three (3) years after the project completion, in principle
2. Follow-up surveys on necessity basis

### **V. PROMOTION OF PUBLIC SUPPORT**

For the purpose of promoting support for the Project, DCA will take appropriate measures to make the Project widely known to the people of the Republic of Malawi.

### **VI. MUTUAL CONSULTATION**

JICA and DCA will consult each other whenever any major issues arise in the course of Project implementation.

### **VII. AMENDMENTS**

The record of discussions may be amended by the minutes of meetings between JICA and DCA.

The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.

- Annex 1: Logical Framework (Project Design Matrix: PDM)
- Annex 2: Tentative Plan of Operation (PO)
- Annex 3: Project Organization Chart
- Annex 4: A List of Proposed Members of Joint Coordinating Committee

## Annex 1: Project Design Matrix (PDM)

The Project for Capacity Development for Air Navigation Services  
Project Design Matrix (PDM)

Date: 6 September 2013  
Ver. 1.0

Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA

Implementation Period: 2 years from April 2014

Narrative Summary	Performance Targets/ Indicators	Data Source/ Reporting Mechanism	Assumptions and Risks
<p><b>Overall Goal</b> (Long-term objective)</p> <p>Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p>Number of officers who have successfully completed the improved/developed training courses for each year</p>	<p>- Training records</p>	
<p><b>Project Purpose</b> (Objective at the end of the Project)</p> <p>Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.</p>	<p>Number of instructors who can conduct the improved/developed training courses (fulltime + part time)</p> <ul style="list-style-type: none"> <li>· ATC/FIS: 6 (1)</li> <li>· AIS: 4 (1)</li> <li>· ACS: 4 (1)</li> <li>· Electronic Eng.: 4 (1)</li> <li>· E/M Eng.: 4 (1)</li> </ul> <p><i>Number in ( ) indicates current situation.</i></p> <p>- Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least XXX %. (Target value "XXX %" will be set with the results of a baseline survey.)</p>	<ul style="list-style-type: none"> <li>- Project Progress Reports</li> <li>- Terminal Evaluation Report</li> </ul>	<ul style="list-style-type: none"> <li>- Trained counterpart personnel continue to be engaged in the activities of air navigation services.</li> <li>- No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</li> </ul>
<p><b>Outputs</b> (Objectives to be realized by Activities to achieve the Project Purpose)</p> <ol style="list-style-type: none"> <li>1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.</li> <li>2. Training for Aeronautical...</li> </ol>	<ul style="list-style-type: none"> <li>- Training syllabus and training materials are improved or developed for the following number of courses:</li> <li>· ATC FIS: 6</li> <li>· AIS ACS: 4</li> </ul>	<ul style="list-style-type: none"> <li>- Project Progress Reports</li> </ul>	<ul style="list-style-type: none"> <li>- No major change of the international standards on air navigation services is occurred</li> </ul>

<p>Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.</p> <p>3. Training of Electronic Engineering is improved.</p> <p>4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.</p>	<ul style="list-style-type: none"> <li>• Electronic Eng.: 6</li> <li>• E/M Eng.: 2</li> <li>- The following number of DCA officers successfully complete supervisor/advanced/specialist training: <ul style="list-style-type: none"> <li>• Instructors: 10</li> <li>• ATC: 4</li> <li>• AIS: 4</li> <li>• ACS: 4</li> <li>• Aeronautical Cartography: 2</li> <li>• PANS/OPS: 2</li> <li>• ILS Maintenance: 4</li> </ul> </li> </ul> <p>Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least XXX %. (Target value "XXX %" will be set with the results of a baseline survey.)</p>	<ul style="list-style-type: none"> <li>- Results of completion tests for supervisor/advanced/specialist training courses</li> </ul>	
<p><b>Activities</b> (Specific actions to produce each Output by use of Inputs)</p> <p><u>Improvement of ATC and FIS Training</u></p> <ol style="list-style-type: none"> <li>1-1. Review current training syllabus and training materials</li> <li>1-2. Improve/develop training syllabus and training materials</li> <li>1-3. Conduct training of instructors</li> <li>1-4. Implement improved training courses</li> <li>1-5. Implement supervisor training</li> <li>1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors</li> <li>1-7. Improve the training courses based on the results from the monitoring and evaluation</li> </ol> <p><u>Improvement of AIS and ACS Training</u></p> <ol style="list-style-type: none"> <li>2-1. Review current training syllabus and training materials</li> <li>2-2. Improve/develop training syllabus and training materials</li> <li>2-3. Conduct training of instructors</li> <li>2-4. Implement improved training courses</li> <li>2-5. Implement supervisor/advanced/specialist training</li> <li>2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors</li> <li>2-7. Improve the training courses based on the results from the monitoring and evaluation</li> </ol>	<p><b>Inputs</b></p> <p><u>Inputs from DCA</u></p> <ul style="list-style-type: none"> <li>- Counterpart Personnel</li> <li>- Support Staff</li> <li>- Project Office Space</li> <li>- Project Office Expenses</li> <li>- Travel Expenses of Counterpart Personnel within Malawi</li> <li>- The others mentioned in Appendix 1, II, 6. of R/D</li> </ul> <p><u>Inputs from JICA</u></p> <ul style="list-style-type: none"> <li>- Experts <ul style="list-style-type: none"> <li>• Chief Advisor/Training Manager</li> <li>• ATC Training Specialist</li> <li>• AIS/ACS Training Specialist</li> <li>• Electronic</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- DCA implements the Project with sufficient ownership.</li> </ul>	<p><b>Preconditions</b></p> <ul style="list-style-type: none"> <li>- DCA secures budget necessary for preparation of the project office and allocation of counterpart personnel before the commencement of the Project.</li> <li>- New trainees are recruited as scheduled.</li> </ul>

<p><u>Improvement of Electronic Engineering Training</u></p> <p>3-1. Review current training syllabus and training materials</p> <p>3-2. Improve/develop training syllabus and training materials</p> <p>3-3. Conduct training of instructors</p> <p>3-4. Implement improved training courses</p> <p>3-5. Implement equipment-specific training</p> <p>3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors</p> <p>3-7. Improve the training courses based on the results from the monitoring and evaluation</p> <p><u>Improvement of Electrical/Mechanical Engineering Training</u></p> <p>4-1. Review current training syllabus and training materials</p> <p>4-2. Improve/develop training syllabus and training materials</p> <p>4-3. Conduct training of instructors</p> <p>4-4. Implement improved training courses</p> <p>4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors</p> <p>4-6. Improve the training courses based on the results from the monitoring and evaluation</p>	<p>Maintenance Training Specialist</p> <ul style="list-style-type: none"> <li>• Electrical/Mechanical Maintenance Training Specialist</li> <li>• Others as necessary</li> </ul> <ul style="list-style-type: none"> <li>- Training materials</li> <li>- Training equipment</li> <li>- Overseas training</li> </ul>
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## Annex 2: Tentative Plan of Operation (PO)

The Project for Capacity Development for Air Navigation Services  
Tentative Plan of Operation (PO)

Date: 6 September 2013

Ver. 1.0

Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA

Implementation Period: 2 years from April 2014

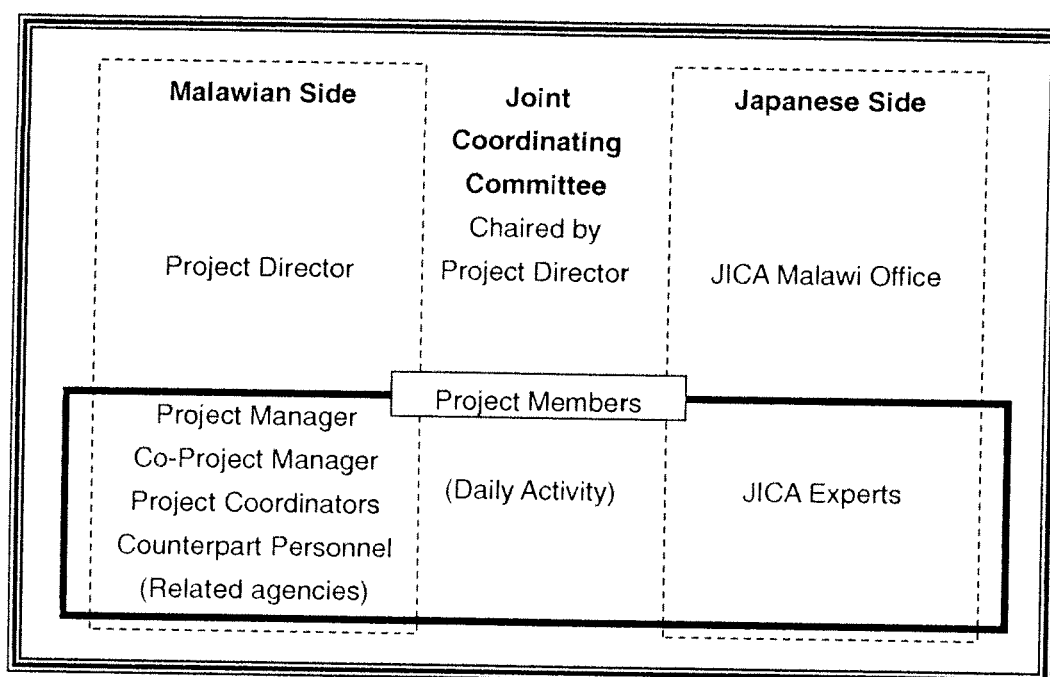
Outputs	Activities	Target Group	2014	2015	2016
Improvement of ATC and FIS Training		ATC/FIS			
1-1.	Review current training syllabus and training materials		■		
1-2.	Improve/develop training syllabus and training materials		■	■	
1-3.	Conduct training of instructors		■	■	
1-4.	Implement improved training courses		■	■	
1-5.	Implement supervisor training		■	■	
1-6.	Conduct monitoring and evaluation of the trainings implemented by the trained instructors		■	■	
1-7.	Improve training based on the result from the monitoring and evaluation		■	■	
	New Recruits		FIS ▲	ATC ▲	
Improvement of AIS and ACS Training		AIS/ACS			
2-1.	Review current training syllabus and training materials		■		
2-2.	Improve/develop training syllabus and training materials		■	■	
2-3.	Conduct training of instructors		■	■	
2-4.	Implement improved training courses		■	■	
2-5.	Implement supervisor/advanced/specialist training		■	■	
2-6.	Conduct monitoring and evaluation of the trainings implemented by the trained instructors		■	■	
2-7.	Improve training based on the result from the monitoring and evaluation		■	■	
	New Recruits		AIS/ACS ▲		
Improvement of Electronic Engineering Training		Electronic			
3-1.	Review current training syllabus and training materials		■		
3-2.	Improve/develop training syllabus and training materials		■	■	
3-3.	Conduct training of instructors		■	■	
3-4.	Implement improved training courses		■	■	
3-5.	Implement equipment-specific training		■	■	
3-6.	Conduct monitoring and evaluation of the trainings implemented by the trained instructors		■	■	
3-7.	Improve training based on the result from the monitoring and evaluation		■	■	
	New Recruits	▲			
Improvement of Electrical/Mechanical Engineering Training		E-M			
4-1.	Review current training syllabus and training materials		■		
4-2.	Improve/develop training syllabus and training materials		■	■	
4-3.	Conduct training of instructors		■	■	
4-4.	Implement improved training courses		■	■	
4-5.	Conduct monitoring and evaluation of the trainings implemented by the trained instructors		■	■	
4-6.	Improve training based on the result from the monitoring and evaluation	■	■		
	New Recruits		▲		

### Annex 3: Organization Chart

The Project will be implemented by DCA in cooperation with JICA.

The Project Organization Chart indicating joint implementation structure is shown below:

#### Joint Implementation Structure of the Project



#### **Annex 4: A List of Proposed Members of Joint Coordinating Committee**

Chairperson and members of the JCC will be as follows:

- 1) Chairperson
  - Project Director: Director, Department of Civil Aviation (DCA)
- 2) Members from the Malawian Side
  - Project Manager: Deputy Director, DDCA (Operations)
  - Co- Project Manager: Principal, School of Aviation, DCA
  - Project Coordinators
  - Members of the Counterpart Teams
  - Heads of Relevant Sections
  - Personnel concerned to be decided by the Malawian Side
- 3) Members from the Japanese Side
  - Japanese Experts
  - Representative, JICA Malawi Office
  - Personnel concerned to be decided by the Japanese Side
- 4) Others
  - Officials of the Embassy of Japan in Malawi may attend the meeting as observers.
  - Persons who are invited by the Chairperson may attend the meeting as observers.

## Appendix 2

### MAIN POINTS DISCUSSED

This part of the R/D notes remarkable issues for the implementation of the Project that were confirmed by DCA and JICA through the discussions during the Detailed Planning Survey in August and September 2013.

#### 1. Training of Instructors and Improvement of Training Courses

The Malawi taskforce members with assistance of JICA experts will implement training of instructors and improvement of training courses at School of Aviation for the following subjects.

##### 1.1 Training of Air Traffic Controllers and Flight Information Officers

- (a) Basic Training for Air Traffic Controllers
- (b) Aerodrome Control Services
- (c) Procedural Approach Control Services
- (d) Procedural Area Control Services
- (e) New CNS/ATM Technology for Air Traffic Controllers
- (f) Basic Training for Flight Information Officers

##### 1.2 Training of Aeronautical Information and Communication Services Officers

- (a) Basic Training for AIS Officers
- (b) Basic Training for Aeronautical Communication Officers

##### 1.3 Training of Electronic Engineers

- (a) General Communication Maintenance
- (b) Concept Courses for ILS, DVOR, DME and Radar
- (c) Maintenance Course for Park Air VHF
- (d) Maintenance Courses for Normarc ILS
- (e) Maintenance Courses for Maru DVOR/DME
- (f) New CNS/ATM Technology for Electronic Engineers

##### 1.4 Training of Electrical/Mechanical Engineers

- (a) Concept Course for Airfield Lighting System
- (b) Concept Course for Uninterrupted Power Supply System (UPSS)

#### 2. Instructors

DCA will assign the following instructors for the implementation of the Project.

Areas of Specialization	Instructors
Air Traffic Services (ATC and FIS)	3 full-time and 3 part-time and OJT
AIS and Aeronautical Communication Services	4 full-time
Electronic Engineering	2 full-time and 2 part-time
Electrical/Mechanical Engineering	2 full-time and 2 part-time

### 3. New Students to School of Aviation

DCA will train the following number of students for which basic training will be undertaken at the School of Aviation.

Areas of Specialization	Number	Start of Training
Air Traffic Controllers	12	October 2015
Flight Information Officers	8	October 2014
AIS Officers	10	October 2014
Aeronautical Communication Officers	6	October 2014
Electronic Engineers	8	January 2014
Electrical/Mechanical Engineers	2 / 2	March 2014

### 4. Overseas Training

Based on the assessment of HRD needs in DCA's air navigation services, the following were identified for training of instructors, supervisors and specialists. These training needs are efficiently conducted at overseas training institutes of ATNS Aviation Academy in South Africa, East Africa School of Aviation (EASA) in Kenya and others. JICA does not commit the implementation of those specialized training at this stage, but will make best effort to meet the needs of DCA for effective implementation of the Project.

Training Subjects	Number of Trainees	Probable Venue
Instructor Development Program (Train the Trainer Course)	10	EASA/ATNS
Supervisor Training for Air Traffic Controllers (Team Resource Management)	4	ATNS
Supervisor/Advanced Training for AIS Officers	4	ATNS
Supervisor/Advanced Training for Aeronautical Communication Officers	4	EASA
Aeronautical Cartography (Aeronautical Charts)	2	EASA/ATNS
PANS/OPS Instrument Procedure Design – Conventional Flight Procedures	2	EASA
Maintenance of Normarc ILS 7013B/7033B	4	Tbd

The selection of trainees of the above courses will require consensus between DCA and JICA

experts, and those trainees who have completed the above courses should conduct echo seminar or cascade training to share the knowledge and skills obtained through the training to relevant DCA officers.

#### 5. Training Equipment

JICA will provide the following equipment for the implementation of the Project:

- (a) PC-based Simulator Training System for Air Traffic Controllers
- (b) Computer Based Training (ATC)
- (c) Test Instrument and equipment such as Oscilloscope, Digital Multi-Meter, Frequency Counter, RF Power Meter, Level Meter, Function Generator, Spectrum Analyzer, etc.
- (d) Learning Aids and Office Equipment such as Personal Computer, Copier/Printer/Scanner, Projector, Network Equipment, Voltage Regulator, etc.

#### 6. Update of Manuals of Air Traffic Services and CNS Equipment Maintenance Procedures

DCA will update the Manual of Air Traffic Services and the CNS Equipment Maintenance Procedures by the middle of 2014 as it is an important reference material for training for various air navigation services.

#### 7. Project Office

DCA will provide Project office space at School of Aviation or wherever may seem necessary. The office space should accommodate 6 desks and chairs and other office facilities, and have access to internet. DCA will also provide air-conditioners for the Project office and simulator training rooms.

#### 8. PBN Flight Procedure Design Training

JICA organizes a PBN Flight Procedure Design Training Course in Tokyo every year. Flight procedure designers, who will successfully complete PANS/OPS Instrument Procedure Design Training under this Project, are expected to apply for the PBN training in Japan.

- END -

**Appendix 3:**

**Minutes of Meetings on the Detailed Planning Survey on the Project for Capacity Development for Air Navigation Services**

(Please refer to the following pages)



**MINUTES OF MEETING**  
**THE DETAILED PLANNING SURVEY**  
**ON**  
**THE JAPANESE TECHNICAL COOPERATION**  
**FOR**  
**THE PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION**  
**SERVICES**

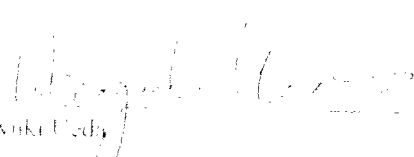
The Government of the Republic of Malawi (hereinafter referred to as "GOM") made an official request to the Government of Japan (hereinafter referred to as "GOJ") for the Project for Capacity Development for Air Traffic Safety in August 2010.


In response to the request, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a detail planning survey team (hereinafter referred to as "the Team") headed by Mr. Hiroyuki UEDA, Senior Advisor on Transport Sector, to the Republic of Malawi from 25 August to 11 September 2013.

During its stay, both the Team and authorities of GOM concerned had a series of discussions and exchanged views on the Project based on the field observations at various air navigation facilities. Both Japanese and Malawi sides also held meetings to prepare the drafts of the Record of Discussions (R/D), the Project Design Matrix (PDM) and the Plan of Operation (PO) of the Project.

As a result of the discussions, both sides agreed to the matters referred to in the documents attached hereto.

Lilongwe, 6 September 2013

  
Hiroyuki Ueda  
Leader  
Detailed Planning Survey Team  
Japan International Cooperation Agency (JICA)

  
Alfred C. Mtshatira  
Director of Civil Aviation  
Department of Civil Aviation (DCA)  
The Government of the Republic of Malawi



#### **I. Title of the Project**

Both sides confirmed that the title of the Project should be "the Project for Capacity Development for Air Navigation Services" (hereinafter referred to as "the Project"). Both sides confirmed to undertake necessary actions to formalize the title of the Project with relevant government authorities.

#### **II. Draft PDM and PO**

The drafts of the PDM and the PO of the Project were prepared in consultation of stakeholders and through meetings as attached in Appendices I and II. The PDM and the PO will be used as a management tool of the Project, and will be finalized by the time of signing of the R/D.

#### **III. Draft Record of Discussions (R/D)**

The draft R/D, as the official document which defines the contents of a technical cooperation project, was prepared and agreed through a series of discussions as attached in Appendix III. The draft R/D will be finalized in the course of further consultations towards the signing.

#### **IV. Provisional Schedule until the Project Commencement**

- (1) Signing on the R/D in October 2013
- (2) Commencement of the Project in March 2014

#### **Appendices**

Appendix I: Project Design Matrix (PDM)

Appendix II: Tentative Plan of Operation (PO)

Appendix III: Draft Record of Discussion (R/D)

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Project Design Matrix (PDM)

**The Project for Capacity Development for Air Navigation Services**      **Date: 6 September 2013**  
**Project Design Matrix (PDM)**      **Ver. 1.0**  
**Target Group:**      **Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**  
**Implementation Period:**      **2 years from March 2014**

Narrative Summary	Performance Targets/ Indicators	Data Source/ Reporting Mechanism	Assumptions and Risks
<p><b>Overall Goal</b> (Long-term objective)</p> <p>Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p>Number of officers who have successfully completed the improved/developed training courses for each year</p>	<p>- Training record</p>	
<p><b>Project Purpose</b> (Objective at the end of the Project)</p> <p>Training system for air navigation services is enhanced</p>	<p>Number of instructors who can conduct the improved/developed training courses (fulltime + part time)</p> <ul style="list-style-type: none"> <li>- ATC/FIS: 6 (1)</li> <li>- AIS: 4 (1)</li> <li>- ACS: 4 (1)</li> <li>- Electronic Eng.: 4 (1)</li> <li>- E/M Eng.: 4 (1)</li> </ul> <p><i>Number in ( ) indicates current situation.</i></p>	<ul style="list-style-type: none"> <li>- Project Progress Reports</li> <li>- Terminal Evaluation Report</li> </ul>	<ul style="list-style-type: none"> <li>- DCA secures budget for conducting training for air navigation services.</li> <li>- DCA secures necessary number of new staff for air navigation services.</li> </ul>
<p><b>Outputs</b> (Objectives to be realized by Activities to achieve the Project Purpose)</p>	<ul style="list-style-type: none"> <li>- Training syllabus and training materials are improved or developed for the following number of courses:                             <ul style="list-style-type: none"> <li>• ATC/FIS: 6</li> <li>• AIS/ACS: 2</li> <li>• Electronic Eng.: 6</li> <li>• E/M Eng.: 2</li> </ul> </li> <li>- The following number of DCA officers successfully complete supervisor/ advanced/specialist training                             <ul style="list-style-type: none"> <li>• Instructors: 10</li> <li>• ATC: 4</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Project Progress Reports</li> <li>- Results of completion tests for supervisor/ advanced/specialist training courses</li> </ul>	<ul style="list-style-type: none"> <li>- DCA allocates adequate budget for human resource development.</li> <li>- Counterpart personnel continue to engage in the Project.</li> </ul>

**Project Design Matrix (PDM)**

<p>improved.</p> <p>4 Training of Electrical/Mechanical Engineering is improved.</p>	<ul style="list-style-type: none"> <li>• AIS: 4</li> <li>• ACS: 4</li> <li>• Aeronautical Cartography: 2</li> <li>• PANS/OPS: 2</li> <li>• ILS Maintenance: 4</li> </ul>		
<p><b>Activities</b> (Specific actions to produce each Output by use of Inputs)</p>		<p><b>Inputs</b></p>	
<p><u>Improvement of ATC and FIS Training</u></p> <p>1-1. Review current training syllabus and training materials</p> <p>1-2. Improve/develop training syllabus and training materials</p> <p>1-3. Conduct training of instructors</p> <p>1-4. Implement improved training courses</p> <p>1-5. Implement supervisor training</p>		<p><u>Inputs from DCA</u></p> <ul style="list-style-type: none"> <li>- Counterpart Personnel</li> <li>- Support Staff</li> <li>- Project Office Space</li> <li>- Project Office Expenses</li> <li>- Travel Expenses of Counterpart Personnel within Malawi</li> </ul>	<ul style="list-style-type: none"> <li>- DCA implements the Project with sufficient ownership.</li> </ul>
<p><u>Improvement of AIS and ACS Training</u></p> <p>2-1. Review current training syllabus and training materials</p> <p>2-2. Improve/develop training syllabus and training materials</p> <p>2-3. Conduct training of instructors</p> <p>2-4. Implement improved training courses</p> <p>2-5. Implement supervisor/advanced/specialist training</p>		<p><u>Inputs from JICA</u></p> <ul style="list-style-type: none"> <li>- Experts                             <ul style="list-style-type: none"> <li>• Chief Advisor/Training Manager</li> <li>• ATC Training Specialist</li> <li>• AIS/ACS Training Specialist</li> <li>• Electronic Maintenance Training Specialist</li> <li>• Electrical/Mechanical Maintenance Training Specialist</li> <li>• Others as necessary</li> </ul> </li> <li>- Training materials</li> <li>- Training equipment</li> <li>- Overseas training</li> </ul>	<p><b>Preconditions</b></p> <ul style="list-style-type: none"> <li>- The Project is supported by the Ministry of Transport and Public Works.</li> <li>- DCA secures budget for inputs of the Project.</li> </ul>
<p><u>Improvement of Electronic Engineering Training</u></p> <p>3-1. Review current training syllabus and training materials</p> <p>3-2. Improve/develop training syllabus and training materials</p> <p>3-3. Conduct training of instructors</p> <p>3-4. Implement improved training courses</p> <p>3-5. Implement equipment-specific training</p>			
<p><u>Improvement of Electrical/Mechanical Engineering Training</u></p> <p>4-1. Review current training syllabus and training materials</p> <p>4-2. Improve/develop training syllabus and training materials</p> <p>4-3. Conduct training of instructors</p> <p>4-4. Implement improved training courses</p>			

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Appendix II to Minutes of Meeting on the Project for Capacity Development for Air Navigation Services  
**Tentative Plan of Operation (PO)**

**The Project for Capacity Development for Air Navigation Services**      **Date: 6 September 2013**  
**Tentative Plan of Operation (PO)**      **Ver. 1.0**  
**Target Group:**      **Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**  
**Implementation Period: 2 years from March 2014**

Outputs	Activities	Target Group	2014	2015	2016
<b>Improvement of ATC and FIS Training</b>					
1-1	Review current training syllabus and training materials	ATC/FIS	■		
1-2	Improve/develop training syllabus and training materials		■	■	
1-3	Conduct training of instructors		■	■	■
1-4	Implement improved training courses		■	■	■
1-5	Implement supervisor training		■	■	■
	New Recruits		▲ FIS ▲	▲ ATC ▲	
<b>Improvement of AIS and ACS Training</b>					
2-1	Review current training syllabus and training materials	AIS/ACS	■		
2-2	Improve/develop training syllabus and training materials		■	■	
2-3	Conduct training of instructors		■	■	■
2-4	Implement improved training courses		■	■	■
2-5	Implement supervisor/advanced/specialist training		■	■	■
	New Recruits		▲ AIS/ACS ▲		
<b>Improvement of Electronic Engineering Training</b>					
3-1	Review current training syllabus and training materials	Electronic	■		
3-2	Improve/develop training syllabus and training materials		■	■	
3-3	Conduct training of instructors		■	■	■
3-4	Implement improved training courses		■	■	■
3-5	Implement equipment-specific training		■	■	■
	New Recruits	▲			
<b>Improvement of Electrical/Mechanical Engineering Training</b>					
4-1	Review current training syllabus and training materials	E/M	■		
4-2	Improve/develop training syllabus and training materials		■	■	
4-3	Conduct training of instructors		■	■	■
4-4	Implement improved training courses		■	■	■
	New Recruits	▲			

**RECORD OF DISCUSSIONS  
ON  
THE PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION  
SERVICES  
IN  
THE REPUBLIC OF MALAWI**

**AGREED UPON BETWEEN**

**THE DEPARTMENT OF CIVIL AVIATION  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY**

Lilongwe, xxx October 2013

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Katsuro Saito  
Chief Representative  
Malawi Office  
Japan International Cooperation Agency

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Alfred C. Mfilatila  
Director  
Department of Civil Aviation (DCA)  
The Government of Malawi

**Draft Record of Discussion (R/D)**

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Based on the minutes of meetings on the Detailed Planning Survey on the Project for Capacity Development for Air Navigation Services (hereinafter referred to as "the Project") signed on 6 September 2013 between Department of Civil Aviation (hereinafter referred to as "DCA") and Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with DCA and relevant organizations to develop a detailed plan of the Project.

Both parties agreed on the details of the Project and the main points discussed as described in Attachments 1 and 2 respectively.

Both parties also agreed that DCA, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of the Republic of Malawi.

The Project will be implemented within the framework of the Agreement on Technical Cooperation signed on 1 March 2006 (hereinafter referred to as "the Agreement") and the Note Verbales to be exchanged between the Government of Japan (hereinafter referred to as "GOJ") and the Government of the Republic of Malawi (hereinafter referred to as "GOM").

Attachment 1: Project Description

Attachment 2: Main Points Discussed

Attachment 3: Minutes of Meetings on the Detailed Planning Survey on the Project for Capacity Development for Air Navigation Services

**Attachment 1 to the R/D**

**PROJECT DESCRIPTION**

Both parties confirmed that there is no change in the Project Description agreed on in the minutes of meetings on the Detailed Planning Survey on the Project for Capacity for Air Navigation Services signed on 6 September 2013 (Attachment 3).

**I. BACKGROUND**

Department of Aviation (DCA) has the mandate to inter alia regulate and facilitate the development of airports and air navigation facilities. Kamuzu International Airport (KIA) was inaugurated in 1983 after the capital city was transferred from Zomba to Lilongwe. The Government of Japan (GOJ) supported the Government of Malawi (GOM) with Japanese Yen loan for the construction of the airport terminal building and installation of air navigation facilities from 1977 to 1982 in three phases. Recently, GOJ also implemented a grant aid project for the replacement of new navigation systems.

However, DCA faces serious shortage of trained staff for KIA as well as for other airports in Malawi. Upgrading of training for existing air navigation staff is also deemed necessary to up with technological progress in air navigation services.

DCA, in recognition of these issues, plans to strengthen its training functions in order to best utilize air navigation facilities in compliance with international standards and to secure sustainability in operation and maintenance of air navigation facilities, and requested GOJ for the implementation of the Project for Capacity Development in Air Navigation Services.

**II. OUTLINE OF THE PROJECT**

Details of the Project are described in the Logical Framework (Project Design Matrix: PDM) (Annex 1) and the tentative Plan of Operation (Annex 2).

**I. Input**

**(1) Input by JICA**

**(a) Dispatch of Experts**

Chief Advisor/Training Manager

ATC Training Specialist

AIS Training Specialist

CNS Maintenance Training Specialist

Electrical/Mechanical Maintenance Training Specialist

Others as necessary

Local Staff Trainings

(c) Machinery and Equipment

- Training equipment

In case of importation, the machinery, equipment and other materials under II-1 (1) (c) above will become the property of GOM upon being delivered C.I.F. (cost, insurance and freight) to the Republic of Malawi authorities concerned at the ports and/or airports of disembarkation.

Input other than indicated above will be determined through mutual consultations between JICA and DCA during the implementation of the Project, as necessary.

(2) Input by DCA

DCA will take necessary measures to provide at its own expense:

- (a) Services of DCA's counterpart personnel and administrative personnel as referred to in II-2;
- (b) Suitable office space with necessary equipment;
- (c) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the equipment provided by JICA;
- (d) Information as well as support in obtaining medical service;
- (e) Credentials or identification cards;
- (f) Available data (including maps and photographs) and information related to the Project;
- (g) Running expenses necessary for the implementation of the Project including the project office expenses and travel expenses of DCA staff within Malawi;
- (h) Expenses necessary for transportation within the Republic of Malawi of the equipment referred to in II-1 (1) as well as for the installation, operation and maintenance thereof; and
- (i) Necessary facilities to JICA experts for the remittance as well as utilization of the funds introduced into the Republic of Malawi from Japan in connection with the implementation of the Project

2. Implementation Structure

The Project organization chart is given in the Annex 3. The roles and assignments of relevant organizations are as follows:

(1) DCA

- a) Director, DCA, as the Project Director, will bear overall responsibility for the administration and implementation of the Project



- (b) Deputy Director, DDCA (Operations), as the Project Manager, will be responsible for the managerial and technical matters of the Project.
- (c) Principal, School of Aviation, DCA, as the Co-Project Manager, will be responsible for the managerial and technical matters of the Project.
- (d) The Project Coordinators, Heads of Divisions, will assist the Project Manager for respective fields of management.

(2) JICA Experts

The JICA experts will give necessary technical guidance, advice and recommendations to DCA on any matters pertaining to the implementation of the Project.

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held at least once a year and whenever deems it necessary. JCC will approve an annual work plan, review overall progress, conduct monitoring and evaluation of the Project, and exchange opinions on major issues that arise during the implementation of the Project. A list of proposed members of JCC is shown in the Annex 4.

3. Project Site(s) and Beneficiaries

The project sites are DCA, School of Aviation, airports and relevant facilities. Beneficiaries of the Project are Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA. The Project will benefit airlines and air travelling passengers flying Malawi airspaces.

4. Duration

The duration of the technical cooperation for the Project under the Attached Documents will be two (2) years from the date of arrival of the first expert.

5. Reports

DCA and JICA experts will jointly prepare the following reports in English.

- (1) Progress reports on semiannual basis until the project completion.
- (2) Project completion reports at the time of project completion.

6. Environmental and Social Considerations

DCA agreed to abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

### **III. UNDERTAKINGS OF DCA AND GOM**

DCA and GOM will take necessary measures to;

- (1) ensure that the technologies and knowledge acquired by the Republic of Malawi nationals as a result of Japanese technical cooperation contributes to the economic and social development of the Republic of Malawi, and that the knowledge and experience acquired by the personnel of the Republic of Malawi from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and
- (2) grant privileges, exemptions and benefits to JICA experts referred to in II-1 (1) (a) above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in the Republic of Malawi.

Other privileges, exemptions and benefits will be provided in accordance with the Agreement on Technical Cooperation signed on 1 March 2006 between the Government of Japan and GOM.

### **IV. EVALUATION**

JICA and DCA will jointly conduct the Terminal evaluation during the last six (6) months of the cooperation term

JICA will conduct the following evaluations and surveys to mainly verify sustainability and impact of the Project and draw lessons. DCA is required to provide necessary support for them

1. Ex-post evaluation three (3) years after the project completion, in principle
2. Follow-up surveys on necessity basis

### **V. PROMOTION OF PUBLIC SUPPORT**

For the purpose of promoting support for the Project, DCA will take appropriate measures to make the Project widely known to the people of the Republic of Malawi.

### **VI. MUTUAL CONSULTATION**

JICA and DCA will consult each other whenever any major issues arise in the course of Project implementation.

### **VII. AMENDMENTS**

The record of discussions may be amended by the minutes of meetings between JICA and DCA

Minutes of meetings will be signed by authorized persons of each side who may be referred to in the chapters of the record of discussions

Appendix III to Minutes of Meeting on the Project for Capacity Development for Air Navigation Services  
**Draft Record of Discussion (R/D)**

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- Annex 1: Logical Framework (Project Design Matrix: PDM)
- Annex 2: Tentative Plan of Operation (PO)
- Annex 3: Project Organization Chart
- Annex 4: A List of Proposed Members of Joint Coordinating Committee

**Annex 1 to the Project Descriptions: Project Design Matrix (PDM)**

(PDM in the Minutes of Meeting with necessary modifications  
agreed between JICA and DCA will be here)

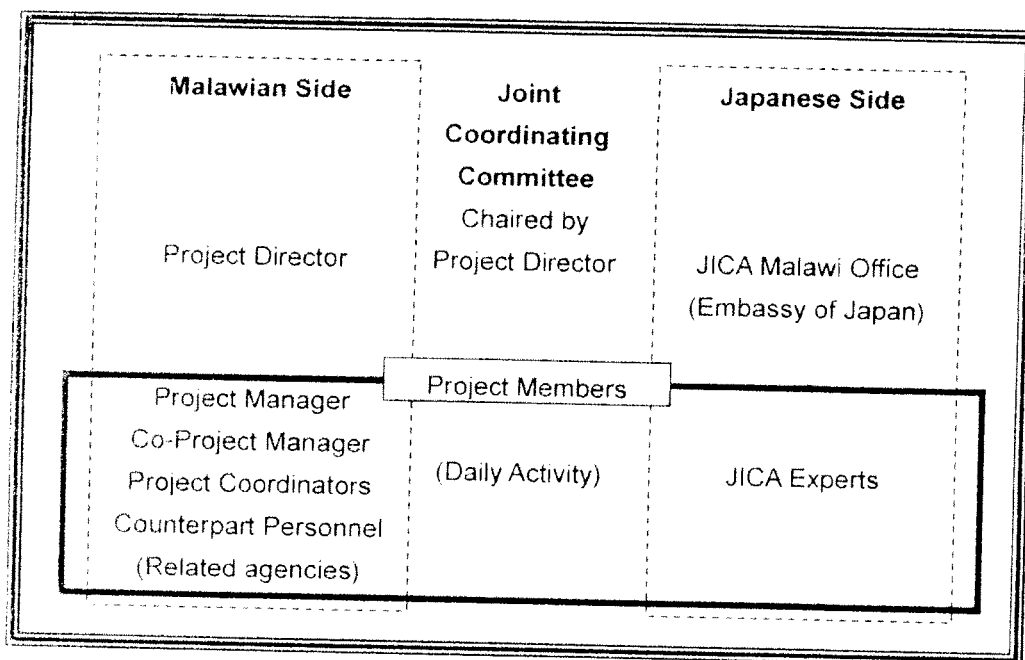
**Annex 2 to the Project Descriptions: Tentative Plan of Operation (PO)**

(Tentative PO in the Minutes of Meeting with necessary modifications  
agreed between JICA and DCA will be here)

### Annex 3 to the Project Descriptions: Organization Chart

The Project will be implemented by DCA in cooperation with JICA. The Project Organization Chart indicating joint implementation structure is shown below:

Joint Implementation Structure of the Project



**Annex 4: A List of Proposed Members of Joint Coordinating Committee**

Chairperson and members of the JCC will be as follows:

- 1) Chairperson
  - Director, Department of Civil Aviation (DCA)
- 2) Members from the Malawian Side
  - Deputy Director, DDCA (Operations)
  - Principal, School of Aviation, DCA
  - Project Coordinators
  - Members of the Counterpart Teams
  - Heads of Relevant Sections
  - Personnel concerned to be decided by the Malawian Side
- 3) Members from the Japanese Side
  - Japanese Experts
  - Chief Representative, JICA Malawi Office
  - Personnel concerned to be decided by the Japanese Side
- 4) Others
  - Officials of the Embassy of Japan in Malawi may attend the meeting as observers.
  - Persons who are invited by the Chairperson may attend the meeting as observers.

**Attachment 2 to the R/D**

**MAIN POINTS DISCUSSED**

This part of the R/D notes remarkable issues for the implementation of the Project that were confirmed by DCA and JICA through the discussions during the Detailed Planning Survey in August 2013.

1. Training of Instructors and Improvement of Training Courses

The Malawi taskforce members with assistance of JICA experts will implement training of instructors and improvement of training courses at School of Aviation for the following subjects.

1.1 Training of Air Traffic Controllers and Flight Information Officers

- (a) Basic Training for Air Traffic Controllers
- (b) Aerodrome Control Services
- (c) Procedural Approach Control Services
- (d) Procedural Area Control Services
- (e) New CNS/ATM Technology for Air Traffic Controllers
- (f) Basic Training for Flight Information Officers

1.2 Training of Aeronautical Information and Communication Services Officers

- (a) Basic Training for AIS Officers
- (b) Basic Training for Aeronautical Communication Officers

1.3 Training of Electronic Engineers

- (a) General Communication Maintenance
- (b) Concept Courses for ILS, DVOR, DME and Radar
- (c) Maintenance Course for Park Air VHF
- (d) Maintenance Courses for Normarc ILS
- (e) Maintenance Courses for Maru DVOR/DME
- (f) New CNS/ATM Technology for Electronic Engineers

1.4 Training of Electrical/Mechanical Engineers

- (a) Concept Course for Airfield Lighting System
- (b) Concept Course for Uninterrupted Power Supply System (UPSS)

2. Instructors

2.1. To train the following instructors for the implementation of the Project



**Draft Record of Discussion (R/D)**

Areas of Specialization	Instructors
Air Traffic Services (ATC and FIS)	3 full-time and 3 part-time and OJT
AIS and Aeronautical Communication Services	4 full-time
Electronic Engineering	2 full-time and 2 part-time
Electrical/Mechanical Engineering	2 full-time and 2 part-time

3. New Students to School of Aviation

DCA will train the following number of students for which basic training will be undertaken at the School of Aviation.

Areas of Specialization	Number	Start of Training
Air Traffic Controllers	12	October 2015
Flight Information Officers	8	October 2014
AIS Officers	10	October 2014
Aeronautical Communication Officers	6	October 2014
Electronic Engineers	8	January 2014
Electrical/Mechanical Engineers	2 / 2	March 2014

4. Overseas Training

Based on the assessment of HRD needs in DCA's air navigation services, the following were identified for training of instructors, supervisors and specialists. These training needs are efficiently conducted at overseas training institutes of ATNS Aviation Academy in South Africa, East Africa School of Aviation (EASA) in Kenya and others. JICA does not commit the implementation of those specialized training at this stage, but will make best effort to meet the needs of DCA for effective implementation of the Project.

