Ex-Post Project Evaluation 2013:
Package II-5 (Uganda, Turkey, Jordan, Sri Lanka)

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JAPAN INTERNATIONAL COOPERATION AGENCY

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Preface

Ex-post evaluation of ODA projects has been in place since 1975 and since then the coverage of evaluation has expanded. Japan's ODA charter revised in 2003 shows Japan's commitment to ODA evaluation, clearly stating under the section "Enhancement of Evaluation" that in order to measure, analyze and objectively evaluate the outcome of ODA, third-party evaluations conducted by experts will be enhanced.

This volume shows the results of the ex-post evaluation of ODA Loan projects that were mainly completed in fiscal year 2011, and Technical Cooperation projects and Grant Aid projects, most of which project cost exceeds 1 billion JPY, that were mainly completed in fiscal year 2010. The ex-post evaluation was entrusted to external evaluators to ensure objective analysis of the projects' effects and to draw lessons and recommendations to be utilized in similar projects.

The lessons and recommendations drawn from these evaluations will be shared with JICA's stakeholders in order to improve the quality of ODA projects.

Lastly, deep appreciation is given to those who have cooperated and supported the creation of this volume of evaluations.

October 2014

Toshitsugu Uesawa

Vice President

Japan International Cooperation Agency (JICA)

Disclaimer

This volume of evaluations, the English translation of the original Japanese version, shows the result of objective ex-post evaluations made by external evaluators. The views and recommendations herein do not necessarily reflect the official views and opinions of JICA. JICA is not responsible for the accuracy of English translation, and the Japanese version shall prevail in the event of any inconsistency with the English version.

Minor amendments may be made when the contents of this volume is posted on JICA's website.

JICA's comments may be added at the end of each report when the views held by the operations departments do not match those of the external evaluator.

Republic of Uganda

Ex-Post Evaluation of Japanese Technical Cooperation Project

"The Project for Instructors Training for Vocational Education and Training"

External Evaluator: Naoki Take, Kaihatsu Management Consulting, Inc.

0. Summary

The Project for Instructors Training for Vocational Education and Training in the Republic of Uganda (the Project) aimed to improve the quality of Business, Technical and Vocational Education and Training (BTVET) through the establishment of a system of training qualified instructors and managers in BTVET institutions in Nakawa Vocational Training Institute (NVTI) based on the Uganda Vocational Qualification Framework (UVQF).[1] The Project was aligned with the Education Sector Strategic Plan (ESSP), which prioritises BTVET, and the establishment of a system of training in accordance with UVQF met the development needs of Uganda. As the Project was also in line with Japan's ODA policy, it is highly relevant. The project purpose was achieved within the period of cooperation as the percentage of those passing the final assessment and authorisation of the training system by the Ministry of Education and Sports (MoES). As for the overall goal, while it is difficult to achieve the target number of those qualified with the Certificate of Vocational Training Instruction (CVTI)[2] by the end of June 2015, it is likely that the target numbers for the Diploma of Vocational Training Instruction (DVTI) and Diploma in Training Institution Management (DTIM) will be achieved. As the Project has realised some effects, its effectiveness and impact are fair. Since the project cost and period were as planned, the efficiency is high. As some problems were observed in terms of technical aspects of MoES on training of master trainers in Uganda, and of financial aspects of training newly-recruited staff, the sustainability of project effects is fair.

In light of the above, this project is evaluated to be satisfactory.

[1] UVQF is a framework for vocational qualifications for various occupations in Uganda, comprising Occupational Profiles, Modular Curriculum and Assessment Instrument.

[2] CVTI is a qualification for instructors in BTVET institutions, DVTI is for instructors for CVTI training and DTIM is for managers of the institutions.

1. Project Description

Project Location

Lecture at the Electricity Department

1.1 Background

Since the introduction of Universal Primary Education (UPE) in Uganda in 1997, the number of students that advanced to post-primary education including BTVET institutions was estimated to increase. However, as most instructors and managers at the institutions did not have enough skills, they needed to upgrade their knowledge and techniques to enable them to carry out instruction and management in accordance with UVQF.

NVTI, which is located in Kampala, the capital of Uganda, has played a leading role for other vocational training institutions in and outside the country through a grant aid project and long-time technical cooperation from Japan. The government of Uganda requested the government of Japan to implement a technical cooperation project to enable training of instructors and managers utilising NVTI.

1.2 Project Outline

Overall Goal		BTVET institutions in Uganda have higher quality instructors and managers in terms of their own skills and knowledge.
Project Purpose		The base of training system on instructors and managers is established at Nakawa Vocational Training Institute.
Outputs	Output 1	Concept of the new qualification for instructors and managers is established.
	Output 2	Training cycle for instructors is established.
	Output 3	Training cycle for managers is established.
Inputs		[Japanese Side] 1. Experts: 3 long-term, 12 short-term 2. 17 trainees received 3. Equipment: 44.8 million yen 4. Local cost: 34.9 million yen

	[Ugandan Side] 1. 41 counterparts 2. Land and facilities, project office, utilities
Total cost	251 million yen
Period of Cooperation	June 2007 – August 2010
Implementing Agency	Ministry of Education and Sports Nakawa Vocational Training Institute
Cooperation Agency in Japan	Ministry of Health, Labor and Welfare Employment and Human Resource Development Organization of Japan
Related Projects	[Japan] ● Grant aid: Project for Improvement of Nakawa Vocational Training Institute (1997-98) ● Technical cooperation: Nakawa Vocational Training Institute Project (1997-2004) ● Technical cooperation: Project on the Instructors Training for Vocational Education and Training (2004-06) [Other development partners] ● Germany: Programme of Employment-oriented Vocational Training (1999-2011) ● African Development Bank: Education III (2006-11) ● World Bank: Support for formulation of BTVET strategy (2009-10)

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement of Project Purpose at the time of the Terminal Evaluation

The training of instructors and managers developed by the Project was in general carried out as scheduled apart from a little delay, and a system of training under UVQF was being established. More than 80% of the instructors who enrolled passed the final assessment at the CVTI course which was completed within the period of cooperation, and they were satisfied with the training.[3] Therefore, it was concluded that quality instructors training was provided, and that the project purpose was most likely to be achieved.

[3] As the final assessments of DVTI and DTIM were to be conducted after the terminal evaluation study, the percentage pass rate for the assessment of CVTI and results of satisfaction survey for CVTI training were used for the evaluation. The terminal evaluation report also noted that the final assessments of DVTI and DTIM would be conducted after the cooperation period, but actually they were done within the period.

1.3.2 Achievement of Overall Goal at the time of the Terminal Evaluation

It was evaluated that the overall goal of the Project would probably be achieved if the Jinja Vocational Training Institute (JVTI), which was under rehabilitation and expansion with support from African Development Bank, commenced CVTI training in and after 2012 as expected, in addition to NVTI.

1.3.3 Recommendations at the time of the Terminal Evaluation

1) The quality of training should be continuously improved through repeating the cycle. In particular, the experience of preceding CVTI training should be utilised for DVTI and DTIM training.

2) To reduce the burden on NVTI with conducting instructors and managers training in addition to the training of trainees, the organisational capacity should be developed and human resources, facilities and equipment should be properly allocated.

3) The counterparts of the Project should help the trained instructors and managers upgrade their capacity through collaboration with the Ugandan industrial sector after completion of the Project. In particular, Master Trainer 2 (MT2),[4] instructors for DVTI, is required to have a high level of skills including the latest technology.

4) The CVTI, DVTI and DTIM training should be clearly aligned with UVQF, and certificates should be issued for the second CVTI training.

5) The MoES should allocate adequate budget to implement the instructors and managers training, and to maintain and upgrade the facilities and equipment after the completion of the Project.

2. Outline of the Evaluation Study

2.1 External Evaluator

Naoki Take, Kaihatsu Management Consulting, Inc.

2.2 Duration of Evaluation Study

Duration of the Study:	October, 2013 - October, 2014
Duration of the Field Study:	10th November, 2013 - 30th November, 2013
	11th February, 2014 - 19th February 2014

[4] There are two types of master trainers: for instructors and for managers. The master trainers for instructors are divided into two categories: Master Trainer 1 for CVTI training; and Master Trainer 2 as instructors for DVTI. The master trainers for managers are simply called “Master Trainer” and there is no further classification as with master trainers for instructors.

3. Results of the Evaluation (Overall Rating: B[5])

3.1 Relevance (Rating: ③[6])

3.1.1 Relevance to the Development Plan of Uganda

At the time of project formulation, the national development plan in the Ugandan education sector was the ESSP 2004-2015; at the time of its completion it was Revised ESSP 2007-2015. Both plans emphasise the importance of the BTVET sub-sector, since the demand for further studies and training opportunities are increasing as a result of the introduction of UPE in 1997.[7] Acquisition of sufficient knowledge and skills by students in the BTVET sub-sector is a priority in the Ugandan education sector. To achieve this objective, the MoES intends to improve the curriculum, methods of instruction and assessment, and to reform the sub-sector in accordance with UVQF.[8]

The Business, Technical, Vocational Education and Training Act 2008 (New BTVET Act) provides the legal basis for supporting the promotion of the BTVET sub-sector. It clearly sets out the objectives and providers of BTVET, roles and functions of the Directorate of Industrial Training (DIT) of MoES and the UVQF. Article 9 and 20 of the Act describes the instructors and managers training established by the Project, the master trainers that implement the training, and recognition of certificates under UVQF.

The Project aimed to enable BTVET institutions in Uganda to carry out the instruction required by UVQF through upgrading the capacity of instructors and managers and establishing their qualifications. Therefore, it was aligned with the development plan in Uganda both at the time of project formulation and completion.

3.1.2 Relevance to the Development Needs of Uganda

According to the real GDP growth and percentage distribution of the working population by industry in Uganda from the time of project formulation (fiscal year (FY) 2006/07) to its completion (FY 2009/10) in *the Statistical Abstract* compiled by Uganda Bureau of Statistics, the industrial and service sectors achieved particularly high growth and accounted for 75% of GDP. The percentage distribution of working population by education level showed that the proportion of those that completed BTVET and higher education grew from the time of project formulation, especially in the industries of sale, maintenance and repair of vehicles, manufacturing and communications.[9] Therefore, the industrial and service sectors that lead the economy in Uganda demand a labour force with high skills and knowledge.

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[5] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory
[6] ③: High, ②Fair, ①Low
[7] Ministry of Education and Sports (2008), *Revised Education Sector Strategic Plan 2007-2015*, p18
[8] *Ibid*, p22
[9] Uganda Bureau of Statistics, *Statistical Abstract 2010 and 2013*

The competence level required by the industrial sector in Uganda is provided by UVQF. To enable BTVET institutions to conduct training in accordance with the framework, the institutions need to have competent instructors who can provide quality training, and managers who can properly plan and manage the training. However, as around half of the instructors did not have teaching qualifications at the time of project formulation when development of UVQF had been on-going,[10] it was necessary to strengthen the capacity of BTVET institutions. Given the current situation of the Ugandan economy, it is important to increase the capacity of instructors and managers in line with UVQF. Therefore, it was relevant for the Project to support the establishment of the training system for instructors and managers of BTVET institutions in Uganda from the view of Uganda's development needs.

3.1.3 Relevance to Japan's ODA Policy

The ODA Databook 2008, which describes Japan's assistance to Uganda, prioritises: (1) human resource development (education, BTVET, etc.); (2) support of basic needs; (3) agricultural development; and (4) infrastructure development (roads, electricity, etc.).[11] The Project was in (1) human resource development.

According to documents provided by JICA, the programme to improve BTVET is aligned with human development, a priority area of Japan's assistance to Uganda, contributing to the development of human resources that can meet the needs of the industrial sector through improving the quality of instructors and BTVET institutions based on the long experience of NVTI.

Therefore, the Project was aligned with Japan's ODA policy.

The Project intended to enable BTVET institutions in Uganda to provide the education and training required by UVQF through upgrading the capacity of instructors and managers, and supporting the establishment of their qualifications. It was also in line with Japan's ODA policy. As the Project has been highly relevant to the country's development plan and development needs, as well as Japan's ODA policy, its relevance is high.

[10] These are the Certificate for Technical Teacher Education (CTTE) and Diploma for Technical Teacher Education (DTTE). The final assessment for these was conducted by Kyambogo University.
[11] Ministry of Foreign Affairs, *ODA Databook 2008*, p413

3.2 Effectiveness and Impact[12] (Rating: ②)

3.2.1 Effectiveness

3.2.1.1 Project Outputs

1) Output 1

Output 1 aimed at the establishment of new concepts of qualification of instructors and managers of BTVET institutions, i.e. realisation of official appraisal of the concepts proposed by the Project.

A document provided by MoES stated that the proposal submitted by the Project in February 2009 had been appraised in March 2009 and the instructors and managers were qualified based on the concepts officially appraised and approved by MoES.

[Level of Achievement of Output 1]

Output 1 was achieved within the period of cooperation.

2) Output 2

Output 2 intended to establish the training cycle for instructors.[13] The targets were that at least 80% of the persons concerned in BTVET institutions were satisfied with the training, and 58 instructors qualified within the cooperation period.

[Indicator 1: More than 80% of the persons concerned in BTVET institutions[14] are satisfied with the training system for instructors.]

According to the survey of the Project in December 2009, 98.5% of those completed training were satisfied with CVTI training. The survey in May 2010 also showed that all those completed DVTI training expressed their satisfaction.[15] Both exceeded the target 80%.

[Indicator 2: Sufficient number of master trainers[16] is trained for CVTI training.]

The Project trained two MT2 in Japan for each Department of Electronics, Electricity, Motor Vehicle and Metal Fabrication as required for conducting CVTI training.

Two MT2 were trained for each department as planned by the end of the Project.

[Indicator 3: 58 instructors complete CVTI training.]

Initially the target number for those completing CVTI was 85, seemingly based on the

[12] Sub-rating for Effectiveness is to be put with consideration of Impact.
[13] The training cycle is a sequence of plan (development of modules, curricula, schedule and teaching materials), implementation, evaluation and feedback to the next training programme.
[14] They are participants of CVTI and DVTI training.
[15] Documents provided by the Japan International Cooperation Agency (JICA).
[16] This “master trainers” means MT2, who can conduct training for both CVTI and DVTI.

needs of the BTVET sub-sector in Uganda and the initial design of training schedules and the numbers enrolled by the Project. However, the numbers that represent such needs are not shown in any documents, and the schedules and enrolments were not finalised.

Actually as a result of discussion with MoES, the duration of the CVTI qualification became longer; three months were added for performance assessment of participants, following the six-month training initially designed by the Project. Consequently the period of the CVTI qualification got longer and frequency of production of qualified instructors was reduced. Consequently, the target was modified at the time of mid-term review of the Project. Given the number of enrolments, 33 for the first CVTI training (called CVTI-1 by Ugandan side) and 40 for the second training (CVTI-2), and 80% as the percentage of passing the final assessment, the target was recalculated to 58.[17] To ensure quality of training of CVTI, NVTI fixes the annual enrolment to a maximum of 10 for each Department of Electronics, Electricity, Motor Vehicle and Metal Fabrication, and actually around 40 enrol every year. It seems the target of 80% passing the final assessment is to ensure the quality of training at NVTI.

CVTI training was conducted twice within the period of cooperation. The number who qualified was 61 (out of 73 enrolments);[18] this is below the initial target of 85, but higher than the target modified at the mid-term review.

[Level of Achievement of Output 2]

Output 2 was achieved within the period of cooperation.

3) Output 3

Output 3 was to establish the training cycle for managers. The targets were that at least 80% of the relevant persons in BTVET institutions were satisfied with the training, a sufficient number of master trainers were trained for implementation of DTIM training, and 12 managers qualified within the cooperation period.

[Indicator 1: More than 80% of the persons concerned in BTVET institutions[19] were satisfied with the training system for managers.]

According to a survey of the Project in May 2010, 99% of those who completed DTIM training expressed their satisfaction;[20] this exceeded the target of 80%.

[17] (33 + 40) x 0.8 = 57.6 Therefore the target was 58.
[18] Documents provided by NVTI. See Table-2 for details.
[19] They are participants of DTIM training.
[20] Documents provided by JICA

[Indicator 2: Sufficient number of master trainers is trained for DTIM training.]

The Project trained two master trainers (MT) in Japan from September to November 2008 as a requirement for conducting DTIM training, but the training could not cover one major subject due to difficulty in coordination. Therefore, the Project provided training in Japan in 2009 for a further two MT. As a result, the number of MT trained was four within the period of cooperation.

[Indicator 3: 12 managers complete DTIM training.]

The initial target for completing DTIM training was 20, based on initial assumption before finalisation of the training schedule and the number of enrolments, as with Indicator 3 of Output 2. As with CVTI, the duration of the DTIM qualification became longer after adding seven months for performance assessment of participants following the two-month training. As a result, the target was modified to 12 at the time of mid-term review of the Project.