Training Subjects	Number of Trainees	Probable Venue
Instructor Development Program (Train the Trainer Course)	10	EASA/ATNS
Supervisor Training for Air Traffic Controllers (Team Resource Management)	4	ATNS
Supervisor/Advanced Training for AIS Officers	4	ATNS
Supervisor/Advanced Training for Aeronautical Communication Officers	4	EASA
Aeronautical Cartography (Aeronautical Charts)	2	EASA/ATNS
PANS/OPS Instrument Procedure Design – Conventional Flight Procedures	2	EASA
Maintenance of Normarc ILS 7013B/7033B	4	Tbd

The selection of trainees of the above courses will require consensus between DCA and JICA experts, and those trainees who have completed the above courses should conduct echo

seminar or cascade training to share the knowledge and skills obtained through the training to relevant DCA officers.

5. Training Equipment

JICA will provide the following equipment for the implementation of the Project:

- (a) PC-based Simulator Training System for Air Traffic Controllers
- (b) Computer Based Training (ATC)
- (c) Test Instrument and equipment such as Oscilloscope, Digital Multi-Meter, Frequency Counter, RF Power Meter, Level Meter, Function Generator, Spectrum Analyzer, etc.
- (d) Learning Aids and Office Equipment such as Personal Computer, Copier/Printer/Scanner, Projector, Network Equipment, Voltage Regulator, etc.

6. Update of Manuals of Air Traffic Services and CNS Equipment Maintenance Procedures

DCA will update the Manual of Air Traffic Services and the CNS Equipment Maintenance Procedures by the middle of 2014 as it is an important reference material for training for various air navigation services.

7. Project Office

DCA will provide Project office space at School of Aviation or wherever may seem necessary. The office space should accommodate 6 desks and chairs and other office facilities, and have access to internet. DCA will also provide air-conditioners for the Project office and simulator training rooms.

8. PBN Flight Procedure Design Training

JICA organizes a PBN Flight Procedure Design Training Course in Tokyo every year. Flight procedure designers, who will successfully complete PANS/OPS Instrument Procedure Design Training under this Project, are expected to apply for the PBN training in Japan.

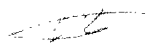
- END -

Appendix III to Minutes of Meeting on the Project for Capacity Development for Air Navigation Services  
**Draft Record of Discussion (R/D)**

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(e) **Attachment 3 to the R/D**

(Minutes of Meetings on the Project for Capacity Development for Air Navigation Services  
signed on 6 September 2013 will be attached here)



**MINUTES OF MEETING**  
**THE DETAILED PLANNING SURVEY**  
**ON**  
**THE JAPANESE TECHNICAL COOPERATION**  
**FOR**  
**THE PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION**  
**SERVICES**

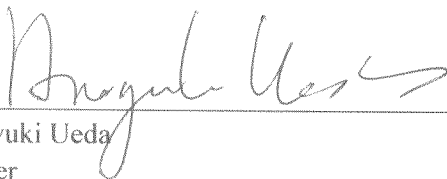
The Government of the Republic of Malawi (hereinafter referred to as “GOM”) made an official request to the Government of Japan (hereinafter referred to as “GOJ”) for the Project for Capacity Development for Air Traffic Safety in August 2010.

In response to the request, the Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched a detail planning survey team (hereinafter referred to as “the Team”) headed by Mr. Hiroyuki UEDA, Senior Advisor on Transport Sector, to the Republic of Malawi from 25 August to 11 September 2013.

During its stay, both the Team and authorities of GOM concerned had a series of discussions and exchanged views on the Project based on the field observations at various air navigation facilities. Both Japanese and Malawi sides also held meetings to prepare the drafts of the Record of Discussions (R/D), the Project Design Matrix (PDM) and the Plan of Operation (PO) of the Project.

As a result of the discussions, both sides agreed to the matters referred to in the documents attached hereto.

Lilongwe, 6 September 2013



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Hiroyuki Ueda  
Leader  
Detailed Planning Survey Team  
Japan International Cooperation Agency (JICA)



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Alfred C. Mtilatila  
Director of Civil Aviation  
Department of Civil Aviation (DCA)  
The Government of the Republic of Malawi

## **I. Title of the Project**

Both sides confirmed that the title of the Project should be “the Project for Capacity Development for Air Navigation Services” (hereinafter referred to as “the Project”). Both sides confirmed to undertake necessary actions to formalize the title of the Project with relevant government authorities.

## **II. Draft PDM and PO**

The drafts of the PDM and the PO of the Project were prepared in consultation of stakeholders and through meetings as attached in Appendices I and II. The PDM and the PO will be used as a management tool of the Project, and will be finalized by the time of signing of the R/D.

## **III. Draft Record of Discussions (R/D)**

The draft R/D, as the official document which defines the contents of a technical cooperation project, was prepared and agreed through a series of discussions as attached in Appendix III. The draft R/D will be finalized in the course of further consultations towards the signing.

## **IV. Provisional Schedule until the Project Commencement**

- (1) Signing on the R/D in October 2013
- (2) Commencement of the Project in March 2014

### **Appendices**

Appendix I: Project Design Matrix (PDM)

Appendix II: Tentative Plan of Operation (PO)

Appendix III: Draft Record of Discussion (R/D)



Project Design Matrix (PDM)

The Project for Capacity Development for Air Navigation Services Date: 6 September 2013  
 Project Design Matrix (PDM) Ver. 1.0

Target Group: **Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**

Implementation Period: **2 years from March 2014**

Narrative Summary	Performance Targets/ Indicators	Data Source/ Reporting Mechanism	Assumptions and Risks
<p><b>Overall Goal</b> (Long-term objective)</p> <p>Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p>Number of officers who have successfully completed the improved/developed training courses for each year</p>	<p>- Training record</p>	
<p><b>Project Purpose</b> (Objective at the end of the Project)</p> <p>Training system for air navigation services is enhanced.</p>	<p>Number of instructors who can conduct the improved/developed training courses (fulltime + part time)</p> <ul style="list-style-type: none"> <li>- ATC/FIS: 6 (1)</li> <li>- AIS: 4 (1)</li> <li>- ACS: 4 (1)</li> <li>- Electronic Eng.: 4 (1)</li> <li>- E/M Eng.: 4 (1)</li> </ul> <p><i>Number in ( ) indicates current situation.</i></p>	<ul style="list-style-type: none"> <li>- Project Progress Reports</li> <li>- Terminal Evaluation Report</li> </ul>	<ul style="list-style-type: none"> <li>- DCA secures budget for conducting training for air navigation services.</li> <li>- DCA secures necessary number of new staff for air navigation services.</li> </ul>
<p><b>Outputs</b> (Objectives to be realized by Activities to achieve the Project Purpose)</p> <ol style="list-style-type: none"> <li>1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.</li> <li>2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.</li> <li>3. Training of Electronic Engineering is</li> </ol>	<ul style="list-style-type: none"> <li>- Training syllabus and training materials are improved or developed for the following number of courses:                             <ul style="list-style-type: none"> <li>• ATC/FIS: 6</li> <li>• AIS/ACS: 2</li> <li>• Electronic Eng.: 6</li> <li>• E/M Eng.: 2</li> </ul> </li> <li>- The following number of DCA officers successfully complete supervisor/ advanced/specialist training:                             <ul style="list-style-type: none"> <li>• Instructors: 10</li> <li>• ATC: 4</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Project Progress Reports</li> <li>- Results of completion tests for supervisor/ advanced/specialist training courses</li> </ul>	<ul style="list-style-type: none"> <li>- DCA allocates adequate budget for human resource development.</li> <li>- Counterpart personnel continue to engage in the Project.</li> </ul>



**Project Design Matrix (PDM)**

<p>improved. 4. Training of Electrical/Mechanical Engineering is improved.</p>	<ul style="list-style-type: none"> <li>• AIS: 4</li> <li>• ACS: 4</li> <li>• Aeronautical Cartography: 2</li> <li>• PANS/OPS: 2</li> <li>• ILS Maintenance: 4</li> </ul>		
<p><b>Activities</b> (Specific actions to produce each Output by use of Inputs)</p> <p><u>Improvement of ATC and FIS Training</u></p> <p>1-1. Review current training syllabus and training materials</p> <p>1-2. Improve/develop training syllabus and training materials</p> <p>1-3. Conduct training of instructors</p> <p>1-4. Implement improved training courses</p> <p>1-5. Implement supervisor training</p> <p><u>Improvement of AIS and ACS Training</u></p> <p>2-1. Review current training syllabus and training materials</p> <p>2-2. Improve/develop training syllabus and training materials</p> <p>2-3. Conduct training of instructors</p> <p>2-4. Implement improved training courses</p> <p>2-5. Implement supervisor/advanced/specialist training</p> <p><u>Improvement of Electronic Engineering Training</u></p> <p>3-1. Review current training syllabus and training materials</p> <p>3-2. Improve/develop training syllabus and training materials</p> <p>3-3. Conduct training of instructors</p> <p>3-4. Implement improved training courses</p> <p>3-5. Implement equipment-specific training</p> <p><u>Improvement of Electrical/Mechanical Engineering Training</u></p> <p>4-1. Review current training syllabus and training materials</p> <p>4-2. Improve/develop training syllabus and training materials</p> <p>4-3. Conduct training of instructors</p> <p>4-4. Implement improved training courses</p>		<p><b>Inputs</b></p> <p><u>Inputs from DCA</u></p> <ul style="list-style-type: none"> <li>- Counterpart Personnel</li> <li>- Support Staff</li> <li>- Project Office Space</li> <li>- Project Office Expenses</li> <li>- Travel Expenses of Counterpart Personnel within Malawi</li> </ul> <p><u>Inputs from JICA</u></p> <ul style="list-style-type: none"> <li>- Experts             <ul style="list-style-type: none"> <li>• Chief Advisor/Training Manager</li> <li>• ATC Training Specialist</li> <li>• AIS/ACS Training Specialist</li> <li>• Electronic Maintenance Training Specialist</li> <li>• Electrical/Mechanical Maintenance Training Specialist</li> <li>• Others as necessary</li> </ul> </li> <li>- Training materials</li> <li>- Training equipment</li> <li>- Overseas training</li> </ul> <p>- DCA implements the Project with sufficient ownership.</p> <p><b>Preconditions</b></p> <ul style="list-style-type: none"> <li>- The Project is supported by the Ministry of Transport and Public Works.</li> <li>- DCA secures budget for inputs of the Project.</li> </ul>	

**Tentative Plan of Operation (PO)**

**The Project for Capacity Development for Air Navigation Services  
Tentative Plan of Operation (PO)**

**Date: 6 September 2013**

**Ver. 1.0**

**Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**

**Implementation Period: 2 years from March 2014**

Outputs	Activities	Target Group	2014	2015	2016
Improvement of ATC and FIS Training		ATC/FIS			
1-1.	Review current training syllabus and training materials		█		
1-2.	Improve/develop training syllabus and training materials		█	█	
1-3.	Conduct training of instructors			█	█
1-4.	Implement improved training courses				█
1-5.	Implement supervisor training		█		█
	New Recruits		FIS ▲	ATC ▲	
Improvement of AIS and ACS Training		AIS/ACS			
2-1.	Review current training syllabus and training materials		█		
2-2.	Improve/develop training syllabus and training materials		█	█	
2-3.	Conduct training of instructors			█	█
2-4.	Implement improved training courses				█
2-5.	Implement supervisor/advanced/specialist training		█		█
	New Recruits		AIS/ACS ▲		
Improvement of Electronic Engineering Training		Electronic			
3-1.	Review current training syllabus and training materials		█		
3-2.	Improve/develop training syllabus and training materials		█	█	
3-3.	Conduct training of instructors			█	█
3-4.	Implement improved training courses				█
3-5.	Implement equipment-specific training		█		█
	New Recruits	▲			
Improvement of Electrical/Mechanical Engineering Training		E/M			
4-1.	Review current training syllabus and training materials		█		
4-2.	Improve/develop training syllabus and training materials		█	█	
4-3.	Conduct training of instructors			█	█
4-4.	Implement improved training courses				█
	New Recruits	▲			

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**RECORD OF DISCUSSIONS  
ON  
THE PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION  
SERVICES  
IN  
THE REPUBLIC OF MALAWI**

**AGREED UPON BETWEEN**

**THE DEPARTMENT OF CIVIL AVIATION  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY**

Lilongwe, xxx October 2013

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Katsuro Saito  
Chief Representative  
Malawi Office  
Japan International Cooperation Agency

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Alfred C. Mtilatila  
Director  
Department of Civil Aviation (DCA)  
The Government of Malawi

**Draft Record of Discussion (R/D)**

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Based on the minutes of meetings on the Detailed Planning Survey on the Project for Capacity Development for Air Navigation Services (hereinafter referred to as "the Project") signed on 6 September 2013 between Department of Civil Aviation (hereinafter referred to as "DCA") and Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with DCA and relevant organizations to develop a detailed plan of the Project.

Both parties agreed on the details of the Project and the main points discussed as described in Attachments 1 and 2 respectively.

Both parties also agreed that DCA, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of the Republic of Malawi.

The Project will be implemented within the framework of the Agreement on Technical Cooperation signed on 1 March 2006 (hereinafter referred to as "the Agreement") and the Note Verbales to be exchanged between the Government of Japan (hereinafter referred to as "GOJ") and the Government of the Republic of Malawi (hereinafter referred to as "GOM").

Attachment 1: Project Description

Attachment 2: Main Points Discussed

Attachment 3: Minutes of Meetings on the Detailed Planning Survey on the Project for Capacity Development for Air Navigation Services

**Attachment 1 to the R/D**

**PROJECT DESCRIPTION**

Both parties confirmed that there is no change in the Project Description agreed on in the minutes of meetings on the Detailed Planning Survey on the Project for Capacity for Air Navigation Services signed on 6 September 2013 (Attachment 3).

**I. BACKGROUND**

Department of Aviation (DCA) has the mandate to inter alia regulate and facilitate the development of airports and air navigation facilities. Kamuzu International Airport (KIA) was inaugurated in 1983 after the capital city was transferred from Zomba to Lilongwe. The Government of Japan (GOJ) supported the Government of Malawi (GOM) with Japanese Yen loan for the construction of the airport terminal building and installation of air navigation facilities from 1977 to 1982 in three phases. Recently, GOJ also implemented a grant aid project for the replacement of new navigation systems.

However, DCA faces serious shortage of trained staff for KIA as well as for other airports in Malawi. Upgrading of training for existing air navigation staff is also deemed necessary to up with technological progress in air navigation services.

DCA, in recognition of these issues, plans to strengthen its training functions in order to best utilize air navigation facilities in compliance with international standards and to secure sustainability in operation and maintenance of air navigation facilities, and requested GOJ for the implementation of the Project for Capacity Development in Air Navigation Services.

**II. OUTLINE OF THE PROJECT**

Details of the Project are described in the Logical Framework (Project Design Matrix: PDM) (Annex 1) and the tentative Plan of Operation (Annex 2).

1. Input

(1) Input by JICA

(a) Dispatch of Experts

- Chief Advisor/Training Manager
- ATC Training Specialist
- AIS Training Specialist
- CNS Maintenance Training Specialist
- Electrical/Mechanical Maintenance Training Specialist
- Others as necessary

(b) Overseas Trainings

---



**Draft Record of Discussion (R/D)**

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(c) Machinery and Equipment

- Training equipment

In case of importation, the machinery, equipment and other materials under II-1 (1) (c) above will become the property of GOM upon being delivered C.I.F. (cost, insurance and freight) to the Republic of Malawi authorities concerned at the ports and/or airports of disembarkation.

Input other than indicated above will be determined through mutual consultations between JICA and DCA during the implementation of the Project, as necessary.

(2) Input by DCA

DCA will take necessary measures to provide at its own expense:

- (a) Services of DCA's counterpart personnel and administrative personnel as referred to in II-2;
- (b) Suitable office space with necessary equipment;
- (c) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the equipment provided by JICA;
- (d) Information as well as support in obtaining medical service;
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- (f) Available data (including maps and photographs) and information related to the Project;
- (g) Running expenses necessary for the implementation of the Project including the project office expenses and travel expenses of DCA staff within Malawi;
- (h) Expenses necessary for transportation within the Republic of Malawi of the equipment referred to in II-1 (1) as well as for the installation, operation and maintenance thereof; and
- (i) Necessary facilities to JICA experts for the remittance as well as utilization of the funds introduced into the Republic of Malawi from Japan in connection with the implementation of the Project

2. Implementation Structure

The Project organization chart is given in the Annex 3. The roles and assignments of relevant organizations are as follows:

(1) DCA

- (a) Director, DCA, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.

**Draft Record of Discussion (R/D)**

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- (b) Deputy Director, DDCA (Operations), as the Project Manager, will be responsible for the managerial and technical matters of the Project.
- (c) Principal, School of Aviation, DCA, as the Co-Project Manager, will be responsible for the managerial and technical matters of the Project.
- (d) The Project Coordinators, Heads of Divisions, will assist the Project Manager for respective fields of management.

(2) JICA Experts

The JICA experts will give necessary technical guidance, advice and recommendations to DCA on any matters pertaining to the implementation of the Project.

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held at least once a year and whenever deems it necessary. JCC will approve an annual work plan, review overall progress, conduct monitoring and evaluation of the Project, and exchange opinions on major issues that arise during the implementation of the Project. A list of proposed members of JCC is shown in the Annex 4.

3. Project Site(s) and Beneficiaries

The project sites are DCA, School of Aviation, airports and relevant facilities. Beneficiaries of the Project are Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA. The Project will benefit airlines and air travelling passengers flying Malawi airspaces.

4. Duration

The duration of the technical cooperation for the Project under the Attached Documents will be two (2) years from the date of arrival of the first expert.

5. Reports

DCA and JICA experts will jointly prepare the following reports in English.

- (1) Progress reports on semiannual basis until the project completion.
- (2) Project completion reports at the time of project completion.

6. Environmental and Social Considerations

DCA agreed to abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

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**III. UNDERTAKINGS OF DCA AND GOM**

DCA and GOM will take necessary measures to;

- (1) ensure that the technologies and knowledge acquired by the Republic of Malawi nationals as a result of Japanese technical cooperation contributes to the economic and social development of the Republic of Malawi, and that the knowledge and experience acquired by the personnel of the Republic of Malawi from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and
- (2) grant privileges, exemptions and benefits to JICA experts referred to in II-1 (1) (a) above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in the Republic of Malawi.

Other privileges, exemptions and benefits will be provided in accordance with the Agreement on Technical Cooperation signed on 1 March 2006 between the Government of Japan and GOM.

**IV. EVALUATION**

JICA and DCA will jointly conduct the Terminal evaluation during the last six (6) months of the cooperation term

JICA will conduct the following evaluations and surveys to mainly verify sustainability and impact of the Project and draw lessons. DCA is required to provide necessary support for them.

1. Ex-post evaluation three (3) years after the project completion, in principle
2. Follow-up surveys on necessity basis

**V. PROMOTION OF PUBLIC SUPPORT**

For the purpose of promoting support for the Project, DCA will take appropriate measures to make the Project widely known to the people of the Republic of Malawi.

**VI. MUTUAL CONSULTATION**

JICA and DCA will consult each other whenever any major issues arise in the course of Project implementation.

**VII. AMENDMENTS**

The record of discussions may be amended by the minutes of meetings between JICA and DCA.

The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.

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**Draft Record of Discussion (R/D)**

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- Annex 1: Logical Framework (Project Design Matrix: PDM)
- Annex 2: Tentative Plan of Operation (PO)
- Annex 3: Project Organization Chart
- Annex 4: A List of Proposed Members of Joint Coordinating Committee

**Annex 1 to the Project Descriptions: Project Design Matrix (PDM)**

(PDM in the Minutes of Meeting with necessary modifications  
agreed between JICA and DCA will be here)



**Annex 2 to the Project Descriptions: Tentative Plan of Operation (PO)**

(Tentative PO in the Minutes of Meeting with necessary modifications  
agreed between JICA and DCA will be here)

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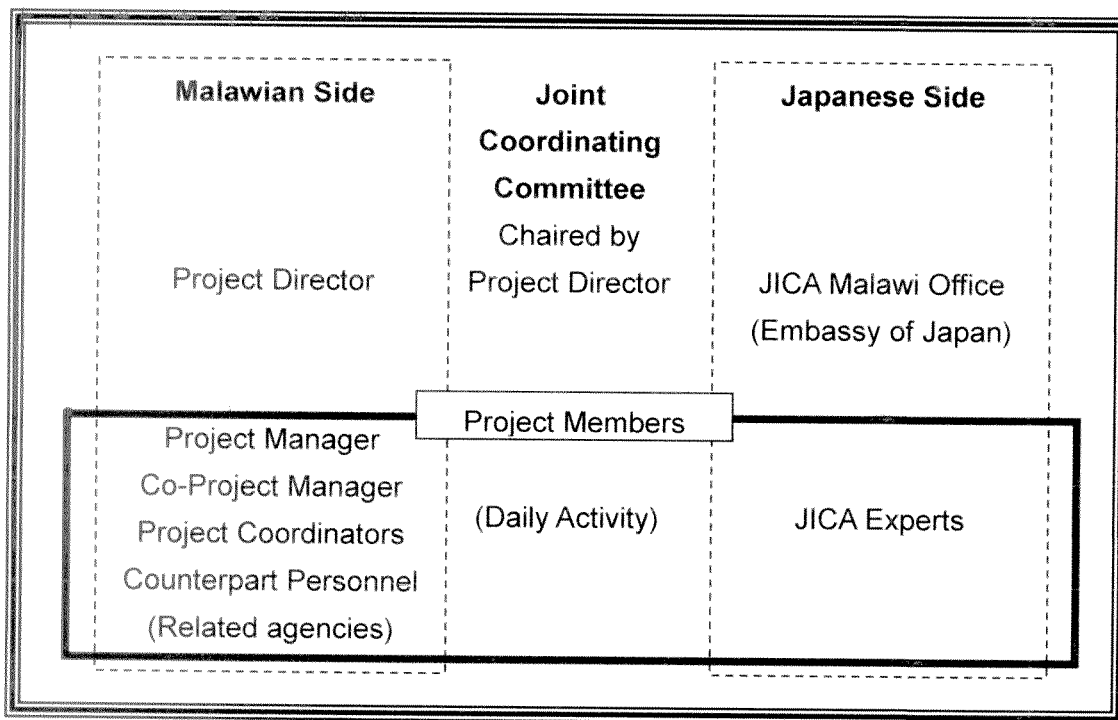
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### Annex 3 to the Project Descriptions: Organization Chart

The Project will be implemented by DCA in cooperation with JICA. The Project Organization Chart indicating joint implementation structure is shown below:

**Joint Implementation Structure of the Project**



#### **Annex 4: A List of Proposed Members of Joint Coordinating Committee**

Chairperson and members of the JCC will be as follows:

- 1) Chairperson
  - Director, Department of Civil Aviation (DCA)
- 2) Members from the Malawian Side
  - Deputy Director, DDCA (Operations)
  - Principal, School of Aviation, DCA
  - Project Coordinators
  - Members of the Counterpart Teams
  - Heads of Relevant Sections
  - Personnel concerned to be decided by the Malawian Side
- 3) Members from the Japanese Side
  - Japanese Experts
  - Chief Representative, JICA Malawi Office
  - Personnel concerned to be decided by the Japanese Side
- 4) Others
  - Officials of the Embassy of Japan in Malawi may attend the meeting as observers.
  - Persons who are invited by the Chairperson may attend the meeting as observers.

**Attachment 2 to the R/D**

**MAIN POINTS DISCUSSED**

This part of the R/D notes remarkable issues for the implementation of the Project that were confirmed by DCA and JICA through the discussions during the Detailed Planning Survey in August 2013.

1. Training of Instructors and Improvement of Training Courses

The Malawi taskforce members with assistance of JICA experts will implement training of instructors and improvement of training courses at School of Aviation for the following subjects.

1.1 Training of Air Traffic Controllers and Flight Information Officers

- (a) Basic Training for Air Traffic Controllers
- (b) Aerodrome Control Services
- (c) Procedural Approach Control Services
- (d) Procedural Area Control Services
- (e) New CNS/ATM Technology for Air Traffic Controllers
- (f) Basic Training for Flight Information Officers

1.2 Training of Aeronautical Information and Communication Services Officers

- (a) Basic Training for AIS Officers
- (b) Basic Training for Aeronautical Communication Officers

1.3 Training of Electronic Engineers

- (a) General Communication Maintenance
- (b) Concept Courses for ILS, DVOR, DME and Radar
- (c) Maintenance Course for Park Air VHF
- (d) Maintenance Courses for Normarc ILS
- (e) Maintenance Courses for Maru DVOR/DME
- (f) New CNS/ATM Technology for Electronic Engineers

1.4 Training of Electrical/Mechanical Engineers

- (a) Concept Course for Airfield Lighting System
- (b) Concept Course for Uninterrupted Power Supply System (UPSS)

2. Instructors

DCA will assign the flowing instructors for the implementation of the Project.

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Areas of Specialization	Instructors
Air Traffic Services (ATC and FIS)	3 full-time and 3 part-time and OJT
AIS and Aeronautical Communication Services	4 full-time
Electronic Engineering	2 full-time and 2 part-time
Electrical/Mechanical Engineering	2 full-time and 2 part-time

## 3. New Students to School of Aviation

DCA will train the following number of students for which basic training will be undertaken at the School of Aviation.

Areas of Specialization	Number	Start of Training
Air Traffic Controllers	12	October 2015
Flight Information Officers	8	October 2014
AIS Officers	10	October 2014
Aeronautical Communication Officers	6	October 2014
Electronic Engineers	8	January 2014
Electrical/Mechanical Engineers	2 / 2	March 2014

## 4. Overseas Training

Based on the assessment of HRD needs in DCA's air navigation services, the following were identified for training of instructors, supervisors and specialists. These training needs are efficiently conducted at overseas training institutes of ATNS Aviation Academy in South Africa, East Africa School of Aviation (EASA) in Kenya and others. JICA does not commit the implementation of those specialized training at this stage, but will make best effort to meet the needs of DCA for effective implementation of the Project.

Training Subjects	Number of Trainees	Probable Venue
Instructor Development Program (Train the Trainer Course)	10	EASA/ATNS
Supervisor Training for Air Traffic Controllers (Team Resource Management)	4	ATNS
Supervisor/Advanced Training for AIS Officers	4	ATNS
Supervisor/Advanced Training for Aeronautical Communication Officers	4	EASA
Aeronautical Cartography (Aeronautical Charts)	2	EASA/ATNS
PANS/OPS Instrument Procedure Design – Conventional Flight Procedures	2	EASA
Maintenance of Normarc ILS 7013B/7033B	4	Tbd

The selection of trainees of the above courses will require consensus between DCA and JICA experts, and those trainees who have completed the above courses should conduct echo

**Draft Record of Discussion (R/D)**

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seminar or cascade training to share the knowledge and skills obtained through the training to relevant DCA officers.

5. Training Equipment

JICA will provide the following equipment for the implementation of the Project:

- (a) PC-based Simulator Training System for Air Traffic Controllers
- (b) Computer Based Training (ATC)
- (c) Test Instrument and equipment such as Oscilloscope, Digital Multi-Meter, Frequency Counter, RF Power Meter, Level Meter, Function Generator, Spectrum Analyzer, etc.
- (d) Learning Aids and Office Equipment such as Personal Computer, Copier/Printer/Scanner, Projector, Network Equipment, Voltage Regulator, etc.

6. Update of Manuals of Air Traffic Services and CNS Equipment Maintenance Procedures

DCA will update the Manual of Air Traffic Services and the CNS Equipment Maintenance Procedures by the middle of 2014 as it is an important reference material for training for various air navigation services.

7. Project Office

DCA will provide Project office space at School of Aviation or wherever may seem necessary. The office space should accommodate 6 desks and chairs and other office facilities, and have access to internet. DCA will also provide air-conditioners for the Project office and simulator training rooms.

8. PBN Flight Procedure Design Training

JICA organizes a PBN Flight Procedure Design Training Course in Tokyo every year. Flight procedure designers, who will successfully complete PANS/OPS Instrument Procedure Design Training under this Project, are expected to apply for the PBN training in Japan.

- END -

(e) **Attachment 3 to the R/D**

(Minutes of Meetings on the Project for Capacity Development for Air Navigation Services  
signed on 6 September 2013 will be attached here)

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**MINUTES OF MEETING OF  
THE FIRST JOINT COORDINATION COMMITTEE  
FOR  
THE PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION  
SERVICES IN MALAWI  
BETWEEN  
THE GOVERNMENT OF THE REPUBLIC OF MALAWI  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY**

The first meeting of the Joint Coordination Committee (hereinafter referred to as “JCC”) for the Project for Capacity Development for Air Navigation Services for the Republic of Malawi (hereinafter referred to as the “Project”) was held in Lilongwe on June 30, 2014.

The meeting was co-chaired by Mr. Iijima, a member of the JICA Malawi Office (hereinafter referred to as “JICA”) and Mr. Matiya, Deputy Director General of Malawi Department of Civil Aviation (hereinafter referred to as “DCA”). The other attendants were representatives from JICA, the chief advisor of the Project, and Project team members. A list of participants is shown in Annex-1.

During the meeting, JICA proposed the use of a Monitoring Sheet to track the Project progress. The Monitoring Sheet will be used instead of reports for interim and final evaluation of Project progress. Other matters of the Project, and desirable actions to be taken by both Governments towards successful completion of the Project were discussed. A summary of discussions during the first JCC is shown in Annex-2. As a result of those discussions, an agreement was reached for Project matters listed in the attached. .

Lilongwe, June 30, 2014

*K. Tokuhashi*  
Mr. Kazuhiko Tokuhashi  
Chief Representative  
Malawi Office  
Japan International Cooperation Agency

*for A.C. Mtilatila*  
Mr. A.C. Mtilatila  
Project Director  
Director General  
Department of Civil Aviation  
Republic of Malawi



## Annex-1

### List of participants

Date: 30<sup>th</sup> June, 2014

Venue: DCA conference room

Time; 09:50-10:35

Attendance:

#### DCA

Director of Civil Aviation; Mr. Alfred C. Mtilatila

Deputy Director of Civil Aviation; Mr. A.G. Matiya

Chief Aeronautical Telecommunications Engineer; Mr. M.F.T. Bongwe

Ex-Principal for School of Aviation; Mr. R. Kanunkha

Principal for School of Aviation; Mr. S. Galafa

#### JICA Malawi Office

Resident Representative; Mr. Kazuhiko Tokuhashi

Project Formulation Advisor; Mr. Atsushi Iijima

#### JICA Project Team

The Team Leader; Mr. Hiroshi Mizumasa

Deputy Chief; Mr. Masayuki Takazawa

Expert in CNS; Mr. Reynaldo A. Batacan

Expert in ATS/AIS-1; Ms. Tomoko Kida

Expert in ATS/AIS-2; Mr. Daniel P. Diggins

## Annex-2

### Summary of meeting and discussions

**1) Kicked off the meeting by Mr. Matiya and confirmation of today's agenda**

**2) Self-Introduction**

**3) Opening remarks by Mr. Tokuhashi**

**4) Project Briefing by Mr. Mizumasa**

Project – Described each member's background, activity schedule and expected role and responsibilities. It was emphasized that JICA cannot provide Malawi human resources. JICA hoped that DCA aggressively pursue additional staff recruitment plans. Member's background and outline of activity schedule are shown in Attachment-1

DCA – Responded that they understand the issue and will do whatever possible to increase technical staffing.

#### A comment from Mr. Diggins (Project Team ATC/AIS Expert)

Initial ATM Assessment Resulted in Two Types of Recommendations

- a) Immediate Recommendations for DCA Consideration will achieve higher risk management and will provide a stable foundation for long term training recommendations below
- b) Long Term ATM Training Recommendations develop and deliver to DCA ICAO compliant ATM training course, including lesson plans, tests and practical exercises. Practical exercises will be both procedural and electronic simulator based.

**5) Briefing on Amendment of Record of Discussion (hereinafter, R/D) by Mr. Iijima**

JICA – JICA would like to suggest introducing Monitoring Sheet instead of a project evaluation form. As previously explained, a Monitoring Sheet has the same function as project evaluation and provides more functional information. We would like you to confirm the Amendment of Record of Discussion.

DCA – Understood introducing Monitoring Sheet.

**6) Signing on the M/M to amend the R/D done by Mr. Matiya and Mr. Tokuhashi**

7) Any other business

Budget for coming fiscal years

DCA – The provisionally budget for 2014-2015 allocated to DCA is around MK210 billion

Project – As is already discussed and mutually confirmed with written document, your effort to put high priority on the issues regarding to this Project is essential.

DCA – The budget for the School of Aviation will be set based on the demand from the Principal, and then the Director places all demands from each division together for final submission.

Human resource assignment in DCA

Project – 3 weeks have passed since the Project team arrived and began work. The team is still trying to construct an accurate organizational chart and personnel assignments. Please assist us in completing this task.

There is an opportunity to accomplish a successful meeting with all project stakeholders in July. We ask that that each DCA counterpart member be identified prior to that meeting. In addition, please confirm any special budgetary allocations by DCA for the project at that time. Please consider a DCA-only meeting, prior to the next JCC meeting, to discuss counterpart assignments and budgetary progress.

DCA – Agreed.

Project – We should set an agreed upon date for the next JCC, sometime in July.

DCA – Agreed.

How to proceed trainings for ILS, VOR and DME

DCA – Does the project provide training for ILS, VOR and DME?

Project – The project will provide the theoretical training for ILS, VOR and DME and maintenance training for specific equipment which DCA currently uses.

VISA for team staff, Duty free procedure for purchasing training equipment

DCA – Were team members successful in acquiring long-term VISA's?

Project – Yes, we received 2-year VISA's. Thank you for your support.

DCA – Duty free processing procedure for project supplied equipment will take at least 2-months. Please provide a detailed equipment list at least 2-months prior to arrival dates of equipment.

Project – Agreed. Currently equipment is scheduled to arrive in early November 2014.

JICA will provide detailed equipment list as soon as possible.

*(Confirm that Equipment list information will be sent from JICA Malawi Office)*

Holding next JCC meeting

JICA – JICA proposed that the next JCC meeting be sponsored by DCA.

DCA – Agreed.

**8) Way forward and closing remarks by the Project Director, Mr. Alfred Mtilatila**

We express our appreciation and future support for the Project. We ask that JICA bring any concerns or questions to our staff or me. We believe the project will benefit Malawi aviation and extend our thank you for your assistance.

Attachment-1 : Project Summary (Member & Schedule)

**MINUTES OF MEETING OF  
THE SECOND JOINT COORDINATING COMMITTEE  
FOR  
THE PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION  
SERVICES IN MALAWI  
BETWEEN  
THE GOVERNMENT OF THE REPUBLIC OF MALAWI  
AND  
THE JAPAN INTERNATIONAL COOPERATION AGENCY**

The second meeting of the Joint Coordinating Committee (hereinafter referred to as “JCC”) for the Project for Capacity Development for Air Navigation Services in the Republic of Malawi (hereinafter referred to as the “Project”) was held in Lilongwe on August 1, 2014.

The meeting was co-chaired by Mr. Bongwe, Chief Aeronautical Telecommunications Engineer of Malawi Department of Civil Aviation (hereinafter referred to as “DCA”) and Mr. Matiya, Deputy Director of Malawi DCA. Others in attendance were Program officer of the Japan International Cooperation Agency (hereinafter referred to as “JICA”), the chief advisor of the Project, and Project team members. A list of participants is shown in Attachment-1.

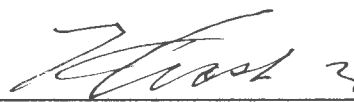
As a result of the discussions, both sides agreed to the matters in the documents attached as Attachment-2.

Lilongwe, August 1, 2014



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Mr. A.C. Mtilatila  
Project Director  
Director General  
Department of Civil Aviation  
Republic of Malawi



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Mr. Hiroshi Mizumasa  
Chief Advisor  
The Project for Capacity  
Development for Air Navigation  
Services

## Attachment-1: List of Participants

Date: August 1, 2014

Venue: DCA conference room

Attendance:

### DCA

Director of Civil Aviation; Mr. Alfred C. Mtilatila

Deputy Director of Civil Aviation; Mr. A.G. Matiya

Chief Aeronautical Telecommunications Engineer; Mr. M.F.T. Bongwe

Principal for School of Aviation; Mr. S. Galafa

Principal for Air Traffic Control Officer; Mr. S. D. MKANDAWIRE

### JICA Malawi Office

Senior Program Officer; Mr. Kapalamula Godfrey

### JICA Project Team

The Team Leader; Mr. Hiroshi Mizumasa

Expert in CNS; Mr. Reynaldo A. Batacan



## Attachment-2: Matters Agreed

### 1) Approval of the Work Plan

The Project Team explained the Work Plan of the Project with PDM, Plan of Operations, and Project Achievement. The JCC in principle accepted the Work Plan as attached.

### 2) Confirmation of the Instructor Nomination

DCA agreed to nominate new instructors to meet requirements of the Project as follows:

- six instructors for ATC/FIS;
- four instructors for AIS/ACS and possibly additional two for AIS/ACS;
- four instructors for Electronic Engineer; and
- two instructors for Electrical/Mechanical.

### 3) Approval of updated PDM

DCA agreed on the updated PDM attached to the Work Plan as Annex-1.

### 4) Confirmation of expense for domestic training/counterparts works

DCA confirmed that it will provide necessary expenses for transportation, accommodation and allowances for DCA staff for counterpart training or collaboration work conducted at the School of Aviation (SOA).

(Note: JICA will provide expenses for transportation, accommodation and tuition for training conducted in other countries, such as in Nairobi or Johannesburg.)

### 5) Personal Computers for the DCA counterparts

DCA will provide at least 6 personal computers equipped with Microsoft Office (Power Point, when necessary) for the DCA counterparts by November 2014. The computers are to be used for training material update and for the provision of future technical training.

Project Work Plan is attached.



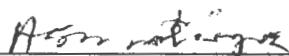
**MINUTES OF THE MEETING**  
**THE THIRD JOINT COORDINATING COMMITTEE**  
**FOR**  
**THE PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION**  
**SERVICES IN MALAWI**  
**BETWEEN**  
**THE GOVERNMENT OF THE REPUBLIC OF MALAWI**  
**AND**  
**THE JAPAN INTERNATIONAL COOPERATION AGENCY**

The third meeting of the Joint Coordinating Committee (hereinafter referred to as “JCC”) for the Project for Capacity Development for Air Navigation Services in the Republic of Malawi (hereinafter referred to as the “Project”) was held in Lilongwe on January 27, 2015.

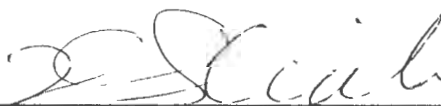
The meeting was co-chaired by Mr. Bongwe, Chief Aeronautical Telecommunications Engineer of Malawi Department of Civil Aviation (hereinafter referred to as “DCA”) and Mr. Matiya, Deputy Director of Malawi DCA. Others in attendance were Project Formulation Advisor and Chief Programme Officer of Japan International Cooperation Agency (hereinafter referred to as “JICA”), Chief Advisor of the Project, and Project team members. List of participants is shown in Attachment-1.

As a result of the discussions, both sides agreed to the matters in the documents attached as Attachment-2.

Lilongwe, January 27, 2015



Mr. A.G. Matiya  
For Project Director  
Director of Civil Aviation  
Republic of Malawi



Mr. Kazuhiko Tokuhashi  
Chief Representative  
Malawi Office  
Japan International Cooperation Agency



## Attachment-1: List of Participants

Date: January 27, 2015

Venue: DCA conference room

Attendance:

### DCA

Deputy Director of Civil Aviation: Mr. A.G. Matiya

Chief Aeronautical Telecommunications Engineer: Mr. M.F.T. Bongwe

Acting Principal for School of Aviation: Mr. S. Liundi

### JICA Malawi Office

Project Formulation Advisor: Mr. Atsushi Iijima

Chief Programme Officer: Mr. Kapalamula Godfrey

### JICA Project Team

Chief Advisor: Mr. Hiroshi Mizumasa

Deputy Chief Advisor: Ms. Mie Nagayasu

Expert in CNS: Mr. Reynaldo A. Batacan

Project Coordinator: Ms. Aya Horiuchi

## Attachment-2: Matters Discussed

### 1) Report on Progress of the Project

The Project Team reported on the progress and status of the Project which were as follows:

- CBT Equipment was installed at SOA in November 2014;
- Test Equipment was installed at SOA in December 2014;
- Test Equipment Training Course was held at SOA from 12th to 23rd of January 2015;
- 8 DCA staff were dispatched to Air Traffic & Navigation Services (ATNS) in South Africa for Team Resource Management Course from 25th January to 31st of January 2015;
- 4 DCA executive staff will be dispatched to East African School of Aviation (EASA) in Kenya for Supervisory Management Course from 1st February to 28th of February 2015.

### 2) Briefing on Project Schedule

DCA approved the Project Schedule for the following:

- ATC Simulator Procurement & Delivery to SOA (scheduled in May 2015);
- Third Country Training for Instructor Development Course to be held in August and Advance Instructor Course in October 2015;
- Domestic training for Electrical & Mechanical staff (to be held in April 2015);
- Domestic training for PANS/OPS related staff (to be held in May 2015);
- Domestic training for Electronics Engineer staff (to be held in April 2015).

### 3) Draft Monitoring Sheet Ver. 1

Both parties reviewed and agreed on the contents of the draft Monitoring Sheet Ver. 1 with Project Design Matrix and Plan of Operation (see Attachment-3).

### 4) Progress on new recruitment

DCA reported on the progress of the new recruitment which had been approved by the Department of Public Service Management. The recruitment process would be done by the Malawi Public Service Commission through advertisement and interview process. Hopefully it would be finalized by May 2015.

## TO CR of JICA Malawi OFFICE

## PROJECT MONITORING SHEET

Project Title: The Project for Capacity Development for Air Navigation ServicesVersion of the Sheet: Ver.1 (Term: 24 April, 2014 - 20 May, 2016)Name: Hiroshi MizumasaTitle: Chief AdvisorSubmission Date: January, 2015**I. Summary****1 Progress****1-1. Progress of Inputs**

(1) The Japanese Side

1) Experts

Six experts (except Flight Procedure Design Expert) were assigned according to plan.

[JICA Experts]

Mr. Hiroshi Mizumasa, Chief Advisor

Ms. Mie Nagayasu, Deputy Chief Advisor

Mr. Kiichiro Hirano, ATC &amp; AIS Training Specialist – 1

Mr. Daniel Paul Diggins, ATC &amp; AIS training Specialist – 2

Mr. Reynaldo Alido Batacan, CNS Maintenance Training Specialist

Mr. Kiyoshi Suzuki, E/M Maintenance Training Specialist

\* Expert for Flight Procedure Design Specialist will be named in 2015

Details of their assignment are shown in Project Monitoring Sheet (Plan of Operation) (see Annex-2).

**2) Training Materials**

Progress on the following training materials was made by the experts:

I. Air Traffic Control Assistant/Basic	50%
II. Aerodrome Control	30%
III. CNS/ATM for ATC	70%
IV. Aeronautical Information Service	40%
V. Electronic Maintenance - Communication	20%
VI. Communication Equipment and System	30%
VII. Navigational Aids and Radar Theory	30%
VIII. CNS/ATM for ATSEP (Engineer)	70%

Other training materials, i.e. "Approach Control - Non Radar", "Area Control - non Radar", "Flight Information Service", "Aeronautical Fixed Service Operator" will be prepared in due

course.

3) Training Equipment

The following training equipment were procured:

- I. Computer Based Training ATC (November, 2014)
- II. Test Instrument and Equipment (December, 2014)
- III. Learning Aids and Office Equipment (June, 2014)

4) Overseas Training (as of February 2015)

DCA officials participated/are participating in the following two overseas trainings:

- I. Team Resource Management Course: January 26<sup>th</sup> to 30<sup>th</sup>, 2015 <South Africa>\*1
- II. Supervisory Management Course: February 2<sup>nd</sup> to 27<sup>th</sup>, 2015 <Kenya>\*2

[Organizers]

- \*1: Air Traffic and Navigation Services (ATNS) / Johannesburg, South Africa
- \*2: East African School of Aviation (EASA) / Nairobi, Kenya

5) Training in School Of Aviation (SOA) (as of February 2015)

Two trainings for instructors were held at the School of Aviation as follows:

- I. Computer Based Training (ATC)
  - i) Date: November 24<sup>th</sup>, 2014 (1/2 day)
  - ii) No. of Participants: 6
- II. Test Equipment Course
  - i) Date: January 12<sup>th</sup> – 23<sup>rd</sup>, 2015 (10 days)
  - ii) No. of Participants: 5

(2) The Malawi side

1) Counterpart Personnel (C/P)

The following DCA Officials were assigned for an effective and sound management of the project (see also Annex-2 "Plan of Operation").

[Counterpart Personnel]

- Project Director (P/D): Mr. A. C. Mtilatila, Director of Civil Aviation
- Project Manager (P/M): Mr. A. G. Matiya, Deputy Director (Operations)
- Co-project Manager (Co-P/M): Mr. S. Galafa, Principal, School of Aviation
- Project Coordinator: Mr. F. Kholowa, Chief Air Traffic Services Officer, Operation Division
- Project Coordinator: Mr. M.F.T. Bongwe, Chief Telecommunications Engineer, Operation Division
- Trainers: Mr. S. Galafa, Principal, School of Aviation [ATC and FIS training]

*M. Matiyaga*

*f*

Mr. R. Y. Malanga, Lecturer School of Aviation [AIS and ACS training]  
 Mr. S. Liundi, Lecturer School of Aviation [AIS and ACS training]  
 Mr. R. Kanunkha, Head of Engineering Section, KIA [Electronic Engineering & Electrical Engineering (CNS) training]  
 Mr. C. F. Betenigo, Electronics Engineer, KIA [Electronic Engineering (CNS) training]  
 Mr. T. Mtonga, Electrical Engineer, KIA [Electrical/ Mechanical Engineering training]

2) Support Staff

Eight instructors in total were assigned to the Project as support staff personnel:

[Support Staff]

Ms. L. Manondo, ATC, KIA [ATC and FIS Training Instructor]  
 Mr. D. Zamaele, ATC, Chileka Airport [ATC and FIS Training Instructor]  
 Mr. F. Chiespeya, ATC, KIA [ATC and FIS Training Instructor]  
 Mr. J. Kazito, ATC, KIA [ATC and FIS Training Instructor]  
 Mr. R. Nkosi, Air Crew Briefing Officer, DCA [AIS & ACS Training Instructor]  
 Mr. N. B. Kaliyasi, Communication Officer, KIA [AIS & ACS Training Instructor]  
 Mr. S. Kunje, Electronics Engineer, Chileka Airport [Electronic Engineering (CNS) Training Instructor]  
 Mr. O. Yokonia, Electrical Engineer, Chileka Airport [E/M Training Instructor]

3) Project Office Space

Office space for the Project was provided in School of Aviation (SOA), DCA.

4) Project Office Expenses

Utility cost was paid by the Malawi side. As of January 2015, DCA provided the following expenses for the project office.

I. Purchase of two desktop computers:	1,055,210.00 MKW
II. Purchase and installation of two split air conditioners:	989,114.98 MKW

5) Travel Expenses of Counterpart Personnel within Malawi

The travel expenses for C/P to travel outside the Lilongwe area provided by DCA were as follows:

I. Transport costs and subsistence allowances for students from Chileka (Team Resource Management Course/ from Chileka to Lilongwe)	76,000.00 MKW
II. Transport costs for Lilongwe students (Team Resource Management Course/ from Blantyre to Lilongwe)	70,000.00 MKW

6) Others mentioned in Appendix 1, II, 6, of R/D

As agreed in R/D (Appendix 1, II, 6), appropriate considerations were made by DCA for environmental and social impacts of the Project, based on "JICA Guidelines for Environmental and Social Considerations".

**1-2. Progress of Activities**

(1) Summary of Work Progress (June – August 2014)

1) Holding of the first JCC meeting

The first JCC meeting was held on 30<sup>th</sup> June 2014. Five people from the DCA side including the Director, the Deputy Director and other three officials, two officials from the JICA Malawi Office, and five members from the JICA Expert Team (hereinafter referred to as "JET") participated in the first JCC meeting. The JET Leader, Mr. Hiroshi Mizumasa presented summary of the Project. The minutes of meeting for implementation of the Project was signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Kazuhiko Tokuhashi, Resident Representative, JICA Malawi Office.

2) Holding of the second JCC meeting

The second JCC meeting was held on 1<sup>st</sup> August 2014. Five people from the DCA side including the Director, the Deputy Director and other three officials, one official from the JICA Malawi Office, and two members from the JICA Expert Team (hereinafter referred to as "JET") participated in the second JCC meeting. The issues discussed and agreed were as follows:

- I. Approval of the Work Plan
- II. Confirmation of the Instructor Nomination
- III. Approval of updated PDM
- IV. Confirmation of expense for domestic training/counterparts works

The minutes of meeting was signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Hiroshi Mizumasa, the JET Leader.

3) Baseline survey

JET conducted the baseline survey on capacity of SOA which includes the capacities of ATM (ATC, FIS, AIS, ACS), Electronics Engineering (CNS), Electrical and Mechanical (E/M).

a. Survey methods

They assessed their capacities from the following assessment viewpoints or items which are based on the ICAO's standard of assessing training organization.

Assessment items for ATM, CNS and E/M:

*Assessment*

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- 1) Training Regulation and Policy;
- 2) Organization;
- 3) Instructor (Full time), Supporting Staff (Part time) and Qualification;
- 4) Quality Control;
- 5) Curriculum/Syllabus;
- 6) Operating Rules;
- 7) Training Facilities (Aids);
- 8) Reference Material;
- 9) Examination and Examination Development;
- 10) On-the-Job Training;
- 11) Training, Certificate and License;
- 12) International Cooperation, Certification and Recognition; and
- 13) Training Demand, potential training participants (Both International and National)

\*In addition to above 13 items, the following items are added for CNS and E/M respectively;

- 14) CNS System Admin on Laboratory, Simulator and Workshop,
- 14) E/M System Admin on Laboratory, Simulator and Workshop.

b. Survey results

b.1 Results of the capacity of ATM

As the result of the above survey, ATM qualifications of instructors are not well established. Instructor training programs for ATM instructors did not exist. Current instructors rely solely on their personally developed teaching skills and techniques. Most instructors are close to retirement age. ATM curriculum/syllabus is informal and not structured. Some have been used since the 1970's. Consequently, most of them are outdated. Training facilities are not enough and generally inadequate at the School of Aviation.

The result of the survey is shown in Annex-4 of the work plan.

b.2 Results of the capacity of CNS

The Aeronautical Telecommunication qualifications of instructors are not well established. Instructor training programs for CNS instructors did not exist. A structured CNS curriculum/syllabus was not used for at least the last 5 years. There was no CNS training laboratory facilities for practical application/certification of students. There was no System Administration on Laboratory, Simulator and Workshop. Reference materials were outdated and not responsive to new CNS/ATM technology systems.

The result of the survey is shown in Annex-5 of the work plan.

**b.3 Results of the capacity of E/M**

The E/M Unit has no instructor position at the MSOA. There are three (3) identified part time instructors ready to assume duties when training commences. There was no E/M curriculum/syllabus. E/M had no training laboratory test equipment and tools for practical application/certification of students.

The result of the survey is shown in Annex-6 of the work plan.

**4) Review of the existing training materials**

The Project team, composed of JET members and the counterpart personnel (C/P) observed existing training syllabus and textbooks for all training courses conducted in School of Aviation (see "Results of the PDM Activities", described below).

**5) Preparation of a work plan**

The Project team prepared a work plan describing the material development, instructor training, as well as the method and schedule for the implementation of 16 training courses, on which agreement was reached with Malawi side.

**6) Preparation of base materials for training courses**

The Project team is proceeding to preparation of training course materials which follows ICAO guideline.

**7) Procurement of equipment**

The Project team procured equipment necessary for operating the Project in line with the JICA equipment procurement guideline.

**(2) Results of the PDM Activities**

Following is the summary of the Project activities having been conducted from June 2014 to January 2015. It is described according to the original PDM Activities.

**1) Improvement of ATC and FIS Training**

<u>PDM Activities</u>	<u>Results</u>
1-1. Review current training syllabus and training materials	It has already reviewed and all syllabi are 1980's material. Project will make renew it.
1-2. Improve/develop training syllabus and training materials	Two Base training materials were prepared and under proceeding for third one.
1-3. Conduct training of instructors	- The training will be held in April 2015 - The training will be held at Nairobi in August and October 2015

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1-4. Implement improved training courses	-
1-5. Implement supervisor training	The training will be held at Johannesburg in January and Nairobi in February..
1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	-
1-7. Improve the training courses based on the results from the monitoring and evaluation	-

2) Improvement of AIS and ACS Training

<u>PDM Activities</u>	<u>Results</u>
2-1. Review current training syllabus and training materials	It has already reviewed and all syllabi are 1980's material. Project will make renew it.
2-2. Improve/develop training syllabus and training materials	One Base training material was prepared and under proceeding for second one.
2-3. Conduct training of instructors	- The training will be held at Nairobi in August and October 2015
2-4. Implement improved training courses	-
2-5. Implement supervisor training	The training will be held at Johannesburg in January and Nairobi in February..
2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	-
2-7. Improve the training courses based on the results from the monitoring and evaluation	-

3) Improvement of Electronic Engineering Training

<u>PDM Activities</u>	<u>Results</u>
3-1. Review current training syllabus and training materials	It has already reviewed and all syllabi are 1980's material. Project will make renew it.
3-2. Improve/develop training syllabus and training materials	One Base training material is prepared and under proceeding for others.
3-3. Conduct training of instructors	- The training will be held at Nairobi in August and October 2015 - Test equipment training instructors was already done and communications training will be held in May.

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3-4. Implement improved training courses	-
3-5. Implement supervisor training	The training will be held at Johannesburg in January and Nairobi in February..
3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Partial monitoring and evaluation was done through the test equipment training.
3-7. Improve the training courses based on the results from the monitoring and evaluation	-

4) Improvement of Electrical/Mechanical Engineering Training

<u>PDM Activities</u>	<u>Results</u>
4-1. Review current training syllabus and training materials	It has already reviewed and all syllabi are 1980's material. Project will make renew it.
4-2. Improve/develop training syllabus and training materials	-
4-3. Conduct training of instructors	- The training will be held at Nairobi in August and October 2015 - AFL & UPS training will be held in April 2015
4-4. Implement improved training courses	-
4-5. Implement supervisor training	The training will be held at Johannesburg in January and Nairobi in February 2015..
4-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	-
4-7. Improve the training courses based on the results from the monitoring and evaluation	-

**1-3. Achievement of Output**

Achievement of each output is observed according to the PDM indicators.

(1) Achievement of "Output 1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved."

Six course syllabuses and materials were reviewed and one course syllabus was prepared at this stage. One ATC instructor is identified to be able to conduct CBT exercise.

(2) Achievement of "Output 2. Training for Aeronautical Information Services (AIS) and

prepared at this stage.

(4) Achievement of "Output 4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved."

Two course syllabuses and materials were reviewed at this stage.

Achievement of Outputs

<u>Original Indicators for the PDM Outputs</u>		<u>Baseline date as of July 2014</u>	<u>Achievement as of January 2015</u>
-Training syllabus and training materials are improved or developed for the following number of courses:	ATC/FIS: 6		1 syllabus is prepared
	AIS/ACS: 2		1 syllabus is prepared
	Electronic Eng.: 6	-There were 6 kinds of syllabus, prepared in March, 2001. -Training materials were prepared for every syllabus. They were prepared in the 1970's or in the beginning of the 1980's	1 syllabus is prepared
	E/M Eng.: 2		
-The following number of DCA officers successfully complete supervisor/advanced/specialist training:	Instructors: 10		
	ATC/FIS: 4		
	AIS/ACS: 4		
	Aeronautical Cartography: 2		
	PANS/OPS: 2		
	ILS Maintenance: 4		
-Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.			

**1-3. Achievement of the Project Purpose**

Achievement of the project purpose is observed according to the PDM indicators. Number of instructors who can conduct the improved/developed training courses is increased slightly since the baseline date.

Achievement of the Project Purpose

<u>Original Indicators for the Project Purpose</u>		<u>Baseline date as of July 2014</u>	<u>Achievement as of January 2015</u>
-Number of instructors who can conduct the improved/developed training courses (fulltime + part time)	ATC/FIS: 6	1	1
	AIS/ACS: 4	2	2
	Electronic Eng.: 4	1	1

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	E/M Eng.: 4		1																											
-Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.																														
<p><b>1-5. Changes of Risks and Actions for Mitigation</b></p> <p>No major changes were seen in the PDM Pre-conditions and Important Assumptions, therefore no special actions need to be taken.</p> <p>(1) Pre-conditions</p> <table border="1"> <thead> <tr> <th><u>PDM Pre-conditions</u></th> <th><u>Current Situations</u></th> <th><u>Actions for mitigation</u></th> </tr> </thead> <tbody> <tr> <td>1) DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.</td> <td>-Project office space was provided at the time of initiation of the work in Malawi in June 2014. -Counterpart personnel (C/P) was engaged in the Project, although allocation of special budget for personnel expenses for C/P was not seen. It did not affect to the Project operation.</td> <td>-No special actions were taken.</td> </tr> <tr> <td>2) New trainees are recruited as scheduled.</td> <td>-New trainees were not seen at the time of initiation of the work in Malawi in June 2014.</td> <td>-No special actions were taken.</td> </tr> </tbody> </table> <p>(2) Important Assumption when proceeding from Activities to Outputs</p> <table border="1"> <thead> <tr> <th><u>Important Assumption</u></th> <th><u>Current Situations</u></th> <th><u>Actions for mitigation</u></th> </tr> </thead> <tbody> <tr> <td>1) DCA implements the Project with sufficient ownership.</td> <td>-DCA's ownership was seen.</td> <td>-No special actions were taken.</td> </tr> </tbody> </table> <p>(3) Important Assumptions when proceeding from Outputs to the Project Purpose</p> <table border="1"> <thead> <tr> <th><u>Important Assumption</u></th> <th><u>Current Situations</u></th> <th><u>Actions for mitigation</u></th> </tr> </thead> <tbody> <tr> <td>1) No major change of the international standards on air navigation services is occurred.</td> <td>-No major changes were seen. It did not affect to the Project operation.</td> <td>-No special actions were taken.</td> </tr> </tbody> </table> <p>(4) Important Assumptions when proceeding from the Project Purpose to the Overall Goal</p> <table border="1"> <thead> <tr> <th><u>Important Assumption</u></th> <th><u>Current Situations</u></th> <th><u>Actions for mitigation</u></th> </tr> </thead> <tbody> <tr> <td>1) Trained counterpart personnel continue to be engaged in the activities of air navigation services.</td> <td>-The C/P has not been trained sufficiently, yet.</td> <td>-No special actions were taken.</td> </tr> </tbody> </table>				<u>PDM Pre-conditions</u>	<u>Current Situations</u>	<u>Actions for mitigation</u>	1) DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.	-Project office space was provided at the time of initiation of the work in Malawi in June 2014. -Counterpart personnel (C/P) was engaged in the Project, although allocation of special budget for personnel expenses for C/P was not seen. It did not affect to the Project operation.	-No special actions were taken.	2) New trainees are recruited as scheduled.	-New trainees were not seen at the time of initiation of the work in Malawi in June 2014.	-No special actions were taken.	<u>Important Assumption</u>	<u>Current Situations</u>	<u>Actions for mitigation</u>	1) DCA implements the Project with sufficient ownership.	-DCA's ownership was seen.	-No special actions were taken.	<u>Important Assumption</u>	<u>Current Situations</u>	<u>Actions for mitigation</u>	1) No major change of the international standards on air navigation services is occurred.	-No major changes were seen. It did not affect to the Project operation.	-No special actions were taken.	<u>Important Assumption</u>	<u>Current Situations</u>	<u>Actions for mitigation</u>	1) Trained counterpart personnel continue to be engaged in the activities of air navigation services.	-The C/P has not been trained sufficiently, yet.	-No special actions were taken.
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1) Trained counterpart personnel continue to be engaged in the activities of air navigation services.	-The C/P has not been trained sufficiently, yet.	-No special actions were taken.																												

<p>2) No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>	<p>-Air Transportation Infrastructure Planning Policy is in force. No major changes in the policy were seen.</p>	<p>-No special actions were taken.</p>
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**1-6. Progress of Actions undertaken by JICA**

At the time of first arrival of JET, project office facility had not been prepared yet; therefore the JICA Malawi office sent a letter of request on installation of equipment to the DCA in late April, 2014.

**1-7. Progress of Actions undertaken by Gov. of Malawi**

No actions have been taken.

**1-8. Progress of Environmental and Social Considerations (if applicable)**

This Project focuses on enhancement of capacity for the DCA personnel concerned in the Project to conduct the trainings for air navigation services. It does not have a plan to construct any new large-scale infrastructures. It is expected that the Project will have a minimal negative impact on the environment.

**1-9. Progress of Considerations on Gender/ Peace Building/ Poverty Reduction (if applicable)**

No considerable issues were observed.

**1-10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)**

(1) European Aviation Safety Agency (EASA) workshop

EASA is currently assisting DCA in training on safety management system (SMS) and auditing techniques. However this training is targeted for the higher executives of the DCA, whereas the JICA project is targeted for the professionals and engineers. Their project has no adverse impact on JICA training participation.

(2) European Investment Bank (EIB) fund

EIB is funding for the procurement of some safety equipment such as fire trucks in KIA. JET already had several meetings with EIB officers in order to avoid any overlapping on equipment provided for the DCA.

**2 Delay of Work Schedule and/or Problems (if any)**

**2-1. Detail**

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The test equipment training was supposed to be held for instructors in December 2014. However arrival of the test equipment was delayed so the training was postponed one month later.

**2-2. Cause**

The procedures of the custom clearance in Malawi had not been through smoothly upon arrival of the equipment.

**2-3. Action to be taken**

The abovementioned training was rescheduled to be held in late January, 2015. However, JET will be flexible in rescheduling the future trainings taking into account the possible delay of equipment.

**2-4. Roles of Responsible Persons/ Organization (JICA, Gov. of Malawi, etc.)**

JET requests that the DCA might be of any help on smooth custom clearance, if possible.

**3 Modification of the Project Implementation Plan**

**3-1. PO**

No major modification was made. However, some of the JICA expert members were changed due to personal health issues, which affected the original PO. Updated PO is attached as Annex 2.

**3-2. Other modifications on detailed implementation plan**

*(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)*

None.

**4 Preparation of Gov. of Malawi toward after completion of the Project**

N/A yet.

**II. Project Monitoring Sheet I & II (Version 1) as attached**

## Project Design Matrix

**Project Title:** The Project for Capacity Development for Air Navigation Services in the Republic of Malawi

**Implementing Agency:** DCA

**Target Group:** Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA

**Period of Project:** 2 years (24/04/2014-20/05/2016)

**Project Site:** School of Aviation

**Model Site:**


**Version 2**

**Dated 1, Aug, 2014**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<b>Overall Goal (Long-term objective)</b> Training by the trained instructors is sustainably conducted for officers of air navigation services.	Number of officers who have successfully completed the improved/developed training courses for each year	- Training records			
<b>Project Purpose (Objective at the end of the Project)</b> Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.	Number of instructors who can conduct the improved/developed training courses (fulltime + part time) ATC/FIS: 6 (1) AIS/ACS: 4 (2) Electronic Eng.: 4 (1) E/M Eng.: 2 (1) Number in ( ) indicates current situation. - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.	- Monitoring Sheet - Terminal Evaluation Report	- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.		
<b>Outputs (Objectives to be realized by Activities to achieve the Project Purpose)</b> 1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved. 2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved. 3. Training of Electronic Engineering is improved. 4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.	- Training syllabus and training materials are improved or developed for the following number of courses: ATC/FIS: 6 AIS/ACS: 2 Electronic Eng.: 6 E/M Eng.: 2 - The following number of DCA officers successfully complete supervisor/ advanced/specialist training: Instructors: 10 ATC/FIS: 4 AIS/ACS: 4 Aeronautical Cartography: 2 PANS/OPS: 2 ILS Maintenance: 4 - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.	- Monitoring Sheet  - Results of completion tests for supervisor/ advanced/specialist training courses	- No major change of the international standards on air navigation services is occurred.		

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Activities (Specific actions to produce each Output by use of Inputs)	Inputs		Pre-Conditions
	The Japanese Side	The DCA Side	
<u>Improvement of ATC and FIS Training</u> 1-1. Review current training syllabus and training materials 1-2. Improve/develop training syllabus and training materials 1-3. Conduct training of instructors 1-4. Implement improved training courses 1-5. Implement supervisor training 1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 1-7. Improve the training courses based on the results from the monitoring and evaluation  <u>Improvement of AIS and ACS Training</u> 2-1. Review current training syllabus and training materials 2-2. Improve/develop training syllabus and training materials 2-3. Conduct training of instructors 2-4. Implement improved training courses 2-5. Implement supervisor/advanced/specialist training 2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 2-7. Improve the training courses based on the results from the monitoring and evaluation  <u>Improvement of Electronic Engineering Training</u> 3-1. Review current training syllabus and training materials 3-2. Improve/develop training syllabus and training materials 3-3. Conduct training of instructors 3-4. Implement improved training courses 3-5. Implement equipment-specific training 3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 3-7. Improve the training courses based on the results from the monitoring and evaluation  <u>Improvement of Electrical/Mechanical Engineering Training</u> 4-1. Review current training syllabus and training materials 4-2. Improve/develop training syllabus and training materials 4-3. Conduct training of instructors 4-4. Implement improved training courses 4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 4-6. Improve the training courses based on the results from the monitoring and evaluation	<ul style="list-style-type: none"> <li>- Experts</li> <li>  Chief Advisor/Training Manager</li> <li>  ATC Training Specialist</li> <li>  AIS/ACS Training Specialist</li> <li>  Electronic Maintenance Training Specialist</li> <li>  Electrical/ Mechanical Maintenance Training Specialist</li> <li>  Others as necessary</li> <li>- Training materials</li> <li>- Training equipment</li> <li>- Overseas training</li> </ul>	<ul style="list-style-type: none"> <li>- Counterpart Personnel</li> <li>- Support Staff</li> <li>- Project Office Space</li> <li>- Project Office Expenses</li> <li>- Travel Expenses of Counterpart Personnel within Malawi</li> <li>- The others mentioned in Appendix 1, II, 6, of R/D</li> </ul>	<ul style="list-style-type: none"> <li>- DCA implements the Project with sufficient ownership.</li> </ul> <p style="text-align: center;"><b>Pre-Conditions</b></p> <ul style="list-style-type: none"> <li>- DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.</li> <li>- New trainees are recruited as scheduled.</li> </ul> <div style="text-align: center; margin-top: 20px;">  </div>

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Activities		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Responsible Organization		Achievements	Issue & Countermeasures	
Sub-Activities		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	Japan	Malawi			
<b>Output 3-E: Improvement of Maintenance Courses for Maru DVOR/DME</b>																																	
3-E-1	Improve/develop training materials	Plan																															
		Actual																															
3-E-2	Conduct training of DCA staffs	Plan																															
		Actual																															
3-E-3	Conduct monitoring and evaluation of the trainings	Plan																															
		Actual																															
3-E-4	Improved training based on the result from the monitoring and evaluation	Plan																															
		Actual																															
<b>Output 3-F: Improvement of New CNS/ATM Technology for Electronic Engineer Training</b>																																	
3-F-1	Improve/develop training materials	Plan																															
		Actual																															
3-F-2	Conduct training of DCA staffs	Plan																															
		Actual																															
3-F-3	Conduct monitoring and evaluation of the trainings	Plan																															
		Actual																															
3-F-4	Improved training based on the result from the monitoring and evaluation	Plan																															
		Actual																															
<b>Output 4-A: Improvement of Concept Courses for Airfield Lighting System</b>																																	
4-A-1	Review current training syllabus/materials	Plan																															
		Actual																															
4-A-2	Improve/develop training syllabus/materials	Plan																															
		Actual																															
4-A-3	Conduct training of instructors	Plan																															
		Actual																															
4-A-4	Implement improved training courses	Plan																															
		Actual																															
4-A-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																															
		Actual																															
4-A-6	Improved training based on the result from the monitoring and evaluation	Plan																															
		Actual																															
<b>Output 4-B: Improvement of Concept Courses for Uninterrupted Power Supply System (UPSS)</b>																																	
4-B-1	Review current training syllabus/materials	Plan																															
		Actual																															
4-B-2	Improve/develop training syllabus/materials	Plan																															
		Actual																															
4-B-3	Conduct training of instructors	Plan																															
		Actual																															
4-B-4	Implement improved training courses	Plan																															
		Actual																															
4-B-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																															
		Actual																															
4-B-6	Improved training based on the result from the monitoring and evaluation	Plan																															
		Actual																															
<b>Monitoring Plan</b>			YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Remarks		Issue	Solution
<b>Monitoring</b>			Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th				
Joint Coordination Committee			Plan			▲		▲								▲																	
			Actual																														
Set-up the Detailed Plan of Operation			Plan					▲																									
			Actual																														
Submission of Monitoring Sheet			Plan			▲		▲								▲												▲					
			Actual																														
<b>Reports/Documents</b>			Plan																														
Project Completion Report			Actual																														

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Monitoring Sheet (Annex-2) Plan of Operation

Version 3  
Dated 27, Jan. 2015

Project Title: The Project for Capacity Development for Air Navigation Services in the Republic of Malawi

Inputs from JICA		YY/MM	Monitoring																										Remarks	Issue	Solution
			'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5			
		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th			
<b>1. Expert</b>																															
Chief Advisor		L1																													
Deputy Chief Advisor/Capacity Development Specialist		L2																													
Air Traffic Controller (ATC), Aeronautical Information Service (AIS) Training Specialist - 1		L3																													
Air Traffic Controller (ATC), Aeronautical Information Service (AIS) Training Specialist - 2		L4																													
Communications, Navigation and Surveillance (CNS) Maintenance Training Specialist		L5																													
Electrical/Mechanical Maintenance Training Specialist		L6																													
Flight Procedure Design Specialist		L7																													
<b>2. Training Equipment</b>																															
PC-based Simulator Training System for Air Traffic Controllers		L1																													
Computer Based Training (ATC)		L2																													
Test Instrument and Equipment		L3																													
Learning Aids and Office Equipment		L4																													
<b>3. Overseas Training</b>																															
Team Resource Management Training		L1																													
Supervisory Management Training		L2																													
Instructor Development Training		L3																													
Advance Instructor Training		L4																													
PANS/OPS Instrument Procedure Design – Conventional Flight Procedures		L5																													
Aeronautical Cartography (Aeronautical Charts)		L6																													
Maintenance of Normarc ILS 7013B/7033B		L7																													
<b>Inputs from DCA</b>																															
<b>1. C/P Project Director, etc.</b>																															
Project Director	Mr. A. C. Mtilatila, Director of Civil Aviation, DCA	L1																													
Project Manager	Mr. A. G. Matiya, Deputy Director (Operations), DCA	L2																													
Co-Project Manager	Mr. S. Galafa, Principal, School of Aviation, DCA	L3																													
Project Coordinator	Mr. F. Kholowa, Chief Air Traffic Services Officer, Operation Division	L4																													
Project Coordinator	Mr. M.F.T. Bongwe, Chief telecommunications engineer, Operation Division	L5																													
ATC and FIS Training	Mr. S. Galafa, Principal lecturer of ATS, School of Aviation, DCA	L6																													
AIS and ACS Training	Mr. R. Y. Malanga, Lecturer School of Aviation, DCA	L7																													
AIS and ACS Training	Mr. S. Liundi, Lecturer School of Aviation, DCA	L8																													
Electrical Engineering (CNS) Training	Mr. R. Kanunkha, Senior CNS Lecturer, School of Aviation, DCA	L9																													
Electrical Engineering (CNS) Training	Mr. C. F. Betenigo, Electronics Engineer, KIA	L10																													
Electrical/Mechanical Engineering Training	Mr. Mtonga, Electrical Engineer, KIA	L11																													
<b>2. Support Staff</b>																															
Instructor-1	Ms. L. Manondo, Air Traffic Controller, KIA	L1																													
Instructor-2	Mr. D. Zamaele, Air Traffic Controller, Chilika Airport	L2																													
Instructor-3	Mr. F. Chisepeya, Air Traffic Controller, KIA	L3																													
Instructor-4	Mr. J. Kazito, Air Traffic Controller, KIA	L4																													
Instructor-1	Mr. R. Nkosi, Air Crew Briefing Officer, DCA HQ	L5																													
Instructor-2	Mr. N. B. Kaliyasi, Communication Officer, KIA	L6																													
Electronic Engineering (CNS) Instructor	Mr. S. Kunje, Electronics Engineer, Chilika Airport	L7																													
Electrical/Mechanical Engineering Instructor	Mr. O. Yokonia, Electrical Engineer, Chilika Airport	L8																													
<b>3. New Students to School of Aviation</b>																															
3-1	Air Traffic Controllers (12 students)	L1																													
3-2	Flight Information Officers (8 students)	L2																													
3-3	AIS Officers (10 students)	L3																													
3-4	Aeronautical Communications Officers (6 students)	L4																													
3-5	Electronic Engineers (8 students)	L5																													
3-6	Electrical/Mechanical Engineers (2/2 students)	L6																													

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Activities		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Responsible Organization		Achievements	Issue & Countermeasures			
Sub-Activities		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	Japan	Malawi					
<b>Output 3-E: Improvement of Maintenance Courses for Maru DVOR/DME</b>																																			
3-E-1	Improve/develop training materials	Plan																																	
		Actual																																	
3-E-2	Conduct training of DCA staffs	Plan																																	
		Actual																																	
3-E-3	Conduct monitoring and evaluation of the trainings	Plan																																	
		Actual																																	
3-E-4	Improved training based on the result from the monitoring and evaluation	Plan																																	
		Actual																																	
<b>Output 3-F: Improvement of New CNS/ATM Technology for Electronic Engineer Training</b>																																			
3-F-1	Improve/develop training materials	Plan																																	
		Actual																																	
3-F-2	Conduct training of DCA staffs	Plan																																	
		Actual																																	
3-F-3	Conduct monitoring and evaluation of the trainings	Plan																																	
		Actual																																	
3-F-4	Improved training based on the result from the monitoring and evaluation	Plan																																	
		Actual																																	
<b>Output 4-A: Improvement of Concept Courses for Airfield Lighting System</b>																																			
4-A-1	Review current training syllabus/materials	Plan																																	
		Actual																																	
4-A-2	Improve/develop training syllabus/materials	Plan																																	
		Actual																																	
4-A-3	Conduct training of instructors	Plan																																	
		Actual																																	
4-A-4	Implement improved training courses	Plan																																	
		Actual																																	
4-A-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																	
		Actual																																	
4-A-6	Improved training based on the result from the monitoring and evaluation	Plan																																	
		Actual																																	
<b>Output 4-B: Improvement of Concept Courses for Uninterrupted Power Supply System (UPSS)</b>																																			
4-B-1	Review current training syllabus/materials	Plan																																	
		Actual																																	
4-B-2	Improve/develop training syllabus/materials	Plan																																	
		Actual																																	
4-B-3	Conduct training of instructors	Plan																																	
		Actual																																	
4-B-4	Implement improved training courses	Plan																																	
		Actual																																	
4-B-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																	
		Actual																																	
4-B-6	Improved training based on the result from the monitoring and evaluation	Plan																																	
		Actual																																	
<b>Monitoring Plan</b>																																			
		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Remarks		Issue	Solution			
		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th							
<b>Monitoring</b>		Plan																																	
Joint Coordination Committee		Actual			▲		▲								▲											▲									
Set-up the Detailed Plan of Operation		Plan																																	
		Actual																																	
Submission of Monitoring Sheet		Plan																																	
		Actual			▲		▲								▲												▲								
<b>Reports/Documents</b>		Plan																																	
Project Completion Report		Actual																																	

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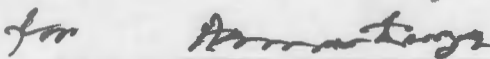
**MINUTES OF MEETING OF  
THE FOURTH JOINT COORDINATING COMMITTEE  
FOR  
THE PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION  
SERVICES IN MALAWI  
BETWEEN  
THE GOVERNMENT OF THE REPUBLIC OF MALAWI  
AND  
THE JAPAN INTERNATIONAL COOPERATION AGENCY**

The fourth meeting of the Joint Coordinating Committee (hereinafter referred to as "JCC") for the Project for Capacity Development for Air Navigation Services in the Republic of Malawi (hereinafter referred to as the "Project") was held in Lilongwe on 5<sup>th</sup> June 2015.

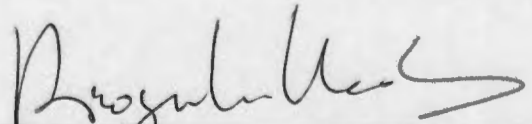
The meeting was co-chaired by Mr. Mtilatila, Director of Malawi Department of Civil Aviation (hereinafter referred to as "DCA") and Mr. Ueda, Senior Transport Sector Advisor, Japan International Cooperation Agency (hereinafter referred to as "JICA"). Attendants were the Project members, representatives from DCA, JICA Malawi Office and JICA Headquarters. List of participants is shown in Attachment-1.

Several issues were discussed during the meeting, including the current progress of the Project, update of the Monitoring Sheet, activity plan, and other relevant issues of the Project. As a result of the discussions, both sides agreed on the matters in the documents attached in Attachment-2.

Lilongwe, 5<sup>th</sup> June 2015



Mr. A.C. Mtilatila  
Project Director  
Director of Civil Aviation  
Ministry of Transport and Public Works  
Republic of Malawi



Mr. Hiroyuki Ueda  
Senior Transport Sector Advisor  
Japan International Cooperation Agency

## Attachment-1: List of Participants

Date: 5<sup>th</sup> June 2015

Venue: Conference Room, DCA

Participants:

### DCA

Director of Civil Aviation, **Mr. A. C. Mtilatila**

Deputy Director of Civil Aviation, **Mr. A. G. Matiya**

Chief Air Traffic Services Officer, **Mr. Francis Z. Kholowa**

Chief Aeronautical Telecommunications Engineer, **Mr. M. F.T. Bongwe**

Principal of School of Aviation, **Mr. Sidney P. Galafa**

### JICA Headquarters

Senior Transport Sector Advisor, **Mr. Hiroyuki Ueda**

Assistant Director, Group 2, Transportation and ICT Section,

Infrastructure and Peacebuilding Department, **Mr. Shinichi Saito**

### JICA Malawi Office

Project Formulation Advisor, **Mr. Atsushi Iijima**

Chief Programme Officer, **Mr. Kapalamula Godfrey**

### JICA Experts

Chief Advisor, **Mr. Hiroshi Mizumasa**

ATC/AIS Training Specialist, **Mr. Kiichiro Hirano**

CNS Maintenance Training Specialist, **Mr. Reynaldo A. Batacan**

Project Coordinator, **Ms. Aya Horiuchi**



## Attachment-2: Matters Agreed

### 1) Report on Progress of the Project

#### a) Training

The Project Team reported on the progress and status of the Project which were as follows:

- Trainings for instructors conducted from April to June 2015 at the School of Aviation (SOA)

Course Name	Date	No. of Trainees
Microsoft Office Training	21 <sup>st</sup> – 24 <sup>th</sup> April, 2015	5
Electrical/Mechanical Training	20 <sup>th</sup> – 30 <sup>th</sup> April 2015	6
Flight Procedure Design	5 <sup>th</sup> – 28 <sup>th</sup> May 2015	4
General Communications	18 <sup>th</sup> May – 4 <sup>th</sup> June 2015	6
Park Air T6 VHF Maintenance Course	8 <sup>th</sup> – 19 <sup>th</sup> June 2015	6
VOR/DVOR/DME/ILS/RADAR Concept Course	22 <sup>nd</sup> June – 10 <sup>th</sup> July 2015	6
052 ATC Aerodrome Training	1 <sup>st</sup> June – 3 <sup>rd</sup> July 2015	5

- Working Groups for AIS/ACS to develop training syllabuses and materials were launched from May 2015. Draft training syllabuses and materials will be prepared by October 2015.
- Operational training of ATC Simulator System installed at SOA was held in May 2015.

#### b) Training Equipment

- Computer Based Training (CBT) system and Test Equipment for engineering training were handed over from JICA to DCA in January 2015 (see Attachment-4)
- ATC Simulator was installed in May 2015. It will be handed over from JICA to DCA in due course.

### 2) Activity Plan

Activity Plan of the Project for the next six months was explained by the Project Team and approved by the JCC as follows:

- Overseas training for Instructor Development Course to be held in August 2<sup>nd</sup> – 22<sup>nd</sup> 2015 and Advanced Instructor Course in 4<sup>th</sup> – 24<sup>th</sup> October 2015 at East Africa School of Aviation (EASA) in Nairobi, Kenya
- Training for Flight Procedure and Cartography related staff (to be held in October 2015)

- Training for Electronic Engineering staff/new recruits (to be held in October 2015)
- Training for ATC staff/new recruits (to be held in October 2015)

### **3) Update Monitoring Sheet**

The Project Team explained the Monitoring Sheet Ver. 2 with the updated Plan of Operations and verifiable indicators of the PDM. The JCC accepted the Monitoring Sheet (see Attachment-3).

### **4) Progress on New Recruitment**

DCA updated the progress of new recruitment, i.e. schedules for interviews and selection procedures. DCA explained that new recruits (12 ATC and 12 engineering staff) are expected to join in August 2015.

# Attachment-3: Monitoring Sheet

PM Form 3-1 Monitoring Sheet Summary

To Chief Representative of JICA Malawi Office

## PROJECT MONITORING SHEET

**Project Title: The Project for Capacity Development for Air Navigation Services**

**Version of the Sheet: Ver.2 (Term: 24th April 2014 – 20th May 2016)**

**Name: Hiroshi Mizumasa**

**Title: Chief Advisor**

**Submission Date: June 2015**

### I. Summary

#### 1. Progress

##### 1-1. Progress of Inputs

###### (1) Japanese Side

###### 1) Experts

Seven JICA experts were assigned according to the plan.