However, there was a mistake in data used for the modification. The terminal evaluation report of the Project showed the target was calculated based on 15 annual enrolments and 80% as the percentage of passing the final assessment.[21] But actually 24 enrolled for DTIM-1. According to MT for DTIM training, NVTI set the annual enrolment at 25 even at the time of DTIM-1. Given this number of enrolments, and with an 80% pass rate for the final assessment, the target should have been 20.

DTIM training was conducted once within the period of cooperation. 21 out of 24 enrolments qualified,[22] more than the original or modified target (12 or 20).

[Level of Achievement of Output 3]

Output 3 was achieved within the period of cooperation.

3.2.1.2 Achievement of Project Purpose

The project purpose was to establish a system of training instructors and managers at NVTI. To measure the level of achievement, three indicators were set. However, Indicator 1, “more than 80% of the persons concerned in BTVET institutions were satisfied with the system established” is not used here, as the same one is used for Outputs.

1) Indicator 2: More than 80% of trainees pass the final assessment of training courses

[21] JICA (2010), *Terminal Evaluation Report, the Project for Instructors Training for Vocational Education and Training in Uganda*, p13

[22] Documents provided by NVTI. See Table-2 for details.

Training was conducted twice for CVTI, and once for DVTI and DTIM, within the period of cooperation.[23] As shown in Table-1, the percentage passing the final assessment (= qualifiers/enrolments) exceeded the targets.

Table 1: Number of Instructors and Managers Enrolled and Qualified by the End of Cooperation Period

Cycle	1			2			Total		
Type	Enrolled	Qualified	%	Enrolled	Qualified	%	Enrolled	Qualified	%
CVTI	33	29	87.9%	40	32	80.0%	73	61	83.6%
DVTI	30	24	80.0%	-	-	-	30	24	80.0%
DTIM	24	24	100.0%	-	-	-	24	24	100.0%

Source: NVTI

2) Indicator 3: Training system at NVTI is authorised by MoES

According to MoES, qualifications of CVTI, DVTI and DTIM were officially authorised under UVQF in 2010.[24] Clause 2 of Article 9 in the 2008 New BTVET Act provides for the implementation of instructors and managers training to obtain these qualifications. According to the actual process from participation in training to the qualification, certificates were to be awarded by DIT based on its performance assessment following the training at NVTI and the results of examination and practice at NVTI. It can be evaluated that MoES authorised the training at NVTI within the period of cooperation, as the qualification is based on the concept proposed by the Project, training of instructors and managers was planned to be conducted at the other BTVET institutions, as well as the state of qualification compiled in Table-1.

In light of the above, the three outputs of the Project were achieved, the percentage passing the final assessment exceeded the target, and the training system at NVTI was authorised by MoES. Therefore, the project purpose has been achieved.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

The indicator of the overall goal is the number of instructors and managers who were qualified. In Uganda, the qualification system of CVTI, DVTI and DTIM, which included requirements for qualifications in UVQF,[25] and the final assessment conducted by NVTI[26] and certificates awarded by DIT under the provision of the New BTVET Act,

[23] The terminal evaluation report noted that training of DVTI and DTIM would be completed after the cooperation. But the ex-post evaluation confirmed they were actually completed in March and July 2010 respectively and that certificates were awarded on 24th August 2010, within the period of cooperation.
[24] An example is MoES (2011), *Handbook on Teacher/Tutor, Instructor Education and Training Policies*.
[25] This is indicated in documents of MoES such as *Assessment and Certification Regulations by the Industrial Training Council with Approval of the Minister under the Business Technical Vocational Education and Training Act 2008*.
[26] From 2014, Kyambogo University, which conducted the assessment for qualification of CTTE and DTTE,

were developed. As previously described, these qualifications were nationally authorised, and the quality of training of instructors and managers is ensured by MoES. Therefore, the number of those who are qualified at national level means the same as the description of the overall goal, "BTVET institutions in Uganda have higher-quality instructors and managers".

The targets of indicators to measure the overall goal were modified at the mid-term review. As described in Output 2 and 3 above, the modification was due to the initial calculation based on the assumptions before finalisation of the training schedule and the number of enrolments and the longer duration of qualifications. The targets were recalculated based on an 80% pass rate for the final assessment, but it is not appropriate for DVTI and DTIM as the number of annual enrolments used for calculation were different from the actual ones.

Given the annual enrolments of 35 for DVTI and 25 for DTIM assumed based on the actual ones, an 80% pass rate for the final assessment and six batches of those who are qualified from 2010 to the end of June 2015, the targets should be 168 for DVTI (= 35 x 0.8 x 6) and 120 for DTIM (= 25 x 0.8 x 6). For CVTI, those who had been expected to be qualified from the enrolments of other BTVET institutions like JVTI were excluded from the target at the terminal evaluation as the institutions which had anticipated commencing CVTI training within the period of cooperation had not actually done so. On the other hand, the terminal evaluation concluded that the overall goal of the Project was likely to have been achieved if JVTI had conducted CVTI training. This means that commencement of the training at JVTI was recognised as a requisite for achievement of the overall goal. Therefore, the ex-post evaluation used the targets modified at the mid-term review, before exclusion of CVTI qualifiers trained at JVTI.

At the mid-term review, the number targeted to be qualified by 2015 was reduced to 58 for DVTI (Indicator 1), 346 for CVTI (Indicator 2) and 72 for DTIM (Indicator 3). The ex-post evaluation assessed the prospects of achieving the overall goal by estimating the number who would have qualified at the end of June 2015, as the fiscal year ends in June in Uganda.

Based on the current schedule of training at NVTI, by the end of fiscal year 2014/15 (the end of June 2015) CVTI training will have been conducted seven times, DVTI six times, and DTIM five times. Given the percentage of passing the final assessment in 2010-12 (2009-2011 for CVTI), i.e. 87.6% for CVTI, 85.1% for DVTI and 98.6% for DTIM (See the next item on the percentage each year), the estimates of those who should be qualified by the end of June 2015 are compiled in Table-2. DVTI and DTIM are likely

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will also be involved in the final assessments of CVTI, DVTI and DTIM, as the curriculum, assessment and qualification for technical teachers and instructors are to be integrated into the Diploma in Instructor and Technical Teacher Education Programme (DITTE Programme).

to exceed the targets modified at the mid-term review (168 and 120 respectively).

Table 2: Prospects of Instructors and Managers Qualified in Each Training Course by the End of June 2015

Training Type/Cycle	Year of Completion	Enrolled	Qualified	Target
CVTI-1	2009	33	29	
CVTI-2	2009	40	32	
CVTI-3	2010	40	35	
CVTI-4	2011	40	38	
CVTI-5	2012	46	*40*	
CVTI-6	2013	48	*42*	
CVTI-7	2014	*40*	*35*	
CVTI Total		*287*	*251*	**346**
DVTI-1	2010	30	24	
DVTI-2	2011	33	28	
DVTI-3	2012	38	34	
DVTI-4	2013	34	*29*	
DVTI-5	2014	38	*32*	
DVTI-6	2015	*35*	*30*	
DVTI Total		*208*	*177*	**168**
DTIM-1	2010	24	24	
DTIM-2	2011	25	24	
DTIM-3	2012	25	25	
DTIM-4	2013	24	*23*	
DTIM-5	2014	32	*31*	
DTIM Total		**130**	*127*	**120**

Source: Estimation by the external evaluator based on the data of NVTI
Note: Estimates by the external evaluator are in italic.

However, the target of CVTI (346) cannot be achieved. This included those expected to be qualified from JVTI, which was expected to commence training from 2012.[27] But due to a delay with a project of construction and equipment provision supported by the African Development Bank, the institution did not conduct the training until it commenced the Diploma in Instructor and Technical Teacher Education Programme (DITTE Programme) in November 2013. Moreover, the first batch will be qualified from JVTI at the end of 2015, as the training for pre-service takes two years.[28] Therefore, they cannot be included in Table-2.

3.2.2.2 Contribution of the Project Outputs to the Project Purpose and Overall Goal

1) Output 1

The target of Output 1 was to appraise officially the concept of the new qualification proposed by the Project. To contribute to the achievement of the overall goal, it is necessary for MoES to approve the proposed qualification as a result of the appraisal.

According to documents provided by DIT, the level of qualification is classified from "elementary and entry level" to the highest "level 5". CVTI is categorised into Level 3, DVTI is Level 4 and DTIM is Level 5.[29] *The Handbook on Teacher/Tutor, Instructor*

[27] JICA (2010), *op. cit.*
[28] The other institutions implementing the DITTE Programme also provide pre-service training, apart from NVTI.
[29] Documents provided by DIT including Uganda Vocational Qualification Framework (UVQF) Summary of Generic Level Descriptors, UVQF System, Skills, Certification, Job Opportunities and Career Pathways in BTVET Sub-sector, etc.

Education and Training Policies of MoES also describes CVTI and DVTI.[30] Most of contents in these documents were contributed by the proposal of the Project.[31]

Therefore, the qualifications of instructors and managers of BTVET institutions were approved in line with UVQF.

2) Output 2

For Output 2, the continuity of CVTI and DVTI training and the emergence of BTVET institutions that conduct CVTI training apart from NVTI were assessed.

NVTI continues to conduct the training for both CVTI and DVTI after completion of the Project, but no other institution did until JVTI commenced the DITTE Programme in November 2013. Therefore, NVTI was the only institution implementing training of instructors at the end of October 2013.

Table 3: Training of Instructors and Managers Conducted in NVTI

Training Type/Cycle	Year of Completion	Enrolled	Qualified	%
CVTI-1	2009	33	29	87.9%
CVTI-2	2009	40	32	80.0%
CVTI-3	2010	40	35	87.5%
CVTI-4	2011	40	38	95.0%
CVTI-5	2012[a]	46	n.a.	-
CVTI-6	2013[b]	48	n.a.	-
CVTI Total (2009-2011)		**153**	**134**	**87.6%**
DVTI-1	2010	30	24	80.0%
DVTI-2	2011	33	28	84.8%
DVTI-3	2012	38	34	89.5%
DVTI-4	2013[a]	34	n.a.	-
DVTI-5	2014[b]	38	n.a.	-
DVTI Total (2010-2012)		**101**	**86**	**85.1%**
DTIM-1	2010	24	24	100.0%
DTIM-2	2011	25	24	96.0%
DTIM-3	2012	25	25	100.0%
DTIM-4	2013[a]	24	n.a.	-
DTIM-5	2014[c]	32	n.a.	-
DTIM Total (2010-2012)		**74**	**73**	**98.6%**

Source: NVTI

Note: a. Results of final assessment yet to come as at Oct 2013
b. Training in progress as at Oct 2013
c. Training commenced from Jan 2014

The implementation status of the training of instructors is summarised in Table-3. Also, a survey of the ex-post evaluation showed 49 out of 50 respondents who completed CVTI and all 46 respondents of DVTI were "very satisfied" or "satisfied" with the training, and that all respondents could utilise the knowledge and skills "fully" or "partially".

The number of MT2 for the training of instructors is eight, unchanged from the time of project completion. However, as two had been transferred into the other BTVET institution and an organisation, they could not conduct the training at NVTI. As the Project depended on training in Japan for training MT2 due to time constraints, MoES and NVTI are not able to establish a system to develop new MT2 in Uganda, or to ensure a budget for this.

[30] MoES (2011), *Handbook on Teacher/Tutor, Instructor Education and Training Policies*, pp30-31

[31] According to the documents provided by JICA, a proposal from Germany was also reflected in pedagogy for qualification.

3) Output 3

Regarding Output 3, the status of implementation at NVTI and the other BTVET institutions after the completion of the Project was evaluated.

At present, NVTI is still an implementer of DTIM training,[32] and the status of implementation is reported in Table-3. The survey of the ex-post evaluation revealed that all 40 respondents of DTIM completers were “very satisfied” or “satisfied” with the training and that more than 80% could utilise the knowledge and skills “fully” or “partially”. Meanwhile, a few participants who were middle-level managers, like heads of department, could not use them due to difficulty with getting support from top management.

The number of MT for the training of managers is four, unchanged from the time of project completion. However, as one had been transferred into the other BTVET institution, he could not conduct the training at NVTI. As the Project depended on training in Japan for MT due to time constraints like that for MT2 for the instructors training, MoES and NVTI cannot establish a system to develop new MT in Uganda or to ensure the budget for this.

4) Project Purpose

As described in Table-3, 80% of the participants passed the final assessments and the training system for instructors and managers functions well at the time of ex-post evaluation.

Output 1, support for establishing the concepts of the qualifications as fundamentals of the training system contributed tremendously to achievement of the overall goal. The Project aimed to establish a training system for instructors and managers at NVTI (Project Purpose) through establishing the concept of new qualification system (Output 1) and the training cycle for instructors and managers (Outputs 2 and 3). Output 1 especially directly contributes to the overall goal, an increased number of quality instructors and managers, rather than to the establishment of the training system in BTVET institutions. Outputs 2 and 3 would be enough if the Project were to achieve the establishment of a training system. However, addition of the establishment of the concept of new qualifications through Output 1 made the qualifications through the training system of instructors and managers established under Outputs 2 and 3 nationally authorised by DIT. That means that the government assures the quality of knowledge and skills obtained by the training, and leads to higher motivation from the participants for career development. It also contributed to continuity of the project effects after completion.

[32] MoES is also willing to commence DTIM training at the other BTVET institutions if they are ready.

3.2.2.3 Other Impacts

1) Impact on the Employment Status of the Graduates from Vocational Training Institutions

Based on the database of graduates for 2009-12 from the Departments of Electronics, Electricity, Motor Vehicle and Metal Fabrication at NVTI targeted by the Project, a tracer study was conducted in 2013 (at the time of ex-post evaluation) to ascertain the status of employment. 200 graduates were randomly sampled from 813 for which there were telephone numbers with 10% error margin. Items of the study included the status of employment, type and size of the company, monthly income, time taken to get employed or self-employed, relation of the knowledge and skills acquired at the institution with the current job, support provided by the BTVET institution for finding employment or self-employment, etc. All 200 graduates sampled responded to the study.

Meanwhile, NVTI had conducted the similar tracer study in 2012.[33] It is difficult to simply compare these two studies because of the difference in sampling method,[34] but that of the ex-post evaluation revealed an increase in the proportion of permanent employment status (Figure-1) and the level of monthly income (Figure-2). Impact from the labour market was not clear due to the absence of statistics of employment at the time of the ex-post evaluation, but the impact of the Project on the employment of graduates may come to be seen.

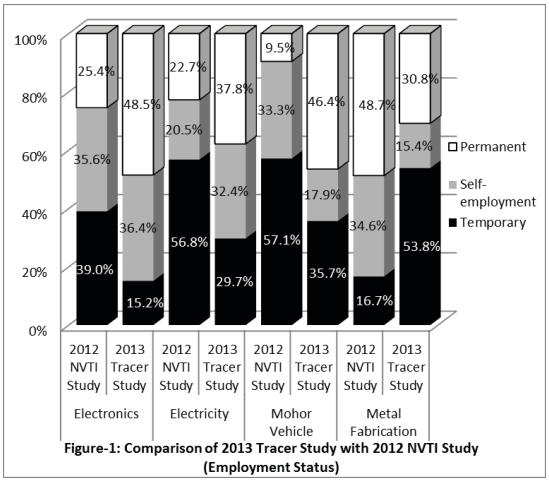

Figure-1: Comparison of 2013 Tracer Study with 2012 NVTI Study (Employment Status)

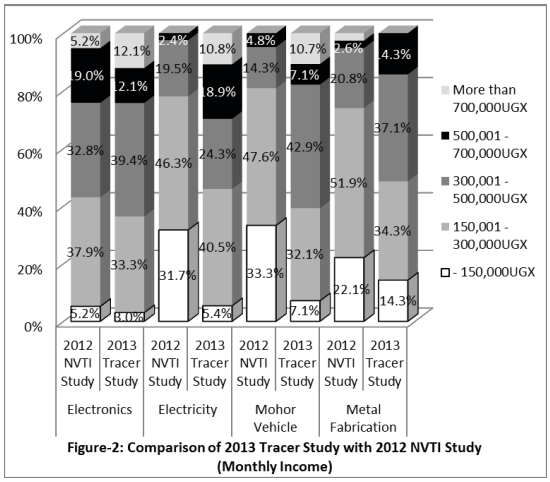

Figure-2: Comparison of 2013 Tracer Study with 2012 NVTI Study (Monthly Income)

On the other hand, 31 out of 47 graduates who were not employed or did not advance to higher education gave the reason “lack of connections/useful contacts”.

NVTI has the opportunity to collaborate with the industrial sector in Uganda such as through (1) on-the-job training for students, (2) technical training of employees of

[33] Nakawa Vocational Training Institute (2012), *Overall Tracer Study Report on the Employment Outcomes of the Vocational Training Graduates from 2009-11*

[34] For example, for NVTI study the population is the graduates in every year in 2009-11, while for the study of ex-post evaluation it is graduates as a whole in the period 2009-12.

enterprises, (3) design, manufacture and repair ordered by the enterprises or local people and (4) the annual Industrial Committee which has participation of around 20 small and medium enterprises. The Board of Governors of NVTI has members from major enterprises in Uganda, giving a further opportunity to grasp their needs.[35]

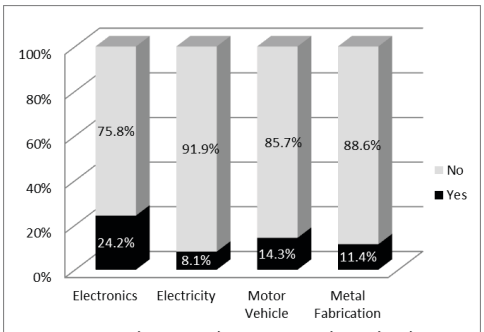

Figure-3: Did NVTI provide any support to be employed or self-employed?

However, as indicated in Figure-3, most graduates from NVTI do not think they received support in finding employment. That means that collaboration with the industrial sector has contributed to incorporating the needs of the industrial sector into the curricula, but not sufficiently in providing support for enhancement of employment. Few graduates received a reference letter from NVTI.

2) Other Impacts

NVTI has continued to provide resources to third-country training programmes of JICA technical cooperation projects after completion of the Project. In March and April 2011, it trained 20 instructors of two vocational training centres supported by the Project for Improvement of Basic Skills and Vocational Training in the Republic of South Sudan (Phase II) in development of basic skills on curriculum and teaching materials. According to the report of this project, the skills acquired were helpful in improving the current training for participants that did not know BTVET in the other countries.[36]

No negative impacts of the Project were identified on natural environment, and no involuntary resettlement occurred due to land acquisition.

The project purpose and outputs, which were achieved within the period of cooperation, are still in good status at the ex-post evaluation. For the overall goal, the target for DVTI and DTIM can be achieved by the end of June 2015, but it is difficult to do that for CVTI because of late commencement of the training at JVTI. Meanwhile, most participants of the training expressed satisfaction with the training, and can utilise the knowledge and skills acquired. The percentage of passing the final assessment is still high. As for employment of graduates from NVTI, the impact has begun to be seen in terms of employment status and level of monthly income.

[35] Documents provided by JICA and NVTI.
[36] JICA (2013) *Project Completion Report, the Project for Improvement of Basic Skills and Vocational Training in the Republic of South Sudan, Phase II*, p59

In light of the above, as the effect of the Project was identified to some extent, effectiveness and impact of the project are fair. The project purpose has been achieved within the cooperation period. As for the overall goal, while it is difficult to achieve the target number of those qualified with CVTI by the end of June 2015, it is likely that the target numbers for DVTI and DTIM will be achieved.

3.3 Efficiency (Rating: ③)

3.3.1 Inputs

Comparison of actual inputs of the Project with those planned is compiled in Table-4.

Table-4: Inputs of the Project

Inputs	Plan	Actual
(1) Experts	1 long-term 4 short-term annually	3 long-term 12 short-term
(2)Trainees received	14: development of master trainers (8 for instructors; 2 for managers), training management (4)	17: development of master trainers (8 for instructors; 4 for managers), human resource development administration (3), training management (2)
(3) Third-Country Training Programs	None	None
(4) Equipment	Equipment for instructors training of motor vehicle, electronics/electricity and metal fabrication and for material development and training management	Equipment for instructors training of motor vehicle, electronics, electricity and metal fabrication and for material development and training management
Total Project Cost	290 million yen	251 million yen
Inputs of Ugandan side	● Counterparts ● Land and facilities ● Local cost ● Tax exemption ● Maintenance of equipment provided ● Training cost	● Counterparts: 41 ● Land and facilities: NVTI ● Local cost: utilities of NVTI ● Tax exemption ● Maintenance of equipment provided ● Training cost

3.3.1.1 Elements of Inputs

One long-term expert was initially planned to be stationed for project management and coordination, but actually three were allocated (two for project management and coordination, one for vocational training advice). As the procurement of training equipment was delayed and more time was spent on coordination of MT2 development in Japan, the Project had to station additional experts to deal with the concentration of instructors and managers training at NVTI in the latter period of the Project.

As listed above, the number of trainees actually received in Japan for MT was four, an increase from the planned two. This measure was taken by the Project to supplement a subject that could not be covered by training in Japan to the initial two trainees for MT2 from September to November 2008. In addition, the current principal of NVTI, who was inaugurated in October 2008 and was the leader of project implementing agency, participated in the training of human resource development administration to contribute to the realisation of project effects through increased understanding of administration and to make effective suggestions to MoES. As a result, the number of trainees for human resource development administration was increased from two to three.

3.3.1.2 Project Cost

In spite of additional inputs mentioned above, the total cost of the Project was 251 million Japanese yen, lower than planned. It is attributed to containment of the cost for instructors and managers training at NVTI.

3.3.1.3 Period of Cooperation

The period of cooperation was three years and three months as planned, from June 2007 to August 2010.

Both the project cost and project period were as planned. Therefore, efficiency of the project is high.

3.4 Sustainability (Rating:②)

3.4.1 Related Policy towards the Project

Apart from Revised ESSP 2007-2015, the related policy and programme towards the Project after project completion are the BTVET Strategic Plan (called *Skilling Uganda*) and DITTE Programme.

3.4.1.1 *Skilling Uganda*

Skilling Uganda is a 10-year strategic plan covering 2010-2020 for the BTVET

sub-sector in Uganda to acquire the skills to enable people and enterprises to raise their productivity and income. Objective 1 in the plan, “make BTVET relevant to productivity development and economic growth”, contains the implementation of UVQF-based BTVET as a strategy. In Objective 2, “increase the quality of skills provision”, the strategies are strengthening the capacities of BTVET institutions and better quality assurance of the training. Therefore, *Skilling Uganda* clearly aligns with the establishment of the training system under UVQF and the development of instructors and managers, which the Project aimed at.

3.4.1.2 DITTE Programme

The DITTE Programme is a hybrid of qualifications and curriculum of CTTE and DTTE, which existed before the Project, and CVTI and DVTI newly established by the Project, to maximise the advantages [37] and minimise the disadvantages[38]. Participants of the Programme are supposed to receive the teaching principles and practice of DTTE level and the practice of DVTI level that are practically recognised as higher qualifications than CVTI. As of November 2013, the Programme was commenced at JVTI; NVTI, Abilonino Polytechnic Instructors College and Kyambogo University will also conduct it.

As CVTI is in a lower level of qualification than DVTI under UVQF, CVTI qualifiers cannot automatically receive DITTE. Therefore, the MoES intends to impose them a one-year DITTE Programme, which contains the lecture of DTTE level and the practice of DVTI level, and to award the certificate (DITTE) to those who pass the final assessment; MoES intends to unify the qualifications and phase out CVTI.

However, NVTI, only an implementer of the in-service DITTE Programme, is going to continue CVTI training with the budget currently allocated from MoES because of the increase in applicants for the training year by year,[39] and recognition of the need for CVTI to improve the capacity of instruction at the other BTVET institutions.[40] NVTI is going to provide the DITTE Programme on the same scale as DVTI training (around 40 participants).

Meanwhile, DTIM training continues as it is, since it will not be integrated into the DITTE Programme.

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[37] CTTE and DTTE widely cover the theoretical aspects, while CVTI and DVTI focus on practice useful in the field.

[38] CTTE and DTTE have practical disadvantages, and CVTI and DVTI have a problem with career development for the instructors.

[39] According to the data of NVTI, the number of applicants for CVTI training soared from 42 in CVTI-1 (2008) to more than 100 in CVTI-6.

[40] According to the interview at the ex-post evaluation, the same ideas are in DIT of MoES.

3.4.2 Institutional Aspects of the Implementing Agency

3.4.2.1 MoES

DIT and the Department of Teacher and Instructor Education and Training (TIET) of the Directorate of Higher, Technical and Vocational Education and Training are responsible for training of the instructors and managers in BTVET institutions in MoES. DIT prescribes the competence level for instructors and managers in line with UVQF, and awards certificates based on the results of assessment of the knowledge and skills acquired, while TIET supervises the implementation of training. DIT and TIET complement one another in the MoES's administration of BTVET.

TIET is divided into three Divisions: Pre-primary and Primary Teacher Education, Secondary Teacher Education and Instructor/Tutor Education. The Division of Instructor/Tutor Education has six posts. Since it was established with one staff member in 2008, two staff members have been added but three posts have still not been filled.

These vacancies are not a big problem, as currently only four BTVET institutions implement DITTE programmes. However, the Division of Instructor/Tutor Education will face an increase in the burden of routine in the future, such as supervision of the instructors training, with more institutions commencing the DITTE Programme. It will be difficult to fill the vacancies immediately given the situation in other ministries in Uganda.[41]

In the Department of Assessment and Certification of DIT, seven staff members are currently allocated, and six of them were newly recruited. Positions are filled in this department.

3.4.2.2 NVTI

NVTI established the department of instructors and managers training recommended by the terminal evaluation of the Project. It consists of five instructors, including four MT2, and enables NVTI to carry out the training every year without too much of an increased burden.

Given the current number of students, NVTI does not face a lack of human resources. It supplements the staff members with its own budget,[42] as well as the allocation from MoES. NVTI is about to conduct the DITTE Programme with the current scale of DVTI training, and it does not have a problem with conducting the Programme and continuing DTIM training.

As for the equipment partially from the Project, NVTI organises a maintenance team

[41] For example, the Ministry of Health carried out mass recruitment of health workers in 2013. However when it comes to their allocation, priority was given to the health facilities.

[42] The sources are tuition fees from students and income from enterprises and local people from orders for design, manufacture and repair.

led by a Deputy Principal. Members of the team are workshop technicians in each department, and they conduct a regular check after the end of every term. When they identify a problem, the technician takes photos of the equipment, attaches them to the prescribed form and informs the Deputy Principal. The budget for repair is also ensured by tuition fees from students, and income from local enterprises and people from orders for design, manufacture and repair. NVTI also practices 5S activities to prevent troubles. Generally it can maintain the equipment with the above organizational structure.

3.4.3 Technical Aspects of the Implementing Agency

3.4.3.1 MoES

As mentioned in the item "Institutional Aspects of the Implementing Agency", MoES faces difficulties with vacancies for posts and orientation and training of newly-recruited staff members although it can deal with its duties under the current staffing level. For example, DIT, with six new staff members, cannot ensure the budget for orientation and training in assessment of the level of competence of instructors and managers that participate in the training. Therefore, it is difficult for MoES to upgrade the capacity of its staff members for BTVET by itself.

In addition, MoES cannot develop new MT2 as the Project did not establish a system of the development. This problem was indicated at the mid-term review of the Project with recommendations to MoES and NVTI.[43] Although MoES is responsible for development of MT2, it cannot deal with the problem.

3.4.3.2 NVTI

Instructors of NVTI try to update their competence level through materials developed by the Project, textbooks and reading materials donated by project experts, collection of relevant information through the internet and participation in seminars. They have enough skill to operate the equipment in NVTI. Given the current level of equipment, workshop technicians in each department do not have a problem with maintenance.

3.4.4 Financial Aspects of the Implementing Agency

3.4.4.1 MoES

The budget of MoES for BTVET is allocated to "Skills Development" and "Quality and Standards", and its projection is the highest amount in FY 2014/15 (Table-5). Allocation for training of instructors and managers is included in the output "Training and Capacity Building of BTVET Institutions", and it was UGX 2 billion in FY 2012/13.

[43] JICA (2009) *Mid-term Review Report, the Project for Instructors Training for Vocational Education and Training in Uganda*, p24

Table-5: Budget of MoES (Unit: million UGX)

Fiscal Year	2010/11	2011/12			2012/13	2013/14	2014/15
	Outturn	Approved Budget	Releases (July 12-May 13)	%	Budget Projections		
Pre-primary and Primary Education	32,599	39,515	39,211	99.2%	46,757	50,627	54,464
Secondary Education	118,585	190,721	110,230	57.8%	178,880	148,953	79,453
Special Needs Education, Guidance and Counselling	1,549	2,113	2,066	97.8%	2,114	3,114	2,783
Higher Education	8,041	12,106	12,067	99.7%	70,716	21,460	21,583
Skills Development	**36,426**	**86,810**	**63,422**	**73.1%**	**53,767**	**97,429**	**102,208**
Quality and Standards	**20,097**	**25,840**	**21,051**	**81.5%**	**29,725**	**45,200**	**54,272**
Physical Education and Sports	2,617	4,260	3,593	84.3%	5,203	6,060	5,096
Policy, Planning and Support Services	7,793	9,355	8,921	95.4%	9,936	9,483	9,960
Total	**227,707**	**370,720**	**260,561**	**70.3%**	**397,098**	**382,326**	**329,819**

Source: Ministry of Education and Sports (2012), *Ministerial Policy Statement FY 2012/13* , p85

However, it is difficult for MoES to ensure sufficient budget for orientation and training of new staff members. For example, DIT formulates its strategic plan to include the training of staff, but actually the budget cannot be allocated.

3.4.4.2 NVTI

Table-6: Budget of NVTI for Instructors and Managers Training (Unit: UGX)

Items	Amounts
Allowances to lecturers	9,600,000
Advertisements and PR	8,544,000
Training delivery and management	109,753,000
Recreation and welfare	18,600,000
Stationary	61,200,000
Telecommunication	11,200,000
Utility	36,000,000
Infrastructure maintenance	18,000,000
Transport	12,500,000
Foodstuffs to participants	120,825,000
Total	**406,222,000**

Source: NVTI

NVTI can manage to carry out the training of instructors and managers every year even after the completion of the Project. It budgets UGX 406,222,000 for the training every year (Table-6), and UGX 300,000,000 is actually allocated and utilised.

Given the fact that NVTI has actually conducted the training of instructors and managers with the budget allocation every year, and that MoES has firmly allocated the budget to the programmes with constant performance, NVTI can sustain training for the current number of participants.

With the training of instructors and managers, some problems have been observed in terms of the technical (system to develop MT2) and financial (budget for orientation/training of new staff of DIT) aspects of the MoES. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The Project aimed to improve the quality of BTVET through the establishment of a system of training qualified instructors and managers in BTVET institutions in NVTI based on the UVQF. The Project was aligned with ESSP, which prioritises BTVET, and

the establishment of a system of training in accordance with UVQF met the development needs of Uganda. As the Project was also in line with Japan's ODA policy, it is highly relevant. The project purpose was achieved within the period of cooperation as the percentage of those passing the final assessment and authorisation of the training system by the MoES. As for the overall goal, while it is difficult to achieve the target number of those qualified with CVTI by the end of June 2015, it is likely that the target numbers for DVTI and DTIM will be achieved. As the Project has realised some effects, its effectiveness and impact are fair. Since the project cost and period were as planned, the efficiency is high. As some problems were observed in terms of technical aspects of MoES on training of master trainers in Uganda, and of financial aspects of training newly-recruited staff, the sustainability of project effects is fair.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

4.2.1.1 MoES

- A department of DIT in charge of assessment and certification is responsible for awarding qualifications to those who complete the training for instructors and managers of BTVET institutions. It recently recruited six staff members, but cannot ensure the budget to train them to assess the competence of the instructors and managers. Their competence is needed to assure the quality of training for instructors and managers. Therefore, DIT is recommended to definitely conduct the training for the newly-recruited staff.
- The Project developed MT2 for instructors and MT for managers through the training in Japan due to the limited cooperation period. As a consequence, the Ugandan side could not establish a system to develop them by itself. Therefore, MoES is recommended to develop a training system within the country and allocate budget in collaboration with NVTI, which was supported by the Project, and other education development partners if necessary.

4.2.1.2 NVTI

- The tracer study clarified that NVTI collaborated with the industrial sector in Uganda for on-the-job training for students and workers of enterprises, but not enough for helping graduates find jobs. Therefore, NVTI is recommended to work more closely with the industrial sector and to improve the level of support for them to get a job.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

(1) Planning of Activities and Outputs Contributing to Establishment of Qualification System

When a project develops and implements training programmes under a newly introduced qualification system, the impact can be enhanced and sustained by incorporation of activities to establish and conceptualise the qualification system. The Project intended to establish the concept of new qualifications (Output 1) and the training system for instructors and managers of BTVET institutions (Outputs 2 and 3) in order to establish a system of training at NVTI (project purpose). The activities under Output 1 were to accelerate approval of the qualification system with which the training system should be in line, rather than to contribute to the project purpose. With the establishment of the new qualification concept under Output 1, qualifications by DIT through the training for instructors and managers under Outputs 2 and 3 became nationally accredited. That enabled the government to ensure the quality of knowledge and skills through the training, and the participants to raise their motivation for career development. Therefore, activities under Output 1 played an important role in realising the sustainability of the project effects and achievement of the overall goal.