Mr. Hiroshi Mizumasa, Chief Advisor

Ms. Mie Nagayasu, Deputy Chief Advisor

Mr. Kiichiro Hirano, ATC & AIS Training Specialist – 1

Mr. Daniel Paul Diggins, ATC & AIS training Specialist – 2

Mr. Reynaldo Alido Batacan, CNS Maintenance Training Specialist

Mr. Kiyoshi Suzuki, E/M Maintenance Training Specialist

**Ms. Yumi Hosoya, Flight Procedure Design Specialist**

Details of their assignment are shown in the Plan of Operation (see Sheet-II "Plan of Operation").

###### 2) Training Equipment

The following training equipment was procured:

a) Computer Based Training ATC (November 2014)

b) Test Instrument and Equipment (December 2014)

c) Learning Aids and Office Equipment (June 2014)

**d) PC-based Simulator Training System for Air Traffic Controllers (May 2015)**

###### (2) Malawi side

###### 1) Counterpart Personnel (C/P)

The following DCA Officials were assigned for effective and sound management of the Project (see also Sheet II "Plan of Operation").

[Counterpart Personnel]

Project Director (P/D): Mr. A. C. Mtilatila, Director of Civil Aviation

Project Manager (P/M): Mr. A. G. Matiya, Deputy Director (Operations)

Co-project Manager (Co-P/M): Mr. S. Galafa, Principal, School of Aviation

Project Coordinator: Mr. F. Kholowa, Chief Air Traffic Services Officer,  
 Operation Division

Project Coordinator: Mr. M.F.T. Bongwe, Chief Telecommunications  
 Engineer, Operation Division

- Trainers\*: Mr. S. Galafa, Principal, School of Aviation [ATC & FIS Training Instructor]  
 Mr. R. Y. Malanga, Lecturer School of Aviation [AIS & ACS Training Instructor]  
 Mr. S. Liundi, Lecturer School of Aviation [AIS & ACS Training Instructor]  
 Mr. C. F. Betenigo, Telecommunications Engineer, KIA [Aeronautical Engineering  
 (CNS) Training Instructor]  
 Mr. T. Mtonga, Electrical Engineer, KIA [Electrical/Mechanical Engineering Training  
 Instructor]

2) Support Staff

Eight instructors in total were assigned to the Project as support staff personnel:

[Support Staff]\*

- Ms. L. Manondo, ATC, KIA [ATC & FIS Training Instructor]  
 Mr. D. Zamaere, ATC, Chileka Airport [ATC & FIS Training Instructor]  
 Mr. F. Chisepeya, ATC, KIA [ATC & FIS Training Instructor]  
 Mr. J. Kazito, ATC, KIA [ATC & FIS Training Instructor]  
 Mr. R. Nkosi, Air Crew Briefing Officer, DCA [AIS & ACS Training Instructor]  
 Mr. N. B. Kaliyasi, Communication Officer, KIA [AIS & ACS Training Instructor]  
 Mr. F. N. Chisale, Electronics Engineer, KIA [Electronic Engineering (CNS) Training Instructor]  
 Mr. S. Kunje, Electronics Engineer, Chileka Airport [Electronic Engineering (CNS) Training  
 Instructor]  
 Mr. O. Yokonia, Electrical Engineer, Chileka Airport [Electrical/Mechanical Engineering Training  
 Instructor]

*\*Additional Support Staff under consideration.*

3) Project Office Space

Office space for the Project was provided in School of Aviation (SOA), DCA.

4) Project Office Expenses

Utility cost was paid by the Malawian side and DCA provided the following expenses for the project office as of June 2015.

- |   |               |
|---|---------------|
| a) Purchase of two desktop computers:                                   | 1,055,210 MWK |
| b) Purchase and installation of two split air conditioners:             | 989,114 MWK   |
| c) Purchase and installation of air conditioners for ATC simulator room | 862,100 MWK   |
| d) Purchase of desks and chairs for training rooms                      | 951,105 MWK   |
| e) Advertising Cost   | 1,362,589 MWK |

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f) School of Aviation (CBT furniture, meals, and student allowances) 1,405,700 MWK

5) Travel Expenses for Counterpart Personnel within Malawi

The travel expenses for C/P to travel outside the Lilongwe area provided by DCA were as follows (as of June 2015):

- a) Transport costs and subsistence allowances for students from Chileka  
(Team Resource Management Course/ from Chileka to Lilongwe) 76,000 MWK
- b) Transport costs for Lilongwe students  
(Team Resource Management Course/ from Blantyre to Lilongwe) 70,000 MWK
- c) Transport costs and subsistence allowances for students from outside Lilongwe
  - Test Equipment, E & M 354,000 MWK
  - Flight Procedure Design, General Communications 485,000 MWK

1-2. Progress of Activities

(1) Summary of Work Progress (June 2014 – June 2015)

1) Baseline Survey

The Project Team conducted the baseline survey on capacity of SOA which includes the capacities of ATM (ATC, FIS, AIS, ACS), Electronics Engineering (CNS), Electrical and Mechanical (E/M). The survey was conducted according to the ICAO's standard of assessing training organization.

2) Review of the existing training materials

The Project Team, composed of JET members and the counterpart personnel (C/P), observed existing training syllabus and textbooks for all training courses conducted in SOA (see "Results of the PDM Activities", described below).

3) Preparation of a work plan

The Project Team prepared a work plan describing the material development, instructor training, as well as the method and schedule for the implementation of 16 training courses, on which agreement was reached with the Malawian side.

4) Preparation of base materials for training courses

The Project Team is preparing training course materials which follows ICAO guideline.

5) Procurement of equipment

The Project Team procured equipment necessary for operating the Project in line with the JICA equipment procurement guideline.

6) Trainings at the School of Aviation (SOA) (as of June 2015)

The trainings for instructors which were held at the School of Aviation are as follows:

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- a) **Computer Based Training (ATC)**  
 Date: 24<sup>th</sup> November 2014 (1/2 day)  
 No. of Participants: 6
- b) **Test Equipment Course**  
 Date: 12<sup>th</sup> – 23<sup>rd</sup> January 2015 (10 days)  
 No. of Participants: 5
- c) **Electrical & Mechanical Training**  
 Date: 20<sup>th</sup> – 30<sup>th</sup> April 2015 (9 days)  
 No. of Participants: 6
- d) **Microsoft Office PC Training**  
 Date: 21<sup>st</sup> – 24<sup>th</sup> April 2015 (4 days)  
 No. of Participants: 5
- e) **Flight Procedure Design Training**  
 Date: 5<sup>th</sup> – 28<sup>th</sup> May 2015 (18 days)  
 No. of Participants: 4
- f) **General Communications Course**  
 Date: 18<sup>th</sup> May – 5<sup>th</sup> June 2015 (15 days)  
 No. of Participants: 6
- g) **Park Air T6 VHF Maintenance Course**  
 Date: 8<sup>th</sup> – 19<sup>th</sup> June 2015 (10 days)  
 No. of Participants: 6
- h) **VOR/DVOR/DME/ILS/RADAR Concept Course**  
 Date: 22<sup>nd</sup> June – 10<sup>th</sup> July 2015 (15 days)  
 No. of Participants: 6
- i) **ATC Simulator Operation Lecture**  
 Date: 25<sup>th</sup> – 29<sup>th</sup> May 2015 (5 days)  
 No. of Participants: 6
- j) **052 ATC Aerodrome Control Course**  
 Date: 3<sup>rd</sup> June – 3<sup>rd</sup> July 2015 (23 days)  
 No. of Participants: 5

A total of 55 participants is expect to complete trainings by the beginning of July 2015.

**7) Overseas Training**

DCA officials participated or will be participating in the following four overseas trainings:

- a) **Team Resource Management Course: 26<sup>th</sup> to 30<sup>th</sup> January 2015 <South Africa>\*1**
- b) **Supervisory Management Course: 2<sup>nd</sup> to 27<sup>th</sup> February 2015 <Kenya>\*2**

A total of 12 participants completed overseas trainings as of June 2015.

[Overseas Training Institutes]

\*1: Air Traffic and Navigation Services (ATNS) in Johannesburg, South Africa

\*2: East African School of Aviation (EASA) in Nairobi, Kenya

<p><b>8) First JCC Meeting</b></p> <p>The First JCC Meeting was held on 30<sup>th</sup> June 2014. Five people from the DCA side including the Director, the Deputy Director and other three officials, two officials from the JICA Malawi Office, and five members from the JICA Expert Team (hereinafter referred to as "JET") participated in the meeting. The JET Leader, Mr. Hiroshi Mizumasa presented a summary of the Project. The minutes of the meeting for implementation of the Project were signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Kazuhiko Tokuhashi, Resident Representative, JICA Malawi Office.</p>	
<p><b>9) Second JCC Meeting</b></p> <p>The Second JCC Meeting was held on 1<sup>st</sup> August 2014. Five people from the DCA side including the Director, the Deputy Director and three other officials, one official from the JICA Malawi Office, and two members from the JET participated in the meeting. The issues discussed and agreed were as follows:</p> <ul style="list-style-type: none"> <li>a) Approval of the Work Plan</li> <li>b) Confirmation of the Instructor Nomination</li> <li>c) Approval of updated PDM</li> <li>d) Confirmation of expense for domestic training/counterparts works</li> </ul> <p>The minutes of the meeting was signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Hiroshi Mizumasa, the JET Leader.</p>	
<p><b>10) Third JCC Meeting</b></p> <p>The Third JCC Meeting was held on 27<sup>th</sup> January 2015. Three people from the DCA side including the Deputy Director and two other officials, two officials from the JICA Malawi Office, and four members from the JET participated in the meeting. The issues discussed and agreed were as follows:</p> <ul style="list-style-type: none"> <li>a) Report on project progress and schedule</li> <li>b) Approval of the Monitoring Sheet ver.1</li> <li>c) Progress on new recruitment</li> </ul> <p>The minutes of the meeting was signed between Mr. A. G. Matiya, DCA Deputy Director and Mr. Kazuhiko Tokuhashi, Chief Representative of the JICA Malawi Office.</p>	
<p><b>(2) Results of the PDM Activities</b></p> <p>Following is the summary of the Project activities having been conducted from June 2014 to June 2015. It is described according to the original PDM Activities.</p>	

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1) Improvement of ATC and FIS Training

PDM Activities	Results
1-1. Review current training syllabus and training materials	All the syllabuses were reviewed. Most of them were made in 1980s.
1-2. Improve/develop training syllabus and training materials	Six training syllabuses and materials will be developed. The progress of preparation of each material is shown in the following 1-3. Achievement of Output.
1-3. Conduct training of instructors	Overseas trainings will be conducted in Nairobi in August and October 2015
1-4. Implement improved training courses	Base Material of ATC Basic Course 051 was provided by JET and it will be customized by SOA/DCA Instructor team. Trainings course of 052 Aerodrome will be conducted in June - July 2015.
1-5. Implement supervisor training	Supervisor trainings were conducted in Johannesburg in January and in Nairobi in February 2015.
1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	
1-7. Improve the training courses based on the results from the monitoring and evaluation	

2) Improvement of AIS and ACS Training

PDM Activities	Results
2-1. Review current training syllabus and training materials	All the syllabuses were reviewed. Most of them were made in 1980s.
2-2. Improve/develop training syllabus and training materials	Two (AIS and ACS) training syllabuses and materials will be developed. Two Working Groups, consisting of 4 AIS and ACS officers, were established in May to draft the training syllabuses and training materials which will be due in October 2015. The Working Groups will collect and update relevant information, and customize the base materials to match with the Malawian context. The progress of preparation of each material is shown in the following 1-3. Achievement of Output.
2-3. Conduct training of instructors	Overseas trainings will be conducted in Nairobi in August and in October 2015.
2-4. Implement improved training courses	CBT training course was held in November 2014.
2-5. Implement supervisor training	Supervisor trainings were conducted in Johannesburg in January 2015 and in Nairobi in February 2015.
2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	
2-7. Improve the training courses based on the results from the monitoring and evaluation	

*AS*



3) Improvement of Electronic Engineering Training

PDM Activities	Results
3-1. Review current training syllabus and training materials	All the syllabuses have been reviewed. Most of them were made in 1980s.
3-2. Improve/develop training syllabus and training materials	Six training syllabuses and materials will be developed. The progress of preparation of each material is shown in the following 1-3. Achievement of Output
3-3. Conduct training of instructors	Overseas trainings will be conducted in Nairobi in August and October 2015. Training course of test equipment for instructors was conducted in January 2015.
3-4. Implement improved training courses	Training courses of COM & VOR/DME are/will be conducted in May – July 2015.
3-5. Implement supervisor training	Supervisor trainings were conducted in Johannesburg in January and in Nairobi in February 2015.
3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Evaluation of the training was made through the Test Equipment Training in January 2015.
3-7. Improve the training courses based on the results from the monitoring and evaluation	

4) Improvement of Electrical/Mechanical Engineering Training

PDM Activities	Results
4-1. Review current training syllabus and training materials	All the syllabuses have been reviewed. Most of them were made in 1980s.
4-2. Improve/develop training syllabus and training materials	Two training syllabuses and materials will be developed. The progress of preparation of each material is shown in the following 1-3. Achievement of Output
4-3. Conduct training of instructors	Overseas trainings will be conducted in Nairobi in August and October 2015.
4-4. Implement improved training courses	Training courses of E & M were conducted in April 2015.
4-5. Implement supervisor training	Supervisor trainings were conducted in Johannesburg in January 2015 and in Nairobi in February 2015
4-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Evaluation of the training was made through the Electrical & Mechanical Training.
4-7. Improve the training courses based on the results from the monitoring and evaluation	

**1-3. Achievement of Output**

Achievement of the Project outputs is observed according to the PDM indicators.

- Output 1 Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.
- Output 2 Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.
- Output 3 Training of Electronic Engineering is improved.
- Output 4 Training of Electrical/Mechanical Engineering (E/M Eng) is improved.

**Achievement of Outputs**

Indicators for the PDM Outputs		Achievement as of June 2015
-Training syllabuses and training materials are improved or developed for the following number of courses:	ATC/FIS: 6	1. 051: ATC Basic: 80% 2. 052: Aerodrome Control: 100% 3. 053: Approach Control: 60% 4. 055: Area Control: 30% 5. CNS/ATM for ATC: 80% 6. Flight Information Service: 50%
	AIS/ACS: 2	1. AIS & ACS (combined): 50%
	Electronic Eng.: 6	1. General Communication Equipment: 100% 2. Navigation Concept Course: 90% 3. Park Air VHF: 90% 4. Normarc ILS: 70% 5. Maru VOR/DME: 70% 6. CNS/ATM: 80%
	E/M Eng.: 2	1. Theory of Airfield Lighting: 90% 2. Theory of UPS: 90%
-The following number of DCA officers successfully complete supervisor/advanced/specialist training:	Instructors: 10*1	
	ATC/FIS: 4*1	8 officers successfully completed "Team Resource Management Course" in South Africa.
	AIS/ACS: 4*1	4 officers successfully completed "Supervisory Management Course" in Kenya.
	Aeronautical Cartography: 2*2	
	PANS/OPS: 2*2	4 officers successfully completed "PANS/OPS Conventional Flight Procedure Design for Non-Precision Approach"
	ILS Maintenance: 4*2	

\*1: Overseas trainings

\*2: In-country trainings

**1-4. Achievement of the Project Purpose**

Achievement of the Project purpose: "Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities." is observed according to the PDM indicators as follows:

## Achievement of the Project Purpose

Indicators for the Project Purpose		Achievement as of June 2015
- The following number of instructors can conduct the improved/developed training courses (fulltime + part time)	ATC/FIS: 6	0
	AIS/ACS: 4	0
	Electronic Eng.: 4	0
	E/M Eng.: 4	0
- Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 70%.	Computer Based Training (CBT) (6 participants)	Not scored
	Test Equipment Course (5 participants)	87.1%
	Electrical & Mechanical Training (6 participants)	93.7%
	Microsoft Office PC Training (5 participants)	Not scored
	Flight Procedure Design Training (4 participants)	80.0%
	General Communications Course (6 participants)	89.6%

## 1-5. Changes of Risks and Actions for Mitigation

No major changes were seen in the PDM Important Assumptions; therefore no special actions need to be taken. However, as for the Pre-conditions, new trainees were not recruited yet, which may affect the project outcomes.

## (1) Pre-conditions

PDM Pre-conditions	Current Situations	Actions for Mitigation
1) DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.	- Project office space was provided at the time of initiation of the work in Malawi in June 2014. - Counterpart personnel (C/P) were allocated in the Project before the commencement of the project.	- No special actions need to be taken.
2) New trainees are recruited as scheduled.	- New trainees are not recruited since the initiation of the project in May 2014 to date. - Recruitment of 24 new staff is in progress. They are planned to join DCA in August 2015.	- JET requested DCA ensure the recruitment of new staff. - Further 24 new staff has to be recruited to meet pre-condition of the Project.

## (2) Important Assumption when proceeding from Activities to Outputs

Important Assumption	Current Situations	Actions for mitigation
1) DCA implements the Project with sufficient ownership.	- DCA's ownership was seen.	- No special actions need to be taken.

(3) Important Assumptions when proceeding from Outputs to the Project Purpose

Important Assumption	Current Situations	Actions for mitigation
1) No major change of the international standards on air navigation services occurred.	- No major changes were seen. It did not affect to the Project operation.	- No special actions need to be taken.

1-6. Progress of Actions undertaken by JICA

No remarkable issues.

1-7. Progress of Actions undertaken by the Government of Malawi

In May 2015, the Government of Malawi/DCA began procedures to recruit new students for ATC, Electronics Engineer, Electrical Engineer and Mechanical Engineer.

1-8. Progress of Environmental and Social Considerations (if applicable)

No remarkable issues.

1-9. Progress of Considerations on Gender/ Peace Building/ Poverty Reduction (if applicable)

No remarkable issues.

1-10. Other remarks or issues related to the project (such as other projects of JICA, activities of counterparts, other donors, private sectors, NGOs, etc.)

(1) Project for the Improvement of Aviation Safety Oversight in Malawi by European Aviation Safety Agency (EASA)

EASA is currently assisting DCA and the Ministry of Transport and Public Works improving safety oversight capacity of civil aviation. There is no overlapping of activities between JICA project and EASA project.

(2) Airport Safety and Security Equipment Project by European Investment Bank (EIB)

EIB is funding the procurement of safety equipment such as fire trucks at Kamuzu International Airport. There is no overlapping of activities between JICA project and EIB project.

(3) The Project for Expansion of the Terminal Building at Kamuzu International Airport by JICA

JICA is currently conducting a Preparatory Survey for the project, which will include installation of the aircraft surveillance system. Current capacity development project will strengthen the foundation for the introduction of radar control services; however, does not include training for operation and maintenance of the aircraft surveillance system. DCA should plan capacity development for the radar control services if the project is realized.

**2. Delay of Work Schedule and/or Issues (if any)**

**2-1. Detail**

The project is on schedule; however, delay in recruitment of new staff would possibly affect the activities related to training of new staff under the Project.

**2-2. Cause of Delay**

Recruiting process had been delayed due to lack of funds for recruitment on the part of the recruiting agencies.

**2-3. Actions to be taken**

Recruitment process of the first 24 staff was initiated in mid-May 2015 and it is expected that new staff will join DCA in August 2015. Additional 24 staff has to be recruited to meet pre-condition of the Project.

**2-4. Roles of Responsible Persons/ Organization (JICA, Gov. of Malawi, etc.)**

DCA and the Government of Malawi are responsible for recruitment of new staff.

**3. Modification of the Project Implementation Plan**

**3-1. Plan of Operation (PO)**

No major modification was made.

**3-2. Other Modifications on Detailed Implementation Plan**

*(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)*

Some changes to be made, mainly in "Objectively Verifiable Indicators", were discussed among DCA and JICA Team prior to the 4<sup>th</sup> JCC meeting as follows (\*underlined = changes to be made);

1) Overall Goal

Define the Objectively Verifiable Indicator as "The targeted number of trainees (serving officers and new staff) who will successfully complete the improved/developed training courses between 2016 and 2020 is at least 80".

2) Project Purpose

Change minimum score of comprehension test from 80% to 70% in accordance with international standard of ICAO.

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Replace the Means of Verification "Terminal Evaluation Report" with "Project Completion Report". In addition, insert "- Results of comprehension test score of trainees".

3) Outputs

Delete the Objectively Verifiable Indicator "Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 80%" as this indicator duplicates with that of the Project Purpose.

The revised PDM is attached as Project Monitoring Sheet I.

4. Preparation of the Government of Malawi towards the completion of the Project

Not applicable.

II. Project Monitoring Sheet I (PDM) & Sheet II (PO) (Version 2) as attached

**Project Design Matrix (Sheet I)**

**Project Title:** The Project for Capacity Development for Air Navigation Services in the Republic of Malawi

**Implementing Agency:** DCA

**Target Group:** Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA

**Period of Project:** 2 years (24/04/2014-20/05/2016)

**Project Site:** School of Aviation

**Model Site:**


**Version 3**

**Dated 5 June 2015**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p><b>Overall Goal (Long-term objective)</b> Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p><i>The targeted number of officers - trainees (serving officers and new staff) who will successfully complete the improved/developed training courses for each year by between 2016 and 2020 is at least 80.</i></p>	<p>- Training records</p>			
<p><b>Project Purpose (Objective at the end of the Project)</b> Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.</p>	<p>Number of instructors can conduct the improved/developed training courses (fulltime + part time)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ATC/FIS: 6 (1)</li> <li><input type="checkbox"/> AIS/ACS: 4 (2)</li> <li><input type="checkbox"/> Electronic Eng.: 4 (1)</li> <li><input type="checkbox"/> E/M Eng.: 2 (1)</li> </ul> <p>Number in ( ) indicates current situation.</p> <p>- Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 80%.</p>	<p>- Monitoring Sheet <del>- Terminal Evaluation Report - Project Completion Report</del>  - Results of the comprehension test score of trainees.</p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		
<p><b>Outputs (Objectives to be realized by Activities to achieve the Project Purpose)</b></p> <ol style="list-style-type: none"> <li>1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.</li> <li>2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.</li> <li>3. Training of Electronic Engineering is improved.</li> <li>4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.</li> </ol>	<p>- Training syllabus and training materials are improved or developed for the following number of courses:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ATC/FIS: 6</li> <li><input type="checkbox"/> AIS/ACS: 2</li> <li><input type="checkbox"/> Electronic Eng.: 6</li> <li><input type="checkbox"/> E/M Eng.: 2</li> </ul> <p>- The following number of DCA officers successfully complete supervisor/advanced/specialist training:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Instructors: 10</li> <li><input type="checkbox"/> ATC/FIS: 4</li> <li><input type="checkbox"/> AIS/ACS: 4</li> <li><input type="checkbox"/> Aeronautical Cartography: 2</li> <li><input type="checkbox"/> PANS/OPS: 2</li> <li><input type="checkbox"/> ILS Maintenance: 4</li> </ul> <p><del>- Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 80%.</del></p>	<p>- Monitoring Sheet</p> <p> - Results of comprehension test score of supervisor/ advanced/specialist training courses</p>	<p>- No major change of the international standards on air navigation services is occurred.</p>		

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Activities (Specific actions to produce each Output by use of Inputs)	Inputs		Pre-Conditions
	The Japanese Side	The DCA Side	
<p><u>Improvement of ATC and FIS Training</u></p> <p>1-1. Review current training syllabus and training materials            1-2. Improve/develop training syllabus and training materials            1-3. Conduct training of instructors            1-4. Implement improved training courses            1-5. Implement supervisor training            1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            1-7. Improve the training courses based on the results from the monitoring and evaluation</p>	<p>- Experts  <input type="checkbox"/> Chief Advisor/Training Manager  <input type="checkbox"/> ATC Training Specialist  <input type="checkbox"/> AIS/ACS Training Specialist  <input type="checkbox"/> Electronic Maintenance Training Specialist  <input type="checkbox"/> Electrical/ Mechanical Maintenance Training Specialist  <input type="checkbox"/> Others as necessary</p> <p>- Training materials            - Training equipment            - Overseas training</p>	<p>- Counterpart Personnel            - Support Staff            - Project Office Space            - Project Office Expenses            - Travel Expenses of Counterpart Personnel within Malawi            - The others mentioned in Appendix 1, II, 6, of R/D</p>	<p>- DCA implements the Project with sufficient ownership.</p>
<p><u>Improvement of AIS and ACS Training</u></p> <p>2-1. Review current training syllabus and training materials            2-2. Improve/develop training syllabus and training materials            2-3. Conduct training of instructors            2-4. Implement improved training courses            2-5. Implement supervisor/advanced/specialist training            2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            2-7. Improve the training courses based on the results from the monitoring and evaluation</p>			<p><b>Pre-Conditions</b></p> <p>- DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.            - New trainees are recruited as scheduled.</p> <p style="text-align: center;"></p>
<p><u>Improvement of Electronic Engineering Training</u></p> <p>3-1. Review current training syllabus and training materials            3-2. Improve/develop training syllabus and training materials            3-3. Conduct training of instructors            3-4. Implement improved training courses            3-5. Implement equipment-specific training            3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            3-7. Improve the training courses based on the results from the monitoring and evaluation</p>			
<p><u>Improvement of Electrical/Mechanical Engineering Training</u></p> <p>4-1. Review current training syllabus and training materials            4-2. Improve/develop training syllabus and training materials            4-3. Conduct training of instructors            4-4. Implement improved training courses            4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            4-6. Improve the training courses based on the results from the monitoring and evaluation</p>			

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Activities		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Responsible Organization		Achievements	Issue & Countermeasures																																		
Sub-Activities		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	Japan	Malawi																																				
<b>Output 1-H: Improvement of Flight Information Services Training</b>																																																																		
1-H-1	Review current training syllabus/materials	Plan																																																																
		Actual																																																																
1-H-2	Improve/develop training syllabus/materials	Plan																																																																
		Actual																																																																
1-H-3	Conduct training of instructors	Plan																																																																
		Actual																																																																
1-H-4	Implement improved training courses	Plan																																																																
		Actual																																																																
1-H-5	Implement supervisor training (Overseas training)	Plan																																																																
		Actual																																																																
1-H-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																																																
		Actual																																																																
1-H-7	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Output 2-A: Improvement of Basic AIS Officer Training</b>																																																																		
2-A-1	Review current training syllabus/materials	Plan																																																																
		Actual																																																																
2-A-2	Improve/develop training syllabus/materials	Plan																																																																
		Actual																																																																
2-A-3	Conduct training of instructors	Plan																																																																
		Actual																																																																
2-A-4	Implement improved training courses	Plan																																																																
		Actual																																																																
2-A-5	Implement supervisor/advanced/specialist training (Overseas training)	Plan																																																																
		Actual																																																																
2-A-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																																																
		Actual																																																																
2-A-7	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Output 2-B: Improvement of Basic Aeronautical Communication Officer Training</b>																																																																		
2-B-1	Review current training syllabus/materials	Plan																																																																
		Actual																																																																
2-B-2	Improve/develop training syllabus/materials	Plan																																																																
		Actual																																																																
2-B-3	Conduct training of instructors	Plan																																																																
		Actual																																																																
2-B-4	Implement improved training courses	Plan																																																																
		Actual																																																																
2-B-5	Implement supervisor/advanced/specialist training (Overseas training)	Plan																																																																
		Actual																																																																
2-B-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																																																
		Actual																																																																
2-B-7	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Output 3-A: Improvement of General Communication Maintenance for Electronic Engineers</b>																																																																		
3-A-1	Review current training syllabus/materials	Plan																																																																
		Actual																																																																
3-A-2	Improve/develop training syllabus/materials	Plan																																																																
		Actual																																																																
3-A-3	Conduct training of instructors	Plan																																																																
		Actual																																																																
3-A-4	Implement improved training courses	Plan																																																																
		Actual																																																																
3-A-5	Implement equipment specific training (Implement by 3-C, 3-D, 3-E)	Plan																																																																
		Actual																																																																
3-A-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																																																
		Actual																																																																
3-A-7	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																

Activities		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Responsible Organization		Achievements	Issue & Countermeasures																																		
Sub-Activities		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	Japan	Malawi																																				
<b>Output 3-E: Improvement of Maintenance Courses for Maru DVOR/DME</b>																																																																		
3-E-1	Improve/develop training materials	Plan																																																																
		Actual																																																																
3-E-2	Conduct training of DCA staffs	Plan																																																																
		Actual																																																																
3-E-3	Conduct monitoring and evaluation of the trainings	Plan																																																																
		Actual																																																																
3-E-4	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Output 3-F: Improvement of New CNS/ATM Technology for Electronic Engineer Training</b>																																																																		
3-F-1	Improve/develop training materials	Plan																																																																
		Actual																																																																
3-F-2	Conduct training of DCA staffs	Plan																																																																
		Actual																																																																
3-F-3	Conduct monitoring and evaluation of the trainings	Plan																																																																
		Actual																																																																
3-F-4	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Output 4-A: Improvement of Concept Courses for Airfield Lighting System</b>																																																																		
4-A-1	Review current training syllabus/materials	Plan																																																																
		Actual																																																																
4-A-2	Improve/develop training syllabus/materials	Plan																																																																
		Actual																																																																
4-A-3	Conduct training of instructors	Plan																																																																
		Actual																																																																
4-A-4	Implement improved training courses	Plan																																																																
		Actual																																																																
4-A-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																																																
		Actual																																																																
4-A-6	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Output 4-B: Improvement of Concept Courses for Uninterrupted Power Supply System (UPSS)</b>																																																																		
4-B-1	Review current training syllabus/materials	Plan																																																																
		Actual																																																																
4-B-2	Improve/develop training syllabus/materials	Plan																																																																
		Actual																																																																
4-B-3	Conduct training of instructors	Plan																																																																
		Actual																																																																
4-B-4	Implement improved training courses	Plan																																																																
		Actual																																																																
4-B-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																																																
		Actual																																																																
4-B-6	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Monitoring Plan</b>																																																																		
<b>Monitoring</b>																																																																		
Joint Coordination Committee		Plan																																																																
		Actual																																																																
Set-up the Detailed Plan of Operation		Plan																																																																
		Actual																																																																
Submission of Monitoring Sheet		Plan																																																																
		Actual																																																																
<b>Reports/Documents</b>																																																																		
Project Completion Report		Plan																																																																
		Actual																																																																

P4



Date: 30<sup>th</sup> January 2015

### HANDOVER NOTES

Hereby the Japan International Cooperation Agency (JICA) Malawi Office would like to handover the equipment as listed in the attachment to the School of Aviation. The handover equipment is provided based on the request by the Department of Civil Aviation, the Ministry of Transport and Public Works in accordance with the Article II-1-(1) of the Record of Discussions signed between the Republic of Malawi and Japan International Cooperation Agency on 13<sup>th</sup> January, 2014 for "The Project for Capacity Development for Air Navigation Services in the Republic of Malawi."

The Department of Civil Aviation, the Ministry of Transport and Public Works shall take necessary measures:

- a) to ensure that the equipment is used properly and exclusively for the purpose of facilitating the project related activities during and after the project,
- b) to maintain the equipment in good condition and bear all the expenses necessary for or in connection with the use of the equipment,
- c) to ensure that the equipment will not be used for any individual use.

JICA and the Department of Civil Aviation, the Ministry of Transport and Public Works shall consult with each other in the event of any dispute for the handover equipment.

**Alfred C. Mtilatila (Mr.)**  
Director for Civil Aviation  
Ministry of Transport and Public Works

**Kazuhiko TOKUHASHI (Mr.)**  
Resident Representative  
Malawi Office  
Japan International Cooperation Agency

Appendix: List of Equipment

LIST OF EQUIPMENT  
PROJECT FOR CAPACITY DEVELOPMENT FOR AIR NAVIGATION SERVICES

1. Computer Based Training System

No.	Item Description	Quantity
1	HP Elitedesk 800 G1 TW/CT (P/N: C8N27AV / ORIGIN: JAPAN) -including software: MASTOOL AIR TRAFFIC CONTROLLER TRAINING SYSTEM, (ORIGIN: JAPAN)	6 EA
2	SMART-UPS 1000 LCD 100V (P/N: SMT 1000J / ORIGIN: PHILIPPINES)	6 EA
3	HP 21.5 INCH MONITOR (P/N: C4D29A2 / ORIGIN: JAPAN)	6 EA
4	STEREO SPEAKER (P/N: MM-SPU6BK / ORIGIN: CHINA)	6 EA
5	AUDIO HEADSET (P/N: MM-HSUSB16SV / ORIGIN: CHINA)	6 EA
6	VOLTAGE CONVERTER (P/N: PAL-350E / ORIGIN: JAPAN)	6 EA
7	NETWORK HUB (P/N: LD-CTN/BK10 / ORIGIN: CHINA)	1 EA
8	LAN CABLE (P/N: LSW3-TX-8NS/WH / ORIGIN: CHINA)	1 EA
9	SOFTWARE MANUAL	5 EA

# Attachement - 4

## 2. Test Equipment

Item No.	Item Description	Quantity
1	Oscilloscope TBS1152	2
	Standard Accessory	
	- Standard probe (2pcs/unit)	2
	Special Accessories	
	- Operation Manual (English 5pcs/unit)	10
	- Factory inspection certificate (1pc/unit)	2
2	Digital Multimeter PM33a/C	4
	Standard Accessory	
	- Test Lead (2pcs 1set/unit)	4
	Special Accessory	
	- Operation manual (English 5pcs/unit)	20
3	Frequency Meter GFC-8131H	2
	Standard Accessories	
	- Test Lead BNC-BNC 1m (1pc/unit)	2
	- Test Lead BNC-Alligator 1.1m (1pc/unit)	2
	Special Accessory	
	- Operation manual (English 5pcs/unit)	10
4	Radio Frequency Wattmeter (Passage Type) MODEL 43	2
	Special Accessories	
	- Low power element 60~80MHz 1W (1pc/unit) 060-1	2
	- Standard element 50~125MHz 10W (1pc/unit) 10B	2
	- Standard element 50~125MHz 25W (1pc/unit) 25B	2
	- Low power element 110~160MHz 1W (1pc/unit) 110-1	2
	- Standard element 100~250MHz 5W (1pc/unit) 5C	2
	- Standard element 100~250MHz 50W (1pc/unit) 50C	2
	- Standard element 100~250MHz 100W (1pc/unit) 100C	2
	- Operation Manual (English 5pcs/unit)	10
- Factory inspection certificate (English 1pc/unit)	14	
5	Radio Frequency Wattmeter (Termination Type)	2
	TP-3503A-01	
	Special Accessory	
	- Operation Manual (English 5pcs/unit)	10
	- Factory inspection certificate (Japanese 1pc/unit)	2

Attachement - 4

6	Level Meter LM321 Standard Accessories	2
	- Measurement code (M1PS-Electrical clip) (2pcs/unit)	4
	- Tester stick (red/ black) (1set/unit)	2
	- Transceiver (1pc/unit)	2
	- Soft case (1pc/unit)	2
	- AA cell battery (4pcs/unit)	8
	- Operation Manual (English 5pcs/unit)	10
	- Factory inspection Certificate (Japanese 1pc/unit)	2
7	Standard Signal Generator Special Accessories KSG4310	2
	- Operation Manual (English 5pcs/unit)	10
	- Factory inspection certificate (English 1pc/unit)	2
8	Distortion Meter MAK-6630 Special Accessories	2
	- Operation Manual (English 5pcs/unit)	10
	- Factory inspection certificate (English 1pc/unit)	2
9	Spectrum Analyzer GSP-810VT Special Accessories	2
	- Operation Manual (English 5pcs/unit)	10
	- Factory inspection certificate (English 1pc/unit)	2
10	Directional Couplers MAK-6630 Standard Accessories	2
	- Coaxial cable S-5DWP, 5D-2W, S-5DWP 1m (1pc/unit)	2
	- Terminating resistor 50Ω (1pc/unit)	2
	Special Accessory	
	- Coaxial cable S-5DWP, 5D-2W, S-5DWP 1m (2pcs/unit)	4
	- Operation Manual (English 5pcs/unit)	10
11	Low Frequency Variable Attenuator AT-50 Special Accessories	2
	- Operation Manual (Japanese 5pcs/unit)	10
	- Factory inspection certificate (Japanese 1pc/unit)	2
12	Detector SDT-50 Special Accessory	2
	- Factory inspection certificate (English 1pc/unit)	2



Attachement - 4

13	LCR meter	LCR915	2
	Standard Accessories		
	- Short cube (1pc/unit)		10
	- 2 wire alligator clip (1set/unit)		2
	- Handle kit (1pc/unit)		2
	- AA cell battery (4pcs/unit)		8
Special Accessory			
- Operation manual (English 5pcs/unit)		10	
14	VHF Air Band Transceiver	IC-A110	2
	Standard Accessories		
	- Handheld microphone (1pc/unit)		2
	- DC power cable (1pc/unit)		2
	- Mount bracket kit (1pc/unit)		2
	- Microphone hanger kit (1set/unit)		2
	- Fuse (1set/unit)		2
	Special Accessories		
	- Power supply unit (1pc/unit)	GSV3000	2
	- BF type plug converter for Power supply unit		2
- Operation manual (English 5pcs/unit)		10	
15	Transmitting and Receiving Antenna	DS747PRO	2
	for VHF Air Band Transceiver		
	Special Accessories		
	- Antenna coaxial cable 5D-FB 30m with connector corresponding to Item No.17 (DS150S) and Item No.16 (AR8600MK2)		2
	- Pole fixing bracket (2sets/unit)	GMB-GH	4
	- Self-fusing tape (2pcs/unit)	No.11 Black	4
	- Vinyl tape (2pcs/unit)	No.223S Black	4
	- Conductive grease (1pc/unit)		2
- Operation manual (English 5pcs/unit)		10	
16	General Receiver	AR8600MK2	1
	Standard Accessory		
	- AC adapter (1pc/unit)		1
	Special Accessories		
	- External speaker		1
- BF type plug converter for AC adapter		1	

Attachement - 4

	- Operation manual		5
17	Antenna for General Receiver DS150S		1
	Special Accessories		
	- Antenna coaxial cable 5D-FB 30m with connector corresponding to Item No.17 (DS150S) and Item No.16 (AR8600MK2)		1
	- Pole fixing bracket (2sets/unit) GMB-GH		2
	- Self-fusing tape (1pc/unit) No.11 Black		1
	- Vinyl tape (1pc/unit) No.223S Black		1
	- Conductive grease (1pc/unit)		1
	- Operation manual (English 5pcs/unit)		5
19	UPS ALS-1.5KH		4
	Standard Accessory		
	- Operation manual (English 5pcs/unit)		20
	Special Accessories		
	- Input BF type - C13 type cable 2m (1pc/unit)		4
	- Output solderless terminal - BF type 4-outlet-socket power strip (1pc/unit)		4
20	Tool for Practice		
	- Needle-nose plier P-35		2
21	Tool for Practice		
	- Nipper N-9-125		2
22	Tool for Practice		
	- Plier P-43-150		2
23	Tool for Practice		
	- Plier P-211Z-150		2
24	Tool for Practice		
	- Phillips screwdriver No.0 (1pc/set) L=178mm D-540-100		2
	- Phillips screwdriver No.1 (1pc/set) L=200mm D-550-100		2
	- Phillips screwdriver No.2 (1pc/set) L=200mm D-555-100		2
	- Slotted screwdriver 2.5x0.35 (1pc/set) L=149mmD-630-100		2
	- Slotted screwdriver 5.0x0.7 (1pc/set) L=200mm D-650-100		2
25	Tool for Practice		
	- Precision screwdriver set D-20		2
	Standard Accessory		

Attachement - 4

	- Case for Precision screwdriver set (1pc/set)	2
26	Tool for Practice - Voltage detector screwdriver 83L	2
27	Tool for Practice - Wire stripper P-90-A	2
28	Tool for Practice - Adjustable spanner WM-200	1
29	Tool for Practice - Adjustable spanner WM-300	1
30	Tool for Practice - Pipe wrench PWA-450	1
31	Peripheral equipment for measuring instrument (1) - Cable set (1 set)	1
33	Peripheral equipment for measuring instrument (3) - Connector BNC-TA-JJJ-CF 50Ω	2
34	Peripheral equipment for measuring instrument (4) - Coaxial cable 3D2W BNC male 1m - Coaxial cable 3D2W N male - BNCmale 50cm - Coaxial cable 3D2W BNC male - electrical clip 50cm - Relay adapter BJ-J (50Ω) - Conversion Connector BNCJ-NJ (Ni) - Conversion connector SMAP-BNCJ(Ni)	4 2 2 2 2 2

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## **ANNEX 5**

### **Monitoring Sheet (copy)**

ANNEX 5-1 Monitoring Sheet I (Inception June 2014)

ANNEX 5-2 Monitoring Sheet I (January 2015)

ANNEX 5-3 Monitoring Sheet II (June 2015)

ANNEX 5-4 Monitoring Sheet III (October 2015)

**TO CR of JICA Malawi OFFICE**

**PROJECT MONITORING SHEET**

**Project Title : The Project for Capacity Development for Air Navigation Services**

**Version of the Sheet: Ver.1 (Term: 24 April, 2014 - 20 May, 2016)**

**Name: Hiroshi Mizumasa**

**Title: Chief Advisor**

**Submission Date: 30 May, 2014**

**I. Summary**

**1 Progress**

- 1-1. Progress of Inputs
- 1-2. Progress of Activities
- 1-3. Achievement of Output
- 1-4. Achievement of the Project Purpose
- 1-5. Changes of Risks and Actions for Mitigation
- 1-6. Progress of Actions undertaken by JICA
- 1-7. Progress of Actions undertaken by Gov. of Malawi
- 1-8. Progress of Environmental and Social Considerations (if applicable)
- 1-9. Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)
- 1-10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

**2 Delay of Work Schedule and/or Problems (if any)**

- 2-1. Detail
- 2-2. Cause
- 2-3. Action to be taken
- 2-4. Roles of Responsible Persons/Organization (JICA, Gov. of Malawi, etc.)