(2) Proper Understanding of Steps to Realise Effects and Evidence-based Target Setting

The Project had a problem with setting indicators and properly expressing their logic. For example, it was not proper to use indicators such as the level of satisfaction with the training system established by the Project, the percentage of passing final assessment and the number of those who qualified for both outputs and project purpose. The Project should have set indicators after careful consideration of the description of outputs and project purpose, and the steps from outputs to the purpose. It could be said that the steps to establish the system of training were: (1) needs assessment, (2) development of training modules, curricula and materials and provision of equipment, (3) development of MT, (4) enrolment of training participants, (5) implementation of the training, (6) evaluation of the training, (7) completion of the training, (8) final assessment of those who completed training, and (9) awarding of certificates. These steps could be divided into two parts: one is a sequence from (1) to (5) for indicators of the outputs; and another from (6) to (9) for the project purpose. For example, development of materials and curricula, the number of MT developed, and the number of training cycles implemented could be used as indicators of outputs; and the percentage of final assessment, the number

of qualified instructors and managers, and the level of satisfaction with the training could be used for measuring project purpose. This way of formulating indicators enables the logic to be expressed properly, so that the project purpose can be achieved as a result of obtaining the outputs.

The Project also used the wrong evidence for setting some targets. It is necessary to set targets using the correct evidence.

BOX : Suggestions and lessons learned from a comparative study of four technical cooperation projects of vocational training

While conducting this ex-post evaluation, a comparative study of technical cooperation projects was conducted to find their features and effects, by taking examples from four projects: "The Project on Strengthening the Programme of Expanding Automation Technologies Department (SPREAD)" in the Republic of Turkey, "The Project for Strengthening the Capacity of Training Management of Vocational Training Corporation" in Jordan, "Project for Establishment of Japan Sri Lanka College of Technology to Strengthen Technical Education and Training" in Sri Lanka and this project. The following suggestions and lessons were learned from the analysis of the main components of the four projects: (1) development and implementation of policies and systems of vocational training; and (2) strengthening of functions of vocational training centres.

1. Development and implementation of policies and systems of vocational training

When a project is implemented along with the development of new policies and systems for vocational training, a delay in the development or change in the systems can be a risk factor for the project to achieve its purpose or create the expected effects. With the project in Uganda, a qualification system was established as planned partly because the project activities included the activities to contribute to the establishment of the system; and the established system had facilitated the creation and continuation of the expected effect of the project. A change in the conditions of qualification of the instructors with the project in Turkey, a delay in the restructuring of Vocational Training Corporation assisted by the World Bank with the project in Jordan, and a delay in establishing a new vocational qualification system assisted by the Asian Development Bank with the project in Sri Lanka, gave a negative influence for the creation and continuation of the project effects. These examples suggest the importance of adequate study of the implementation capacity of the government institutions which are responsible for the development of the policies and systems, and the importance of collecting information on the contents and progress of the policies and the systems to be developed.

2. Strengthening of functions of vocational training centres

(1) Assistance with establishment of training management cycle

It is essential to assist the counterpart officers until they are able to operate the training management cycle independently in projects to assist the establishment of a cycle, which includes planning, implementation, monitoring, evaluation and improvement of training courses. With the project in Jordan, the training management cycle was further disseminated after the project, as a result of the staff of Vocational Training Corporation operating the cycle two to three times independently and also experiencing dissemination of the cycle to other training centres than the model training centres. As for the projects of Turkey and Sri Lanka, the counterpart officers could not gain adequate knowledge and experience of the cycle during the projects; therefore, they were not able to gain the necessary technical skills to operate the cycle on their own.

(2) Reflection of the needs of industry in the training courses

For introduction of measures to reflect the needs of industry in the training courses, it is important to establish a system that incorporates advice from industry representatives into the training courses immediately, not just to receive advice from them. With the project in Jordan, Curriculum Development Committees, which included industry representatives, were provided with authority to add training items, review the hours of practical lessons, etc. The project also introduced a system for decisions of the committees to be incorporated in the next training courses. This system was functioning at the time of the ex-post evaluation. Technical committees formed in the project of Sri Lanka, on the other hand, did not have authority to decide on revisions and improvement of the training courses; therefore, the suggestions of the committees were not incorporated into the revision and improvement of the training courses immediately. As a result, the industry representatives of the committees gradually lost interest in participating in the committees, and the committees became non-operational.

(3) Capacity building of the instructors

It is important for projects aiming at capacity building of instructors to adequately identify the gaps between the existing capacity of the instructors and what is required to conduct the training courses; and to establish a system for the implementing agencies to improve capacity of the instructors continuously by using resources available in the countries, in addition to the training sessions in Japan and technical transfer from JICA experts. With the project in Jordan, Vocational Training Corporation had planned and conducted in-plant training for the instructors during the project and has been continuing such trainings even after project completion. With the project in Uganda, no new master trainers, who conduct training for the instructors and managers, had been trained after completion of the project; this was a result of master trainers only being trained in Japan, and, therefore, the implementing agency had not learned how to carry out the training. With the project in Sri Lanka, capacity building of the instructors of the model training courses was mainly conducted in the training in Japan, and a system for the relevant ministry and department to plan and conduct measures for capacity

building of instructors had not been introduced by the project. As a result, some of the instructors having insufficient teaching skills were still a problem at the time of the ex-post evaluation.

Republic of Turkey

Ex-Post Evaluation of Japanese Technical Cooperation Project

"Project on Strengthening the Program of

Expanding Industrial Automation Technologies Departments"

External Evaluator: Mitsuko Nakamura, Kokusai Kogyo Co., Ltd.

0. Summary

This project was implemented in order to contribute to developing human resources with skills of Industrial Automation Technologies (IAT) by strengthening capacities of the Teachers' Training Center (TTC) for IAT relative departments, and by expanding IAT education to 20 technical and industrial vocational high schools (hereinafter referred to as expansion schools) in Turkey. This project is consistent with the development policy and development needs of Turkey, and with Japanese aid policy. Therefore, the relevance of the project is high. As a result of the project, TTC trainers' capacity to formulate training plans and implement training courses was strengthened; however, the project purpose was achieved partially, because a system for monitoring, evaluation and feedback was not able to be established. Therefore, although IAT teachers, who completed TTC training, are able to utilize their knowledge learnt from training and practice IAT education in expansion schools, effectiveness and impact of the project is fair.

The project period was as planned; however, because the cost slightly exceeded that planned, efficiency of the project is fair. As the accreditation system of IAT teachers changed, the training courses established by the project were not being implemented at the time of the ex-post evaluation; however, it is likely that the curriculum and textbooks developed by the project and TTC trainers' knowledge will be continually utilized in the short-term teacher training courses for IAT teachers who are accredited at expansion schools under the changed accreditation system. As the TTC trainers have a high level of technical skill, there are sufficient skilled TTC trainers for the short-term training courses and necessary budget has been allocated for the training, it is expected that outcomes of the project are sustainable to some extent. Therefore sustainability of the project is fair.

In light of the above, the project is evaluated to be partially satisfactory.

1. Project Description

Project Location

Teachers' Training Center (TTC)

1.1 Background

In Turkey, since the 1990s, as rapid expansion of manufacturing industry, the quantitative and qualitative increase of production technicians, particularly mid-level technicians, became rapidly needed. Above all, training needs of mid-level technicians with skills of IAT[1] which support the growth of manufacturing industry was increased. Therefore, the Turkish Ministry of National Education (MoNE) implemented a technical cooperation project, "The Project on Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools" from 2001 to 2006 with Japanese assistance, in order to develop human resources which have IAT techniques. In this project, IAT departments were established in Izmir Technical and Industrial Vocational High School (hereinafter referred to as Izmir high school) and Konya Technical and Industrial Vocational High School, both of which are Anatolian technical and industrial vocational high schools[2].

With the outcome of this previous project, MoNE newly established IAT departments in 20 Anatolian technical and industrial vocational high schools in Turkey. Furthermore, as there is necessity to train the teachers who instruct IAT techniques in expansion schools, TTC was established and started training for IAT teachers in 2006. As the need of development of a training implementation system for the teacher training arose, the Turkish government requested the Japanese government for technical cooperation, and it was decided to implement the project.

1.2 Project Outline

Overall Goal		Vocational education and training (VET) for IAT at the expansion schools is practiced effectively.
Project Purpose		Teacher training system of the TTC is established.
Output(s)	Output 1	TTC's planning capacity of teacher training program is strengthened.
	Output 2	TTC's implementation capacity of teacher training courses is strengthened.
	Output 3	TTC's evaluation capacity for teacher training is strengthened.
	Output 4	TTC's planning capacity of long term organizational strategy is strengthened.
Inputs		【Japanese Side】 1. Experts: 23 (101 M/M) 2. Trainees received: 5 for counterpart training in Japan） 3. Equipment: 13.5 million yen 4. Local Cost: 22.23 million yen 【Turkish Side】 1. Counterparts: 15 2. Equipment: Approximately 58 million yen (Provision of equipment to TTC) 3. Land &Facilities: Training facilities and Project Office 4. Local cost: Daily allowance and accommodation fee for training participants from expansion schools, training textbooks, training

[1] IAT are a variety of technologies for operating and handling of machinery and manufacturing facilities automatically, and are used in the fields of robotics, factories manufacturing automobiles, aircraft and chemical factories, etc.

[2] It is a secondary education institution for four years, and there are 134 institutions in the whole country.

	materials, and electricity/water/communication costs of training facilities
Total cost	Approximately 38.5 million yen
Period of Cooperation	August 2007 – September 2010
Implementing Agency	Ministry of National Education
Cooperation Agency in Japan	PADECO Co., Ltd. / Institute of National College of Technology
Related Projects	【Technical Cooperation】 "The Project on Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools" (2001 – 2006) "The Project on Industrial Automation Technology Extension Project for Central Asian and Middle East Countries" (IATE, 2012-2015)

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement of Project Purpose at the time of the Terminal Evaluation

Considering the degree of achievement of indicators and the degree of achievement of each outcome, it was judged that the Project Purpose was achieved to a considerable degree and it could be fully achieved by the termination of the project, if the quality of training courses and the value of indicators were improved.

1.3.2 Achievement of Overall Goal at the time of the Terminal Evaluation

The terminal evaluation report stated that positive signs for the achievement of the Overall Goal had been observed. The reasons for the statement were that all companies assessed the intern students of Izmir high school as very good or good in the evaluation of intern students; as well as that more than 90% of the internship companies evaluated the interns of expansion schools as good or very good as the result of similar research in five expansion schools.

1.3.3 Recommendations at the time of the Terminal Evaluation

(1) To be expected by the end of the project

- Promotion of expansion school teachers' understanding of TTC's teacher training
- Strengthening of the monitoring and feedback system on TTC's teacher training

(2) To be expected within and after the project

- Strengthening of sustainability in terms of TTC's activity and budget
- Authorization of TTC trainers' status
- Planning and implementation of a new training course on teaching methods

(3) To be expected after the project

- Establishment of a training system for mechatronics department graduates in university
- Expansion of TTC's IAT education to neighboring countries
- Expansion of TTC's established teachers' training system to other departments in Turkey

2. Outline of the Evaluation Study

2.1 External Evaluator

Mitsuko Nakamura, Kokusai Kogyo Co., Ltd.

2.2 Duration of Evaluation Study

Duration of the Study: September 2013 - October 2014

Duration of the Field Study: December 1 - 20, 2013, February 10 - 19, 2014

3. Results of the Evaluation (Overall Rating: C[3])

3.1 Relevance (Rating: ③[4])

3.1.1 Relevance to the Development Plan of Turkey

From the time of commencement to completion of the project, promotion of employment; effective human resource development according to the needs of industry; and implementation of effective teacher training were focused on in Turkey's development policy, namely the Ninth Development Plan (2007 – 2013). At the time of completion of the project, the Medium Term Program (2010 – 2012) for achieving the Ninth Development Plan was formulated, and it emphasized the significance of improving quality and quantity of technical education and training. Since the Project Purpose is the establishment of teachers' training system for effective human resource development and improvement of quality of teachers' training, the project is consistent with the development policy.

3.1.2 Relevance to the Development Needs of Turkey

According to the result of Labor Market Skill Needs Survey by the Small and Medium Industry Development Organization (KOSGEB) conducted at the time of planning of the project (October 2005), the market demand for new IAT technicians in seventeen provinces for a next few years was estimated to be about 30,000. Although the statistics related to the market demand for IAT technicians at the time of completion of the project was not available, judging from job offers of IAT technicians, which amounted to approximately 100,000 in the whole of Turkey at the time of ex-post evaluation,[5] it is possible to presume that the needs of human resources with IAT techniques was high from the time of project planning, project completion, and through to the ex-post evaluation. This project aimed at meeting these needs of Turkey.

Furthermore, it was estimated that approximately 300 IAT teachers need to be placed to the newly established department of expansion schools, and new employment and transferring of teachers from other departments were planned. Therefore, TTC already started teachers' training of IAT teachers; however, there were many issues on management and contents regarding the training[6]. In addition, even though 75 teachers were already placed to expansion

[3] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

[4] ③: High, ② Fair, ① Low

[5] The result of Turkish Employment Agency (İŞKUR)

[6] There were issues about operation of the training such as insufficient orientation and long training period, as well as about contents and methodologies of the training such as overlapping training subjects, lack of consideration on trainees' specialties, and poor preparation of training texts and equipment.

schools at the time of commencement of the project, only half of the teachers participated in TTC's training. In this way, IAT teachers' training did not catch up with its quantity and quality; therefore, training of IAT teachers was an urgent need of Turkey.

3.1.3 Relevance to Japan's ODA Policy

According to the Japan's ODA Data by Country of the Ministry of Foreign Affairs of Japan, human resource development for social economic development was a priority area in Japan's ODA policy toward Turkey, from the time of planning to completion of the project. In JICA's Country Action Plan (2006) at the time of commencement of the project, as well as in the Country Assistance Strategy for Turkey (2012) although after the completion of the project, education matched with needs of the industry and human resource development were priority tasks. Therefore, the implementation of the project is consistent with Japan's ODA policy.

3.1.4 Appropriateness of Planning and Approach of the Project

The project was commenced in a state that policy on accreditation system of IAT teachers had not yet been secured.[7] For this reason, as mentioned later[8], and because the policy was secured during the implementation of the project, it meant that it was no longer necessary to continue the training developed by the project, namely "IAT teachers' training". Therefore, commencing the project without collecting sufficient information and planning of countermeasures related to the policy on accreditation system was an issue from the aspect of the project approach.

However, as mentioned later in the section of Sustainability, a principle, which is that some part of training courses for "IAT teachers' training" would be continuously utilized as "short-term training" for the accredited IAT teachers in expansion schools, has been already apparent, and eventually it is likely that the teachers' training, with a changed format of skills development for teachers, will contribute to the Project Purpose, namely "vocational education and training for IAT at the expansion schools is practiced effectively." Therefore, it is concluded that the issue of the project approach is not an issue of significance as to affect the relevance of the project at the time of the ex-post evaluation.

In light of the above, this project has been highly relevant to the country's development plan, development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact[9] (Rating: ②)

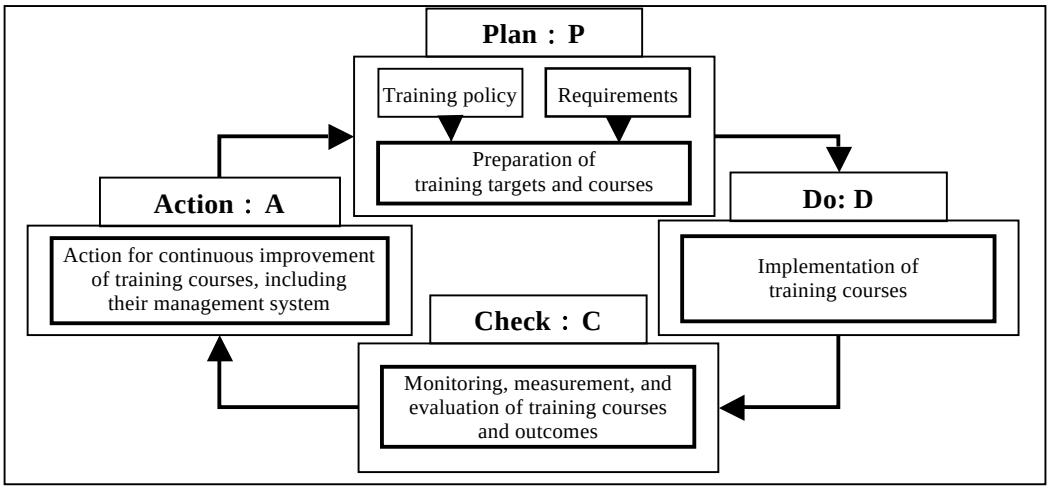
3.2.1 Effectiveness

Project Purpose is to establish a training system for IAT teachers in TTC. Especially in order to implement training courses effectively and efficiently, it aimed at enabling TTC to

[7] There was a background for this, for example, new teachers and other departments' teachers who participated in TTC's training were already accredited and engaged as IAT teachers. In the IAT field, no teachers graduated from the university course which was supposed to train new teachers, until 2009.
[8] See 3.4.1 Related Policy towards the Project in the section of 3.4 Sustainability.
[9] Sub-rating for Effectiveness is to be put with consideration of Impact.

rotate a training cycle based on a Plan-Do-Check-Act (PDCA) approach (Figure 1), whereby the training courses are planned, done, checked, then action is taken to improve the course; moreover this approach is to be undertaken autonomously by TTC[10].

In the project, TTC's capacity development on planning, implementation and evaluation of the training, all of which are necessary to establish the training system, was identified as Outputs of the project. In addition, by improving the TTC's function of making long-term operational plan and eventually strengthening the TTC's training management system, it was expected that TTC would contribute to effectively practice the IAT education at expansion schools in a sustainable manner.



Source: Illustrated by the external evaluator based on the documents provided by JICA

Figure 1: Training cycle based on PDCA approach which the project aims to establish

3.2.1.1 Project Output

(1) Output 1: TTC's planning capacity of teacher training program is strengthened.

Output 1 aimed at enabling TTC to strengthen its planning capacity of teacher training program through developing and modifying the curriculum in the project. The degrees of achievement of each indicator at the time of ex-post evaluation are summarized in Table 1.

Table 1: The degree of achievement of indicators related to Output 1

Indicators	Evaluation	Reason for Evaluation
Indicator 1-1 : Curriculum development scheme is clarified.	Achieved	Process of curriculum development and reasons for revisions were indicated in the finalized curriculum; therefore, processes of development and revision are clear.

[10] According to the documents provided by JICA, establishment of the training cycle based on PDCA approach and capacity building for establishment of the system were shown as an implementation policy of the project. In the mid-term review report, a perspective of capacity building based on the training cycle is clearly indicated, and also in the terminal evaluation report there are statements such as the project aims for establishment of the training cycle and how far the training cycle is functioning. Furthermore in the Teacher Training Manual developed by the project, it is also indicated that TTC improves the training cycle and activities continuously by introducing a PDCA approach.

Indicator 1-2 : Curriculum of teacher training is developed along with the above mentioned scheme.[11]	Mostly Achieved	Curriculum for main five teacher trainings (Basic level 1 & 2 for Grade 10 & 11. Advanced level 1 & 2 for Grade 12, Summer Course) were developed.
Indicator 1-3 : The developed curriculum has conformity with the framework curriculum for IAT department authorized by Ministry of National Education.	Achieved	Curriculum was developed by collating to the framework curriculum for IAT accredited by MoNE. As a result of comparison, most modules of training curriculum are the same as those of the framework; therefore, consistency of both curriculums was confirmed.

Indicators of Output 1 are appropriate to verify the degree of achievement of strengthening TTC's planning capacity of teacher training program at organizational level; however, they are slightly insufficient to verify that of strengthening TTC trainers' planning capacity. Therefore, in the ex-post evaluation, it was also verified from the perspective of how much TTC trainers' capacity development was achieved, through inspection of the documents provided by JICA and interviews with experts and counterparts (TTC trainers). As a result, it was confirmed that experts and TTC trainers evaluated TTC trainers' planning capacity were improved through the tasks of curriculum development and revision in a collaborative manner with the experts. In addition, TTC trainers expressed opinions that because they owned the experience of pursuing curriculum development and revision in the project, they could develop the curriculum for the on-going technical cooperation, "Industrial Automation Technology Extension Project for Central Asian and Middle East Countries (IATE)", according to the current situation and needs on IAT education in the target countries. At the time of the ex-post evaluation, it was confirmed that the formats of training plan and training texts were revised according to the needs of the target countries, distributed and used as reference materials in the above IAT project.

In light of the above, it is concluded that Output 1 was almost achieved.

(2) Output 2: TTC's implementation capacity of teacher training courses is strengthened.

Output 2 was intended to strengthen implementation capacity of training courses up to the level of which TTC can carry out courses by themselves, through developing training syllabus and materials. The degrees of achievement of each indicator at the time of the ex-post evaluation are summarized in Table 2.

In order to achieve Output 2, it is important to develop each TTC trainers' capacity of making syllabus and materials and implementing training, but the indicators to verify the

[11] As indicated in Indicator 1-2, it was planned that the project would determine a procedure of curriculum development in a manual and then conduct development tasks, in the original plan. However, in reality, curriculum development tasks and the procedure recording were done in parallel way. Considering high requirement of urgent curriculum development, adaptation to the methodology was realistic, and there seems to be almost no negative influence on curriculum development by not following the order of procedure and development tasks. Therefore the degree of achievement of this indicator was concluded as "mostly achieved."

development were not identified. Therefore in the ex-post evaluation, it was also verified through the interviews with experts whether TTC trainers' capacity was developed or not. As a result, it was confirmed that syllabus and training materials were developed by working groups formed for each training subject, while receiving technical instruction by lectures and practical training from experts, and TTC trainers mastered the syllabus and contents of training as well as how to use training materials. At the time of completion of the project, it was confirmed that TTC trainers' capacity of implementing training was strengthened up to the level whereby TTC could implement training courses without a problem.

Table 2: The degree of achievement of indicators related to Output 2

Indicators	Evaluation	Reason for Evaluation
Indicator 2-1 : Development procedures and format of syllabi and textbooks for teacher training are clarified.	Mostly Achieved	Development procedure of syllabus and training material in the "Teacher Training Manual" remains in a simple statement; however, the procedure is mostly clear. Format of syllabus and contents of materials are unified and clear.
Indicator 2-2 : Each developed training course has completed textbooks.	Achieved	In total, 22 training materials (4 for 10th grade, 8 for 11th grade, and 10 for 12th grade) were developed. The surveys on trainees of teacher training showed that the number of trainees who evaluated the training material for teacher training as "very good/very satisfied" and "good/satisfied" increased from 37.5% before the project (September 2006) to 60~70% at the time of the ex-post evaluation. Therefore, it is presumed that quality of training materials is also not a significant issue.
Indicator 2-3 : TTC trainers are equipped with the knowledge and skills sufficient to give lectures and practices of the designed training courses.	Achieved	According to the class observation[12] conducted by TTC trainers and experts during the project, the average score of four-scale evaluation[13] on 1) plan/evaluation, 2) lecture style, and 3) teaching methods of TTC trainers was 3.7; therefore it is likely to say that they were evaluated between "satisfied expectation" and "beyond expectation"[14]. Furthermore, in the beneficiary survey[15], about 97% of trainees of 10th &11th grade training and about 78% of 12th grade

[12] Monitoring sheet for class observation is divided into five sections: 1) planning and preparation of lesson/lecture, 2) teaching styles in general, 3) teaching methods, 4) about trainees, and 5) training environment, and each section consists of four sub-sections. Monitoring was carried out mainly by experts.

[13] Four-scale evaluation was: 1) below expectation, 2) progressing to criteria, 3) satisfied criteria, and 4) beyond criteria.

[14] Because training course is implemented by two trainers, the average of all training courses was used instead of each trainer's one.

[15] Beneficiary survey was conducted for IAT teachers at expansion schools who participated in the teacher training after the project started. The survey was carried out by telephone interview using a questionnaire, for 63 teachers selected by random sampling.

		training answered quality of TTC trainers was very satisfied or satisfied.
Indicator 2-4: All the developed training courses are conducted at least once.	Achieved	Before the time of completion of the project, last half of the training for 12th grade was implemented once, and all the training except the above one were implemented twice, by using material newly made for the curriculum developed by the project[16].
Indicator 2-5: Logistics such as selection of participants, course notification to the participants, preparation of materials or equipment for each class etc. are well organized.	Not Achieved	According to the survey at the time of the terminal evaluation, since 59% of trainees indicated that there were issues on logistics for the training, it is probable that logistics for training did not reach the expected level. It is unknown about what kind of faults existed in training logistics due to limited availability of information.

In light of the above, although there are a few issues on logistics for implementing the training, Output 2 was mostly achieved.

(3) Output 3: TTC's evaluation capacity for teacher training is strengthened.

Output 3 was intended to enable TTC trainers to conduct evaluation of teacher training autonomously and to strengthen TTC's evaluation capacity. The degrees of achievement of each indicator at the time of the ex-post evaluation are summarized in Table 3.

Table 3: The degree of achievement of indicators related to Output 3

Indicators	Evaluation	Reason for Evaluation
Indicator 3-1 : Procedure and format for evaluation (incl. feedback of the result) are clarified with explicit criteria.	Partially Achieved	Until the time of completion of the project, monitoring and evaluation system, which consist of monitoring by class observation, questionnaires at final class of the training, self-evaluation by trainers, evaluation meeting after the training, follow-up questionnaires 6 months after the training, final evaluation meeting, and feedback to the course curriculum was installed. However, the detailed procedures of each evaluation activity were not written in documents such as teacher training manual and so on.
Indicator 3-2 : Evaluation on teacher training courses is conducted 5 times according to the developed	Partially Achieved	Before the installation of the above monitoring and evaluation system, evaluations on teacher training were conducted more than 5 times through class observation, questionnaires at final

[16] Partly because counterparts were too busy due to their teaching commitments at Izmir high school, training material development for 12th grade students was delayed, and only one training course applying the technical transfer content of the project had been implemented.

procedures and format.		class of the training, and evaluation meeting after the training. However, follow-up questionnaires 6 months after the training was conducted only 2 times[17], and self-evaluation of trainers and final evaluation meeting were not actually conducted.
Indicator 3-3 : Procedures and format for monitoring of expansion schools are clarified.	Achieved	Monitoring of expansion schools aimed at understanding expansion school teachers' usage of TTC's training outcomes, issues and requests, reflecting these into future training content and into management of training, and providing TTCs continuous support and advice to IAT departments of expansion schools. In teacher training manual, monitoring procedure and format such as objectives, evaluators, targets, and period regarding monitoring of expansion schools including class observation and implementation of management workshops for IAT departments are clarified.
Indicator 3-4 : Monitoring is conducted 20 times at expansion schools according to the developed procedures and format.	Partially Achieved	Until the time of completion of the project, monitoring IAT departments of expansion schools were conducted totally 26 times, and management workshops for IAT departments at expansion schools were held every year, totally 3 times. Although the number of monitoring of expansion schools achieved the target, class observation written in monitoring procedure of indicator 3-3 was not conducted, and identification of issues and requests of IAT teachers, which was supposed to be direct monitoring after the training, was not conducted[18].

Output 3 was also verified from the perspective of how much TTC trainers' capacity development was achieved, through interviews with experts and TTC trainers. As a result, it was confirmed that total evaluation of training was conducted by TTC trainers and experts, based on the result of class observation and questionnaire in the final class of the training, and technical instruction about lecture and teaching method of TTC trainers and amendment of training plan were carried out when there were issues. However, because firstly technical instruction about evaluation was not given to TTC trainers by experts, and secondly TTC

[17] As a result of interviews with TTC trainers, the reasons for this were listed: response rate of questionnaires was very low; TTC trainers could not secure time to collect and add up the questionnaires; and there were no specific technical instruction regarding efficient design of questionnaire, tabulation or analysis methods, meaning that TTC trainers did not master the skills.

[18] Class observation at expansion schools was never done, due to consideration of the negative influence it might have on student concentration, work pressures of TTC trainers, no authorization for TTC to evaluate classes at expansion schools, and so on. Identification of expansion school teachers' issues and requests was supposed to be done indirectly by follow-up questionnaire 6 months after the training.

trainers were too busy to secure time for monitoring and evaluation autonomously, and thirdly TTC trainers had a feeling of resistance over the evaluating method toward colleagues, experts of the project played a key role in a series of activities from monitoring and evaluation to feedback, with the result that participation of TTC trainers in evaluation activities was limited. Therefore, TTC trainers did not become able to conduct such activities autonomously and TTC trainers themselves also felt that their evaluation capacity of teacher training was not strengthened enough.

In light of the above, it is concluded that Output 3 was partially achieved.

4) Output 4: TTC's planning capacity of long-term organizational strategy is strengthened.

Output 4 intended to clarify the procedure of formulating long-term strategy so as to enable TTC to formulate a long-term strategy. It was also intended not only that the formulated strategy is approved by MoNE but also the roles of TTC are set up in the long-term strategy based on the vision of teacher training; eventually, it was planned to secure sustainability of the outcome of the project by strengthening training management system as an organization. The degree of achievement of each indicator at the time of the ex-post evaluation is summarized in Table 4.

Table 4: The degree of achievement of indicators related to Output 4

Indicators	Evaluation	Reason for Evaluation
Indicator 4-1 : Planning scheme of long term strategy for TTC is clarified.	Partially Achieved	In order to formulate the long-term strategy, a taskforce which consists of TTC trainers, experts, General Directorate of Vocational and Technical Education (GDVTE) of MoNE, and JICA Turkey Office[19], was formed, and TTC's institutional position and functions were discussed. Based on the discussion, the long-term strategy which indicated TTC's operational strategy and future activities were formulated; however, the procedure is not articulated in documents such as teacher training manual and so on.
Indicator 4-2 : Long term strategy is appreciated by Ministry of Education.	Achieved	TTC's long-term strategy was approved in the 4th Joint Coordinating Committee which the director of GDVTE chaired, and it indicated that the strategy was officially approved by MoNE.

As for indicator 4-1, the details of actual activities are as follows. As a preliminary stage of

[19] JICA Turkey Office participated as an observer.

formulation of long-term strategy, because there were gaps[20] between stakeholders in recognition about TTC's institutional position after completion of the project, at first, a temporary task force was formed and TTC's institutional position and roles were discussed as described in Table 4. As a result, the recognition was made in accordance with stakeholders, that TTC would be managed under the same organizational system even after completion of the project with full time trainer's arrangement and security of budget given priority by MoNE and Izmir high school. When this recognition was agreed upon, JICA made a decision that it was effective to respect MoNE's judgment that it would be difficult to change TTC's organizational system because of the internal situation of MoNE such as replacement of minister and director, and instead, support to formulate the long-term strategy reflecting TTC's current situation and surrounding environment (such as change of accreditation system) as well as needs of industry, so that necessary measures would be clarified in the future. Althoughit became a different result from the original assumption, it became at least able to sustain TTC's management system, which was improved by implementation of the project, after completion of the project. Therefore, it is presumed that the decision was rational.

On the other hand, at the time of formulating the long-term strategy, it was clear that it would no longer be necessary to continue the training courses for teachers at expansion schools due to the change of accreditation system. Thus, the activities reflecting decrease of IAT teacher training tasks, such as implementation of skills development training for the university graduate IAT teachers and accredited by the new accreditation system, short-term training courses as one of in-service training for other department teachers, and short-term training for IAT teachers in both Turkey and neighboring countries, were contained in the long-term strategy, as well as reinforcement of cooperation with industry and reinforcement of functions as a research organization. However, the long-term strategy remains in the agreement of recognition between stakeholders that TTC is able and necessary to play such roles. In other words, the necessity of formulating activity plans and providing personnel and budget based on the plan were mentioned; however, the strategy does not include a concrete action plan or policy towards institutionalization[21]. Therefore, it is thought that there are some issues with the plan in itself, and it was concluded that indicator 4-1 was partially achieved.

In light of the above, Output 4 was partially achieved.

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[20] Since TTC is an affiliate organization of Izmir high school, there were some operational issues; for example, at the beginning of the project, TTC trainers needed to hold their teaching work of school and eventually had excessive duties; and due to the situation that TTC's budget was contained with school budget, it was difficult to separate and secure the operation and administration cost for TTC. Although these issues had been improved by MoNE's approval of full-time assignment of trainers at TTC and expenditure of preferential budget by the principal of Izmir high school, JICA, TTC and experts recognized, at the beginning, the necessity of organizational and institutional changes such as personnel allocation and financial management separating TTC from Izmir high school.

[21] Although action plan was not formulated, according to JICA internal materials, MoNE at that time showed intention that the matters decided in the long-term strategy would be realized after the completion of the project, and some of the plan are actually put into practice at the time of ex-post-evaluation.

3.2.1.2 Achievement of Project Purpose

Project Purpose is "Teacher training system of the TTC is established."

Indicator 1 was "More than 90 % of participants assess training courses are practically usable for their lectures and practices for IAT in the questionnaire conducted at the end of the courses." According to the result of questionnaires in the last class of training courses, approximately 83% of trainees on average answered that TTC's training was useful for classes in IAT departments. The target of 90%, however, was not achieved.