**3 Modification of the Project Implementation Plan**

3-1. PO:

3-2. Other modifications on detailed implementation plan

*(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)*

This is initial Monitoring Sheet at the initial point. Above information will be reported from 2<sup>nd</sup> Monitoring Sheet.

#### **4 Preparation of Gov. of Malawi toward after completion of the Project**

Above information will be reported after start of Project activities.

## **II. Project Monitoring Sheet I & II**      *(Version 1) as attached*

Project Design Matrix

**Project Title: The Project for Capacity Development for Air Navigation Services in the Republic of Malawi**

**Implementing Agency: DCA**

**Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**

**Period of Project: 2 years (24/04/2014-20/05/2016)**


**Project Site: School of Aviation**

**Model Site:**

Version 1

Dated 30, May, 2014

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p><b>Overall Goal (Long-term objective)</b> Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p>Number of officers who have successfully completed the improved/developed training courses for each year</p>	<p>- Training records</p>			
<p><b>Project Purpose (Objective at the end of the Project)</b> Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.</p>	<p>Number of instructors who can conduct the improved/developed training courses (fulltime + part time)  <input type="checkbox"/> ATC/FIS: 6 (1)  <input type="checkbox"/> AIS: 4 (1)  <input type="checkbox"/> ACS: 4 (1)  <input type="checkbox"/> Electronic Eng.: 4 (1)  <input type="checkbox"/> E/M Eng.: 4 (1)                      Number in ( ) indicates current situation.                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least XXX %. (Target value "XXX %" will be set with the results of a baseline survey.)</p>	<p>- Project Progress Reports - Terminal Evaluation Report</p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		
<p><b>Outputs (Objectives to be realized by Activities to achieve the Project Purpose)</b>                      1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.                      2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.                      3. Training of Electronic Engineering is improved.                      4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.</p>	<p>- Training syllabus and training materials are improved or developed for the following number of courses:  <input type="checkbox"/> ATC/FIS: 6  <input type="checkbox"/> AIS/ACS: 2  <input type="checkbox"/> Electronic Eng.: 6  <input type="checkbox"/> E/M Eng.: 2                      - The following number of DCA officers successfully complete supervisor/ advanced/specialist training:  <input type="checkbox"/> Instructors: 10  <input type="checkbox"/> ATC: 4  <input type="checkbox"/> AIS: 4  <input type="checkbox"/> ACS: 4  <input type="checkbox"/> Aeronautical Cartography: 2  <input type="checkbox"/> PANS/OPS: 2  <input type="checkbox"/> ILS Maintenance: 4                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least XXX %.</p>	<p>- Project Progress Reports  - Results of completion tests for supervisor/ advanced/specialist training courses</p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		

Activities (Specific actions to produce each Output by use of Inputs)	Inputs		Pre-Conditions
	The Japanese Side	The DCA Side	
<u>Improvement of ATC and FIS Training</u> 1-1. Review current training syllabus and training materials 1-2. Improve/develop training syllabus and training materials 1-3. Conduct training of instructors 1-4. Implement improved training courses 1-5. Implement supervisor training 1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 1-7. Improve the training courses based on the results from the monitoring and evaluation	- Experts <input type="checkbox"/> Chief Advisor/Training Manager <input type="checkbox"/> ATC Training Specialist <input type="checkbox"/> AIS/ACS Training Specialist <input type="checkbox"/> Electronic Maintenance Training Specialist <input type="checkbox"/> Electrical/ Mechanical Maintenance Training Specialist <input type="checkbox"/> Others as necessary - Training materials - Training equipment - Overseas training	- Counterpart Personnel - Support Staff - Project Office Space - Project Office Expenses - Travel Expenses of Counterpart Personnel within Malawi - The others mentioned in Appendix 1, II, 6, of R/D - DCA implements the Project with sufficient ownership.	- DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project. - New trainees are recruited as scheduled.
<u>Improvement of AIS and ACS Training</u> 2-1. Review current training syllabus and training materials 2-2. Improve/develop training syllabus and training materials 2-3. Conduct training of instructors 2-4. Implement improved training courses 2-5. Implement supervisor/advanced/specialist training 2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 2-7. Improve the training courses based on the results from the monitoring and evaluation			
<u>Improvement of Electronic Engineering Training</u> 3-1. Review current training syllabus and training materials 3-2. Improve/develop training syllabus and training materials 3-3. Conduct training of instructors 3-4. Implement improved training courses 3-5. Implement equipment-specific training 3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 3-7. Improve the training courses based on the results from the monitoring and evaluation			<b>&lt;Issues and countermeasures&gt;</b>
<u>Improvement of Electrical/Mechanical Engineering Training</u> 4-1. Review current training syllabus and training materials 4-2. Improve/develop training syllabus and training materials 4-3. Conduct training of instructors 4-4. Implement improved training courses 4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 4-6. Improve the training courses based on the results from the monitoring and evaluation			



# Tentative Plan of Operation

Version 1  
Dated 30, May, 2014  
Monitoring

Project Title: The Project for Capacity Development for Air Navigation Services in the Republic of Malawi

Inputs from JICA	YY/MM Month	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Remarks	Monitoring			
																													1st	2nd	3rd	4th
<b>1. Expert</b>																																
Chief Advisor	Plan																															
Deputy Chief Advisor/Capacity Development Specialist	Plan																															
Air Traffic Controller (ATC), Aeronautical Information Service (AIS) Training Specialist - 1	Plan																															
Air Traffic Controller (ATC), Aeronautical Information Service (AIS) Training Specialist - 2	Plan																															
Communications, Navigation and Surveillance (CNS) Maintenance Training Specialist	Plan																															
Electrical/Mechanical Maintenance Training Specialist	Plan																															
Flight Procedure Design Specialist	Plan																															
<b>2. Training Equipment</b>																																
PC-based Simulator Training System for Air Traffic Controllers	Plan																															
Computer Based Training (ATC)	Plan																															
Test Instrument and Equipment	Plan																															
Learning Aids and Office Equipment	Plan																															
<b>3. Overseas Training</b>																																
Instructor Development Program (Training of Trainer)	Plan																												10 people			
Supervisor Training for Air Traffic Controllers (Team Resource Management)	Plan																												4 people			
Supervisor/Advanced Training for AIS Officers	Plan																												4 people			
Supervisor/Advanced Training for Aeronautical Communication Officers	Plan																												4 people			
Aeronautical Cartography (Aeronautical Charts)	Plan																												Change to training by JICA Expert in Malawi			
PANS/OPS Instrument Procedure Design - Conventional Flight Procedures	Plan																												Change to training by JICA Expert in Malawi			
Maintenance of Normarc ILS 7013B/7033B	Plan																												Change to training by JICA Expert in Malawi			
<b>Inputs from DCA</b>																																
<b>1. Project Director, etc.</b>																																
Project Director, Project Manager, Co-Project Manager, Project Coordinators	Plan																															
<b>2. Instructors</b>																																
2-1 ATC/FIS Instructors (3 full-time and 3 part-time/OJT)	Plan																															
2-2 AIS/ACS Instructors (4 full-time)	Plan																															
2-3 Electronic Engineering Instructors (2 full-time and 2 part-time)	Plan																															
2-4 Electrical/Mechanical Engineering Instructors (2 full-time and 2 part-time)	Plan																															
<b>3. New Students to School of Aviation</b>																																
3-1 Air Traffic Controllers (12 students)	Plan																															
3-2 Flight Information Officers (8 students)	Plan																															
3-3 AIS Officers (10 students)	Plan																															
3-4 Aeronautical Communications Officers (6 students)	Plan																															
3-5 Electronic Engineers (8 students)	Plan																												Start from January 2014			
3-6 Electrical/Mechanical Engineers (2/2 students)	Plan																												Start from March 2014			
<b>4. Update of DCA Manuals and Procedures</b>																																
4-1 Update of Manual of Air Traffic Services	Plan																															
4-2 Update of CNS Equipment Maintenance Procedures	Plan																															
<b>5. Project Office</b>																																
5-1 Project Office	Plan																															
5-2 ATC Simulator Room	Plan																															
5-3 CBT Room	Plan																															
5-4 Electronic Training Laboratory	Plan																															
<b>Activities</b>																																
<b>Sub-Activities</b>																																
<b>Output 1-A: Improvement of Basic Training for Air Traffic Controllers</b>																																
1-A-1 Review current training syllabus/materials	Plan																															
1-A-2 Improve/develop training syllabus/materials	Plan																															
1-A-3 Conduct training of instructors	Plan																															
1-A-4 Implement improved training courses	Plan																															
1-A-5 Implement supervisor training (Overseas training)	Plan																															
1-A-6 Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																															
1-A-7 Improved training based on the result from the monitoring and evaluation	Plan																															

Output 1-B: Improvement of Aerodrome Control Training			
1-B-1	Review current training syllabus/materials	Plan	Actual
1-B-2	Improve/develop training syllabus/materials	Plan	Actual
1-B-3	Conduct training of instructors	Plan	Actual
1-B-4	Implement improved training courses	Plan	Actual
1-B-5	Implement supervisor training (Overseas training)	Plan	Actual
1-B-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan	Actual
1-B-7	Improved training based on the result from the monitoring and evaluation	Plan	Actual
Output 1-C: Improvement of Procedural Approach Control (Non-Radar) Training			
1-C-1	Review current training syllabus/materials	Plan	Actual
1-C-2	Improve/develop training syllabus/materials	Plan	Actual
1-C-3	Conduct training of instructors	Plan	Actual
1-C-4	Implement improved training courses	Plan	Actual
1-C-5	Implement supervisor training (Overseas training)	Plan	Actual
1-C-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan	Actual
1-C-7	Improved training based on the result from the monitoring and evaluation	Plan	Actual
Output 1-D: Improvement of Procedural Area Control Training			
1-D-1	Review current training syllabus/materials	Plan	Actual
1-D-2	Improve/develop training syllabus/materials	Plan	Actual
1-D-3	Conduct training of instructors	Plan	Actual
1-D-4	Implement improved training courses	Plan	Actual
1-D-5	Implement supervisor training (Overseas training)	Plan	Actual
1-D-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan	Actual
1-D-7	Improved training based on the result from the monitoring and evaluation	Plan	Actual
Output 1-E: Improvement of New CNS/ATM Technology for ATC Training			
1-E-1	Improve/develop training materials	Plan	Actual
1-E-2	Conduct training of DCA staffs	Plan	Actual
1-E-3	Conduct monitoring and evaluation of the trainings	Plan	Actual
1-E-4	Improved training based on the result from the monitoring and evaluation	Plan	Actual
Output 1-F: Improvement of Basic Flight Information Officer Training			
1-F-1	Review current training syllabus/materials	Plan	Actual
1-F-2	Improve/develop training syllabus/materials	Plan	Actual
1-F-3	Conduct training of instructors	Plan	Actual
1-F-4	Implement improved training courses	Plan	Actual
1-F-5	Implement supervisor training (Overseas training)	Plan	Actual
1-F-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan	Actual
1-F-7	Improved training based on the result from the monitoring and evaluation	Plan	Actual
Output 2-A: Improvement of Basic AIS Officer Training			
2-A-1	Review current training syllabus/materials	Plan	Actual
2-A-2	Improve/develop training syllabus/materials	Plan	Actual
2-A-3	Conduct training of instructors	Plan	Actual
2-A-4	Implement improved training courses	Plan	Actual
2-A-5	Implement supervisor/advanced/specialist training (Overseas training)	Plan	Actual
2-A-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan	Actual
2-A-7	Improved training based on the result from the monitoring and evaluation	Plan	Actual
Output 2-B: Improvement of Basic Aeronautical Communication Officer Training			
2-B-1	Review current training syllabus/materials	Plan	Actual
2-B-2	Improve/develop training syllabus/materials	Plan	Actual
2-B-3	Conduct training of instructors	Plan	Actual
2-B-4	Implement improved training courses	Plan	Actual
2-B-5	Implement supervisor/advanced/specialist training (Overseas training)	Plan	Actual
2-B-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan	Actual
2-B-7	Improved training based on the result from the monitoring and evaluation	Plan	Actual
Output 3-A: Improvement of General Communication Maintenance for Electronic Engineers			
3-A-1	Review current training syllabus/materials	Plan	Actual
3-A-2	Improve/develop training syllabus/materials	Plan	Actual



**TO CR of JICA Malawi OFFICE****PROJECT MONITORING SHEET****Project Title: The Project for Capacity Development for Air Navigation Services****Version of the Sheet: Ver.1 (Term: 24 April, 2014 - 20 May, 2016)****Name: Hiroshi Mizumasa****Title: Chief Advisor****Submission Date: January, 2015****I. Summary****1 Progress****1-1. Progress of Inputs**

(1) The Japanese Side

1) Experts

Six experts (except Flight Procedure Design Expert) were assigned according to plan.

[JICA Experts]

Mr. Hiroshi Mizumasa, Chief Advisor

Ms. Mie Nagayasu, Deputy Chief Advisor

Mr. Kiichiro Hirano, ATC &amp; AIS Training Specialist – 1

Mr. Daniel Paul Diggins, ATC &amp; AIS training Specialist – 2

Mr. Reynaldo Alido Batacan, CNS Maintenance Training Specialist

Mr. Kiyoshi Suzuki, E/M Maintenance Training Specialist

\* Expert for Flight Procedure Design Specialist will be named in 2015

Details of their assignment are shown in Project Monitoring Sheet (Plan of Operation) (see Annex-2).

2) Training Materials

Progress on the following training materials was made by the experts:

I. Air Traffic Control Assistant/Basic	50%
II. Aerodrome Control	30%
III. CNS/ATM for ATC	70%
IV. Aeronautical Information Service	40%
V. Electronic Maintenance - Communication	20%
VI. Communication Equipment and System	30%
VII. Navigational Aids and Radar Theory	30%
VIII. CNS/ATM for ATSEP (Engineer)	70%

Other training materials, i.e. "Approach Control - Non Radar", "Area Control - non Radar", "Flight Information Service", "Aeronautical Fixed Service Operator" will be prepared in due

course.

### 3) Training Equipment

The following training equipment were procured:

- I. Computer Based Training ATC (November, 2014)
- II. Test Instrument and Equipment (December, 2014)
- III. Learning Aids and Office Equipment (June, 2014)

### 4) Overseas Training (as of February 2015)

DCA officials participated/are participating in the following two overseas trainings:

- I. Team Resource Management Course: January 26<sup>th</sup> to 30<sup>th</sup>, 2015 <South Africa>\*<sup>1</sup>
- II. Supervisory Management Course: February 2<sup>nd</sup> to 27<sup>th</sup>, 2015 <Kenya>\*<sup>2</sup>

[Organizers]

\*1: Air Traffic and Navigation Services (ATNS) / Johannesburg, South Africa

\*2: East African School of Aviation (EASA) / Nairobi, Kenya

### 5) Training in School Of Aviation (SOA) (as of February 2015)

Two trainings for instructors were held at the School of Aviation as follows:

- I. Computer Based Training (ATC)
  - i) Date: November 24<sup>th</sup>, 2014 (1/2 day)
  - ii) No. of Participants: 6
- II. Test Equipment Course
  - i) Date: January 12<sup>th</sup> – 23<sup>rd</sup>, 2015 (10 days)
  - ii) No. of Participants: 5

### (2) The Malawi side

#### 1) Counterpart Personnel (C/P)

The following DCA Officials were assigned for an effective and sound management of the project (see also Annex-2 “Plan of Operation”).

[Counterpart Personnel]

Project Director (P/D): Mr. A. C. Mtilatila, Director of Civil Aviation

Project Manager (P/M): Mr. A. G. Matiya, Deputy Director (Operations)

Co-project Manager (Co-P/M): Mr. S. Galafa, Principal, School of Aviation

Project Coordinator: Mr. F. Kholowa, Chief Air Traffic Services Officer, Operation  
Division

Project Coordinator: Mr. M.F.T. Bongwe, Chief Telecommunications Engineer,  
Operation Division

Trainers: Mr. S. Galafa, Principal, School of Aviation [ATC and FIS training]

Mr. R. Y. Malanga, Lecturer School of Aviation [AIS and ACS training]

Mr. S. Liundi, Lecturer School of Aviation [AIS and ACS training]  
 Mr. R. Kanunkha, Head of Engineering Section, KIA [Electronic Engineering & Electrical Engineering (CNS) training]  
 Mr. C. F. Betenigo, Electronics Engineer, KIA [Electronic Engineering (CNS) training]  
 Mr. T. Mtonga, Electrical Engineer, KIA [Electrical/ Mechanical Engineering training]

2) Support Staff

Eight instructors in total were assigned to the Project as support staff personnel:

[Support Staff]

Ms. L. Manondo, ATC, KIA [ATC and FIS Training Instructor]  
 Mr. D. Zamaele, ATC, Chileka Airport [ATC and FIS Training Instructor]  
 Mr. F. Chiespeya, ATC, KIA [ATC and FIS Training Instructor]  
 Mr. J. Kazito, ATC, KIA [ATC and FIS Training Instructor]  
 Mr. R. Nkosi, Air Crew Briefing Officer, DCA [AIS & ACS Training Instructor]  
 Mr. N. B. Kaliyasi, Communication Officer, KIA [AIS & ACS Training Instructor]  
 Mr. S. Kunje, Electronics Engineer, Chileka Airport [Electronic Engineering (CNS) Training Instructor]  
 Mr. O. Yokonia, Electrical Engineer, Chileka Airport [E/M Training Instructor]

3) Project Office Space

Office space for the Project was provided in School of Aviation (SOA), DCA.

4) Project Office Expenses

Utility cost was paid by the Malawi side. As of January 2015, DCA provided the following expenses for the project office.

I. Purchase of two desktop computers:	1,055,210.00 MKW
II. Purchase and installation of two split air conditioners:	989,114.98 MKW

5) Travel Expenses of Counterpart Personnel within Malawi

The travel expenses for C/P to travel outside the Lilongwe area provided by DCA were as follows:

I. Transport costs and subsistence allowances for students from Chileka (Team Resource Management Course/ from Chileka to Lilongwe)	76,000.00 MKW
II. Transport costs for Lilongwe students (Team Resource Management Course/ from Blantyre to Lilongwe)	70,000.00 MKW

6) Others mentioned in Appendix 1, II, 6, of R/D

As agreed in R/D (Appendix 1, II, 6), appropriate considerations were made by DCA for environmental and social impacts of the Project, based on “JICA Guidelines for Environmental and Social Considerations”.

## **1-2. Progress of Activities**

(1) Summary of Work Progress (June – August 2014)

1) Holding of the first JCC meeting

The first JCC meeting was held on 30<sup>th</sup> June 2014. Five people from the DCA side including the Director, the Deputy Director and other three officials, two officials from the JICA Malawi Office, and five members from the JICA Expert Team (hereinafter referred to as “JET”) participated in the first JCC meeting. The JET Leader, Mr. Hiroshi Mizumasa presented summary of the Project. The minutes of meeting for implementation of the Project was signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Kazuhiko Tokuhashi, Resident Representative, JICA Malawi Office.

2) Holding of the second JCC meeting

The second JCC meeting was held on 1<sup>st</sup> August 2014. Five people from the DCA side including the Director, the Deputy Director and other three officials, one official from the JICA Malawi Office, and two members from the JICA Expert Team (hereinafter referred to as “JET”) participated in the second JCC meeting. The issues discussed and agreed were as follows:

- I. Approval of the Work Plan
- II. Confirmation of the Instructor Nomination
- III. Approval of updated PDM
- IV. Confirmation of expense for domestic training/counterparts works

The minutes of meeting was signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Hiroshi Mizumasa, the JET Leader.

3) Baseline survey

JET conducted the baseline survey on capacity of SOA which includes the capacities of ATM (ATC, FIS, AIS, ACS), Electronics Engineering (CNS), Electrical and Mechanical (E/M).

a. Survey methods

They assessed their capacities from the following assessment viewpoints or items which are based on the ICAO’s standard of assessing training organization.

Assessment items for ATM, CNS and E/M:

- 1) Training Regulation and Policy;

- 2) Organization;
- 3) Instructor (Full time), Supporting Staff (Part time) and Qualification;
- 4) Quality Control;
- 5) Curriculum/Syllabus;
- 6) Operating Rules;
- 7) Training Facilities (Aids);
- 8) Reference Material;
- 9) Examination and Examination Development;
- 10) On-the-Job Training;
- 11) Training, Certificate and License;
- 12) International Cooperation, Certification and Recognition; and
- 13) Training Demand, potential training participants (Both International and National)

\*In addition to above 13 items, the following items are added for CNS and E/M respectively;

- 14) CNS System Admin on Laboratory, Simulator and Workshop,
- 14) E/M System Admin on Laboratory, Simulator and Workshop.

#### b. Survey results

##### b.1 Results of the capacity of ATM

As the result of the above survey, ATM qualifications of instructors are not well established. Instructor training programs for ATM instructors did not exist. Current instructors rely solely on their personally developed teaching skills and techniques. Most instructors are close to retirement age. ATM curriculum/syllabus is informal and not structured. Some have been used since the 1970's. Consequently, most of them are outdated. Training facilities are not enough and generally inadequate at the School of Aviation.

The result of the survey is shown in Annex-4 of the work plan.

##### b.2 Results of the capacity of CNS

The Aeronautical Telecommunication qualifications of instructors are not well established. Instructor training programs for CNS instructors did not exist. A structured CNS curriculum/syllabus was not used for at least the last 5 years. There was no CNS training laboratory facilities for practical application/certification of students. There was no System Administration on Laboratory, Simulator and Workshop. Reference materials were outdated and not responsive to new CNS/ATM technology systems.

The result of the survey is shown in Annex-5 of the work plan.

##### b.3 Results of the capacity of E/M



The E/M Unit has no instructor position at the MSOA. There are three (3) identified part time instructors ready to assume duties when training commences. There was no E/M curriculum/syllabus. E/M had no training laboratory test equipment and tools for practical application/certification of students.

The result of the survey is shown in Annex-6 of the work plan.

#### 4) Review of the existing training materials

The Project team, composed of JET members and the counterpart personnel (C/P) observed existing training syllabus and textbooks for all training courses conducted in School of Aviation (see "Results of the PDM Activities", described below).

#### 5) Preparation of a work plan

The Project team prepared a work plan describing the material development, instructor training, as well as the method and schedule for the implementation of 16 training courses, on which agreement was reached with Malawi side.

#### 6) Preparation of base materials for training courses

The Project team is proceeding to preparation of training course materials which follows ICAO guideline.

#### 7) Procurement of equipment

The Project team procured equipment necessary for operating the Project in line with the JICA equipment procurement guideline.

#### (2) Results of the PDM Activities

Following is the summary of the Project activities having been conducted from June 2014 to January 2015. It is described according to the original PDM Activities.

#### 1) Improvement of ATC and FIS Training

<u>PDM Activities</u>	<u>Results</u>
1-1. Review current training syllabus and training materials	It has already reviewed and all syllabi are 1980's material. Project will make renew it.
1-2. Improve/develop training syllabus and training materials	Two Base training materials were prepared and under proceeding for third one.
1-3. Conduct training of instructors	- The training will be held in April 2015 - The training will be held at Nairobi in August and October 2015
1-4. Implement improved training courses	-

1-5. Implement supervisor training	The training will be held at Johannesburg in January and Nairobi in February..
1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	-
1-7. Improve the training courses based on the results from the monitoring and evaluation	-
<b>2) Improvement of AIS and ACS Training</b>	
<u>PDM Activities</u>	<u>Results</u>
2-1. Review current training syllabus and training materials	It has already reviewed and all syllabi are 1980's material. Project will make renew it.
2-2. Improve/develop training syllabus and training materials	One Base training material was prepared and under proceeding for second one.
2-3. Conduct training of instructors	- The training will be held at Nairobi in August and October 2015
2-4. Implement improved training courses	-
2-5. Implement supervisor training	The training will be held at Johannesburg in January and Nairobi in February..
2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	-
2-7. Improve the training courses based on the results from the monitoring and evaluation	-
<b>3) Improvement of Electronic Engineering Training</b>	
<u>PDM Activities</u>	<u>Results</u>
3-1. Review current training syllabus and training materials	It has already reviewed and all syllabi are 1980's material. Project will make renew it.
3-2. Improve/develop training syllabus and training materials	One Base training material is prepared and under proceeding for others.
3-3. Conduct training of instructors	- The training will be held at Nairobi in August and October 2015 - Test equipment training instructors was already done and communications training will be held in May.
3-4. Implement improved training courses	-

3-5. Implement supervisor training	The training will be held at Johannesburg in January and Nairobi in February..
3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Partial monitoring and evaluation was done through the test equipment training.
3-7. Improve the training courses based on the results from the monitoring and evaluation	-

#### 4) Improvement of Electrical/Mechanical Engineering Training

<u>PDM Activities</u>	<u>Results</u>
4-1. Review current training syllabus and training materials	It has already reviewed and all syllabi are 1980's material. Project will make renew it.
4-2. Improve/develop training syllabus and training materials	-
4-3. Conduct training of instructors	- The training will be held at Nairobi in August and October 2015 - AFL & UPS training will be held in April 2015
4-4. Implement improved training courses	-
4-5. Implement supervisor training	The training will be held at Johannesburg in January and Nairobi in February 2015..
4-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	-
4-7. Improve the training courses based on the results from the monitoring and evaluation	-

### 1-3. Achievement of Output

Achievement of each output is observed according to the PDM indicators.

(1) Achievement of "Output 1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved."

Six course syllabuses and materials were reviewed and one course syllabus was prepared at this stage. One ATC instructor is identified to be able to conduct CBT exercise.

(2) Achievement of "Output 2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved."

Two course syllabuses and materials were reviewed and one course syllabus was prepared at this stage.

(3) Achievement of “Output 3. Training of Electronic Engineering is improved.”  
Six course syllabuses and materials were reviewed and one course syllabus was prepared at this stage.

(4) Achievement of “Output 4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.”  
Two course syllabuses and materials were reviewed at this stage.

**Achievement of Outputs**

<u>Original Indicators for the PDM Outputs</u>		<u>Baseline date as of July 2014</u>	<u>Achievement as of January 2015</u>
-Training syllabus and training materials are improved or developed for the following number of courses:	ATC/FIS: 6		1 syllabus is prepared
	AIS/ACS: 2		1 syllabus is prepared
	Electronic Eng.: 6	-There were 6 kinds of syllabus, prepared in March, 2001. -Training materials were prepared for every syllabus. They were prepared in the 1970's or in the beginning of the 1980's	1 syllabus is prepared
	E/M Eng.: 2		
-The following number of DCA officers successfully complete supervisor/advanced/ specialist training:	Instructors: 10		
	ATC/FIS: 4		
	AIS/ACS: 4		
	Aeronautical Cartography: 2		
	PANS/OPS: 2		
	ILS Maintenance: 4		
-Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.			

**1-3. Achievement of the Project Purpose**

Achievement of the project purpose is observed according to the PDM indicators. Number of instructors who can conduct the improved/developed training courses is increased slightly since the baseline date.

Achievement of the Project Purpose																								
<u>Original Indicators for the Project Purpose</u>		<u>Baseline date as of July 2014</u>	<u>Achievement as of January 2015</u>																					
-Number of instructors who can conduct the improved/developed training courses (fulltime + part time)	ATC/FIS: 6	1	1																					
	AIS/ACS: 4	2	2																					
	Electronic Eng.: 4	1	1																					
	E/M Eng.: 4		1																					
-Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.																								
<p><b>1-5. Changes of Risks and Actions for Mitigation</b></p> <p>No major changes were seen in the PDM Pre-conditions and Important Assumptions, therefore no special actions need to be taken.</p> <p>(1) Pre-conditions</p> <table border="1"> <thead> <tr> <th><u>PDM Pre-conditions</u></th> <th><u>Current Situations</u></th> <th><u>Actions for mitigation</u></th> </tr> </thead> <tbody> <tr> <td>1) DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.</td> <td>-Project office space was provided at the time of initiation of the work in Malawi in June 2014. -Counterpart personnel (C/P) was engaged in the Project, although allocation of special budget for personnel expenses for C/P was not seen. It did not affect to the Project operation.</td> <td>-No special actions were taken.</td> </tr> <tr> <td>2) New trainees are recruited as scheduled.</td> <td>-New trainees were not seen at the time of initiation of the work in Malawi in June 2014.</td> <td>-No special actions were taken.</td> </tr> </tbody> </table> <p>(2) Important Assumption when proceeding from Activities to Outputs</p> <table border="1"> <thead> <tr> <th><u>Important Assumption</u></th> <th><u>Current Situations</u></th> <th><u>Actions for mitigation</u></th> </tr> </thead> <tbody> <tr> <td>1) DCA implements the Project with sufficient ownership.</td> <td>-DCA's ownership was seen.</td> <td>-No special actions were taken.</td> </tr> </tbody> </table> <p>(3) Important Assumptions when proceeding from Outputs to the Project Purpose</p> <table border="1"> <thead> <tr> <th><u>Important Assumption</u></th> <th><u>Current Situations</u></th> <th><u>Actions for mitigation</u></th> </tr> </thead> <tbody> <tr> <td>1) No major change of the international standards on air navigation services is occurred.</td> <td>-No major changes were seen. It did not affect to the Project operation.</td> <td>-No special actions were taken.</td> </tr> </tbody> </table>				<u>PDM Pre-conditions</u>	<u>Current Situations</u>	<u>Actions for mitigation</u>	1) DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.	-Project office space was provided at the time of initiation of the work in Malawi in June 2014. -Counterpart personnel (C/P) was engaged in the Project, although allocation of special budget for personnel expenses for C/P was not seen. It did not affect to the Project operation.	-No special actions were taken.	2) New trainees are recruited as scheduled.	-New trainees were not seen at the time of initiation of the work in Malawi in June 2014.	-No special actions were taken.	<u>Important Assumption</u>	<u>Current Situations</u>	<u>Actions for mitigation</u>	1) DCA implements the Project with sufficient ownership.	-DCA's ownership was seen.	-No special actions were taken.	<u>Important Assumption</u>	<u>Current Situations</u>	<u>Actions for mitigation</u>	1) No major change of the international standards on air navigation services is occurred.	-No major changes were seen. It did not affect to the Project operation.	-No special actions were taken.
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(4) Important Assumptions when proceeding from the Project Purpose to the Overall Goal		
<u>Important Assumption</u>	<u>Current Situations</u>	<u>Actions for mitigation</u>
1) Trained counterpart personnel continue to be engaged in the activities of air navigation services.	-The C/P has not been trained sufficiently, yet.	-No special actions were taken.
2) No major change in the national policy on air navigation services within the national plan/ strategy is occurred.	-Air Transportation Infrastructure Planning Policy is in force. No major changes in the policy were seen.	-No special actions were taken.

**1-6. Progress of Actions undertaken by JICA**  
At the time of first arrival of JET, project office facility had not been prepared yet; therefore the JICA Malawi office sent a letter of request on installation of equipment to the DCA in late April, 2014.

**1-7. Progress of Actions undertaken by Gov. of Malawi**  
No actions have been taken.

**1-8. Progress of Environmental and Social Considerations (if applicable)**  
This Project focuses on enhancement of capacity for the DCA personnel concerned in the Project to conduct the trainings for air navigation services. It does not have a plan to construct any new large-scale infrastructures. It is expected that the Project will have a minimal negative impact on the environment.

**1-9. Progress of Considerations on Gender/ Peace Building/ Poverty Reduction (if applicable)**  
No considerable issues were observed.

**1-10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)**  
(1) European Aviation Safety Agency (EASA) workshop  
EASA is currently assisting DCA in training on safety management system (SMS) and auditing techniques. However this training is targeted for the higher executives of the DCA, whereas the JICA project is targeted for the professionals and engineers. Their project has no adverse impact on JICA training participation.

(2) European Investment Bank (EIB) fund

EIB is funding for the procurement of some safety equipment such as fire trucks in KIA. JET already had several meetings with EIB officers in order to avoid any overlapping on equipment provided for the DCA.

## **2 Delay of Work Schedule and/or Problems (if any)**

### **2-1. Detail**

The test equipment training was supposed to be held for instructors in December 2014. However arrival of the test equipment was delayed so the training was postponed one month later.

### **2-2. Cause**

The procedures of the custom clearance in Malawi had not been through smoothly upon arrival of the equipment.

### **2-3. Action to be taken**

The abovementioned training was rescheduled to be held in late January, 2015. However, JET will be flexible in rescheduling the future trainings taking into account the possible delay of equipment.

### **2-4. Roles of Responsible Persons/ Organization (JICA, Gov. of Malawi, etc.)**

JET requests that the DCA might be of any help on smooth custom clearance, if possible.

## **3 Modification of the Project Implementation Plan**

### **3-1. PO**

No major modification was made. However, some of the JICA expert members were changed due to personal health issues, which affected the original PO. Updated PO is attached as Annex 2.

### **3-2. Other modifications on detailed implementation plan**

*(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)*

None.

## **4 Preparation of Gov. of Malawi toward after completion of the Project**

N/A yet.

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**II. Project Monitoring Sheet I & II**      *(Version 1) as attached*



Project Design Matrix

**Project Title: The Project for Capacity Development for Air Navigation Services in the Republic of Malawi**

**Implementing Agency: DCA**

**Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**

**Period of Project: 2 years (24/04/2014-20/05/2016)**


Version 2

Dated 1, Aug, 2014

**Project Site: School of Aviation**

**Model Site:**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p><b>Overall Goal (Long-term objective)</b> Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p>Number of officers who have successfully completed the improved/developed training courses for each year</p>	<p>- Training records</p>			
<p><b>Project Purpose (Objective at the end of the Project)</b> Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.</p>	<p>Number of instructors who can conduct the improved/developed training courses (fulltime + part time)  <input type="checkbox"/> ATC/FIS: 6 (1)  <input type="checkbox"/> AIS/ACS: 4 (2)  <input type="checkbox"/> Electronic Eng.: 4 (1)  <input type="checkbox"/> E/M Eng.: 2 (1)                      Number in ( ) indicates current situation.                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.</p>	<p>- Monitoring Sheet - Terminal Evaluation Report</p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		
<p><b>Outputs (Objectives to be realized by Activities to achieve the Project Purpose)</b>                      1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.                      2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.                      3. Training of Electronic Engineering is improved.                      4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.</p>	<p>- Training syllabus and training materials are improved or developed for the following number of courses:  <input type="checkbox"/> ATC/FIS: 6  <input type="checkbox"/> AIS/ACS: 2  <input type="checkbox"/> Electronic Eng.: 6  <input type="checkbox"/> E/M Eng.: 2                      - The following number of DCA officers successfully complete supervisor/ advanced/specialist training:  <input type="checkbox"/> Instructors: 10  <input type="checkbox"/> ATC/FIS: 4  <input type="checkbox"/> AIS/ACS: 4  <input type="checkbox"/> Aeronautical Cartography: 2  <input type="checkbox"/> PANS/OPS: 2  <input type="checkbox"/> ILS Maintenance: 4                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.</p>	<p>- Monitoring Sheet  - Results of completion tests for supervisor/ advanced/specialist training courses</p>	<p>- No major change of the international standards on air navigation services is occurred.</p>		

Activities (Specific actions to produce each Output by use of Inputs)	Inputs		Pre-Conditions
	The Japanese Side	The DCA Side	
<u>Improvement of ATC and FIS Training</u> 1-1. Review current training syllabus and training materials 1-2. Improve/develop training syllabus and training materials 1-3. Conduct training of instructors 1-4. Implement improved training courses 1-5. Implement supervisor training 1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 1-7. Improve the training courses based on the results from the monitoring and evaluation	- Experts <input type="checkbox"/> Chief Advisor/Training Manager <input type="checkbox"/> ATC Training Specialist <input type="checkbox"/> AIS/ACS Training Specialist <input type="checkbox"/> Electronic Maintenance Training Specialist <input type="checkbox"/> Electrical/ Mechanical Maintenance Training Specialist <input type="checkbox"/> Others as necessary - Training materials - Training equipment - Overseas training	- Counterpart Personnel - Support Staff - Project Office Space - Project Office Expenses - Travel Expenses of Counterpart Personnel within Malawi - The others mentioned in Appendix 1, II, 6, of R/D	- DCA implements the Project with sufficient ownership.
<u>Improvement of AIS and ACS Training</u> 2-1. Review current training syllabus and training materials 2-2. Improve/develop training syllabus and training materials 2-3. Conduct training of instructors 2-4. Implement improved training courses 2-5. Implement supervisor/advanced/specialist training 2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 2-7. Improve the training courses based on the results from the monitoring and evaluation			<b>Pre-Conditions</b> - DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project. - New trainees are recruited as scheduled.
<u>Improvement of Electronic Engineering Training</u> 3-1. Review current training syllabus and training materials 3-2. Improve/develop training syllabus and training materials 3-3. Conduct training of instructors 3-4. Implement improved training courses 3-5. Implement equipment-specific training 3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 3-7. Improve the training courses based on the results from the monitoring and evaluation			
<u>Improvement of Electrical/Mechanical Engineering Training</u> 4-1. Review current training syllabus and training materials 4-2. Improve/develop training syllabus and training materials 4-3. Conduct training of instructors 4-4. Implement improved training courses 4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors 4-6. Improve the training courses based on the results from the monitoring and evaluation			







Activities		YY/MM Month	'14/4					'15/1					'16/1					Responsible Organization					Achievements	Issue & Countermeasures					
Sub-Activities			1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th			21st	22nd	23rd	24th	25th
<b>Output 3-E: Improvement of Maintenance Courses for Maru DVOR/DME</b>																													
3-E-1	Improve/develop training materials	Plan																											
		Actual																											
3-E-2	Conduct training of DCA staffs	Plan																											
		Actual																											
3-E-3	Conduct monitoring and evaluation of the trainings	Plan																											
		Actual																											
3-E-4	Improved training based on the result from the monitoring and evaluation	Plan																											
		Actual																											
<b>Output 3-F: Improvement of New CNS/ATM Technology for Electronic Engineer Training</b>																													
3-F-1	Improve/develop training materials	Plan																											
		Actual																											
3-F-2	Conduct training of DCA staffs	Plan																											
		Actual																											
3-F-3	Conduct monitoring and evaluation of the trainings	Plan																											
		Actual																											
3-F-4	Improved training based on the result from the monitoring and evaluation	Plan																											
		Actual																											
<b>Output 4-A: Improvement of Concept Courses for Airfield Lighting System</b>																													
4-A-1	Review current training syllabus/materials	Plan																											
		Actual																											
4-A-2	Improve/develop training syllabus/materials	Plan																											
		Actual																											
4-A-3	Conduct training of instructors	Plan																											
		Actual																											
4-A-4	Implement improved training courses	Plan																											
		Actual																											
4-A-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																											
		Actual																											
4-A-6	Improved training based on the result from the monitoring and evaluation	Plan																											
		Actual																											
<b>Output 4-B: Improvement of Concept Courses for Uninterrupted Power Supply System (UPSS)</b>																													
4-B-1	Review current training syllabus/materials	Plan																											
		Actual																											
4-B-2	Improve/develop training syllabus/materials	Plan																											
		Actual																											
4-B-3	Conduct training of instructors	Plan																											
		Actual																											
4-B-4	Implement improved training courses	Plan																											
		Actual																											
4-B-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																											
		Actual																											
4-B-6	Improved training based on the result from the monitoring and evaluation	Plan																											
		Actual																											
<b>Monitoring Plan</b>																													
Monitoring																													
Joint Coordination Committee		Plan			▲		▲																						
		Actual																											
Set-up the Detailed Plan of Operation		Plan					▲																						
		Actual																											
Submission of Monitoring Sheet		Plan			▲		▲					▲																	
		Actual																											
Reports/Documents																													
Project Completion Report		Plan																											
		Actual																											
Remarks																													
Issue																													
Solution																													

To Chief Representative of JICA Malawi Office

## PROJECT MONITORING SHEET

**Project Title: The Project for Capacity Development for Air Navigation Services**

**Version of the Sheet: Ver.2 (Term: 24th April 2014 – 20th May 2016)**

**Name: Hiroshi Mizumasa**

**Title: Chief Advisor**

**Submission Date: June 2015**

### I. Summary

#### 1. Progress

##### 1-1. Progress of Inputs

###### (1) Japanese Side

###### 1) Experts

Seven JICA experts were assigned according to the plan.