Table 5: Evaluation on training by trainees in the last class of training courses

Training Course	Training Period	I think the training is useful.
10th & 11th Grade (Basic level 1)	September 2009	80.4%
10th & 11th Grade (Basic level 2)	November 2009	80.6%
12th Grade (Advance level 1)	March 2010	76.3%
12th Grade (Advance level 2)	April 2010	94.2%
Average	-	82.9%

Source: TTC

Indicator 2 was "Participants complete and are awarded Course Certificate." Out of 141 trainees[22] of IAT teacher training courses implemented during the project period, all of them received a certification of course completion, except one[23].

Indicator 3 was "More than 65 % of participants assess the training courses at TTC are practically usable for their lectures and practices for IAT in the questionnaire 6 months after the training based on their experiences in the classes at school." According to the result of questionnaire 6 months after the training, except one trainee, all the trainees answered that training was actually "very useful" or "useful" for classes at expansion schools. Since the rate of these answers is approximately 98%, the indicator was achieved.

Indicator 4 was "Heads of IAT departments (supervisor of the participants of TTC training) evaluate that the knowledge and skills of the teachers trained by TTC are improved after the training." In the questionnaire related to this indicator, all the IAT department chiefs (18 persons) who answered the questionnaire evaluated the knowledge and skills of the teachers trained by TTC were "very improved" or "improved." Therefore, the indicator was achieved.

Indicator 5 was "Procedures on management of teacher training course are clarified." Teacher Training Manual was finalized in July 2010. In part of the manual, the items of each task related to operation of teacher training courses, which include objectives, course composition, training period, and numbers of training courses for expansion schools teachers, qualifications of trainers, and selection of trainees, tasks from preparation (e.g. preparing training materials) and implementation to evaluation and feedback of training materials, are comprehensively mentioned with conceptual

[22] In the terminal evaluation, trainees were 218; however, it was reconfirmed as 141 in the ex-post evaluation.

[23] It was unable to obtain any information about why this trainee quit the course, except that the trainee had no choice due to "personal circumstances."

diagram of PDCA approach[24]. However, as mentioned in the section of Output 1, 2 and 3, descriptions about procedures and know-how of each task such as curriculum development, syllabus and material development and evaluation, which were expected in each Output, are not enough and remain in summarized descriptions. Therefore, although the operational procedure (flow) of training management cycle based on PDCA approach which the project aims for became clear, due to lack of the detailed procedure of each task, this indicator is judged as partially achieved.

Indicator 6 was "Teacher training courses are implemented as planned." Implementation status of training is as shown in Table 6. Each training course was implemented based on the annual operation plan in terms of period and numbers, except implementation of training for advance level of 12th grade was delayed due to delay of installation of equipment and preparation of training materials. Therefore, the indicator is mostly achieved.

Table 6: Number and time of implemented teacher training courses

Training Course	Number	Training Starting Time
Teacher for electrics field	1	Jan. 2007
10th & 11th Grade (Basic level 1)	3	Mar. 2008, Oct. 2008, Set. 2009
10th & 11th Grade (Basic level 2)	3	Apr. 2008, Nov. 2008, Nov. 2009
12th Grade (Advance level 1)	3	May. 2008, Mar. 2009, Mar. 2010
12th Grade (Advance level 2)	2	Dec. 2009, Apr. 2010
Summer Seminar	3	June. 2008, Aug. 2009, June. 2010
Winter Seminar	1	Mar. 2010

Source: TTC

As mentioned above, each indicator of the Project Purpose was almost achieved except some indicators; however, these indicators are mainly means to verify the quality and results of training, and they are not sufficient to verify the degree of achievement of "establishment of teachers training system at TTC". "Establishment of teachers training system" in the Project Purpose means the establishment of a system under which TTC can improve training through operating a training management cycle based on PDCA approach autonomously. Considering whether this cycle was functioning or not from this perspective, it was found that training plan was formulated and training courses were implemented by using developed syllabus and materials according to the status of achievement of Output 1 and 2; however, it was found that operation of evaluation and monitoring system of training were not sufficient according to the status of achievement of Output 3. Experts were actually taking main roles to feedback improvements based on monitoring and evaluation activities such as class observation and evaluation meetings, which were barely carried out on the training courses at TTC. From these

[24] In addition to this, the manual includes descriptions about operational management such as roles and purposes of TTC, organization chart, budgetary approach, human resources, planning of annual training activities, and document control, and also about operation of seminars and activities for teachers other than IAT department and industrial members.

points, it is presumed that due to contribution of the experts training management cycle was operated and eventually it led to increase degree of achievement of each indicator and obtain high evaluation of training courses during implementation time of the project. As for the long-term strategy formulated in Output 4, since there are some issues, for example, that concrete action plan is not contained; its contribution to establishment of teacher training system is concluded as limited.

In light of the above, although the target indicators of the Project Purpose were achieved, TTC did not reach to the level of operating the training management cycle based on PDCA approach in an autonomous manner, as the project aimed, and thus it is difficult to say that "the training system was established". Therefore, it is concluded that the Project Purpose has partially been achieved.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

Overall Goal is "Vocational education and training (VET) for IAT at the expansion schools is practiced effectively." First of all, giving an overview of the situation of IAT departments at expansion schools after completion of the project, all expansion schools continue to provide vocational education and training at IAT departments. Although the number of students varies depending on the cities where expansion schools are located, on average 20 to 30 students constantly enter each major course[25] in IAT departments. According to the interviews with MoNE and expansion schools, equipment and laboratories are set up and maintained sufficiently and used for education and training of students. IAT teachers are also assigned sufficiently. As the situations of students of IAT department after the graduation were examined by beneficiary survey[26], it was found that approximately 82%[27] of the graduates entered school of high grade, and the number of graduates who entered IAT related fields was quite large, approximately 80%[28]. Employment rate of the graduates was 15.3 %, approximately 49 % of which found work in IAT related jobs. However, it was unable to grasp whether the project contributed to the above trends of graduates.

Indicator 1 was "More than 90% of students of IAT departments are evaluated by related

[25] There are two specialties in IAT department: mechatronics mainly on machinery and electricity/electronics subjects, and industrial control mainly on computer and electricity/electronics subjects.

[26] Beneficiary survey was conducted for the graduates of IAT department who registered at expansion schools after the project started. The survey was carried out by telephone interview using questionnaire, for 764 graduates at 13 expansion schools whose contact information were available. Responses from 255 graduates (33%) were gained.

[27] Percentage of entering school of high grade is a percentage of the graduates who entered the school at the time of ex- post evaluation. It includes the students who were employed once after graduation, but entered the school later. The percentage of graduates who entered the school without job hunting after graduation was approximately 68%.

[28] According to the interview with teachers at expansion schools, there is a system that graduates from technical and industrial vocational high school are exempt from entrance examination of specific two-year colleges and able to enter the college; and a tendency is seen that many parents recommend entering the higher school for higher occupational and social status. This could be regarded as a cause of high rate of entering school of high grade.

industries as “very good” or “good” in internship program of the department.” By the questionnaire survey[29] at the time of ex-post-evaluation, it was able to obtain the data related to this indicator from 19 expansion schools. The training companies for the students registered from 2009 to 2012 evaluated approximately 93 % of the intern students as “ very good” or “good” by five scale evaluation (very good, good, fair, poor, and very poor); therefore the indicator is achieved.

Table 7: Evaluation of students by training companies

	Very good	Good	Fair	Poor	Very poor	No answer	Total
No. of Students	1,666	245	61	29	34	22	2,057
Rate of Students	81.0%	11.9%	3.0%	1.4%	1.7%	1.1%	100%

Source: Expansion schools

Furthermore, in order to verify whether the project contributed to the achievement of the above indicator, the accreditation rate of IAT teachers at expansion schools who finished teacher training courses, the situation about replacement of both trainees who finished teacher training course and trainees who did not participate teacher training course to IAT departments at expansion schools, and the degree of utilization of training output by IAT teachers at expansion schools who were accredited after the teacher training were investigated. The following accounts are the results.

- Accreditation rate of IAT teacher at expansion schools who finished teacher training courses

As mentioned in the section of indicator 2 of Project Purpose, during the project period, 140 teachers finished teacher training courses. As a result of the questionnaire survey for expansion schools at the time of ex-post evaluation, it was confirmed that approximately 88 % of the trainees (120 persons) was accredited as IAT teacher.

- Situation about replacement to IAT departments at expansion schools and experiences of teacher training at TTC

Through the questionnaire survey for expansion schools at the time of the ex-post evaluation, both the status of replacement of IAT teachers and the occupation rate of accredited IAT teachers were analyzed. As a result, out of 120 teachers who were accredited as IAT teacher after the training, approximately 81 % (97 persons) are still working at expansion schools, which occupied 72.4% of all the accredited IAT teachers placed at expansion schools (Figure 8). Other 9 teachers were transferred to other technical and industrial vocational high schools, namely not to expansion schools[30]. Most of the teachers who were accredited as IAT teachers without participating in teacher training courses are those who are accredited under the newly adopted accreditation standard (graduation from the mechatronics and control department of the universities).

[29] Questionnaire survey was conducted for all expansion schools regarding the number of graduates and teacher replacement. The number of graduates from 2009 to 2013 was in total 3,649 by 16 schools (4 schools did not respond).

[30] Out of 120 teachers who were accredited as IAT teachers, the current status of 14 teachers is not included and is unknown.

Table 8: Accredited IAT teacher and experience of teacher training courses

	Teachers completed training	Teachers without training	Teachers completed special subjects	Total
Number of IAT accredited teachers at expansion schools	97	35	2	134

Source: Expansion schools

- Degree of utilization of training output by IAT teachers at expansion schools who were accredited after the TTC's teacher training

In the beneficiary survey conducted at the time of the ex-post evaluation, the answer that more than 80% of trainees who completed TTC training (teachers at expansion schools) were applying the knowledge and skills "fully" or "partially" in classes for students of expansion schools was provided (Figure 2). As an application example, the most examples were related to training facility such as selection and installation of workshop equipment for students, and others were balance between theory and practice (lecture and exercise) of TTC's teacher training course, and utilization of audio-visual aids and of handouts in classes.

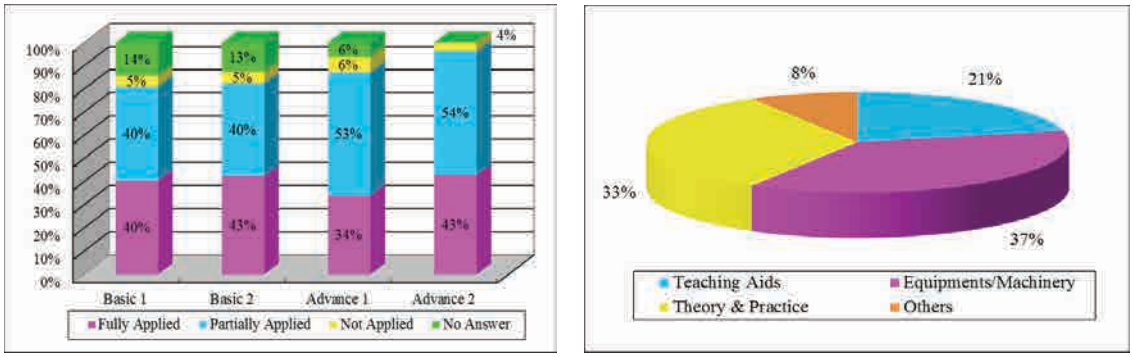


Figure 2: Degree of Application of TTC's Teacher Training

As mentioned above, since the teachers at expansion schools continue working and utilize the knowledge learned by teacher training courses at TTC, it was confirmed that outcome of the project contributed to the practice of IAT education at expansion schools.

3.2.2.2 Other Impacts

(1) Impact on natural environment, resettlement and site acquisition

There is no apparent negative impact on the natural environment caused by the project. Also, the project has not involved any resettlement or site acquisition.

(2) Other indirect effects

1) Third Country Training for Turkey's neighboring countries

During the project period, TTC implemented training for IAT teachers in Azerbaijan two times by utilizing knowledge and experience of planning and implementing teacher training courses for IAT teachers at expansion schools. Furthermore, TTC is currently implementing a technical cooperation, "The Project on Industrial Automation Technology Extension Project for Central Asian and Middle East Countries (IATE)". This is considered to be an impact of the project.

In light of the above, TTC's planning and implementation capacity was strengthened; however, TTC's capacity development related to evaluation and improvement of training was not sufficient. Although the training management cycle based on PDCA approach was functioning thanks to the work of experts, TTC did not reach the level whereby they can rotate the training management cycle autonomously. Therefore, the Project Purpose was judged as partially achieved. As for the Overall Goal, since the IAT teachers who completed TTC's training during the implementation of the project utilize the knowledge gained at the training, practice the IAT education at expansion schools, and expected impact and indirect effects were produced, it has been achieved. Therefore, effectiveness/impact of this project is fair[31].

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

Table 9: Comparison of planned and actual inputs

Inputs	Planned	Actual
(1) Experts	Mainly Short-term experts (no description of M/M) 1. Chief advisor/ Center management 2. Project coordinator/ Training management 3. PLC 4. Computer Network	● 23 for Short-Term (In total approximately 105 M/M) 1. Chief advisor 2. Project coordinator/ Training management 3. PLC 4. Electricity/Electronics 5. Computer Network 6. Automatic Control 7. Factory Automation, Machinery, Control System
(2)Trainees received	No. of received trainees: No description Main fields of training: No description	Training in Japan: 5 Main fields of training: Teacher training for industrial technical education, management of teacher training center
(3)Third-Country Training Programs	No description	No program
(4) Equipment	Office equipment necessary for project implementation, and small	Office equipment for project office and training equipment at

[31] As background, the overall goal was achieved even though the Project Purpose remained partially achieved , it is presumed that curriculum, syllabus, teaching materials, and training contents developed by the project were high level of performance; effects of the project was high; and there is no necessity to significantly improve these items as the project has just recently been completed. However, it can be said that as a training organization, malfunction of monitoring and feedback system of training will be an issue in future.

	amount of training equipment	TTC
Total Project Cost	Total 340 million yen	Total approx. 386 million yen
Total Local Cost	Total 250 million yen	Total approx. 59 million yen (Provision of equipment to TTC)

3.3.1.1 Elements of Inputs

Because dispatch of experts and acceptance of trainees have no target number, actual numbers and target numbers could not be compared. As for provision of equipment, modification was that the Japanese side procured training equipment for 12th grade in a hurry, in order to avoid having great influence on training plan, since a part of procurement of the equipment, which was supposed to be provided by the Turkey side, was significantly delayed.

3.3.1.2 Project Cost

The total project cost exceeded the original plan by approximately 46 million yen (114% against plan), which means that it exceeded the plan slightly. The main factor for being higher than planned can be considered as the above provision of additional equipment; however, because the planned numbers of dispatch of experts and acceptance of trainees were unknown, accurate analysis was difficult.

3.3.1.3 Period of Cooperation

Period of cooperation in both planned and actual was 37 months from August 2007 to September 2010, and it was just as planned.

In light of the above, although the project period was within the plan, the project cost slightly exceeded the plan. Therefore, efficiency of the project is fair.

3.4 Sustainability (Rating: ②)

3.4.1 Related Policy towards the Project

In the Tenth Development Plan (2014–2017), the national development plan at the time of the ex-post evaluation, training of highly qualified human resources is identified as a priority issue, and improvement of industrial and technical education from a medium to long term perspective, and strengthening of the relationship between educational institutions and industry are regarded as important policies. Also, in the Medium Term Program (2014-2016), training of human resources in accordance with the occupational skills required by the labor market remains important. In light of the above, the policy of Turkey supports sustainability of outcomes produced by the project.

Meanwhile, Board of Education in MoNE decided, at the end of 2009 during implementing the project, to introduce the system which requires qualification of completion of specialized course at university[32] for IAT teachers as same as other department teachers' qualification of accreditation.

[32] Graduates who completed specialized course of Mechatronics and Control, and Mechatronics Engineer

Given this, teachers of IAT related departments[33] at technical and industrial vocational high schools became unable to be accredited with a condition of completing TTC's training[34], and by this change of accreditation system, the teacher training courses developed by the project were implemented 4 times after completion of the project, and then terminated.

Currently TTC is implementing short-term training as a part of In-Service Training for IAT related department teachers at technical and industrial vocational high schools, which has been implemented in parallel to the project since TTC was established. In the short-term training, curriculum, syllabus and teaching materials developed by the project are being utilized[35]. This training is the one for incumbent teachers provided by the General Directorate of Teacher Training and Development (GDTTD) of MoNE, and the number of training courses has increased since the completion of the project. MoNE is going to carry out the training positively in future.

In addition, according to the interview with expansion schools at the time of ex-post-evaluation, it was confirmed that newly assigned university graduate IAT teachers, who have no job experience in IAT field but are accredited as IAT teachers under the changed accreditation system, need training in order to enable teaching IAT education practically. There is a possibility that TTC can offer the value-added training even for the newly assigned university graduate IAT teachers, by utilizing TTC trainers' knowledge accumulated in the project, curriculum and syllabus of teacher training for IAT teachers. In fact, as mentioned in Output 4, TTC's long-term strategy indicates that teacher training, which premise on training for the newly assigned university graduate IAT teachers, continues. Also, it is in accordance with the positive training policy of MoNE, as mentioned earlier. Therefore, it is highly probable that by utilizing outcome of the project, the activities to pursue the Overall Goal, "to practice vocational education related to IAT at expansion schools" will be continued in future. However, it is possible to say that there are some issues, because, for example, the action plan of this training is not formulated, and neither is the policy for prospective institutionalization clarified. In addition, as mentioned in the footnote of last section of effectiveness/impact, insufficient capacity development on evaluation and improvement within TTC's training management cycle is also a factor that still leaves some issues about sustainability of the Overall Goal.

3.4.2 Institutional Aspects of the Implementing Agency

At the time of the ex-post-evaluation, there is no change about the position that TTC as an affiliate organization of Izmir high school; however, management of training and accommodation facility is currently outsourced for 5 years until 2017. Although deputy principle principal of Izmir high school and leader of TTC trainers were responsible for the management of training and

Department

[33] Electricity/Electronics, Machinery, and Computer departments

[34] Finally, trainees of TTC training were accredited as IAT teachers without completing or gaining qualifications of specialized courses.

[35] Turkish side identifies even teacher training of the project as part of in-service training. Number of In-Service Training implemented outside the project were 6 in 2006, 12 in 2007, 4 in 2008, 18 in 2009, 12 in 2010, 45 in 2011, 7 in 2012, and 16 in 2013. After 2011, because training period was shortened to about 2 weeks, number of training increased largely. After 2012, because IATE project started, the number of training started to decrease.

accommodation facilities during implementation of the project, by allocating a full-time manger to the facility where the training management system is largely improved.

Out of eight TTC trainers who used to be the counterparts of the project, five trainers are currently assigned to TTC full time, although they are belong to Izmir high school as same as they were during the implementation of the project . Eight trainers were assigned to TTC full time for one year until September 2011, after the project was terminated. Then after the teacher training was completed, only In-Service Training was implemented. Since the In-Service Training became implemented during school vacation, they were mainly teaching students at the time of when opening IAT department of Izmir high school is opened, and working as trainers only at the time of implementing In-Service Training at TTC. From June 2012, the IATE project mentioned above was started, and five trainers out of them were again assigned to TTC full time. Other two trainers returned to be IAT teachers of Izmir high school and one trainer was transferred to another school.

As explained above, in order to respond to changes in training activity at TTC, letting holding the TTC trainers belong toat Izmir high school as before seems to be a rational judgment.. Furthermore, judging from that MoNE and the principle of Izmir high school are assigning the ex-counterparts who accumulated knowledge of teacher training for IAT teachers in the project to TTC full time under such a circumstance, it could be concluded that the outcome produced by the project are is being utilized continuously. In addition, at the time of the ex-post evaluation, in order that five TTC trainers concentrate on the activities of IATE project, the number of In-Service Training has been decreased. However, the IATE project is planned to be completed in 2015 and after then, they will be able to concentrate on the In-Service Training. Even if the number of In-Service Training increases, it can be considered that they will be able to implement the In-Service Training with the ex-counterparts belonging to Izmir high school (including two trainers who are not assigned full time at present).

3.4.3 Technical Aspects of the Implementing Agency

Training equipment provided by the project is utilized for In-Service Training and IATE project, and they are maintained properly. Moreover, training materials for teacher training developed by the project are also utilized for both trainings. In TTC, the counterparts at the time of implementing the project are assigned and utilizing technology and knowledge transferred by the project by means of working as trainers of IATE project, and as such they are accumulating knowledge and experience. Through the interview with stakeholders and trainers at the time of ex-post evaluation, it was found that with a background of accumulation of knowledge and experience as mentioned above, trainers came to have sufficient skills regarding planning and implementing of teacher training.

Furthermore, as stated in TTC’s long-term strategy, it is necessary to improve knowledge and techniques of TTC trainers in accordance with progress of technology in the field of IAT, so that MoNE is planning a brush up training for IAT teachers such as overseas practical training, and a project is applied for within the ministry. Specifically, it is planned that the ministry selects 10 teachers from IAT departments, makes them participate in overseas field work for two months to

train as teacher's trainers, and transfer the technology through In-Service Training after they returned to Turkey. In light of the above, since technical capacity of the counterpart is high at the time of implementing the project and the plan to train teacher's trainers and improve technical capacity exists, it is presumed that sustainability of technical aspect of the implementing agency will be maintained.

3.4.4 Financial Aspects of the Implementing Agency

Trend of budget amount of MoNE as a whole is shown in Figure 3, and actual amount after eliminating inflation also tends to increase.

As TTC is an affiliate facility of Izmir high school, it has no experience of independent appropriation of budget and expenditure. Izmir high school applies for a budget which includes necessary cost based on annual plan of teacher training to MoNE (GDTTD, GDVTE). As appropriation of budget and disbursement (excluding personnel cost) from MoNE are shown in Table 10, disbursement rate of budget is high. The amount of budget and expenditure are different depending on fiscal year; however, this is because the budget is allocated in accordance with number of students enrolled and number of teachers, and necessity of maintenance of facility and equipment. According to the interviews with Izmir high school and 6 expansion schools visited at the time of the ex-post evaluation, responses were given that necessary budget was allocated to the schools from MoNE. For example, in case of Izmir high school, among the cost for TTC's training (both teacher training and short-term training), fuel and light expenses, teaching materials, maintenance of training equipment, and personnel cost of trainers are disbursed by the budget of Izmir high school allocated by MoNE. Transportation cost and allowance for trainees are paid according to the budget of GDTTD. Ordinary budget including fuel and light expenses to manage training equipment and facilities is stable over time. Although it is not included in Table 10, problem is also not found with disbursement of personnel cost. In addition, Izmir high school is taking actions in recent years to secure its own financial resources such as implementing seminars for private companies at TTC, and outsourcing management of TTC's training facility so as to rent the training and accommodation facility to obtain income. For continuing teacher training in future, it is presumed that there are no special financial issues.

(Unit: Million Tsh)

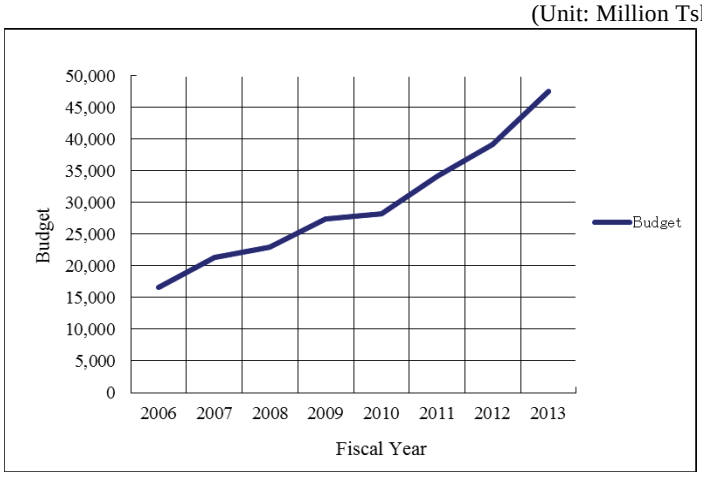


Figure 3: Trend of MoNE's budget

Table 10: Appropriation of budget from MoNE to Izmir high school[36]

		2010	2011	2012	2013
Ordinary Budget (Electricity, fuel, etc.)	Budget	288,260	232,903	299,450	323,800
	Expenditure	288,260	232,895	299,441	236,342
General Budget (Facility repair)	Budget	-	-	-	-
	Expenditure	-	-	49,980	-
Project Budget	Budget	54,482	-	-	-
	Expenditure	54,482	-	-	-
Special Ordinary Budget	Budget	2,000	59,806	131,900	2,100
	Expenditure	1,998	59,805	131,886	0
Special Budget (Machinery/ equipment)	Budget	150,000	-	-	-
	Expenditure	149,948	-	-	-
Total	Budget	494,742	292,709	431,350	325,900
	Expenditure	494,688	292,700	481,307	236,342

Source: MoNE

As for whole budget, expenditure and future budget plan of In-Service Training, including TTC's training for IAT related fields, data was not obtainable because GDVTE does not mainly control them. According to the interview with GDVTE, they plan to implement In-Service Training in IAT related fields continuously in accordance with requests of TTC and teachers in future.

In light of the above, although there is generally no problem in the personnel, technical and financial situation of counterpart organization, some problems have been observed in terms of institutional aspects. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented in order to contribute to develop human resources with skills of IAT by strengthening capacities of TTC for IAT relative departments, and by expanding IAT education to 20 expansion schools in Turkey. This project is consistent with the development policy and development needs of Turkey, and with Japanese aid policy. Therefore, the relevance of the project is high. As a result of the project, TTC trainers' capacity to formulate training plans and implement training courses was strengthened; however, the project purpose was achieved partially, because the system for monitoring, evaluation and feedback was not able to be established. Therefore, although IAT teachers, who completed TTC's training, are able to utilize their

[36] Fiscal year of Turkey is from January to December. In 2013, the amount is from January to the end of August.

knowledge learnt from training and practice IAT education in expansion schools, effectiveness and impact of the project are fair.

The project period was as planned; however, because the cost slightly exceeded that planned, efficiency of the project is fair. As the accreditation system of IAT teachers changed, the training courses established by the project were not being implemented at the time of the ex-post evaluation; however, it is likely that the curriculum and textbooks developed by the project and TTC trainers' knowledge will be continually utilized in the short-term teacher training courses for IAT teachers who are accredited at expansion schools under the changed accreditation system. As the TTC trainers have a high level of technical skill, there are sufficient skilled TTC trainers for the short-term training courses and necessary budget has been allocated for the training, it is expected that the outcomes of the project are sustainable to some extent. Therefore sustainability of the project is fair.

In light of the above, the project is evaluated to be partially satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

4.2.1.1 Recommendations to MoNE (GDVTE)

Teachers of newly established IAT departments at the technical and industrial vocational high schools after completion of the project as well as newly assigned IAT teachers who graduated from specialized university courses have not received training for IAT teachers established by the project. As a result of interviews, during the ex-post evaluation, with newly assigned university graduate IAT teachers at expansion schools, it was confirmed that because training equipment/facility for IAT education at most universities, except a few universities, are not yet sufficient, the gap of equipment/facilities between universities and expansion schools is huge and needs for TTC training based on equipment/facility, curriculum, and textbooks of expansion schools are high. In TTC's long-term strategy the policy of implementing training for newly assigned university graduate IAT teachers; however, this has not been implemented as yet. Therefore, MoNE should make a specific action plan such as for necessary input and personnel assignment and training schedule, utilize the system introduced by the project as required, and implement IAT teachers' skill development training. Furthermore, it is desirable that GDVTE reconfirm how teacher training in IAT fields should be implemented in future, for example, activities related to implement training and assignment plan of trainers, with ministerial department related to In-Service Training (GDTTD, etc.).

4.3 Lessons Learned

(1) Implementation of teacher training under the circumstance that policy of accreditation system is not secured

In the project, during the period of project activities, Board of Education in MoNE decided not to set the completion of training courses developed by the project as a condition for qualification

(teacher accreditation system), but to set only graduation from IAT related departments of universities as required qualification. Therefore, after completion of the project, the training courses for teachers established by the project were discontinued. However, it is assumed that if the accreditation system and relevant policies had been properly confirmed before implementing the teacher training, changes of the accreditation system and so on could have been foreseen to some degree. In this project, training courses developed by the project are being continued in a different form; as a result, however, for similar projects that provide support related to an accreditation system prior to set-up, it is necessary to recognize, at the time of project planning, that there may be delays and changes to the system, and that this could become risk factors of achievement of project purpose and sustainability. As countermeasures to these risks, it can be considered to collect information of the planned system to be established and closely communicate with relevant department(s) of higher supervising organization(s).

(2) Establishing training system (training management cycle)

The project aimed to establish a teacher training system including PDCA cycle and to enable TTC trainers to operate the system. However, knowledge and skills of staff of implementing agency regarding evaluation and improvement of training, which is a part of the training management cycle, were not accumulated sufficiently during cooperation period, and operation of the cycle has not reached to the expected level even after completion of the project. In projects that aim to establish a training system including evaluation and improvement like this project it is important in increasing sustainability that counterpart personnel experience operation of the cycle many times, and become able to operate the cycle autonomously. In order to do that, it can be considered that experts should transfer the techniques for the activities related to evaluation and improvement of training in addition to the activities related to planning and implementation to the counterparts.

(3) Indicators in PDM related to capacity building

In the project, TTC's capacity building was a target of each output. However, it was not clear "whose (which) and what kind of capacity is to be strengthened" and "by what is the capacity to be strengthened" as indicator to verify capacity development of the counterparts who received technical transfer by the project. When capacity development is designed as an output or purpose, it is desirable to set not only the indicators to verify the improvement of knowledge at an organizational level such as clarification of manuals and procedures, but also set the target of capacity development at a personal level and prepare the indicators to verify them. In other words, it can be considered to be effective to measure and analyze specific indicators to verify the capacity of planning, implementation and evaluation of capacity related to technical training by the trainers as counterparts; for example, a simplified capacity assessment[37] to measure changes of capacity

[37] The Project Document of the project includes the results and radar chart of self-evaluation survey in terms of knowledge and skills of teaching ability of IAT teachers at (10) expansion schools and provides a good reference. In addition, as for capacity assessment at organizational and personal level, "Capacity Assessment Handbook:

development from the aspects including basics of technology, curriculum/syllabus development, teaching material development, practical training, understanding (knowledge), implementation (action) and trainer's attitude toward training evaluation, at the time of planning (as a baseline), mid-term review and terminal evaluation.

BOX : Suggestions and lessons learned from a comparative study of four technical cooperation projects of vocational training

While conducting this ex-post evaluation, a comparative study of technical cooperation projects was conducted to find their features and effects, by taking examples from four projects: "The Project on Strengthening the Programme of Expanding Automation Technologies Department (SPREAD)" in the Republic of Turkey, "The Project for Strengthening the Capacity of Training Management of Vocational Training Corporation" in Jordan, "Project for Establishment of Japan Sri Lanka College of Technology to Strengthen Technical Education and Training" in Sri Lanka and this project. The following suggestions and lessons were learned from the analysis of the main components of the four projects: (1) development and implementation of policies and systems of vocational training; and (2) strengthening of functions of vocational training centres.

1. Development and implementation of policies and systems of vocational training

When a project is implemented along with the development of new policies and systems for vocational training, a delay in the development or change in the systems can be a risk factor for the project to achieve its purpose or create the expected effects. With the project in Uganda, a qualification system was established as planned partly because the project activities included the activities to contribute to the establishment of the system; and the established system had facilitated the creation and continuation of the expected effect of the project. A change in the conditions of qualification of the instructors with the project in Turkey, a delay in the restructuring of Vocational Training Corporation assisted by the World Bank with the project in Jordan, and a delay in establishing a new vocational qualification system assisted by the Asian Development Bank with the project in Sri Lanka, gave a negative influence for the creation and continuation of the project effects. These examples suggest the importance of adequate study of the implementation capacity of the government institutions which are responsible for the development of the policies and systems, and the importance of collecting information on the contents and progress of the policies and the systems to be developed.

2. Strengthening of functions of vocational training centres

(1) Assistance with establishment of training management cycle

It is essential to assist the counterpart officers until they are able to operate the training

Project Management for Realizing Capacity Development (JICA Research Institute, September 2008, http://jica-ri.jica.go.jp/IFIC_and_JBICI-Studies/english/publications/reports/study/capacity/200809/index.html) serves as a reference.

management cycle independently in projects to assist the establishment of a cycle, which includes planning, implementation, monitoring, evaluation and improvement of training courses. With the project in Jordan, the training management cycle was further disseminated after the project, as a result of the staff of Vocational Training Corporation operating the cycle two to three times independently and also experiencing dissemination of the cycle to other training centres than the model training centres. As for the projects of Turkey and Sri Lanka, the counterpart officers could not gain adequate knowledge and experience of the cycle during the projects; therefore, they were not able to gain the necessary technical skills to operate the cycle on their own.