Mr. Hiroshi Mizumasa, Chief Advisor

Ms. Mie Nagayasu, Deputy Chief Advisor

Mr. Kiichiro Hirano, ATC & AIS Training Specialist – 1

Mr. Daniel Paul Diggins, ATC & AIS training Specialist – 2

Mr. Reynaldo Alido Batacan, CNS Maintenance Training Specialist

Mr. Kiyoshi Suzuki, E/M Maintenance Training Specialist

Ms. Yumi Hosoya, Flight Procedure Design Specialist

Details of their assignment are shown in the Plan of Operation (see Sheet-II “Plan of Operation”).

###### 2) Training Equipment

The following training equipment was procured:

a) Computer Based Training ATC (November 2014)

b) Test Instrument and Equipment (December 2014)

c) Learning Aids and Office Equipment (June 2014)

d) PC-based Simulator Training System for Air Traffic Controllers (May 2015)

###### (2) Malawi side

###### 1) Counterpart Personnel (C/P)

The following DCA Officials were assigned for effective and sound management of the Project (see also Sheet II “Plan of Operation”).

[Counterpart Personnel]

Project Director (P/D): Mr. A. C. Mtilatila, Director of Civil Aviation

Project Manager (P/M): Mr. A. G. Matiya, Deputy Director (Operations)

Co-project Manager (Co-P/M): Mr. S. Galafa, Principal, School of Aviation

Project Coordinator: Mr. F. Kholowa, Chief Air Traffic Services Officer,  
Operation Division

Project Coordinator: Mr. M.F.T. Bongwe, Chief Telecommunications  
Engineer, Operation Division

Trainers\*: Mr. S. Galafa, Principal, School of Aviation [ATC & FIS Training Instructor]  
Mr. R. Y. Malanga, Lecturer School of Aviation [AIS & ACS Training Instructor]  
Mr. S. Liundi, Lecturer School of Aviation [AIS & ACS Training Instructor]  
Mr. C. F. Betenigo, Telecommunications Engineer, KIA [Aeronautical Engineering  
(CNS) Training Instructor]  
Mr. T. Mtonga, Electrical Engineer, KIA [Electrical/Mechanical Engineering Training  
Instructor]

## 2) Support Staff

Eight instructors in total were assigned to the Project as support staff personnel:

[Support Staff]\*

Ms. L. Manondo, ATC, KIA [ATC & FIS Training Instructor]  
Mr. D. Zamaere, ATC, Chileka Airport [ATC & FIS Training Instructor]  
Mr. F. Chisepeya, ATC, KIA [ATC & FIS Training Instructor]  
Mr. J. Kazito, ATC, KIA [ATC & FIS Training Instructor]  
Mr. R. Nkosi, Air Crew Briefing Officer, DCA [AIS & ACS Training Instructor]  
Mr. N. B. Kaliyasi, Communication Officer, KIA [AIS & ACS Training Instructor]  
Mr. F. N. Chisale, Electronics Engineer, KIA [Electronic Engineering (CNS) Training Instructor]  
Mr. S. Kunje, Electronics Engineer, Chileka Airport [Electronic Engineering (CNS) Training  
Instructor]  
Mr. O. Yokonia, Electrical Engineer, Chileka Airport [Electrical/Mechanical Engineering Training  
Instructor]

*\*Additional Support Staff under consideration.*

## 3) Project Office Space

Office space for the Project was provided in School of Aviation (SOA), DCA.

## 4) Project Office Expenses

Utility cost was paid by the Malawian side and DCA provided the following expenses for the project office as of June 2015.

a) Purchase of two desktop computers:	1,055,210 MWK
b) Purchase and installation of two split air conditioners:	989,114 MWK
c) Purchase and installation of air conditioners for ATC simulator room	862,100 MWK
d) Purchase of desks and chairs for training rooms	951,105 MWK
e) Advertising Cost	1,362,589 MWK



f) School of Aviation (CBT furniture, meals, and student allowances) 1,405,700 MWK

5) Travel Expenses for Counterpart Personnel within Malawi

The travel expenses for C/P to travel outside the Lilongwe area provided by DCA were as follows (as of June 2015):

- |  |             |
|--|-------------|
| a) Transport costs and subsistence allowances for students from Chileka<br>(Team Resource Management Course/ from Chileka to Lilongwe) | 76,000 MWK  |
| b) Transport costs for Lilongwe students<br>(Team Resource Management Course/ from Blantyre to Lilongwe)                               | 70,000 MWK  |
| c) Transport costs and subsistence allowances for students from outside Lilongwe   |             |
| - Test Equipment, E & M  | 354,000 MWK |
| - Flight Procedure Design, General Communications  | 485,000 MWK |

**1-2. Progress of Activities**

(1) Summary of Work Progress (June 2014 – June 2015)

1) Baseline Survey

The Project Team conducted the baseline survey on capacity of SOA which includes the capacities of ATM (ATC, FIS, AIS, ACS), Electronics Engineering (CNS), Electrical and Mechanical (E/M). The survey was conducted according to the ICAO's standard of assessing training organization.

2) Review of the existing training materials

The Project Team, composed of JET members and the counterpart personnel (C/P), observed existing training syllabus and textbooks for all training courses conducted in SOA (see "Results of the PDM Activities", described below).

3) Preparation of a work plan

The Project Team prepared a work plan describing the material development, instructor training, as well as the method and schedule for the implementation of 16 training courses, on which agreement was reached with the Malawian side.

4) Preparation of base materials for training courses

The Project Team is preparing training course materials which follows ICAO guideline.

5) Procurement of equipment

The Project Team procured equipment necessary for operating the Project in line with the JICA equipment procurement guideline.

6) Trainings at the School of Aviation (SOA) (as of June 2015)

The trainings for instructors which were held at the School of Aviation are as follows:

- a) Computer Based Training (ATC)  
Date: 24<sup>th</sup> November 2014 (1/2 day)  
No. of Participants: 6
- b) Test Equipment Course  
Date: 12<sup>th</sup> – 23<sup>rd</sup> January 2015 (10 days)  
No. of Participants: 5
- c) Electrical & Mechanical Training  
Date: 20<sup>th</sup> – 30<sup>th</sup> April 2015 (9 days)  
No. of Participants: 6
- d) Microsoft Office PC Training  
Date: 21<sup>st</sup> – 24<sup>th</sup> April 2015 (4 days)  
No. of Participants: 5
- e) Flight Procedure Design Training  
Date: 5<sup>th</sup> – 28<sup>th</sup> May 2015 (18 days)  
No. of Participants: 4
- f) General Communications Course  
Date: 18<sup>th</sup> May– 5<sup>th</sup> June 2015 (15 days)  
No. of Participants: 6
- g) Park Air T6 VHF Maintenance Course  
Date: 8<sup>th</sup> – 19<sup>th</sup> June 2015 (10 days)  
No. of Participants: 6
- h) VOR/DVOR/DME/ILS/RADAR Concept Course  
Date: 22<sup>nd</sup> June – 10<sup>th</sup> July 2015 (15 days)  
No. of Participants: 6
- i) ATC Simulator Operation Lecture  
Date: 25<sup>th</sup> – 29<sup>th</sup> May 2015 (5 days)  
No. of Participants: 6
- j) 052 ATC Aerodrome Control Course  
Date: 3<sup>rd</sup> June – 3<sup>rd</sup> July 2015 (23 days)  
No. of Participants: 5

A total of 55 participants is expect to complete trainings by the beginning of July 2015.

#### 7) Overseas Training

DCA officials participated or will be participating in the following four overseas trainings:

- a) Team Resource Management Course: 26<sup>th</sup> to 30<sup>th</sup> January 2015 <South Africa>\*<sup>1</sup>
- b) Supervisory Management Course: 2<sup>nd</sup> to 27<sup>th</sup> February 2015 <Kenya>\*<sup>2</sup>

A total of 12 participants completed overseas trainings as of June 2015.

[Overseas Training Institutes]

\*1: Air Traffic and Navigation Services (ATNS) in Johannesburg, South Africa

\*2: East African School of Aviation (EASA) in Nairobi, Kenya

8) First JCC Meeting

The First JCC Meeting was held on 30<sup>th</sup> June 2014. Five people from the DCA side including the Director, the Deputy Director and other three officials, two officials from the JICA Malawi Office, and five members from the JICA Expert Team (hereinafter referred to as "JET") participated in the meeting. The JET Leader, Mr. Hiroshi Mizumasa presented a summary of the Project. The minutes of the meeting for implementation of the Project were signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Kazuhiko Tokuhashi, Resident Representative, JICA Malawi Office.

9) Second JCC Meeting

The Second JCC Meeting was held on 1<sup>st</sup> August 2014. Five people from the DCA side including the Director, the Deputy Director and three other officials, one official from the JICA Malawi Office, and two members from the JET participated in the meeting. The issues discussed and agreed were as follows:

- a) Approval of the Work Plan
- b) Confirmation of the Instructor Nomination
- c) Approval of updated PDM
- d) Confirmation of expense for domestic training/counterparts works

The minutes of the meeting was signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Hiroshi Mizumasa, the JET Leader.

10) Third JCC Meeting

The Third JCC Meeting was held on 27<sup>th</sup> January 2015. Three people from the DCA side including the Deputy Director and two other officials, two officials from the JICA Malawi Office, and four members from the JET participated in the meeting. The issues discussed and agreed were as follows:

- a) Report on project progress and schedule
- b) Approval of the Monitoring Sheet ver.1
- c) Progress on new recruitment

The minutes of the meeting was signed between Mr. A. G. Matiya, DCA Deputy Director and Mr. Kazuhiko Tokuhashi, Chief Representative of the JICA Malawi Office.

(2) Results of the PDM Activities

Following is the summary of the Project activities having been conducted from June 2014 to June 2015. It is described according to the original PDM Activities.

## 1) Improvement of ATC and FIS Training

PDM Activities	Results
1-1. Review current training syllabus and training materials	All the syllabuses were reviewed. Most of them were made in 1980s.
1-2. Improve/develop training syllabus and training materials	Six training syllabuses and materials will be developed. The progress of preparation of each material is shown in the following 1-3. Achievement of Output.
1-3. Conduct training of instructors	Overseas trainings will be conducted in Nairobi in August and October 2015
1-4. Implement improved training courses	Base Material of ATC Basic Course 051 was provided by JET and it will be customized by SOA/DCA Instructor team. Trainings course of 052 Aerodrome will be conducted in June - July 2015.
1-5. Implement supervisor training	Supervisor trainings were conducted in Johannesburg in January and in Nairobi in February 2015.
1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	
1-7. Improve the training courses based on the results from the monitoring and evaluation	

## 2) Improvement of AIS and ACS Training

PDM Activities	Results
2-1. Review current training syllabus and training materials	All the syllabuses were reviewed. Most of them were made in 1980s.
2-2. Improve/develop training syllabus and training materials	Two (AIS and ACS) training syllabuses and materials will be developed. Two Working Groups, consisting of 4 AIS and ACS officers, were established in May to draft the training syllabuses and training materials which will be due in October 2015. The Working Groups will collect and update relevant information, and customize the base materials to match with the Malawian context. The progress of preparation of each material is shown in the following 1-3. Achievement of Output.
2-3. Conduct training of instructors	Overseas trainings will be conducted in Nairobi in August and in October 2015.
2-4. Implement improved training courses	CBT training course was held in November 2014.
2-5. Implement supervisor training	Supervisor trainings were conducted in Johannesburg in January 2015 and in Nairobi in February 2015.
2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	
2-7. Improve the training courses based on the results from the monitoring and evaluation	

## 3) Improvement of Electronic Engineering Training

PDM Activities	Results
3-1. Review current training syllabus and training materials	All the syllabuses have been reviewed. Most of them were made in 1980s.
3-2. Improve/develop training syllabus and training materials	Six training syllabuses and materials will be developed. The progress of preparation of each material is shown in the following 1-3. Achievement of Output
3-3. Conduct training of instructors	Overseas trainings will be conducted in Nairobi in August and October 2015. Training course of test equipment for instructors was conducted in January 2015.
3-4. Implement improved training courses	Training courses of COM & VOR/DME are/will be conducted in May – July 2015.
3-5. Implement supervisor training	Supervisor trainings were conducted in Johannesburg in January and in Nairobi in February 2015.
3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Evaluation of the training was made through the Test Equipment Training in January 2015.
3-7. Improve the training courses based on the results from the monitoring and evaluation	

## 4) Improvement of Electrical/Mechanical Engineering Training

PDM Activities	Results
4-1. Review current training syllabus and training materials	All the syllabuses have been reviewed. Most of them were made in 1980s.
4-2. Improve/develop training syllabus and training materials	Two training syllabuses and materials will be developed. The progress of preparation of each material is shown in the following 1-3. Achievement of Output
4-3. Conduct training of instructors	Overseas trainings will be conducted in Nairobi in August and October 2015.
4-4. Implement improved training courses	Training courses of E & M were conducted in April 2015.
4-5. Implement supervisor training	Supervisor trainings were conducted in Johannesburg in January 2015 and in Nairobi in February 2015
4-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Evaluation of the training was made through the Electrical & Mechanical Training.
4-7. Improve the training courses based on the results from the monitoring and evaluation	

**1-3. Achievement of Output**

Achievement of the Project outputs is observed according to the PDM indicators.

Output 1 Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.

Output 2 Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.

Output 3 Training of Electronic Engineering is improved.

Output 4 Training of Electrical/Mechanical Engineering (E/M Eng) is improved.

**Achievement of Outputs**

Indicators for the PDM Outputs		Achievement as of June 2015
-Training syllabuses and training materials are improved or developed for the following number of courses:	ATC/FIS: 6	1. 051: ATC Basic: 80% 2. 052: Aerodrome Control: 100% 3. 053: Approach Control: 60% 4. 055: Area Control: 30% 5. CNS/ATM for ATC: 80% 6. Flight Information Service: 50%
	AIS/ACS: 2	1. AIS & ACS (combined): 50%
	Electronic Eng.: 6	1. General Communication Equipment: 100% 2. Navigation Concept Course: 90% 3. Park Air VHF: 90% 4. Normarc ILS: 70% 5. Maru VOR/DME: 70% 6. CNS/ATM: 80%
	E/M Eng.: 2	1. Theory of Airfield Lighting: 90% 2. Theory of UPS: 90%
-The following number of DCA officers successfully complete supervisor/advanced/specialist training:	Instructors: 10* <sup>1</sup>	
	ATC/FIS: 4* <sup>1</sup>	8 officers successfully completed "Team Resource Management Course" in South Africa.
	AIS/ACS: 4* <sup>1</sup>	4 officers successfully completed "Supervisory Management Course" in Kenya.
	Aeronautical Cartography: 2* <sup>2</sup>	
	PANS/OPS: 2* <sup>2</sup>	4 officers successfully completed "PANS/OPS Conventional Flight Procedure Design for Non-Precision Approach"
ILS Maintenance: 4* <sup>2</sup>		

\*1: Overseas trainings

\*2: In-country trainings

**1-4. Achievement of the Project Purpose**

Achievement of the Project purpose: "Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities." is observed according to the PDM indicators as follows:

## Achievement of the Project Purpose

Indicators for the Project Purpose		Achievement as of June 2015
- The following number of instructors can conduct the improved/developed training courses (fulltime + part time)	ATC/FIS: 6	0
	AIS/ACS: 4	0
	Electronic Eng.: 4	0
	E/M Eng.: 4	0
- Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 70%.	Computer Based Training (CBT) (6 participants)	Not scored
	Test Equipment Course (5 participants)	87.1%
	Electrical & Mechanical Training (6 participants)	93.7%
	Microsoft Office PC Training (5 participants)	Not scored
	Flight Procedure Design Training (4 participants)	80.0%
	General Communications Course (6 participants)	89.6%

**1-5. Changes of Risks and Actions for Mitigation**

No major changes were seen in the PDM Important Assumptions; therefore no special actions need to be taken. However, as for the Pre-conditions, new trainees were not recruited yet, which may affect the project outcomes.

## (1) Pre-conditions

PDM Pre-conditions	Current Situations	Actions for Mitigation
1) DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.	<ul style="list-style-type: none"> <li>- Project office space was provided at the time of initiation of the work in Malawi in June 2014.</li> <li>- Counterpart personnel (C/P) were allocated in the Project before the commencement of the project.</li> </ul>	- No special actions need to be taken.
2) New trainees are recruited as scheduled.	<ul style="list-style-type: none"> <li>- New trainees are not recruited since the initiation of the project in May 2014 to date.</li> <li>- Recruitment of 24 new staff is in progress. They are planned to join DCA in August 2015.</li> </ul>	<ul style="list-style-type: none"> <li>- JET requested DCA ensure the recruitment of new staff.</li> <li>- Further 24 new staff has to be recruited to meet pre-condition of the Project.</li> </ul>

## (2) Important Assumption when proceeding from Activities to Outputs

Important Assumption	Current Situations	Actions for mitigation
1) DCA implements the Project with sufficient ownership.	- DCA's ownership was seen.	- No special actions need to be taken.

## (3) Important Assumptions when proceeding from Outputs to the Project Purpose

Important Assumption	Current Situations	Actions for mitigation
1) No major change of the international standards on air navigation services occurred.	- No major changes were seen. It did not affect to the Project operation.	- No special actions need to be taken.

**1-6. Progress of Actions undertaken by JICA**

No remarkable issues.

**1-7. Progress of Actions undertaken by the Government of Malawi**

In May 2015, the Government of Malawi/DCA began procedures to recruit new students for ATC, Electronics Engineer, Electrical Engineer and Mechanical Engineer.

**1-8. Progress of Environmental and Social Considerations (if applicable)**

No remarkable issues.

**1-9. Progress of Considerations on Gender/ Peace Building/ Poverty Reduction (if applicable)**

No remarkable issues.

**1-10. Other remarks or issues related to the project (such as other projects of JICA, activities of counterparts, other donors, private sectors, NGOs, etc.)**

- (1) Project for the Improvement of Aviation Safety Oversight in Malawi by European Aviation Safety Agency (EASA)

EASA is currently assisting DCA and the Ministry of Transport and Public Works improving safety oversight capacity of civil aviation. There is no overlapping of activities between JICA project and EASA project.

- (2) Airport Safety and Security Equipment Project by European Investment Bank (EIB)

EIB is funding the procurement of safety equipment such as fire trucks at Kamuzu International Airport. There is no overlapping of activities between JICA project and EIB project.

- (3) The Project for Expansion of the Terminal Building at Kamuzu International Airport by JICA

JICA is currently conducting a Preparatory Survey for the project, which will include installation of the aircraft surveillance system. Current capacity development project will strengthen the foundation for the introduction of radar control services; however, does not include training for operation and maintenance of the aircraft surveillance system. DCA should plan capacity development for the radar control services if the project is realized.



## 2. Delay of Work Schedule and/or Issues (if any)

### 2-1. Detail

The project is on schedule; however, delay in recruitment of new staff would possibly affect the activities related to training of new staff under the Project.

### 2-2. Cause of Delay

Recruiting process had been delayed due to lack of funds for recruitment on the part of the recruiting agencies.

### 2-3. Actions to be taken

Recruitment process of the first 24 staff was initiated in mid-May 2015 and it is expected that new staff will join DCA in August 2015. Additional 24 staff has to be recruited to meet pre-condition of the Project.

### 2-4. Roles of Responsible Persons/ Organization (JICA, Gov. of Malawi, etc.)

DCA and the Government of Malawi are responsible for recruitment of new staff.

## 3. Modification of the Project Implementation Plan

### 3-1. Plan of Operation (PO)

No major modification was made.

### 3-2. Other Modifications on Detailed Implementation Plan

*(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)*

Some changes to be made, mainly in "Objectively Verifiable Indicators", were discussed among DCA and JICA Team prior to the 4<sup>th</sup> JCC meeting as follows (\*underlined = changes to be made);

#### 1) Overall Goal

Define the Objectively Verifiable Indicator as "The targeted number of trainees (serving officers and new staff) who will successfully complete the improved/developed training courses between 2016 and 2020 is at least 80".

#### 2) Project Purpose

Change minimum score of comprehension test from 80% to 70% in accordance with international standard of ICAO.

Replace the Means of Verification “Terminal Evaluation Report” with “Project Completion Report”. In addition, insert “- Results of comprehension test score of trainees”.

3) Outputs

Delete the Objectively Verifiable Indicator “Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 80%” as this indicator duplicates with that of the Project Purpose.

The revised PDM is attached as Project Monitoring Sheet I.

**4. Preparation of the Government of Malawi towards the completion of the Project**

Not applicable.

**II. Project Monitoring Sheet I (PDM) & Sheet II (PO) (Version 2) as attached**

Project Design Matrix

**Project Title: The Project for Capacity Development for Air Navigation Services in the Republic of Malawi**

**Implementing Agency: DCA**

**Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**

**Period of Project: 2 years (24/04/2014-20/05/2016)**


Version 2

Dated 1, Aug, 2014

**Project Site: School of Aviation**

**Model Site:**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p><b>Overall Goal (Long-term objective)</b> Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p>Number of officers who have successfully completed the improved/developed training courses for each year</p>	<p>- Training records</p>			
<p><b>Project Purpose (Objective at the end of the Project)</b> Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.</p>	<p>Number of instructors who can conduct the improved/developed training courses (fulltime + part time)  <input type="checkbox"/> ATC/FIS: 6 (1)  <input type="checkbox"/> AIS/ACS: 4 (2)  <input type="checkbox"/> Electronic Eng.: 4 (1)  <input type="checkbox"/> E/M Eng.: 2 (1)                      Number in ( ) indicates current situation.                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.</p>	<p>- Monitoring Sheet - Terminal Evaluation Report</p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services. - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		
<p><b>Outputs (Objectives to be realized by Activities to achieve the Project Purpose)</b>                      1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.                      2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.                      3. Training of Electronic Engineering is improved.                      4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.</p>	<p>- Training syllabus and training materials are improved or developed for the following number of courses:  <input type="checkbox"/> ATC/FIS: 6  <input type="checkbox"/> AIS/ACS: 2  <input type="checkbox"/> Electronic Eng.: 6  <input type="checkbox"/> E/M Eng.: 2                      - The following number of DCA officers successfully complete supervisor/ advanced/specialist training:  <input type="checkbox"/> Instructors: 10  <input type="checkbox"/> ATC/FIS: 4  <input type="checkbox"/> AIS/ACS: 4  <input type="checkbox"/> Aeronautical Cartography: 2  <input type="checkbox"/> PANS/OPS: 2  <input type="checkbox"/> ILS Maintenance: 4                      - Comprehension test score of trainees who receive the improved/ developed training courses exceeds at least 80%.</p>	<p>- Monitoring Sheet  - Results of completion tests for supervisor/ advanced/specialist training courses</p>	<p>- No major change of the international standards on air navigation services is occurred.</p>		

Activities (Specific actions to produce each Output by use of Inputs)	Inputs		Pre-Conditions
	The Japanese Side	The DCA Side	
<p><u>Improvement of ATC and FIS Training</u>            1-1. Review current training syllabus and training materials            1-2. Improve/develop training syllabus and training materials            1-3. Conduct training of instructors            1-4. Implement improved training courses            1-5. Implement supervisor training            1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            1-7. Improve the training courses based on the results from the monitoring and evaluation</p>	<ul style="list-style-type: none"> <li>- Experts</li> <li><input type="checkbox"/> Chief Advisor/Training Manager</li> <li><input type="checkbox"/> ATC Training Specialist</li> <li><input type="checkbox"/> AIS/ACS Training Specialist</li> <li><input type="checkbox"/> Electronic Maintenance Training Specialist</li> <li><input type="checkbox"/> Electrical/ Mechanical Maintenance Training Specialist</li> <li><input type="checkbox"/> Others as necessary</li> <li>- Training materials</li> <li>- Training equipment</li> <li>- Overseas training</li> </ul>	<ul style="list-style-type: none"> <li>- Counterpart Personnel</li> <li>- Support Staff</li> <li>- Project Office Space</li> <li>- Project Office Expenses</li> <li>- Travel Expenses of Counterpart Personnel within Malawi</li> <li>- The others mentioned in Appendix 1, II, 6, of R/D</li> </ul>	<p>- DCA implements the Project with sufficient ownership.</p> <p><b>Pre-Conditions</b>            - DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.            - New trainees are recruited as scheduled.</p>
<p><u>Improvement of AIS and ACS Training</u>            2-1. Review current training syllabus and training materials            2-2. Improve/develop training syllabus and training materials            2-3. Conduct training of instructors            2-4. Implement improved training courses            2-5. Implement supervisor/advanced/specialist training            2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            2-7. Improve the training courses based on the results from the monitoring and evaluation</p>			
<p><u>Improvement of Electronic Engineering Training</u>            3-1. Review current training syllabus and training materials            3-2. Improve/develop training syllabus and training materials            3-3. Conduct training of instructors            3-4. Implement improved training courses            3-5. Implement equipment-specific training            3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            3-7. Improve the training courses based on the results from the monitoring and evaluation</p>			
<p><u>Improvement of Electrical/Mechanical Engineering Training</u>            4-1. Review current training syllabus and training materials            4-2. Improve/develop training syllabus and training materials            4-3. Conduct training of instructors            4-4. Implement improved training courses            4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            4-6. Improve the training courses based on the results from the monitoring and evaluation</p>			







Activities		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Responsible Organization		Achievements	Issue & Countermeasures																																		
Sub-Activities		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	Japan	Malawi																																				
<b>Output 3-E: Improvement of Maintenance Courses for Maru DVOR/DME</b>																																																																		
3-E-1	Improve/develop training materials	Plan																																																																
		Actual																																																																
3-E-2	Conduct training of DCA staffs	Plan																																																																
		Actual																																																																
3-E-3	Conduct monitoring and evaluation of the trainings	Plan																																																																
		Actual																																																																
3-E-4	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Output 3-F: Improvement of New CNS/ATM Technology for Electronic Engineer Training</b>																																																																		
3-F-1	Improve/develop training materials	Plan																																																																
		Actual																																																																
3-F-2	Conduct training of DCA staffs	Plan																																																																
		Actual																																																																
3-F-3	Conduct monitoring and evaluation of the trainings	Plan																																																																
		Actual																																																																
3-F-4	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Output 4-A: Improvement of Concept Courses for Airfield Lighting System</b>																																																																		
4-A-1	Review current training syllabus/materials	Plan																																																																
		Actual																																																																
4-A-2	Improve/develop training syllabus/materials	Plan																																																																
		Actual																																																																
4-A-3	Conduct training of instructors	Plan																																																																
		Actual																																																																
4-A-4	Implement improved training courses	Plan																																																																
		Actual																																																																
4-A-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																																																
		Actual																																																																
4-A-6	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
<b>Output 4-B: Improvement of Concept Courses for Uninterrupted Power Supply System (UPSS)</b>																																																																		
4-B-1	Review current training syllabus/materials	Plan																																																																
		Actual																																																																
4-B-2	Improve/develop training syllabus/materials	Plan																																																																
		Actual																																																																
4-B-3	Conduct training of instructors	Plan																																																																
		Actual																																																																
4-B-4	Implement improved training courses	Plan																																																																
		Actual																																																																
4-B-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																																																																
		Actual																																																																
4-B-6	Improved training based on the result from the monitoring and evaluation	Plan																																																																
		Actual																																																																
Monitoring Plan		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Remarks		Issue	Solution																																		
Monitoring		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th																																						
Joint Coordination Committee		Plan																																																																
		Actual																																																																
Set-up the Detailed Plan of Operation		Plan																																																																
		Actual																																																																
Submission of Monitoring Sheet		Plan																																																																
		Actual																																																																
Reports/Documents		Plan																																																																
		Actual																																																																



To Chief Representative of JICA Malawi Office

**PROJECT MONITORING SHEET**

**Project Title: The Project for Capacity Development for Air Navigation Services**

**Version of the Sheet: Ver.3 (Term: 24th April 2014 – 20th May 2016)**

**Name: Hiroshi Mizumasa**

**Title: Chief Advisor**

**Submission Date: Oct 2015**

**I. Summary**

**1. Progress**

**1-1. Progress of Inputs**

(1) Japanese Side

1) Experts

Seven JICA experts were assigned according to the plan.

Mr. Hiroshi Mizumasa, Chief Advisor

Ms. Mie Nagayasu, Deputy Chief Advisor

Mr. Kiichiro Hirano, ATC & AIS Training Specialist – 1

Mr. Daniel Paul Diggins, ATC & AIS Training Specialist – 2

Mr. Reynaldo Alido Batacan, CNS Maintenance Training Specialist

Mr. Kiyoshi Suzuki, E/M Maintenance Training Specialist

Ms. Yumi Hosoya, Flight Procedure Design Specialist

Details of their assignment are shown in the Plan of Operation (see Sheet-II “Plan of Operation”).

2) Training Equipment

The following training equipment was procured:

a) Learning Aids and Office Equipment (June 2014)

b) Computer Based Training ATC (November 2014)

c) Test Instrument and Equipment (December 2014)

d) PC-based Simulator Training System for Air Traffic Controllers (May 2015)

(2) Malawi side

1) Counterpart Personnel (C/P)

The following DCA Officials were assigned for effective and sound management of the Project (see also Sheet II “Plan of Operation”).

[Counterpart Personnel]

Project Director (P/D): Mr. A. C. Mtilatila, Director of Civil Aviation

Project Manager (P/M): TBD (vacant as of October 2015)

\*Co-project Manager (Mr. S. P. Galafa) will be acting as the Project Manager until the next person

is assigned.

Co-project Manager (Co-P/M): Mr. S. P. Galafa, Principal, School of Aviation

Project Coordinator: Mr. F. Kholowa, Chief Air Traffic Services Officer,  
Operation Division

Project Coordinator: Mr. R. C. Kanunkha, Assistant Chief Aeronautical  
Telecommunications Engineer, Operation Division

Trainers: Mr. S. P. Galafa, Principal, School of Aviation [ATC & FIS Training Instructor]

Mr. R. Y. Malanga, Lecturer School of Aviation [AIS & ACS Training Instructor]

Mr. S. Liundi, Lecturer School of Aviation [AIS & ACS Training Instructor]

Mr. C. F. Betenigo, Telecommunications Engineer, KIA [Aeronautical Engineering  
(CNS) Training Instructor]

Mr. T. Mtonga, Electrical Engineer, KIA [Electrical/Mechanical Engineering Training  
Instructor]

## 2) Support Staff

Eight instructors in total were assigned to the Project as support staff personnel:

[Support Staff]

Ms. L. Manondo, ATC, KIA [ATC & FIS Training Instructor]

Mr. D. Zamaere, ATC, KIA [ATC & FIS Training Instructor]

Mr. F. Chisepeya, ATC, KIA [ATC & FIS Training Instructor]

Mr. J. Kazito, ATC, Chileka International Airport (CIA) [ATC & FIS Training Instructor]

Mr. R. Nkosi, Air Crew Briefing Officer, DCA [AIS & ACS Training Instructor]

Mr. N. B. Kaliyasi, Communication Officer, KIA [AIS & ACS Training Instructor]

Mr. F. N. Chisale, Electronics Engineer, KIA [Electronic Engineering (CNS) Training Instructor]

Mr. S. Kunje, Electronics Engineer, CIA [Electronic Engineering (CNS) Training Instructor]

Mr. O. Yokonia, Electrical Engineer, Chileka Airport [Electrical/Mechanical Engineering Training  
Instructor]

## 3) Project Office Space

Office space for the Project was provided in School of Aviation (SOA), DCA.

## 4) Project Office Expenses

Utility cost was paid by the Malawian side and DCA provided the following expenses for the project office as of Sept. 2015.

a) Purchase of two desktop computers:	1,055,000 MWK
b) Purchase and installation of two split air conditioners. (Project & CBT)	989,114 MWK
c) Purchase and installation of air conditioners for ATC simulator room	862,100 MWK
d) Purchase of desks and chairs for CNS Laboratory (May 2015)	951,105 MWK
e) Purchase of 2 desks and chairs for CBT. (May 2015)	477,000 MWK

f) Advertising Cost	1,362,589 MWK
g) Installing 2 security doors for equipment room	70,000 MWK
h) Installing 4 Air-conditioner cages	90,000 MWK
i) Building material for class room	30,000 MWK
j) Labor charge for installation security items	43,000 MWK

5) Travel Expenses, Allowance and Ration for Counterpart Personnel within Malawi

The travel expenses, Subsistence Allowance for C/P to travel from outside the Lilongwe area provided by SOA and Ration for trainees at SOA were as follows (as of 30<sup>th</sup> Sept. 2015):

a) CBT Training in (Nov. 2014)	75,000 MWK
b) Test Equipment Training. (Jan.2015)	126,000 MWK
c) Team Resource Management Course Internal Training. (Jan.2015)	146,000 MWK
d) Electro-Mechanical Training. (May 2015)	515,100 MWK
e) Microsoft Office PC Training. (May 2015)	60,000 MWK
f) AIS & ACS Working Group. (May 2015)	90,000 MWK
g) Flight Procedure Design Training. (May 2015)	602,000 MWK
h) General Communication Training. (May 2015)	577,500 MWK
i) ATC Aerodrome Control 052 Training. (Jun. 2015)	783,000 MWK
j) Park-Air VHF Maintenance Training. (Jun. 2015)	466,000 MWK
k) CVOR/DVOR/DME/ILS/RADAR Concept Training. (Jun. 2015)	703,100 MWK

**1-2. Progress of Activities**

(1) Summary of Work Progress (June 2014 – Sept. 2015)

1) Baseline Survey

The Project Team conducted the baseline survey on capacity of SOA which includes the capacities of ATM (ATC, FIS, AIS, ACS), Electronics Engineering (CNS), Electrical and Mechanical (E/M). The survey was conducted according to the ICAO's standard of assessing training organization.

2) Review of the existing training materials

The Project Team, composed of JICA Expert Team (hereinafter referred to as "JET") members and the counterpart personnel (C/P), observed existing training syllabus and textbooks for all training courses conducted in SOA (see "Results of the PDM Activities", described below).

3) Preparation of a work plan

The Project Team prepared a work plan describing the material development, instructor training, as well as the method and schedule for the implementation of 16 training courses, on which agreement was reached with the Malawian side.

4) Preparation of base materials for training courses

The Project Team is preparing training course materials which follows ICAO guideline.

5) Procurement of equipment

The Project Team procured equipment necessary for operating the Project in line with the JICA equipment procurement guideline.

6) Trainings at the School of Aviation (SOA) (as of Sept. 2015)

The trainings for instructors which were held at the School of Aviation are as follows:

a) Computer Based Training (ATC)

Date: 24<sup>th</sup> November 2014 (1/2 day)

No. of Participants: 6

b) Test Equipment Course

Date: 12<sup>th</sup> – 23<sup>rd</sup> January 2015 (10 days)

No. of Participants: 5

c) Electrical & Mechanical Training

Date: 20<sup>th</sup> – 30<sup>th</sup> April 2015 (9 days)

No. of Participants: 6

d) Microsoft Office PC Training

Date: 21<sup>st</sup> – 24<sup>th</sup> April 2015 (4 days)

No. of Participants: 5

e) Conventional Flight Procedure Design Training

Date: 5<sup>th</sup> – 28<sup>th</sup> May 2015 (18 days)

No. of Participants: 4

f) General Communications Course

Date: 18<sup>th</sup> May– 4<sup>th</sup> June 2015 (14 days)

No. of Participants: 6

g) ATC Simulator Maintenance Lecture

Date: 19<sup>th</sup> – 22<sup>nd</sup> May 2015 (4 days)

No. of Participants: 2

h) ATC Simulator Operation Lecture

Date: 25<sup>th</sup> – 29<sup>th</sup> May 2015 (5 days)

No. of Participants: 6

i) Park Air T6 VHF Maintenance Course

Date: 8<sup>th</sup> – 19<sup>th</sup> June 2015 (10 days)

No. of Participants: 6

j) DVOR/CVOR/DME/ILS/RADAR Concept Course

Date: 22<sup>nd</sup> June – 10<sup>th</sup> July 2015 (15 days)

No. of Participants: 5

k) 052 ATC Aerodrome Control Course

Date: 3<sup>rd</sup> June – 3<sup>rd</sup> July 2015 (23 days)

No. of Participants: 9

A total of 60 participants completed trainings as of 30<sup>th</sup> Sept. 2015.

7) Overseas Training

DCA officials participated or will be participating in the following four overseas trainings:

- a) Team Resource Management Course: 26<sup>th</sup> to 30<sup>th</sup> January 2015 <South Africa>\*<sup>1</sup>
- b) Supervisory Management Course: 2<sup>nd</sup> to 27<sup>th</sup> February 2015 <Kenya>\*<sup>2</sup>
- c) Instructor Development Course: 3<sup>rd</sup> to 21<sup>st</sup> August 2015 <Kenya>\*<sup>2</sup>
- d) Advanced Instructors Training Course: 5<sup>th</sup> to 23<sup>rd</sup> October 2015 <Kenya>\*<sup>2</sup>

A total of 20 participants completed overseas trainings as of 30<sup>th</sup> Sept. 2015.

[Overseas Training Institutes]

\*1: Air Traffic and Navigation Services (ATNS) in Johannesburg, South Africa

\*2: East African School of Aviation (EASA) in Nairobi, Kenya

8) First JCC Meeting

The First JCC Meeting was held on 30<sup>th</sup> June 2014. Five people from the DCA side including the Director, the Deputy Director and other three officials, two officials from the JICA Malawi Office, and five members from the JET participated in the meeting. The JET Leader, Mr. Hiroshi Mizumasa presented a summary of the Project. The minutes of the meeting for implementation of the Project were signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Kazuhiko Tokuhashi, Resident Representative, JICA Malawi Office.

9) Second JCC Meeting

The Second JCC Meeting was held on 1<sup>st</sup> August 2014. Five people from the DCA side including the Director, the Deputy Director and three other officials, one official from the JICA Malawi Office, and two members from the JET participated in the meeting. The issues discussed and agreed were as follows:

- a) Approval of the Work Plan
- b) Confirmation of the Instructor Nomination
- c) Approval of updated PDM
- d) Confirmation of expense for domestic training/counterparts works

The minutes of the meeting was signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Hiroshi Mizumasa, the JET Leader.

10) Third JCC Meeting

The Third JCC Meeting was held on 27<sup>th</sup> January 2015. Three people from the DCA side including the Deputy Director and two other officials, two officials from the JICA Malawi Office, and four members from the JET participated in the meeting. The issues discussed and agreed were as

follows:

- a) Report on project progress and schedule
- b) Approval of the Monitoring Sheet ver.1
- c) Progress on new recruitment

The minutes of the meeting was signed between Mr. A. G. Matiya, DCA Deputy Director and Mr. Kazuhiko Tokuhashi, Chief Representative of the JICA Malawi Office.

#### 11) Fourth JCC Meeting

The Forth JCC Meeting was held on 5th June 2015. Five people from the DCA side including the Director, Deputy Director and three other officials, two officials from the JICA Headquarters, two officials from the JICA Malawi Office, and four members from the JET participated in the meeting.

The issues discussed and agreed were as follows:

- a) Report on project progress and schedule
- b) Activity Plan
- c) Approval of the Monitoring Sheet ver.2
- d) Progress on new recruitment

The minutes of the meeting was signed between Mr. Alfred C. Mtilatila, DCA Director and Mr. Hiroyuki Ueda, Senior Transport Sector Advisor, JICA Headquarters.

#### (2) Results of the PDM Activities

Following is the summary of the Project activities having been conducted from June 2014 to Sept. 2015. It is described according to the original PDM Activities.

##### 1) Improvement of ATC and FIS Training

PDM Activities	Results
1-1. Review current training syllabus and training materials	All the syllabuses were reviewed. Most of them were made in 1980s.
1-2. Improve/develop training syllabus and training materials	Six training syllabuses and materials will be developed. The progress of preparation of each material is shown in the following 1-3. Achievement of Output.
1-3. Conduct training of instructors	Two trainings for ATC and FIS were conducted in May and June to July, 2015
1-4. Implement improved training courses	Conventional Flight Procedure Design Course was conducted in May, 2015. 052 Aerodrome Course was conducted in June - July 2015.
1-5. Implement supervisor training	Team Resource Management Course, Supervisory Management Course and Instructor Development Course were conducted in January, February, and August in 2015.

PM Form 3-1 Monitoring Sheet Summary

1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Evaluation of the training was made through the above mentioned courses and all the trainees obtained more than 70% in the comprehension test.
1-7. Improve the training courses based on the results from the monitoring and evaluation	

2) Improvement of AIS and ACS Training

PDM Activities	Results
2-1. Review current training syllabus and training materials	All the syllabuses were reviewed. Most of them were made in 1980s.
2-2. Improve/develop training syllabus and training materials	One combined AIS/ACS training syllabus and material will be developed. Two Working Groups, consisting of 4 AIS and ACS officers, were established in May to draft the training syllabuses and training materials. The progress of preparation of each material is shown in the following 1-3. Achievement of Output.
2-3. Conduct training of instructors	One training course was held in November, 2014.
2-4. Implement improved training courses	CBT training course was held in November 2014.
2-5. Implement supervisor/advanced/specialist training	Team Resource Management Course, Supervisory Management Course and Instructor Development Course were conducted in January, February, and August in 2015.
2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	
2-7. Improve the training courses based on the results from the monitoring and evaluation	

3) Improvement of Electronic Engineering Training

PDM Activities	Results
3-1. Review current training syllabus and training materials	All the syllabuses have been reviewed. Most of them were made in 1980s.
3-2. Improve/develop training syllabus and training materials	Six training syllabuses and materials will be developed. The progress of preparation of each material is shown in the following 1-3. Achievement of Output
3-3. Conduct training of instructors	Four trainings were conducted in January, May, June and July, 2015.
3-4. Implement improved training courses	Test Equipment Course was conducted in January 2015. General Communications Course was conducted in May-June, 2015.
3-5. Implement equipment-specific training	Park Air T6 VHF Radio Course was conducted in June, 2015. CVOR/DVOR/ILS/DME/RADAR Concept Course was conducted in June – July, 2015.

3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Evaluation of the training was made through the above mentioned courses and all the trainees obtained more than 70% in the comprehension test.
3-7. Improve the training courses based on the results from the monitoring and evaluation	

4) Improvement of Electrical/Mechanical Engineering Training

PDM Activities	Results
4-1. Review current training syllabus and training materials	All the syllabuses have been reviewed. Most of them were made in 1980s.
4-2. Improve/develop training syllabus and training materials	Two training syllabuses and materials will be developed. The progress of preparation of each material is shown in the following 1-3. Achievement of Output
4-3. Conduct training of instructors	One training course was conducted in April 2015.
4-4. Implement improved training courses	Training courses of E & M were conducted in April 2015.
4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Evaluation of the training was made through the above mentioned courses and all the trainees obtained more than 70% in the comprehension test.
4-6. Improve the training courses based on the results from the monitoring and evaluation	

**1-3. Achievement of Output**

Achievement of the Project outputs is observed according to the PDM indicators.

Output 1 Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.

Output 2 Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.

Output 3 Training of Electronic Engineering is improved.

Output 4 Training of Electrical/Mechanical Engineering (E/M Eng) is improved.

Achievement of Outputs

Indicators for the PDM Outputs		Achievement as of 30 <sup>th</sup> Sept. 2015
-Training syllabuses and training materials are improved or developed for the following number of courses:	ATC/FIS: 6	1. 051: ATC Basic: 80% 2. 052: Aerodrome Control: 100% 3. 053: Approach Control: 90% 4. 055: Area Control: 60% 5. CNS/ATM for ATC: 80% 6. Flight Information Service: 60%
	AIS/ACS: 2	1. AIS & ACS (combined): 60%
	Electronic Eng.: 6	1. General Communication Equipment: 100% 2. Navigation Concept Course: 100% 3. Park Air VHF: 100%



		4. Normarc ILS: 80% 5. Maru VOR/DME: 80% 6. CNS/ATM: 80%
	E/M Eng.: 2	1. Theory of Airfield Lighting: 90% 2. Theory of UPS: 90%
-The following number of DCA officers successfully complete supervisor/advanced/specialist training:	Instructors: 10* <sup>1</sup>	8 officers successfully completed "Team Resource Management Course" in South Africa. 4 officers successfully completed "Supervisory Management Course" in Kenya. 8 officers successfully completed "Instructor Development Course" in Kenya.
	ATC/FIS: 4* <sup>1</sup>	
	AIS/ACS: 4* <sup>1</sup>	
	Aeronautical Cartography: 2* <sup>2</sup>	To be held in November 2015.
	PANS/OPS: 2* <sup>2</sup>	4 officers successfully completed "PANS/OPS Conventional Flight Procedure Design for Non-Precision Approach"
	ILS Maintenance: 4* <sup>2</sup>	To be held in February 2016.

\*1: Overseas trainings

\*2: In-country trainings

#### 1-4. Achievement of the Project Purpose

Achievement of the Project purpose: "Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities." is observed according to the PDM indicators as follows:

Achievement of the Project Purpose

Indicators for the Project Purpose		Achievement as of 30 <sup>th</sup> Sept. 2015
- The following number of instructors can conduct the improved/developed training courses (fulltime + part time)	ATC/FIS: 6	0
	AIS/ACS: 4	0
	Electronic Eng.: 4	0
	E/M Eng.: 4	0
- Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 70%.	Computer Based Training (CBT) (6 participants)	Not scored
	Test Equipment Course (5 trainees)	87.1%
	Electrical & Mechanical Training (6 trainees)	93.7%
	Flight Procedure Design Training (4 s)	80.0%
	General Communication Course (6 trainees)	89.6%
	Park Air T6 VHF Radio Course (6 trainees)	85.3%
	052 Aerodrome (5 trainees)	86.1%
	CVOR/DVOR/ILS/DME/RADAR Concept (5 trainees)	86.8%

**1-5. Changes of Risks and Actions for Mitigation**

No major changes were seen in the PDM Important Assumptions; therefore no special actions need to be taken. However, as for the Pre-conditions, new trainees were not recruited yet, which may affect the project outcomes.

## (1) Pre-conditions

PDM Pre-conditions	Current Situations	Actions for Mitigation
1) DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.	- Project office space was provided at the time of initiation of the work in Malawi in June 2014. - Counterpart personnel (C/P) were allocated in the Project before the commencement of the project.	- No special actions need to be taken.
2) New trainees are recruited as scheduled.	-12 new staff for ATC were recruited in early October 2015. -Recruitment for 12 new staff for Engineer is in progress. They will join DCA by the end of October 2015.	- No special actions need to be taken.

## (2) Important Assumption when proceeding from Activities to Outputs

Important Assumption	Current Situations	Actions for mitigation
1) DCA implements the Project with sufficient ownership.	- DCA's ownership was seen.	- No special actions need to be taken.

## (3) Important Assumptions when proceeding from Outputs to the Project Purpose

Important Assumption	Current Situations	Actions for mitigation
1) No major change of the international standards on air navigation services occurred.	- No major changes were seen. It did not affect to the Project operation.	- No special actions need to be taken.

**1-6. Progress of Actions undertaken by JICA**

No remarkable issues.

**1-7. Progress of Actions undertaken by the Government of Malawi**

In May 2015, the Government of Malawi/DCA began procedures to recruit new students for ATC, Electronics Engineer, Electrical Engineer and Mechanical Engineer. New students for ATC will be selected and ATC training will start at SOA from October 2015. Recruitment for the new students for Engineer is still in progress. They will be selected and training will start by mid-November 2015.

**1-8. Progress of Environmental and Social Considerations (if applicable)**

No remarkable issues.

**1-9. Progress of Considerations on Gender/ Peace Building/ Poverty Reduction (if applicable)**

No remarkable issues.

**1-10. Other remarks or issues related to the project (such as other projects of JICA, activities of counterparts, other donors, private sectors, NGOs, etc.)**

- (1) Project for the Improvement of Aviation Safety Oversight in Malawi by European Aviation Safety Agency (EASA)

EASA is currently assisting DCA and the Ministry of Transport and Public Works improving safety oversight capacity of civil aviation. There is no overlapping of activities between JICA project and EASA project.

- (2) Airport Safety and Security Equipment Project by European Investment Bank (EIB)

EIB is funding the procurement of safety equipment such as fire trucks at Kamuzu International Airport. There is no overlapping of activities between JICA project and EIB project.

- (3) The Project for Expansion of the Terminal Building at Kamuzu International Airport by JICA

Embassy of Japan in Malawi announced that the Japanese government will conclude Exchange of Note (EN) concerning "The Project for Expansion of the Terminal Building at Kamuzu International Airport" in November 2015.

This project will include installation of the aircraft surveillance system. Current capacity development project will strengthen the foundation for the introduction of radar control services; however, will not include training for operation and maintenance of the aircraft surveillance system. Therefore, DCA should plan means for capacity development for Radar Control services in near future.

**2. Delay of Work Schedule and/or Issues (if any)**

**2-1. Detail**

Despite a few months of delay, new staff for ATC will be recruited in early October 2015 and training will start from 12<sup>th</sup> October 2015. Other new staff for Engineer's recruitment is in progress and selection will be finalized and training will start by mid-November 2015.

**2-2. Cause of Delay**

Recruiting process had been delayed due to lack of funds for recruitment.

**2-3. Actions to be taken**

Project counterparts shall complete the remaining recruitment process within November 2015.

**2-4. Roles of Responsible Persons/ Organization (JICA, Gov. of Malawi, etc.)**

DCA and the Government of Malawi are responsible for recruitment of new staff.

### **3. Modification of the Project Implementation Plan**

#### **3-1. Plan of Operation (PO)**

No major modification was made.

#### **3-2. Other Modifications on Detailed Implementation Plan**

*(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)*

Some changes made, mainly in “Objectively Verifiable Indicators”, were discussed and agreed among DCA and JICA Team at the 4<sup>th</sup> JCC meeting which were as follows (\*underlined = changes made).

##### 1) Overall Goal

Define the Objectively Verifiable Indicator as “The targeted number of trainees (serving officers and new staff) who will successfully complete the improved/developed training courses between 2016 and 2020 is at least 80”.

##### 2) Project Purpose

Change minimum score of comprehension test from 80% to 70% in accordance with international standard of ICAO.

Replace the Means of Verification “Terminal Evaluation Report” with “Project Completion Report”. In addition, insert “- Results of comprehension test score of trainees”.

##### 3) Outputs

Delete the Objectively Verifiable Indicator “Comprehension test score of trainees who receive the improved/developed training courses exceeds at least 80%” as this indicator duplicates with that of the Project Purpose.

The revised PDM is attached as Project Monitoring Sheet I.

### **4. Preparation of the Government of Malawi towards the completion of the Project**

Not applicable.

## **II. Project Monitoring Sheet I (PDM) & Sheet II (PO) as attached**

Project Design Matrix

**Project Title: The Project for Capacity Development for Air Navigation Services in the Republic of Malawi**

**Implementing Agency: DCA**

**Target Group: Air Traffic Controllers, Flight Information Officers, Aeronautical Information Services Officers, Aeronautical Communication Officers, Electronic Engineers and Electrical/Mechanical Engineers of DCA**

**Period of Project: 2 years (24/04/2014-20/05/2016)**


**Project Site: School of Aviation**

**Model Site:**

Version 3

Dated 30 September 2015

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p><b>Overall Goal (Long-term objective)</b> Training by the trained instructors is sustainably conducted for officers of air navigation services.</p>	<p><b>The following</b> number of officers successfully complete the improved/developed training courses <b>by 2020</b>  <input type="checkbox"/> <b>10 officers</b></p>	<p>- Training records</p>			
<p><b>Project Purpose (Objective at the end of the Project)</b> Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities.</p>	<p>- <b>The following</b> number of instructors can conduct the improved/developed training courses (fulltime + part time)  <input type="checkbox"/> ATC/FIS: 6 (1)  <input type="checkbox"/> AIS/ACS: 4 (2)  <input type="checkbox"/> Electronic Eng.: 4 (1)  <input type="checkbox"/> E/M Eng.: 2 (1)                      Number in ( ) indicates current situation.                      - Comprehension test score of <b>instructors</b> exceeds at least 80%.</p>	<p>- Monitoring Sheet                      - <b>Project Completion Report</b>                      - <b>Results of comprehension test score of instructors</b></p>	<p>- Trained counterpart personnel continue to be engaged in the activities of air navigation services.                      - No major change in the national policy on air navigation services within the national plan/ strategy is occurred.</p>		
<p><b>Outputs (Objectives to be realized by Activities to achieve the Project Purpose)</b>                      1. Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved.                      2. Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved.                      3. Training of Electronic Engineering is improved.                      4. Training of Electrical/Mechanical Engineering (E/M Eng) is improved.</p>	<p>- Training syllabus and training materials are improved or developed for the following number of courses:  <input type="checkbox"/> ATC/FIS: 6  <input type="checkbox"/> AIS/ACS: 2  <input type="checkbox"/> Electronic Eng.: 6  <input type="checkbox"/> E/M Eng.: 2                      - The following number of DCA officers successfully complete supervisor/advanced/specialist training:  <input type="checkbox"/> Instructors: 10  <input type="checkbox"/> ATC/FIS: 4  <input type="checkbox"/> AIS/ACS: 4  <input type="checkbox"/> Aeronautical Cartography: 2  <input type="checkbox"/> PANS/OPS: 2  <input type="checkbox"/> ILS Maintenance: 4                      - Comprehension test score of <b>instructor</b> who receive <b>the supervisor/advanced/specialist</b> training courses exceeds at least 80%.</p>	<p>- Monitoring Sheet                       - Results of comprehension test score of supervisor/ advanced/specialist training courses</p>	<p>- No major change of the international standards on air navigation services is occurred.</p>		

Activities (Specific actions to produce each Output by use of Inputs)	Inputs		Pre-Conditions
	The Japanese Side	The DCA Side	
<p><u>Improvement of ATC and FIS Training</u>            1-1. Review current training syllabus and training materials            1-2. Improve/develop training syllabus and training materials            1-3. Conduct training of instructors            1-4. Implement improved training courses            1-5. Implement supervisor training            1-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            1-7. Improve the training courses based on the results from the monitoring and evaluation</p> <p><u>Improvement of AIS and ACS Training</u>            2-1. Review current training syllabus and training materials            2-2. Improve/develop training syllabus and training materials            2-3. Conduct training of instructors            2-4. Implement improved training courses            2-5. Implement supervisor/advanced/specialist training            2-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            2-7. Improve the training courses based on the results from the monitoring and evaluation</p> <p><u>Improvement of Electronic Engineering Training</u>            3-1. Review current training syllabus and training materials            3-2. Improve/develop training syllabus and training materials            3-3. Conduct training of instructors            3-4. Implement improved training courses            3-5. Implement equipment-specific training            3-6. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            3-7. Improve the training courses based on the results from the monitoring and evaluation</p> <p><u>Improvement of Electrical/Mechanical Engineering Training</u>            4-1. Review current training syllabus and training materials            4-2. Improve/develop training syllabus and training materials            4-3. Conduct training of instructors            4-4. Implement improved training courses            4-5. Conduct monitoring and evaluation of the trainings implemented by the trained instructors            4-6. Improve the training courses based on the results from the monitoring and evaluation</p>	<ul style="list-style-type: none"> <li>- Experts               <ul style="list-style-type: none"> <li><input type="checkbox"/> Chief Advisor/Training Manager</li> <li><input type="checkbox"/> ATC Training Specialist</li> <li><input type="checkbox"/> AIS/ACS Training Specialist</li> <li><input type="checkbox"/> Electronic Maintenance Training Specialist</li> <li><input type="checkbox"/> Electrical/ Mechanical Maintenance Training Specialist</li> <li><input type="checkbox"/> Others as necessary</li> </ul> </li> <li>- Training materials</li> <li>- Training equipment</li> <li>- Overseas training</li> </ul>	<ul style="list-style-type: none"> <li>- Counterpart Personnel</li> <li>- Support Staff</li> <li>- Project Office Space</li> <li>- Project Office Expenses</li> <li>- Travel Expenses of Counterpart Personnel within Malawi</li> <li>- The others mentioned in Appendix1, II, 6, of R/D</li> </ul>	<p>- DCA implements the Project with sufficient ownership.</p> <p><b>Pre-Conditions</b>            - DCA secures budget necessary for preparation of the Project Office and allocation of counterpart personnel before the commencement of the Project.            - New trainees are recruited as scheduled.</p> <div style="text-align: center; margin-top: 20px;">  </div>



5. Project Office		Plan																											Responsible Organization		Achievements	Issue & Countermeasures	
5-1	Project Office	Actual																											Japan	Malawi			
5-2	ATC Simulator Room	Plan																															
5-3	CBT Room	Actual																															
5-4	Electronic Training Laboratory	Plan																															
		Actual																															
Activities			YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Responsible Organization		Achievements	Issue & Countermeasures
Sub-Activities			Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	Japan	Malawi		
Output 1-A: Improvement of Air Traffic Control Assistant/ Basic Course Training																															Training materials to be used as a base for developing basic Air Traffic Control Course have been procured. The materials are being localized by JICA Expert & SOA. Instructors to suit Malawian context. The course based on these materials will start from early October 2015 for the new ATC students		
1-A-1	Review current training syllabus/materials	Plan																											JICA				
		Actual																											JICA				
1-A-2	Improve/develop training syllabus/materials	Plan																											JICA				
		Actual																											JICA				
1-A-3	Conduct training of instructors	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-A-4	Implement improved training courses	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-A-5	Implement supervisor training (Overseas training)	Plan																												DCA			
		Actual																												DCA			
1-A-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA			
		Actual																												DCA			
1-A-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA			
		Actual																												DCA			
Output 1-B: Improvement of Aerodrome Control Training																															Training materials for Aerodrome Control Training were developed by JICA Expert.	Training for instructors on Aerodrome Control course finished in July 2015.	
1-B-1	Review current training syllabus/materials	Plan																											JICA				
		Actual																											JICA				
1-B-2	Improve/develop training syllabus/materials	Plan																											JICA				
		Actual																											JICA				
1-B-3	Conduct training of instructors	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-B-4	Implement improved training courses	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-B-5	Implement supervisor training (Overseas training)	Plan																												DCA			
		Actual																												DCA			
1-B-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA			
		Actual																												DCA			
1-B-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA			
		Actual																												DCA			
Output 1-C: Improvement of Approach Control (Procedural) Training																															Training material for Approach Control Procedural Training is being developed by JICA Expert and is almost finished.	This training will be conducted in February 2016 by DCA instructors with the support from JICA Expert.	
1-C-1	Review current training syllabus/materials	Plan																											JICA				
		Actual																											JICA				
1-C-2	Improve/develop training syllabus/materials	Plan																											JICA				
		Actual																											JICA				
1-C-3	Conduct training of instructors	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-C-4	Implement improved training courses	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-C-5	Implement supervisor training (Overseas training)	Plan																												DCA			
		Actual																												DCA			
1-C-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA			
		Actual																												DCA			
1-C-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA			
		Actual																												DCA			
Output 1-D: Improvement of Area Control (Procedural) Training																															Training material for Area Control Procedural Training is being developed by JICA Expert.	This training will be conducted in March 2016 by DCA instructors with the support from JICA Expert.	
1-D-1	Review current training syllabus/materials	Plan																											JICA				
		Actual																											JICA				
1-D-2	Improve/develop training syllabus/materials	Plan																											JICA				
		Actual																											JICA				
1-D-3	Conduct training of instructors	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-D-4	Implement improved training courses	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-D-5	Implement supervisor training (Overseas training)	Plan																												DCA			
		Actual																												DCA			
1-D-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA			
		Actual																												DCA			
1-D-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA			
		Actual																												DCA			
Output 1-E: Improvement of CNS/ATM Technology for ATC Training																															Base material for CNS/ATM for ATC training is being prepared by JICA Expert.	This training material is being localized to suit Malawian context by DCA instructors & JICA Expert.	
1-E-1	Improve/develop training materials	Plan																											JICA				
		Actual																											JICA				
1-E-2	Conduct training of DCA staffs	Plan																											JICA				
		Actual																											JICA				
1-E-3	Conduct monitoring and evaluation of the trainings	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-E-4	Improved training based on the result from the monitoring and evaluation	Plan																											JICA	DCA			
		Actual																											JICA	DCA			
1-E-5	Implement supervisor training (Overseas training)	Plan																												DCA			
		Actual																												DCA			
1-E-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																												DCA			
		Actual																												DCA			
1-E-7	Improved training based on the result from the monitoring and evaluation	Plan																												DCA			
		Actual																												DCA			
Output 1-F: Improvement of Aeronautical Cartography Training																													Change to training by JICA Expert in Malawi		Departure Procedure & Cartography will be conducted in November 2015.		
1-F-1	Conduct training of DCA staffs	Plan																															
		Actual																															
Output 1-G: Improvement of Flight Procedure Design (Conventional Flight Procedure) Training																													Change to training by JICA Expert in Malawi		Conventional Flight Procedure Design (Approach) training was conducted in May 2015.		
1-G-1	Conduct training of DCA staffs	Plan																															
		Actual																															



Activities Sub-Activities	YY/MM Month	'14/4					'15/1					'16/1					Responsible Organization					Achievements	Issue & Countermeasures							
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th			21st	22nd	23rd	24th	25th	26th	Japan
<b>Output 1-H: Improvement of Flight Information Services Training</b>																														
1-H-1	Review current training syllabus/materials																										JICA		Integration of FIS into ATC is under transition. The training material is being developed as a part of ATC training material by JICA Expert.	
1-H-2	Improve/develop training syllabus/materials																										JICA	DCA		
1-H-3	Conduct training of instructors																										JICA	DCA		
1-H-4	Implement improved training courses																										JICA	DCA		
1-H-5	Implement supervisor training (Overseas training)																										JICA	DCA		
1-H-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors																										JICA	DCA		
1-H-7	Improved training based on the result from the monitoring and evaluation																											DCA		
<b>Output 2-A: Improvement of Basic AIS Officer Training</b>																														
2-A-1	Review current training syllabus/materials																										JICA		Instructor training was carried out through Working Group activity. Training for AIS officer will be conducted in November 2015.	
2-A-2	Improve/develop training syllabus/materials																										JICA	DCA		
2-A-3	Conduct training of instructors																										JICA	DCA		
2-A-4	Implement improved training courses																										JICA	DCA		
2-A-5	Implement supervisor/advanced/specialist training (Overseas training)																										JICA	DCA		
2-A-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors																										JICA	DCA		
2-A-7	Improved training based on the result from the monitoring and evaluation																											DCA		
<b>Output 2-B: Improvement of Basic Aeronautical Communication Officer Training</b>																														
2-B-1	Review current training syllabus/materials																										JICA		Training material is being developed as AIM training by the Working Group. Training for ACS officer will be conducted in November 2015.	
2-B-2	Improve/develop training syllabus/materials																										JICA	DCA		
2-B-3	Conduct training of instructors																										JICA	DCA		
2-B-4	Implement improved training courses																										JICA	DCA		
2-B-5	Implement supervisor/advanced/specialist training (Overseas training)																										JICA	DCA		
2-B-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors																										JICA	DCA		
2-B-7	Improved training based on the result from the monitoring and evaluation																											DCA		
<b>Output 3-A: Improvement of General Communication Maintenance for Electronic Engineers</b>																														
3-A-1	Review current training syllabus/materials																											JICA		Training material was developed by JICA Expert. Training with the material was conducted in January 2015 to the Electronics Engineers by JICA Expert & DCA instructor. Project used dummy transmitter & receiver which were provided by JICA.
3-A-2	Improve/develop training syllabus/materials																											JICA		
3-A-3	Conduct training of instructors																											JICA		
3-A-4	Implement improved training courses																										JICA	DCA		
3-A-5	Implement equipment specific training (Implement by 3-C, 3-D, 3-E)																										JICA	DCA		
3-A-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors																										JICA	DCA		
3-A-7	Improved training based on the result from the monitoring and evaluation																											DCA		
<b>Output 3-B: Improvement of Concept Courses for ILS/DVOR/DME/Radar</b>																														
3-B-1	Review current training syllabus/materials																											JICA		Training material was developed by JICA Expert. Training using the material was conducted in June 2015 to the Electronics Engineer by JICA Expert & DCA instructor.
3-B-2	Improve/develop training syllabus/materials																											JICA		
3-B-3	Conduct training of instructors																											JICA		
3-B-4	Implement improved training courses																											JICA	DCA	
3-B-5	Implement equipment specific training (Implement by 3-C, 3-D, 3-E)																										JICA	DCA		
3-B-6	Conduct monitoring and evaluation of the trainings implemented by the trained instructors																										JICA	DCA		
3-B-7	Improved training based on the result from the monitoring and evaluation																											DCA		
<b>Output 3-C: Improvement of Maintenance Courses for Park Air VHF</b>																														
3-C-1	Improve/develop training materials																											JICA		Training material was developed by JICA Expert and the training was conducted by DCA instructor and JICA Expert in June 2015.
3-C-2	Conduct training of DCA staffs																											JICA	DCA	
3-C-3	Conduct monitoring and evaluation of the trainings																												DCA	
3-C-4	Improved training based on the result from the monitoring and evaluation																												DCA	
<b>Output 3-D: Improvement of Maintenance Courses for Normarc ILS</b>																														
3-D-1	Improve/develop training materials																												Change to training by JICA Expert in Malawi	Training material was developed by JICA Expert and the training will be conducted by DCA instructor and JICA expert in November 2015.
3-D-2	Conduct training of DCA staffs																											JICA		
3-D-3	Conduct monitoring and evaluation of the trainings																												DCA	
3-D-4	Improved training based on the result from the monitoring and evaluation																												DCA	

Activities		YY/MM	'14/4	5	6	7	8	9	10	11	12	'15/1	2	3	4	5	6	7	8	9	10	11	12	'16/1	2	3	4	5	Responsible Organization		Achievements	Issue & Countermeasures
Sub-Activities		Month	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	Japan	Malawi		
<b>Output 3-E: Improvement of Maintenance Courses for Maru DVOR/DME</b>																																
3-E-1	Improve/develop training materials	Plan																												JICA		
		Actual																														
3-E-2	Conduct training of DCA staffs	Plan																												JICA		
		Actual																														
3-E-3	Conduct monitoring and evaluation of the trainings	Plan																													DCA	
		Actual																														
3-E-4	Improved training based on the result from the monitoring and evaluation	Plan																													DCA	
		Actual																														
<b>Output 3-F: Improvement of New CNS/ATM Technology for Electronic Engineer Training</b>																																
3-F-1	Improve/develop training materials	Plan																												JICA		
		Actual																														
3-F-2	Conduct training of DCA staffs	Plan																												JICA		
		Actual																														
3-F-3	Conduct monitoring and evaluation of the trainings	Plan																													DCA	
		Actual																														
3-F-4	Improved training based on the result from the monitoring and evaluation	Plan																													DCA	
		Actual																														
<b>Output 4-A: Improvement of Concept Courses for Airfield Lighting System</b>																																
4-A-1	Review current training syllabus/materials	Plan																												JICA		
		Actual																														
4-A-2	Improve/develop training syllabus/materials	Plan																												JICA		
		Actual																														
4-A-3	Conduct training of instructors	Plan																												JICA		
		Actual																														
4-A-4	Implement improved training courses	Plan																													DCA	
		Actual																														
4-A-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																													DCA	
		Actual																														
4-A-6	Improved training based on the result from the monitoring and evaluation	Plan																													DCA	
		Actual																														
<b>Output 4-B: Improvement of Concept Courses for Uninterrupted Power Supply System (UPSS)</b>																																
4-B-1	Review current training syllabus/materials	Plan																												JICA		
		Actual																														
4-B-2	Improve/develop training syllabus/materials	Plan																												JICA		
		Actual																														
4-B-3	Conduct training of instructors	Plan																												JICA		
		Actual																														
4-B-4	Implement improved training courses	Plan																													DCA	
		Actual																														
4-B-5	Conduct monitoring and evaluation of the trainings implemented by the trained instructors	Plan																													DCA	
		Actual																														
4-B-6	Improved training based on the result from the monitoring and evaluation	Plan																													DCA	
		Actual																														
<b>Monitoring Plan</b>																																
Monitoring																																
Joint Coordination Committee																																
		Plan																														
		Actual																														
Set-up the Detailed Plan of Operation																																
		Plan																														
		Actual																														
Submission of Monitoring Sheet																																
		Plan																														
		Actual																														
Reports/Documents																																
Project Completion Report																																
		Plan																														
		Actual																														

**III. Attachment**

**Annex 1. Abbreviations**

**Annex 2. Training Summary**

- Annex 2-1. ATC 052 Aerodrome Training**
- Annex 2-2. Basic Concept for Electrical & Mechanical Training**
- Annex 2-3. Flight Procedure (Conventional) Design Training**
- Annex 2-4. PC (Microsoft Office) Training**
- Annex 2-5. General Communication Training**
- Annex 2-6. DVOR/CVOR/DME/ILS/RADAR Concept Training**
- Annex 2-7. Park Air VHF Radio Maintenance Training.**

## Annex 1

### Abbreviations

ATC :	Air Traffic Control
AIS :	Aeronautical Information Service
CNS :	Communication Navigation Surveillance (Electronics Engineer)
E/M :	Electrical & Mechanical
ACS:	Aeronautical Communication Service
FIS:	Flight Information Service
DCA:	Department of Civil Aviation
SOA:	School of Aviation Malawi
KIA:	Kamuzu International Airport (Lilongwe)
CIA:	Chileka International Airport (Blantye)
ICAO:	International Civil Aviation Organization
CVOR:	Conventional VHF Omni Direction Ranging
DVOR:	Doppler VHF Omni Direction Ranging
DME:	Distance Measuring Equipment
ILS:	Instrument landing System
CBT:	Computer Based Training

## Annex 2-1

### Training Course Summary

Course title: ICAO 052 Aerodrome Control Course

Schedule: 1<sup>st</sup> June – 3<sup>rd</sup> July 2015 (5 weeks)

Objective: To improve ATC instructors' capacity to conduct training through the Aerodrome Control training based on ICAO 052 along with the use of ATC simulator system.

#### Syllabus:

1. Aerodynamics
2. Aviation English
3. Search and Rescue
4. Aerodrome Control
5. Excise Aerodrome Control by Simulator

#### Trainees/Instructors:

##### [Trainees]

- |                                |                              |
|--------------------------------|------------------------------|
| 1. Mr. CLIFTON J. CHAMPHALE    | Kamuzu International Airport |
| 2. Ms. JELIA KALINDA           | Kamuzu International Airport |
| 3. Mr. PAUL HARRY LIZIMBA      | Kamuzu International Airport |
| 4. Mr. JOSEPH GONANG'OMBE MOYO | Mzuzu Airport                |
| 5. Mr. ROBERT NKOSI            | DCA Headquarters             |

##### [Instructors]

- |                                  |                               |
|----------------------------------|-------------------------------|
| 1. Mr. FREDERICK LYTON CHISEPEYA | Kamuzu International Airport  |
| 2. Mr. SIDNEY PETER GALAFA       | School of Aviation            |
| 3. Ms. LINDA ANNIE MANONDO       | Kamuzu International Airport  |
| 4. Mr. DENNIS TELESFORUS ZAMAERE | Chileka International Airport |



## Annex 2-2

### Training Course Summary

Course title: Basic Concept for Electrical & Mechanical Training

Schedule: 20th – 30th April 2015 (2 weeks)

Objective: To acquire knowledge on the basic principles (which are not confined to a certain manufacturer), structure, theoretical mechanism and operation minimum, and recovering priority based on ICAO operational standards for Air Field Lighting and UPS/Generator.

#### Syllabus:

Diesel Engine Generator	UPS	Air Field Lighting
1. DEGS Serviceability Checks	1. Preparatory Checks and Manual Operation	1. Operational Concept
2. DEGS Manual and Automatic Operation	2. Automatic Simulation and Stopping	2. Visual Effect
3. AC Generator Serviceability Check	3. Physical and Electrical Checks	3. Human Element
4. Diesel Engine Serviceability Check	4. Troubleshooting (JOB-AIDS)	4. OPERATING REQUIREMENTS
5. Control Cubicle Serviceability Check		5. Lighting Device
6. Troubleshooting (JOB-AIDS)		

#### [Trainees]

1. Ms. Catherine GIBSON	Chileka International Airport
2. Mr. George MLENGANDALE	Kamuzu International Airport
3. Mr. Thomson Precious Malumbo MTONGA	Kamuzu International Airport
4. Mr. Charles Wilned NKOSI	Kamuzu International Airport
5. Mr. Fletcher Misanjo Eneya PHUMISA	Chileka International Airport
6. Mr. Oscar Alfred YOKONIA	Chileka International Airport



## Annex 2-3

### Training Course Summary

- Course title: Conventional Flight Procedure Design (Non-Precision Approach) Course
- Schedule: 5<sup>th</sup> – 28<sup>th</sup> May 2015 (4 weeks)
- Objective: To acquire knowledge on basic flight procedure design based on non-precision approach by conventional navigation-aid targeting ATC and AIP officers.

#### Syllabus:

1. Flight Procedure Design Concept
2. General Regulations (Conversion IAS to TAS, Truck Guidance, Minimum Separation, Fix Point Error, Circling Area)
3. Design of STAR by Conventional Navigation
4. Design of VOR Approach & NDB Approach
5. Design of Circling Approach Area
6. Design of Basic Circling Approach
7. Design of 45°/ 180°turning
8. Design of MSA
9. Design & Evaluation of Visual Segment Surface

#### Trainees:

1. Stephen Donald MKANDAWIRE Chief Air Traffic Controller, Kamuzu International Airport
2. Janet Tiyesie MPHANDE Air Traffic Controller, Kamuzu International Airport
3. Bosco Yokonia NG'OMA Air Traffic Controller, Chileka International Airport
4. Robert NKOSI Air Traffic Management, Department of Civil Aviation



## Annex 2-4

### Training Course Summary

Course title: PC (Microsoft Office) Training Course

Schedule: 21<sup>st</sup>-24<sup>th</sup> April 2015 (4 days)

Objective: To improve computer literacy of the instructors at the School of Aviation and DCA officers.

Syllabus:

10. Using Computer & UPS devices
11. Microsoft Office Word
12. Microsoft Office Excel
13. Microsoft Office Power-Point

Trainees:

- |                              |                                   |
|------------------------------|-----------------------------------|
| 1. Mr. Fredrick L. CHISEPEYA | ATC, Kamuzu International Airport |
| 2. Mr. Nelson B. KALIASI     | AIS, Kamuzu International Airport |
| 3. Mr. Steven M. S. LIUNDI   | ACS, School of Aviation           |
| 4. Mr. Rodrick Y. MALANGA    | AIS, School of Aviation           |
| 5. Ms. Linda Annie MANONDO   | ATC, Kamuzu International         |





## Annex 2-5

### Training Course Summary

Course Title: General Communications Course

Schedule: 18<sup>th</sup> May – 4<sup>th</sup> June 2015 (3 weeks)

Objective: To acquire theoretical and new knowledge of General Communication such as Radio, Telephone and Data Network.

#### Syllabus:

1. Introduction
2. Wire Technology
3. Data Communication
4. Digital Network
5. Fiber Optics
6. Multipoint Distribution System
7. Wireless Technology
8. Voice Communication System 3025 (Current System in Lilongwe Airport)

#### Trainees:

- |                                 |                               |
|---------------------------------|-------------------------------|
| 1. Mr. EMMANUEL KEN CHAVULA     | Chileka International Airport |
| 2. Mr. FREDERICK NYANDA CHISALE | Kamuzu International Airport  |
| 3. Ms. SELLINA KHAILA           | Kamuzu International Airport  |
| 4. Mr. PATRICK MANJOMO          | Chileka International Airport |
| 5. Mr. DEUS MALAIDZA            | Kamuzu International Airport  |
| 6. Mr. JONES G. F. NYIRENDA     | Karonga Airport               |



## Annex 2-6

### Training Course Summary

Course Title: DVOR/CVOR/DME/ILS/RADAR Concept Course

Schedule: 22nd June – 10th July 2015 (3 weeks)

Objective: To acquire knowledge on basic technical concept for the Communication, Navigation and Surveillance System in aviation engineering and to improve capacity of the current engineers.

Syllabus:

1. Introduction
2. DVOR/CVOR
3. DME
4. ILS
5. RADAR

Trainees:

- |                                 |                               |
|---------------------------------|-------------------------------|
| 1. Mr. FREDERICK NYANDA CHISALE | Kamuzu International Airport  |
| 2. Ms. SELLINA KHAILA           | Kamuzu International Airport  |
| 3. Mr. SPARROW RODNEY KUNJE     | Chileka International Airport |
| 4. Mr. DEUS MALAIDZA            | Kamuzu International Airport  |
| 5. Mr. YONAM WILA LUKE SILUNGWE | Chileka International Airport |



## Annex 2-7

### Training Course Summary

Course title: Park Air VHF Maintenance Course

Schedule: 8<sup>th</sup>-19<sup>th</sup> June 2015 (2 weeks)

Objective: Study for maintenance technic of PARK-AIR T6 VHF RADIO SYSTEM which is installed Kamuzu International Airport.

#### Syllabus:

1. Introduction
2. T6 VHF Receiver
3. T6 VHF Transmitter

#### Trainees:

1. Mr. MIKE CHAVULA
2. Mr. OSCAR PATANI CHIHANA
3. Mr. FREDERICK NYANDA CHISALE
4. Mr. LLOYD TIYEZGE GONDWE
5. Ms. SELLINA KHAILA
6. Mr. DEUS MALAIDZA

Chileka International Airport  
Mzuzu Airport  
Kamuzu International Airport  
Chileka International Airport  
Kamuzu International Airport  
Kamuzu International Airport



# **ANNEX 6**

## **Project Evaluation**

ANNEX 6-1: Evaluation Grid

ANNEX 6-2: Questionnaire (blank)

ANNEX 6-3: Summary of Answers to the Questionnaire

ANNEX 6-4: Training Evaluation (blank)

**ANNEX 6-1: Evaluation Grid**  
**Evaluation Grid: Terminal Evaluation Survey on the Project for Capacity Development for Air Navigation Services**

Item	Evaluation Question		Evaluation Criteria / Method	Data Collection Method	
	Category	Item			
Achievement	Achievement of Inputs	Were timing & amount of the inputs from Japan side almost as planned?	(Qualitative Evaluation: Comparison of Planned & Actual Inputs)	Review of Project Documents Questionnaires to the Project	
		Were timing & amount of the inputs from Malawi side almost as planned?			
	Achievement of Activities	Have the activities related to Output 1 "Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved." been achieved almost as planned?			
		Have the activities related to Output 2 "Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved" been achieved almost as planned?			
		Have the activities related to Output 3 "Training of Electronic Engineering is improved." been achieved almost as planned?			
		Have the activities related to Output 4 "Training of Electrical/Mechanical Engineering (E/M Eng.) is improved." been achieved almost as planned?			
		Will/Has Output 1 "Training of Air Traffic Control (ATC) and Flight Information Services (FIS) is improved" be/been achieved?			Achievement level of Verifiable Indicators (Qualitative Evaluation: Planned activities towards the end of the Project)
		Will/Has Output 2 "Training for Aeronautical Information Services (AIS) and Aeronautical Communication Services (ACS) is improved" be/been achieved?			
		Will/Has Output 3 "Training of Electronic Engineering is improved." be/been achieved?			
		Will/Has Output 4 "Training of Electrical/Mechanical Engineering (E/M Eng.) is improved" be/been achieved?			
Expectancy of Achievement of Project Purpose	Will Project Purpose "Trainings for air navigation services are implemented to effectively utilize the improved air navigation facilities." be achieved?	Probability of achieving Outputs 1 to 4 (Qualitative Evaluation: Change of Assumed External Conditions)	Review of Project Documents Questionnaires to the Project Interview of Experts & C/P		
	Will Overall Goal "Training by the trained instructors is sustainably conducted for officers of air navigation services." be achieved?				
Expectancy of achievement of Overall Goal	Will Overall Goal "Training by the trained instructors is sustainably conducted for officers of air navigation services." be achieved?	Probability of achieving Project Purpose (Qualitative Evaluation: Change of Assumed External Conditions)	Questionnaires to the Project		

Item	Evaluation Question		Evaluation Criteria / Method	Data Collection Method
	Category	Item		
Implementation Process	Appropriateness of Project Management	Is Project Purpose understood well by the personnel involved in the Project?	5-rank Self-Evaluation	Questionnaires to Experts & C/P
		Are roles of each counterparts/task force members mutually understood well?	5-rank Self-Evaluation	Questionnaires to Experts & C/P
		Is involvement level of counterparts/task force members in the Project high?	5-rank Self-Evaluation	Questionnaires to Experts & C/P
		Was there no problem in management of the Project (monitoring system, decision making process, functions of JICA Head Office and Malawi Office, communications within the Project members, etc.)	5-rank Self-Evaluation	Questionnaires to Experts & C/P
Implementation Process	Appropriateness of Technical Transfer	Is the leadership of Activities being sifted from JICA Experts to the counterpart/task force members?	(Qualitative Evaluation: Transfer of Initiative)	Questionnaires to Experts & C/P
		Are the technologies being transferred to staff other than Taskforce members?	(Qualitative Evaluation: Technical Transfer)	Interview of C/P
		What are factors that caused problems on conducting Activities?	(Qualitative Evaluation: Influence Factors )	Interview of Experts & C/P
		What are factors that have positive or negative effect on achievement of Outputs?		
Implementation Process	Influence Factors to Project Implementation	Are there any changes on Important Assumptions?		
		Do contents of the cooperation conform to the needs of School of Aviation Malawi?	(Qualitative Evaluation: Conformity)	Preliminary Evaluation by Joint Evaluators
		Do Project Purpose and Overall Goal conform to aviation policy and national development policy of Malawi?	(Qualitative Evaluation: Conformity)	Review of National Development Plan Preliminary Evaluation by Joint Evaluators
		Do Project Purpose and Overall Goal conform to foreign aid policy of Japan?	(Qualitative Evaluation: Conformity)	Review of Country Assistance Policy
Implementation Process	Necessity of the Project	Were there advantages of cooperation by JICA? Are technologies/experiences of Japan utilized?	(Qualitative Evaluation: Advantage, Utilization)	Interview of Experts & C/P
		Are there ripple effects to groups other than the Target Group?	(Qualitative Evaluation: Ripple Effect)	Interview of Experts & C/P
		Are Outputs in PDM necessary and sufficient for achieving Project Purpose?		
		Are there any excess or deficiency of Important Assumptions from Outputs to Project Purpose? Will the assumptions be satisfied probably?	(Qualitative Evaluation: Logicity)	Questionnaires to the Project Preliminary Evaluation by Joint Evaluators
Implementation Process	Priority of the Project	Do Verifiable Indicators show achievement of Project Purpose appropriately?		
		What are factors that hinder or contribute achievement of Project Purpose?		
		Is relationship between Activities and Outputs in PDM appropriate?	(Qualitative Evaluation: Appropriateness)	Questionnaires to the Project Preliminary Evaluation by Joint Evaluators
		Are there synergies from cooperation and/or coordination with other donors?		
Implementation Process	Appropriateness of Planned Activities	Are there any excess or deficiency of Important Assumptions from Activities to Outputs? Are the assumptions satisfied?		
		Do Verifiable Indicators show achievement of Outputs appropriately?		
		Are the Inputs from Japanese side appropriate?		
		Are the Inputs from Malawi side appropriate?		
Implementation Process	Appropriateness of Planned Inputs	Are there any cost overrun or significant unexpected expenses?	5-rank Self-Evaluation	Questionnaires to Experts & C/P
		Are Outputs commensurate with Inputs?	(Qualitative Evaluation: Comparison of Plan & Actual)	Review of Project Documents Questionnaires to the Project

Item	Evaluation Question		Evaluation Criteria / Method	Data Collection Method
	Category	Item		
Impact	Appropriateness of Overall Goal	Will Overall Goal be achieved as an effect of the Project?	(Qualitative Evaluation: Appropriateness)	Questionnaires to the Project Preliminary Evaluation by Joint Evaluators
		Does Verifiable Indicator show achievement of Overall Goal appropriately?		
Impact	Possible Other Impacts	Are there any excess or deficiency of Important Assumptions from Project Purpose to Overall Goal? Will the assumptions be satisfied probably?	(Qualitative Evaluation: Ripple Effects)	Questionnaires to the Project Preliminary Evaluation by Joint Evaluators
		Are positive effects other than Overall Goal assumed? Do exist?		
Impact	Possible Other Impacts	Are negative effects assumed? Do exist?	(Qualitative Evaluation: Policy Continuity)	Questionnaires to the Project Preliminary Evaluation by Joint Evaluators
		Will the Government policy on strengthening of aviation safety be continued probably?		
Sustainability	Stability and Potential of Organizations	Are organization structure and regular staff of DCA appropriate?	(Qualitative Evaluation: Historic Change of Organization Structure and Number of Staff of SOA)	Questionnaires to the Project
		Will it be possible to secure sufficient staff members for maintaining activities for strengthening of aviation safety?		
Sustainability	Sufficiency of Budget	Are organization structure and regular staff of SOA appropriate?	(Qualitative Evaluation: Historic Change of Organization Structure and Number of Staff of SOA)	Questionnaires to the Project
		Will it be possible to secure sufficient staff members for continuing training for strengthening of aviation safety?		
Sustainability	Sufficiency of Budget	Will DCA be able to secure budget for operation and maintenance of the equipment procured by the Project?	(Qualitative Evaluation: DCA's Budget and Operation & Maintenance Costs of Procured Equipment)	Questionnaires to the Project
		Will SOA be able to secure budget required for strengthening of CNS instructors?		
Sustainability	Appropriateness of Technology Used in the Project	Have the technology used in Activities/Outputs transferred appropriately to Counterpart personnel? Are they able to conduct by themselves?	5-rank Self-Evaluation	Questionnaires to Experts & C/P
		Negative Factors for Sustainability of the Project		
Sustainability	Appropriateness of Technology Used in the Project	Will SOA be able to secure budget required for strengthening of CNS instructors?	(Qualitative Evaluation: Number of Instructors and Budget for the last 5 years)	Questionnaires to the Project
		Have the technology used in Activities/Outputs transferred appropriately to Counterpart personnel? Are they able to conduct by themselves?		
Sustainability	Negative Factors for Sustainability of the Project	Negative Factors for Sustainability of the Project	5-rank Self-Evaluation	Questionnaires to Experts & C/P
		Negative Factors for Sustainability of the Project		

## ANNEX 6-2 Questionnaire (blank)

Name: \_\_\_\_\_.

Questionnaire 2016FEB v.1.0

### I. Implementation Process

#### 1. Appropriateness of Project Management

A) Is Project Purpose understood well by the personnel involved in the Project?

← appropriate		inappropriate →		
5	4	3	2	1

B) Are roles of each counterparts/task force members mutually understood well?

← appropriate		inappropriate →		
5	4	3	2	1

C) Is involvement level of counterparts/task force members in the Project high?

← appropriate		inappropriate →		
5	4	3	2	1

D) Was there no problem in management of the Project (monitoring system, decision making process, functions of JICA Head Office and JICA Malawi Office, communications within the Project members, etc.)

← appropriate		inappropriate →		
5	4	3	2	1

#### 2. Appropriateness of Technical Transfer

A) Is the leadership of Activities being sifted from JICA Experts to the counterpart/task force members?

Yes	No

B) Are the technologies being transferred to staff other than Taskforce members?

Yes	No

#### 3. Influence Factors to Project Implementation

A) What are factors that caused problems on conducting Activities?

B) What are factors that have positive or negative effect on achievement of Outputs?

C) Are there any changes on Important Assumptions?



## II. Relevance

### 1. Appropriateness of Project Approach

A) Were there advantages of cooperation by JICA?

Yes	No

B) Are technologies/experiences of JICA Team utilized?

Yes	No

C) Are there ripple effects to groups other than the Target Group?

Yes	No

## III. Efficiency

### 1. Appropriateness of Planned Inputs

A) Are the Inputs from Japanese side appropriate?

← appropriate					inappropriate →				
5	4	3	2	1	5	4	3	2	1

B) Are the Inputs from Malawi side appropriate?

← appropriate					inappropriate →				
5	4	3	2	1	5	4	3	2	1

## IV. Sustainability

### 1. Appropriateness of Technology Used in the Project

A) Have the technology used in Activities/Outputs transferred appropriately to Counterpart personnel? Are they able to conduct by themselves?

← appropriate					inappropriate →				
5	4	3	2	1	5	4	3	2	1

## ANNEX 6-3 Summary of answers to the Questionnaire

Questionnaire 2016FEB v.1.0

### I. Implementation Process

#### 1. Appropriateness of Project Management

A) Is Project Purpose understood well by the personnel involved in the Project?

← appropriate		inappropriate →		
5	4	3	2	1
7	8			

B) Are roles of each counterparts/task force members mutually understood well?

← appropriate		inappropriate →		
5	4	3	2	1
10	3	1		

C) Is involvement level of counterparts/task force members in the Project high?

← appropriate		inappropriate →		
5	4	3	2	1
6	8			

D) Was there no problem in management of the Project (monitoring system, decision making process, functions of JICA Head Office and JICA Malawi Office, communications within the Project members, etc.)

← appropriate		inappropriate →		
5	4	3	2	1
4	6	2	1	

#### 2. Appropriateness of Technical Transfer

A) Is the leadership of Activities being sifted from JICA Experts to the counterpart/task force members?

Yes	No
15	

B) Are the technologies being transferred to staff other than Taskforce members?

Yes	No
14	

#### 3. Influence Factors to Project Implementation

A) What are factors that caused problems on conducting Activities?

- Low level of budget on Malawi side.
- Delay in recruitment of new staff has affected the implementation of the Project, as a result, some of the new staff will not be trained under the Project.
- Transport challenges on the part of DCA.

- Having some instructors stationed at Chileka is having a negative effect on implementation.
- In training programs, most instructors earmarked for the training did not do the training to the fullest. This comprised the standard in which the instruction should be done. Selection was not good. Some members will be retiring and hence waste of resources.
- Non-availability of laptops to participants.
- I think the Malawi side Failed to do their part most of the times like counterpart personnel from Chileka find problems when attending courses in Lilongwe due to financial constraints and in some occasions missed out on some activities due to same reasons-Finance.
- Communication breakdown – sometimes participants to some other activities were informed very late-even being informed on the very day of activity commencement.
- Education background, age whereby old people who will be retiring soon were trained and there will be lack of continuity.
- Personal gains for some were given priority instead of achieving the institutional goal. Lack of ownership of the project by most Malawians.
- Lack of adequate resources on Malawian side: classrooms, e.g. CBT can only accommodate up to 6 attendance, hence causing a separation in conducting exercises with participants.
- Inadequate finding to the side of parent sector.
- Lack of selection criteria to the side of instructor to various training programs.
- No problems identified so far.

B) What are factors that have positive or negative effect on achievement of Outputs?

- Inadequate infrastructure and financial resources.
- Every program was done at the scheduled time and within the given period. Institution selected for external training were appropriate. Organization of the whole project with parallel organization structures on both the DCA side and the JICA side.
- Bureaucracy in the Government system has had a negative effect on the achievement of the outputs.
- Untimely availability of funds on the DCA side.
- Lack of physical presence of some instructors affecting implementation.
- The bringing in of a CNS expert (Mr. Batacan) helped a lot in the transfer of skills from an experienced instructor to the amateur ones (i.e. DCA side).
- Positive- JICA Team were cooperative. Equipment (especially visual aids) were relevant to the capacity development of instructors.
- Negative-There was passive response from the Malawian side. Mostly activities were done when JICA Team are in the country.
- On the Japanese side I would say they tried their best to meet their obligations like organizing courses, finding schools for counterpart instructors and funding these activities. But problems always arise on

the Malawi side in that they fail to fulfil their obligations maybe because our country is passing through difficult times financially.

- Low amount of external allowances to DCA instructors.
- On the positive side, punctuality by the JICA team installed discipline in all participants throughout.
- Education background, age, strategies have both positive and negative effects on achievement of outputs. If an institution has bad strategies and does not plan for the future, doesn't consider education background and age, achievement of outputs is not realized.
- Inadequate rooms to conduct classes at a single time is negative issue.
- Inadequate funding to conduct exercises which require intensive group participation and proper training for those conducting the instructions.
- Delay in executing some of project activities.
- Consistent communication between JICA and parent organization DCA.
- Good learning environment and skilled lecturers.

C) Are there any changes on Important Assumptions?

- No significant changes have been seen and recorded, and international standards and national policy are still within national strategy.
- No change in Important Assumptions. 5
- Assumptions like those on part of instructors being trained some were degree holders in education; it may be assumed that they know instruction techniques as such it seems mostly they were denied opportunities to be trained to the fullest.
- No I don't think there are any changes I think everything is in order apart from the shortfalls on the Malawi Government side.
- Importantly what was assumed has been greatly achieved and we wish such Projects be carried on time and again.
- There are changes on some important assumptions. For instance, the assumption that people will be paid to be a part of capacity building. However, some assumptions are just too rigid to be changed. There is still some resistance to change.
- Changes are there, e.g. Malawian Technical Team of the School are now able to apply the use of technical equipment, e.g. simulation exercise, CBT technical manual editing and updating and power point presentation plus many more.
- Such as assumption based on the issue that when the instructors had already basic academic qualifications which has not been changed.
- Logical framework tool was not available to most of project staff.

## II. Relevance

### 1. Appropriateness of Project Approach

A) Were there advantages of cooperation by JICA?

Yes	No
15	

B) Are technologies/experiences of JICA Team utilized?

Yes	No
15	

C) Are there ripple effects to groups other than the Target Group?

Yes	No
12	2

## III. Efficiency

### 1. Appropriateness of Planned Inputs

A) Are the Inputs from Japanese side appropriate?

← appropriate					inappropriate →				
5	4	3	2	1					
11	4								

B) Are the Inputs from Malawi side appropriate?

← appropriate					inappropriate →				
5	4	3	2	1					
5	6	2	2						

## IV. Sustainability

### 1. Appropriateness of Technology Used in the Project

A) Have the technology used in Activities/Outputs transferred appropriately to Counterpart personnel? Are they able to conduct by themselves?

← appropriate					inappropriate →				
5	4	3	2	1					
8	5	1							

- Of course they are able to do so through the various indicators since other classes are still under way it somehow difficult to have any overall evaluation.

# ANNEX 6-4 Training Evaluation (blank)

## Training Evaluation Sheet

Date: \_\_\_\_\_

Name: \_\_\_\_\_ Age: \_\_\_\_\_ years old

Job title: \_\_\_\_\_ Year of experience: \_\_\_\_\_ years

E-mail: \_\_\_\_\_

1. Did you find the course objectives appropriate according to the needs of your country or organization?

← appropriate					inappropriate →	
5	4	3	2	1		

If your answer is 1 or 2, what kind of improvement should be made?

2. Please write the most interesting topic in the training course.

3. Did the training meet your expectations?

← satisfied					unsatisfied →	
5	4	3	2	1		

If your answer is 1 or 2, please describe the reasons.

4. Do you find the skills and knowledge obtained through the training useful to your job?

← very useful					not useful →	
5	4	3	2	1		

If your answer is 4 or 5, please describe how it applies to your job.

5. Any other comments or suggestions?

## **ANNEX 7**

### **Post-Project Monitoring Format**

ANNEX 7

**Post-Project Monitoring Format to DCA and JICA Malawi Office** the Project for Capacity Development for Air Navigation Services

**1. Progress of Training for Air Navigation Services at SOA**

Date of Report:

Year			No. of Trainees	2016	2017	2018	2019	2020
Field	Course							
ATC/FIS	053 Procedural Approach Control	Plan	12	■				
		Actual						
	055 Procedural Area Control	Plan	12	■				
		Actual						
	054A Radar Approach Control	Plan	31		■	■	■	
		Actual						
054B Radar Area Control	Plan	31		■	■	■		
	Actual							
AIS/ACS	AIM Integration	Plan	12	■				
		Actual						
	Flight Data Processing	Plan	6		■			
		Actual						
	AMHS	Plan	6			■		
		Actual						
CNS & E/M	Basic ATSEP	Plan	10	■■■■■				
		Actual						
	Radar Maintenance	Plan	25		■■■	■■■	■■■	
		Actual						
Others	Plan							
	Actual							
Total		Plan	145					
		Actual						



## 2. Status of Maintenance of Major Equipment procured by the Project

Equipment		Status of Equipment	Necessary Action if any
1	ATC Simulator		
2	5.0kVA UPS for ATC Simulator		
3	CBT System (6 sets of computers)		
4	2.5 kVA UPS for CBT System		
5	Test Equipment		
5-1	Oscilloscope (2)		
5-2	Digital Multimeter (4)		
5-3	Frequency Counter (2)		
5-4	Radio Frequency Wattmeter – Passage Type (2)		
5-5	Radio Frequency Wattmeter – Termination Type (2)		
5-6	Level Meter (2)		
5-7	Standard Signal Generator (2)		
5-8	Distortion Meter (2)		
5-9	Spectrum Analyzer (2)		
5-10	Directional Couplers (2)		
5-11	Low Frequency Variable Attenuator (2)		
5-12	Detector (2)		
5-13	LCR Meter (2)		
5-14	VHF Air Band Transceiver (2)		
5-15	Antenna for VHF Transceiver (2)		
5-16	General Receiver		
5-17	Antenna for General Receiver		
5-18	UPS (4)		
6	Multifunction Copier/Printer/Scanner		
7	Inkjet A3 Color Printer		
8	PC Projector (2)		
9	Notebook PC (4)		
10	40-inch LCD Monitor (2)		
11	3.5kVAUPS for Project Office		
12	Intrusion Detection System		

# **ANNEX 8**

## **Training Course Summary**

# ANNEX 8 Training Course Summary

## Training Course Summary

Course title: Team Resource Management [ATNS, South Africa]

Schedule: 26<sup>th</sup> ~ 30<sup>th</sup> January 2015 (1 week)

Objectives: To create an awareness of human factors in Air Traffic Control and to develop the knowledge, skills and attitude of the participants to enable them to perform their functional duties with due consideration of the influence of human factors on aviation safety.

### Syllabus:

1. Introduction to Team Resource Management (TRM)
2. Sensory-perceptual
3. Knowledge, ability, skill and error
4. Medical, physiological and psychological
5. Personality and attitude
6. Judgement and decision-making
7. Communication
8. Team work

Trainees: 8

Mr. CLEMENT FREDSON BETENIGO (KIA)  
Mr. SIDNEY PETER GALAFA (SOA)  
Mr. JOHN COLLINS KALIWO (KIA)  
Mr. JIMMY HENDRIX DYSON KAZITO (KIA)  
Mr. HARRY HARRIS MASANGANO (CIA)  
Mr. THOMSON PRECIOUS MALUMBO MTONGA (KIA)  
Mr. OSCAR ALFRED YOKONIA (CIA)  
Mr. DENNIS TELESPHORUS ZAMAERE (CIA)



## Training Course Summary

Course title: Supervisory Management Course [EASA, Kenya]

Schedule: 2<sup>nd</sup> ~ 27<sup>th</sup> February 2015 (3 weeks)

Objectives:

- To perform first level supervisory duties/functions applicable in areas of operation;
- To apply ethical principles to their professional situations;
- To define organizational diversity and its link to organizational strength;
- To communicate effectively in both written and verbal forms;
- To effectively articulate supervisory principles and concepts in problem identification and resolution.

Syllabus:

1. Making the Transition to First-Line Supervisor
2. Managing the New Workforce
3. Communication and Supervision
4. People Development
5. Performance Management
6. Team Development
7. Getting the Work Done
8. Ensuring your Success

Trainees: 4

Mr. MACLETCHER FRANCIS THOMAS BONGWE (DCA)  
Mr. SHADRECK ARTHUR CHIPINGA (KIA)  
Mr. RUTHERFORD CHAYIMA KANUNKHA (KIA)  
Mr. FRANCIS CHRISTOPHER ZENAS KHOLOWA (DCA)



## Training Course Summary

Course title: Instructor Development Program [EASA, Kenya]

Schedule: 4<sup>th</sup> August ~ 21<sup>st</sup> August 2015 (3 weeks)

Objectives: To enable one to become a confident and effective instructor.

### Syllabus:

1. Orientation
2. Instructors roles and responsibilities
3. Principles of learning and instruction
4. How to organize a course
5. Preparation of Facilities
6. Overview of course development
7. Tests
8. Effective training techniques
9. Managing individualized instruction
10. Conducting group discussion
11. Presenting materials and discussion
12. Assessment of performance
13. Feedback and schedule adjustment

Trainees: 8

Mr. CLEMENT FREDSON BETENIGO (CNS, KIA)  
Mr. FREDRICK LYTON CHISEPEYA (ATC, KIA)  
Mr. NELSON KALIASI (ATC, KIA)  
Mr. SPARROW RODNEY KUNJE (CIA)  
Mr. STEVEN SAONEKA MISIEH LIUNDI (AIS/ACS, SOA)  
Mr. RODRICK YIMANI MALANGA (AIS/ACS, SOA)  
Mr. THOMSON PRECIOUS MALUMBO MTONGA (KIA)  
Mr. OSCAR ALFRED YOKONIA (CIA)

*\*There were 6 other Kenyan trainees in the course.*



## Training Course Summary

Course title: Advanced Instructor Training [EASA, Kenya]

Schedule: 5<sup>th</sup> October ~ 23<sup>rd</sup> October 2015 (3 weeks)

Objectives: To carry out management activities related to training.

Syllabus:

1. Training Administration
2. Training Objectives
3. Evaluation of Training
4. Academic Counseling Interview
5. Student Performance Evaluation Interview
6. Professional Conduct Interview
7. Departure Interview
8. Overview of Trainairplus Training development process
9. Report Writing

Trainees: 6

Mr. CLEMENT FREDSON BETENIGO (CNS, KIA)  
Mr. SIDNEY PETER GALAFA (ATC, SOA)  
Mr. SPARROW RODNEY KUNJE (CIA)  
Ms. LINDA LOISE ANNIE MANONDO  
Mr. OSCAR ALFRED YOKONIA (CIA)  
Mr. DENNIS TELESOPHOROUS ZAMAERE

*\*There were 4 other Kenyan trainees in the course.*



## Training Course Summary

Course title: Computer Based Training (CBT)

Schedule: 24<sup>th</sup> November 2014 (1 Day)

Objectives: To acquire basic knowledge on the Computer Based Training (CBT) software;  
To familiarize with the CBT system and develop training exercises and exams.

Syllabus:

1. Introduction to Computer Based Training (CBT)
2. How to use CBT System Operation Manual
3. Developing exercises and exams

Trainees: 6

Mr. CLEMENT FREDSON BETENIGO (KIA)  
Mr. SIDNEY PETER GALAFA (SOA)  
Mr. ESTONIC MALANGO KANYIMBO (SOA)  
Mr. JIMMY HENDRIX DYSON KAZITO (CIA)  
Mr. RODRICK MALANGA (SOA)  
Mr. STEVE M. S. LIUNDI (SOA)



## Training Course Summary

Course title: Test Equipment Course

Schedule: 12<sup>th</sup> ~ 23<sup>rd</sup> January 2015 (2 weeks)

Objectives:

- To acquire basic knowledge on handling and maintaining the test equipment which are the basis for a sound airport operation;
- To familiarize with the various equipment and to prevent damage from inappropriate maintenance.
- To understand the requirements relating to various test equipment in communications technology.

Syllabus:

1. Introduction to Oscilloscope
2. Familiarization
3. Probes
4. Voltage measurements
5. Time measurements
6. Phase measurements

Trainees: 5

Mr. CLEMENT FREDSON BETENIGO (KIA)  
Mr. FREDERICK NYANDA CHISALE (KIA)  
Mr. ESTONIC MALANGO KANYIMBO (SOA)  
Mr. THOMSON PRECIOUS MTONGA (KIA)  
Mr. MZONDI NYIRENDA (KIA)





## Training Course Summary

**Course title:** Basic Concept for Electrical & Mechanical Training

**Schedule:** 20th – 30th April 2015 (2 weeks)

**Objective:** To acquire knowledge on the basic principles (which are not confined to a certain manufacturer), structure, theoretical mechanism and operation minimum, and recovering priority based on ICAO operational standards for Air Field Lighting and UPS/Generator.

**Syllabus:**

Diesel Engine Generator	UPS	Air Field Lighting
1. DEGS Serviceability Checks	1. Preparatory Checks and Manual Operation	1. Operational Concept
2. DEGS Manual and Automatic Operation	2. Automatic Simulation and Stopping	2. Visual Effect
3. AC Generator Serviceability Check	3. Physical and Electrical Checks	3. Human Element
4. Diesel Engine Serviceability Check	4. Troubleshooting (JOB-AIDS)	4. Operating Requirements
5. Control Cubicle Serviceability Check		5. Lighting Device
6. Troubleshooting (JOB-AIDS)		

**[Trainees]**

1. Ms. Catherine GIBSON
2. Mr. George MLENGANDALE
3. Mr. Thomson Precious Malumbo MTONGA
4. Mr. Charles Wilned NKOSI
5. Mr. Fletcher Misanjo Eneya PHUMISA
6. Mr. Oscar Alfred YOKONIA

- Chileka International Airport  
 Kamuzu International Airport  
 Kamuzu International Airport  
 Kamuzu International Airport  
 Chileka International Airport  
 Chileka International Airport



## Training Course Summary

Course title: Microsoft Office Training Course (Group 1)

Schedule: 21<sup>st</sup>-24<sup>th</sup> April 2015 (4 days)

Objective: To improve computer literacy of the instructors at the School of Aviation and DCA officers.

### Syllabus:

1. Using Computer & UPS devices
2. Microsoft Office Word
3. Microsoft Office Excel
4. Microsoft Office Power-Point

Trainees: 5

- |                              |                                   |
|------------------------------|-----------------------------------|
| 1. Mr. FREDRICK L. CHISEPEYA | ATC, Kamuzu International Airport |
| 2. Mr. NELSON B. KALIASI     | AIS, Kamuzu International Airport |
| 3. Mr. STEVEN M. S. LIUNDI   | ACS, School of Aviation           |
| 4. Mr. RODRICK Y. MALANGA    | AIS, School of Aviation           |
| 5. Ms. LINDA ANNIE MANONDO   | ATC, Kamuzu International         |



## Training Course Summary

Course title : Conventional Flight Procedure Design (Non-Precision Approach) Course

Schedule: 5<sup>th</sup> – 28<sup>th</sup> May 2015 (4 weeks)

Objective: To acquire knowledge on basic flight procedure design based on non-precision approach by conventional navigation-aid targeting ATC and AIP officers.

Syllabus:

1. Flight Procedure Design Concept
2. General Regulations (Conversion IAS to TAS, Truck Guidance, Minimum Separation, Fix Point Error, Circling Area)
3. Design of STAR by Conventional Navigation
4. Design of VOR Approach & NDB Approach
5. Design of Circling Approach Area
6. Design of Basic Circling Approach
7. Design of 45° / 180° turning
8. Design of MSA
9. Design & Evaluation of Visual Segment Surface

Trainees: 4

1. STEPHEN DONALD MKANDAWIRE Chief Air Traffic Controller, Kamuzu International Airport
2. JANET TIYESIE MPHANDE Air Traffic Controller, Kamuzu International Airport
3. BOSCO YOKONIA NG'OMA Air Traffic Controller, Chileka International Airport
4. ROBERT NKOSI Air Traffic Management, Department of Civil Aviation



## Training Course Summary

Course Title: General Communications Course

Schedule: 18<sup>th</sup> May – 4<sup>th</sup> June 2015 (3 weeks)

Objective: To acquire theoretical and new knowledge of General Communication such as Radio, Telephone and Data Network.

### Syllabus:

1. Introduction
2. Wire Technology
3. Data Communication
4. Digital Network
5. Fiber Optics
6. Multipoint Distribution System
7. Wireless Technology
8. Voice Communication System 3025 (Current System in Lilongwe Airport)

Trainees: 6

- |                                 |                               |
|---------------------------------|-------------------------------|
| 1. Mr. EMMANUEL KEN CHAVULA     | Chileka International Airport |
| 2. Mr. FREDERICK NYANDA CHISALE | Kamuzu International Airport  |
| 3. Ms. SELINA KHAILA            | Kamuzu International Airport  |
| 4. Mr. PATRICK MANJOMO          | Chileka International Airport |
| 5. Mr. DEUS MALAIDZA            | Kamuzu International Airport  |
| 6. Mr. JONES G. F. NYIRENDA     | Karonga Airport               |



## Training Course Summary

Course Title: Park Air VHF Maintenance Course

Schedule: 8<sup>th</sup> – 19<sup>th</sup> June 2015 (2 weeks)

Objectives: To gain basic knowledge and to become able to describe and discuss basic multimode radio, transmitter, receiver, operations and preventive maintenance inspection.

### Syllabus:

1. Introduction
2. T6 Receiver
3. T6 Transmitter

### Trainees:

- |                                 |                               |
|---------------------------------|-------------------------------|
| 1. Mr. MIKECHAVULA              | Chileka International Airport |
| 2. Mr. OSCAR PATANI CHIHANA     | Mzuzu Airport                 |
| 3. Mr. FREDERICK NYANDA CHISALE | Kamuzu International Airport  |
| 4. Mr. LLOYD TIYEZGE GONDWE     | Chileka International Airport |
| 5. Ms. SELLINA KHAILA           | Kamuzu International Airport  |
| 6. Mr. DEUS MALAIDZA            | Kamuzu International Airport  |



## Training Course Summary

Course title: ICAO 052 Aerodrome Control Course

Schedule: 1<sup>st</sup> June – 3<sup>rd</sup> July 2015 (5 weeks)

Objective: To improve ATC instructors' capacity to conduct training through the Aerodrome Control training based on ICAO 052 along with the use of ATC simulator system.

Syllabus:

1. Aerodynamics
2. Aerodrome Control
3. Search and Rescue

Trainees/Instructors: 9

[Trainees]

- |                            |                              |
|----------------------------|------------------------------|
| 1. CLIFTON J. CHAMPHALE    | Kamuzu International Airport |
| 2. JELIA KALINDA           | Kamuzu International Airport |
| 3. PAUL HARRY LIZIMBA      | Kamuzu International Airport |
| 4. JOSEPH GONANG'OMBE MOYO | Mzuzu Airport                |
| 5. ROBERT NKOSI            | DCA Headquarters             |

[Instructors]

- |                              |                               |
|------------------------------|-------------------------------|
| 1. FREDERICK LYTON CHISEPEYA | Kamuzu International Airport  |
| 2. SIDNEY PETER GALAFA       | School of Aviation            |
| 3. LINDA ANNIE MANONDO       | Kamuzu International Airport  |
| 4. DENNIS TELESFORUS ZAMAERE | Chileka International Airport |



## Training Course Summary

Course Title: DVOR/CVOR/DME/ILS/RADAR Concept Course

Schedule: 22<sup>nd</sup> June – 10<sup>th</sup> July 2015 (3 weeks)

Objective: To acquire knowledge on basic technical concept for the Communication, Navigation and Surveillance System in aviation engineering and to improve capacity of the current engineers.

Syllabus:

1. Introduction
2. DVOR/CVOR
3. DME
4. ILS
5. RADAR

Trainees: 6

- |                                 |                               |
|---------------------------------|-------------------------------|
| 1. Mr. FREDERICK NYANDA CHISALE | Kamuzu International Airport  |
| 2. Ms. SELLINA KHAILA           | Kamuzu International Airport  |
| 3. Mr. SPARROW RODNEY KUNJE     | Chileka International Airport |
| 4. Mr. DEUS MALAIDZA            | Kamuzu International Airport  |
| 5. Mr. YONAM WILA LUKE SILUNGWE | Chileka International Airport |



## Training Course Summary

Course title: ICAO 051 Basic ATC Course

Schedule: 12<sup>th</sup> October 2015 ~ 29<sup>th</sup> January 2016

Objective: To understand initial Basic Air Traffic Control for freshmen

### Syllabus:

1. Introduction
2. Aviation law
3. Aerodrome
4. Flight Planning
5. Air Traffic Management
6. Meteorology
7. Navigation
8. Aircraft
9. Human Factor

### Trainees (New Students)

1. Ms. STELLA P. E. CHIRWA
2. Ms. EDITH GAMALIEL
3. Mr. COSMAS N. JIMSON
4. Mr. MICHAEL KACHIGWADA
5. Ms. TOWERA E. KAMANGA
6. Ms. TAONA KANUNKHA
7. Mr. HENRY M. MAGOMBO
8. Mr. CHARLES M. MAJAWA
9. Mr. GODFREY J. MLENGA
10. Mr. HESTON MUNKHONDYA
11. Mr. WACKIE L. MWENELUPEMBE
12. Mr. AARON W. NDALEMA

### Instructor Team

1. Daniel Diggins (JICA Exp.)
2. Sidney Galafa (SOA)
3. Fredrick Chisepeya (KIA)
4. Dennis Zamaere (KIA)
5. Linda Manondo (KIA)





## Training Course Summary

Course title: NORMARC ILS Maintenance

Schedule: 26<sup>th</sup> October ~ 4<sup>th</sup> December 2015 (6 weeks)

Objective: To understand maintenance of NORMARC ILS at Kamuzu International Airport (KIA)

### Syllabus:

1. ILS Theory
2. Concept of NORMARC 7000
3. Operating Instruction
4. RMM Program
5. Transmitter Alignment
6. Transmitter Adjustment
7. Localizer Antenna System
8. Glide Slope Antenna System
9. Monitor
10. Installation and Configuration
11. Preventive Maintenance

### Trainees (Current Electronics Engineer):

1. Mr. FREDERICK NYANDA CHISALE (KIA)
2. Mr. ROBINSON CHIZIMU (KIA)
3. Mr. LLOYD TIYEZGE GONDWE (KIA)
4. Ms. SELLINA KHAILA (KIA)
5. Mr. DEUS MALAIDZA (KIA)
6. Mr. MZONDI M. NYIRENDA (KIA)



## Training Course Summary

Course title: Conventional Flight Procedure Design [Departure]

Schedule: 2<sup>nd</sup> November ~ 26<sup>th</sup> November 2015 (4 weeks)

Objectives: To be able to apply the knowledge and skill in designing a non-precision approach procedure;

To understand how to and be able to apply the knowledge and skills in designing a departure procedure; and

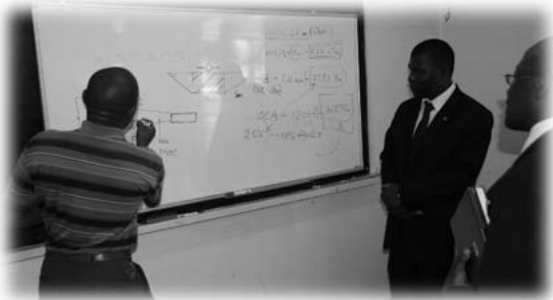
To understand general knowledge and concepts of ILS approach procedure design.

### Syllabus:

1. Reviewing the knowledge in designing non-precision approach procedures
2. General of departure procedures
3. Straight departure procedures
4. Turning departures (at designated fix)
5. Turning departures (at designated altitude)
6. ILS design general
7. Charting

### Trainees:

1. Mr. STEPHEN DONALD MKANDAWIRE (KIA)
2. Ms. JANET TIYESIE MPHANDE (KIA)
3. Mr. BOSCO YOKONIA NG'OMA (CIA)
4. Mr. ROBERT NKOSI (DCA)



## Training Course Summary

Course title: Aeronautical Information Services (AIS) Course

Schedule: [Group 1] 2<sup>nd</sup> November ~ 13<sup>th</sup> November 2015 (2 weeks)

[Group 2] 16<sup>th</sup> November~ 27<sup>th</sup> November 2015 (2 weeks)

Objectives: To refresh Aeronautical Communication Service (ACS) officers to new and existing procedures on Aeronautical Information Services (AIS);

To familiarize the ACS officers with updated knowledge and modern equipment affiliated with AIS.

### Syllabus:

1. Purpose of AIS
2. Communications
3. Parts of a message
4. NOTAM
5. AIC
6. NOF
7. Flight Plan
8. FPL Associated messages
9. FLT Crew information
10. Movement & control messages/ATM messages
11. AFS-AFTN

### Trainees:

#### [Group 1]

Mr. INNOCENT F. CHIKAKUDA (KIA)  
Mr. Mc JONES KATHEWERA (Karonga)  
Mr. STEVEN M.S. LIUNDI (SOA)  
Mr. MALUMBO S. MHANGO (CIA)  
Ms. CATHERINE NAZOMBO (KIA)  
Mr. ANDREW SABUNI (KIA)  
Mr. LAZARUS G. ZGAMBO (Mzuzu)

#### [Group 2]

Mr. M. K. BANDA (CIA)  
Mr. ALICK KACHINGWE (KIA)  
Mr. CHARLES M.C. KAMANGA (KIA)  
Mr. TAONA WISDOM MFUNI (KIA)  
Mr. WILLARD R. MIKA (Karonga)  
Mr. NATHAN KABIYA NDAU (Mzuzu)



## Training Course Summary

Course title: Microsoft Office Computer Training II

Schedule: 1<sup>st</sup> December~3<sup>rd</sup> December 2015 (3 days)

Objectives: To upgrade the level of computer literacy and presentation skills of the training instructors.

Syllabus:

1. Introduction to Word, Excel, Powerpoint
2. Presentation

Trainees:

Mr. CLEMENT FREDSON BETENIGO (KIA)  
Ms. ELEMESS B. KAWERENGA (KIA)  
Mr. SPARROW RODNEY KUNJE (CIA)  
Mr. THOMSON PRECIOUS MALUMBO MTONGA (KIA)  
Mr. OSCAR ALFRED YOKONIA (CIA)  
Mr. DENNIS TELESOPHURUS ZAMAERE (KIA)



## Training Course Summary

Course title: New CNS/ATM Training

Schedule: 1<sup>st</sup> ~ 12<sup>th</sup> February 2016 (2 weeks)

Objectives: To upgrade the level of knowledge on the prerequisites, trends, and current status of CNS/ATM concept development.

Syllabus:

1. ICAO CNS/ATM Concept
2. Institutional Aspects of CNS/ATM
3. Communication Technologies
4. Navigations Technologies
5. Surveillance Technologies
6. Operation in the CNS/ATM Environment
7. Implementation of the CNS/ATM Technologies
8. CNS/ATM Equipment

Trainees: 8

Mr. HARDWELL D.C. BANDA (KIA)  
Mr. CLEMENT FREDSON BETENIGO (KIA)  
Mr. SIDNEY PETER GALAFA (SOA)  
Ms. JELIA KALINDA (KIA)  
Mr. TIMOTHY ERNEST KAMANGA (KIA)  
Mr. ESTONIC MALANGO KANYIMBO (KIA)  
Mr. SPARROW RODNEY KUNJE (CIA)  
Mr. THOMSON PRECIOUS MALUMBO MTONGA (KIA)



## Training Course Summary

Course title: Maru DVOR/DME Maintenance

Schedule: 15<sup>th</sup> February ~ 24<sup>th</sup> March 2016 (6 weeks)

Objective: To understand the theory and various practices in maintaining Maru DVOR/DME.

### Syllabus:

- |  |   |
|--|---|
| 1. Maru DVOR 220 Theory and Introduction           | 11. Maru DVOR 220 Laboratory 4 (Site Visit)           |
| 2. Maru DVOR 220 Features/Characteristics          | 12. ICAO SARP's and Airborne Equipment                |
| 3. Maru DVOR 220 Monitor System                    | 13. Maru DVOR 220 Corrective Maintenance              |
| 4. Maru DVOR 220 Laboratory 1 (Site Visit)         | 14. Maru DVOR 220 Corrective Maintenance Laboratory 5 |
| 5. Maru DVOR 220 Transmitter System                | 15. Maru/Fernau DME 330 Introduction                  |
| 6. Maru DVOR 220 Operations                        | 16. Maru DME 330 Transponder/Monitor System           |
| 7. Maru DVOR 220 Laboratory 2 (Site Visit)         | 17. Maru DME 330 Transponder/Monitor Laboratory 6     |
| 8. Maru DVOR 220 Preventive Maintenance Inspection | 18. Fernau DME 2020 Transponder/Monitor System        |
| 9. Maru DVOR 220 Laboratory 3 (Site Visit)         | 19. Maru/Fernau DME Corrective Maintenance            |
| 10. Maru DVOR 220 Antenna System                   | 20. Maru/Fernau DME Corrective Maintenance Lab 7      |

### Trainees:

1. Mr. EMMANUEL CHAVULA (CIA)
2. Mr. MIKE CHAVULA (CIA)
3. Mr. FREDERICK NYANDA CHISALE (KIA)
4. Mr. LLOYD TIYEZGE GONDWE (KIA)
5. Ms. SELLINA KHAILA (KIA)
6. Mr. DEUS MALAIDZA (KIA)



## Training Course Summary

Course title: Microsoft Office Computer Training III

Schedule: 4<sup>th</sup> & 7<sup>th</sup> March 2016 (2 days)

Objectives: To upgrade the level of computer literacy and presentation skills of the training instructors.

Syllabus:

1. Introduction to Word, Excel, Powerpoint
2. Presentation

Trainees:

Mr. FREDERICK NYANDA CHISALE (KIA)  
Mr. LLOYD TIYEZGE GONDWE (KIA)  
Mr. ESTONIC MALANGO KANYIMBO (SOA)  
Mr. STEPHEN DONALD MKANDAWIRE (KIA)  
Ms. JANET TIYESIE MPHANDE (KIA)  
Mr. MZONDI M. NYIRENDA (KIA)



## Training Course Summary

Course title: ICAO 052 Aerodrome Control (for ATC Freshmen)

Schedule: 1<sup>st</sup> February 2016 ~ May 2016 (planned as of April 2016)

Objective: To understand the basic theories and practice of Aerodrome Control.

### Syllabus:

1. Aerodynamics
2. Aerodrome Control
3. Search and Rescue

### Trainees (New Students)

1. Ms. STELLA P. E. CHIRWA
2. Ms. EDITH GAMALIEL
3. Mr. COSMAS N. JIMSON
4. Mr. MICHAEL KACHIGWADA
5. Ms. TOWERA E. KAMANGA
6. Ms. TAONA KANUNKHA
7. Mr. HENRY M. MAGOMBO
8. Mr. CHARLES M. MAJAWA
9. Mr. GODFREY J. MLENGA
10. Mr. HESTON MUNKHONDYA
11. Mr. WACKIE L. MWENELUPEMBE
12. Mr. AARON W. NDALEMA

### Instructor Team

1. Daniel Diggins (JICA Expert)
2. Sidney Galafa (SOA)
3. Fredrick Chisepeya (KIA)
4. Dennis Zamaere (KIA)
5. Linda Manondo (KIA)