(2) Reflection of the needs of industry in the training courses

For introduction of measures to reflect the needs of industry in the training courses, it is important to establish a system that incorporates advice from industry representatives into the training courses immediately, not just to receive advice from them. With the project in Jordan, Curriculum Development Committees, which included industry representatives, were provided with authority to add training items, review the hours of practical lessons, etc. The project also introduced a system for decisions of the committees to be incorporated in the next training courses. This system was functioning at the time of the ex-post evaluation. Technical committees formed in the project of Sri Lanka, on the other hand, did not have authority to decide on revisions and improvement of the training courses; therefore, the suggestions of the committees were not incorporated into the revision and improvement of the training courses immediately. As a result, the industry representatives of the committees gradually lost interest in participating in the committees, and the committees became non-operational.

(3) Capacity building of the instructors

It is important for projects aiming at capacity building of instructors to adequately identify the gaps between the existing capacity of the instructors and what is required to conduct the training courses; and to establish a system for the implementing agencies to improve capacity of the instructors continuously by using resources available in the countries, in addition to the training sessions in Japan and technical transfer from JICA experts. With the project in Jordan, Vocational Training Corporation had planned and conducted in-plant training for the instructors during the project and has been continuing such trainings even after project completion. With the project in Uganda, no new master trainers, who conduct training for the instructors and managers, had been trained after completion of the project; this was a result of master trainers only being trained in Japan, and, therefore, the implementing agency had not learned how to carry out the training. With the project in Sri Lanka, capacity building of the instructors of the model training courses was mainly conducted in the training in Japan, and a system for the relevant ministry and department to plan and conduct measures for capacity building of instructors had not been introduced by the project. As a result, some of the instructors having insufficient teaching skills were still a problem at the time of the ex-post evaluation.

The Hashemite Kingdom of Jordan

Ex-Post Evaluation of Japanese Technical Cooperation Project

"The Project for Strengthening the Capacity of
Training Management of Vocational Training Corporation"

External Evaluator: Tomoko Tamura, Kaihatsu Management Consulting, Inc.

0. Summary

This project was implemented with the aim of the Vocational Training Corporation (VTC) of Jordan establishing a "VTC operating model", so that VTC would be able to conduct training programmes in line with the needs of industry.

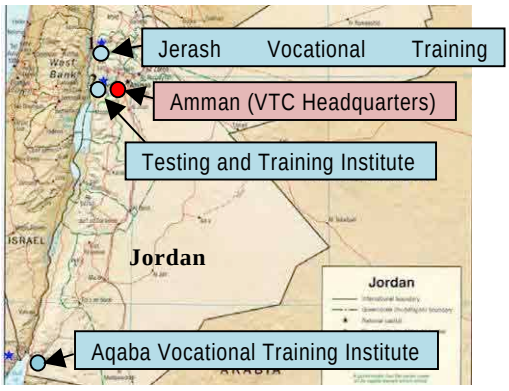
Relevance of the project is high, as the objective of the project is consistent with the national development policy and development strategy of Jordan and ODA policy of Japan.

The project purpose, "An efficient VTC operating model will be established to ensure that a training programme is in tune with the needs of industry" had been largely achieved on completion of the project. After completion of the project, measures for improving management of the training programmes were disseminated to training programmes and training centers which had not been targeted in the project. Training is conducted in line with the needs of industry in these training programmes, as aimed at by the project. The employment situation of graduates of the pilot training programmes that the project provided with assistance was satisfactory, and the reputation of graduates with the companies they were working for was favorable. The expected impact of the project has been created by implementing measures for improving management of the training programmes. Therefore, effectiveness/impact of the project is high.

Although the project period was within the plan, the project cost exceeded the plan slightly. Therefore, efficiency of the project is fair. At the time of the ex-post evaluation, activities for disseminating the VTC operating model had been resumed, and the effect of the project is expected to expand further. Sustainability in terms of institutional and technical aspects is ensured. However some problems have been observed in terms of the financial aspects; therefore, sustainability of the effect of the project is fair.

In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project Location

Training programme on aluminum fabrication in Jerash Vocational Training Institute

operating model (see Figure 1) to the vocational training centers under the purview of VTC, with the objective of implementing a training programme which meets the needs of industry. To achieve this objective, the project implemented improvement in the management of both the training programmes and training centers. These two components of the VTC operating model were implemented as six pilot training programmes at three model training centers as shown in Table 1. It was expected that VTC Headquarters and Regional Directorates would promote and monitor these efforts of improvement, and establish a system for dissemination of the VTC operating model after the project.

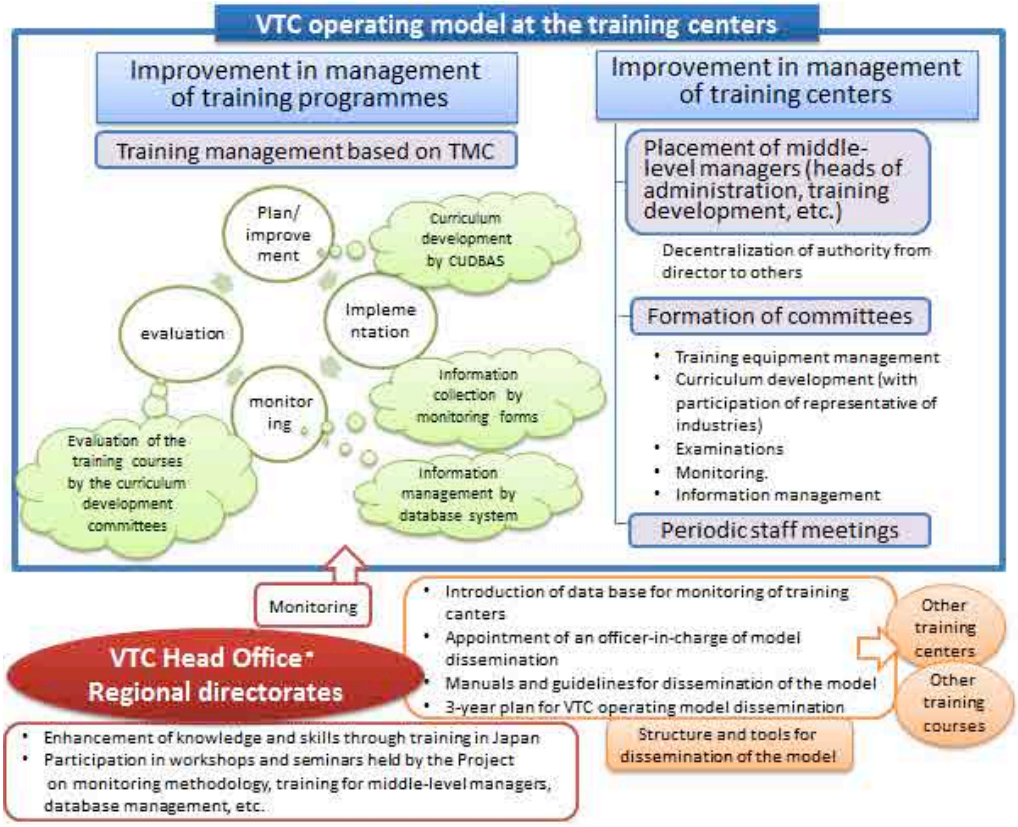


Figure 1 VTC Operating Model Introduced by the Project

Table 1 Model Training Centers and Pilot Training Programme

Regional Directorates	Model Training Centers	Pilot Training Programmes
Middle	Testing and Training Institute	House wiring
		Carpentry
North	Jerash Vocational Training Institute	Aluminum fabrication
		Plumbing
South	Aqaba Vocational Training Institute	Welding
		Air conditioning and refrigeration

Curriculum Development Committees, which have representatives from local industry among their members, were formed to improve management of the training programmes. The committees analyzed the training needs by using the CUDBAS method[1], and improved the contents of the training programmes to meet the needs of industry. After that, according to the Training Management Cycle (TMC), a training plan was developed, and monitoring, evaluation and further improvement were conducted periodically. Posts for middle managers were introduced, various committees were formed and periodic staff meetings were conducted to improve management of the training centers.

It was planned that after the project, VTC Headquarters and Regional Directorates would disseminate the VTC operating model to training programmes and training centers other than the pilot training programmes and model training centers.

1.1 Background

VTC is an institution undertaking the development of the workforce in Jordan. It has its headquarters in Amman, the capital city of the country, and is operating forty-four training centers. At the time of project planning, it was identified that VTC had several problems with management and operation with regard to: identification of the needs of local industry; improvement of management capacity of the training programmes at the training centers; and enhancement of quality and motivation of the instructors. It was especially pointed out as a problem that the training programmes of VTC did not meet the needs of industry. By taking these problems into consideration, the Japan International Cooperation Agency (JICA) accepted a request made by VTC, and a technical cooperation project was commenced with the aim of improving management of the training programmes and the training centers for conducting vocational training programmes which meet the needs of industry.

1.2 Project Outline

Overall Goal		VTC and training centers are managed and operated based on the VTC operating model.
Project Purpose		An efficient VTC operating model will be established to ensure that the training programme is in tune with the needs of industry.
Outputs	Output 1	A support system is developed at VTC Headquarters to spread the VTC operating model to training programmes and training centers other than the pilot training programmes and model training centers.
	Output 2	The model training centers can plan and implement training that reflects the needs of local industry.

[1] Curriculum Developing Based on Vocational Ability Structure (CUDBAS): A methodology to develop education and training curriculums. In CUDBAS, a training programme is developed by (a) detailed analysis of the skills and qualifications to be gained by training, (b) setting standard and objectives of the training, (c) documentation of training schedule and (d) preparation of training plan.

	Output 3	The model training centers accumulate knowledge on training management.
	Output 4	VTC Headquarters and Regional Directorates can control and monitor the model training centers.
Inputs		Japanese Side: 1. Experts: four long-term 2. Twenty-seven trainees received for counterpart training in Japan 3. Eleven trainees for Third-Country Training Programme 4. Equipment : 12 million yen 5. Local cost : 10 million yen at the time of the terminal evaluation Jordanian Side: 1. Twenty-eight counterparts 2. Land and facilities: Classrooms in the model training centers and project office
Total cost		357 million yen
Period of Cooperation		November, 2006 – November, 2010 (4 years)
Implementing Agency		Vocational Training Corporation (VTC)
Cooperation Agencies in Japan		Ministry of Health, Labour and Welfare Employment and Human Resources Development of Japan UNICO International Corporation
Related Projects		- JICA volunteers for the model training centers (eighteen volunteers were dispatched in total during the project period) - Human Resource Development and Social Infrastructure Improvement Project (ODA loan project commenced in 2012. Project activities include improvement of educational and healthcare infrastructure including that of VTC)

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement of Project Purpose at the time of the Terminal Evaluation

It was evaluated that the project purpose would be achieved by the end of the project, as the level of achievement of the outputs and progress of project activities were satisfactory and the status of the indicators for project purpose were improving, although some of the six indicators had not been achieved.

1.3.2 Achievement of Overall Goal at the time of the Terminal Evaluation

It was evaluated that the prospect of achieving the overall goal was high, mainly due to

the following reasons: the staff at VTC had a good understanding and appreciation of the VTC operating model, and the system for curriculum development to meet the needs of industry and the database system for monitoring and control of the training centers had already been disseminated to several training centers, which had not been targeted by the project originally.[2] It was expected that employment opportunities for graduates of the training programme would be expanded, and the level of satisfaction of private companies where the graduates were working would also be improved. However, it was mentioned that introduction of the posts of middle-level manager should be conducted on the grounds that the training centers needed to be adaptable, as there were no such posts in the public administration system in the country.

1.3.3 Recommendations at the time of the Terminal Evaluation

Recommendations included: Preparation and implementation of a dissemination plan for the VTC operating model; continued monitoring of activities at the model training centers by VTC Headquarters; a study on employment status of the graduates of the training programmes; effective utilization of the database; acceleration of efforts to restructure VTC to enhance its autonomy; further skill development of the instructors; and continuation of the Skills Competition.

2. Outline of the Evaluation Study

2.1 External Evaluator

Tomoko Tamura, Kaihatsu Management Consulting, Inc.

2.2 Duration of Evaluation Study

Duration of the Study: September, 2013 - October, 2014

Duration of the Field Study: January 4 - 21, 2014 and March 22 – April 1, 2014

3. Results of the Evaluation (Overall Rating: B[3])

3.1 Relevance (Rating: ③[4])

3.1.1 Relevance to the Development Plan of Jordan

Eradication of unemployment and improvement of the skills of the labour force by expanding employment support and vocational training is an important policy in the *National Agenda (2006 - 2015)*, the national development policy for the country both at the time of planning and completion of the project. One of the important strategies to realize this policy is to restructure the institutional framework for employment support and vocational training. To implement the strategy, the Ministry of Labour formulated *Employment - Technical Vocation and Education Training Sector Reform (2007 - 2012),*

[2] Dissemination of the system was not planned originally in the project, however it was implemented as the VTC staff proposed this and the project understood its importance.
[3] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory
[4] ③: High, ② Fair, ① Low

and planned several programmes to enhance the capacity of VTC, including establishing its autonomy and transferring authority to the training centers.[5]

In this manner, enhancement of vocational training was an important task in the development policy of the country. Therefore, the objective of the project, which aims to improve management of vocational training, was consistent with the development policy and programme of the country.

3.1.2 Relevance to the Development Needs of Jordan

The high unemployment rate, especially the high ratio of the youth among the unemployed, was a serious problem in Jordan at the time of project planning.[6] The unemployment rate had improved at the time of project completion; however, the ratio of the youth among the unemployed was still high.[7] In addition to such problems, a lot of foreigners were employed in the country in various job categories. Therefore, the government identified a need for domestic human resource development.

VTC was undertaking vocational training for the youth both at the time of planning and completion of the project, and was expected to play a significant role in solving the issue of unemployment. However, it was pointed out in the development policy and in studies conducted prior to project commencement that the training programmes conducted by VTC had not produced the labour force with skills required by private companies.

As seen from the above, the purpose of the project, which is to improve the management of the training programme of VTC and to make the training programme in line with the needs of industry, was relevant to the development needs of the country at the time of planning and completion of the project.

3.1.3 Relevance to Japan's ODA Policy

Infrastructure development to realize autonomous and sustainable economic development was one of the priority tasks in the *Country Assistance Strategy of JICA (August 2006)*, which was Japan's ODA policy to the country at the time of project planning. In order to implement the strategy, it stated the need to implement programmes to assist the development of the workforce and creation of employment, and to facilitate the development of high quality human resources that meet the needs of the domestic labour market. Therefore, the purpose of the project, which is to develop human resources to meet the needs of the labour market, had relevance with Japan's ODA policy.

This project has been highly relevant to Jordan's development policy and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

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[5] The programme of the Ministry of Labor was planned to be implemented from 2007 to 2012; however, the programme for capacity enhancement of VTC was continued by the time of the ex-post evaluation.

[6] The unemployment rate was 14.8 per cent and the ratio of the youth (15 - 24 years old) among the unemployed was 51.3 per cent in 2005.

[7] The unemployment rate was 12.5 per cent and the ratio of the youth (15 - 24 years old) among the unemployed was 51.1 per cent in 2010.

3.2 Effectiveness and Impact[8] (Rating:③)

3.2.1 Effectiveness

3.2.1.1 Project Output

1) Output 1

Output 1 is "The support system of VTC Headquarters is developed to spread the operating model to training programmes and training centers other than the pilot training programmes and the model training centers".[9] It was planned that the measures for improvement of management of training programmes and training centers which had been introduced by the project would be disseminated to the non-targeted training centers after the project. This output was set as it was considered important to develop a system for this dissemination during the project.

At the completion of the project, three indicators for Output 1 had been realized: nomination of staff at VTC Headquarters for dissemination of the VTC operating model; increase in level of understanding among staff at VTC Headquarters on the VTC operating model; and development of a plan for dissemination of the VTC operating model. In this manner, a support system for the dissemination of the VTC operating model had been developed, and Output 1 had been achieved.

2) Output 2

Output 2 was "The model training centers can plan and implement training that reflects the needs of local industry". Before the project, the training centers of VTC had conducted training programmes according to the standard curriculum developed by VTC Headquarters. However, there were several problems in the training programmes - for example, the curriculum of the programmes was old and did not reflect needs of industry.

Under Output 2, measures for improving the training programmes were introduced to overcome this problem. The measures included establishing Curriculum Development Committees, with representatives from local industry as members, for every pilot training programme. The committees analyzed training needs using CUDBAS. As a result, a new curriculum and training plan were developed. Consequently, training, monitoring, evaluation and improvement were conducted according to the TMC. Some examples of improvements to the curriculum and the way it meets the needs of local industry, are described in **Box 1** for reference.

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[8] Sub-rating for Effectiveness is to be put with consideration of Impact.

[9] Output 1 at the time of project planning was "Authority of the model training centers will be strengthened". This output was set because transfer of authority from VTC Headquarters to the training centers was included in the VTC restructuring programme, which it had been planned to implement according to the national policy of the country. The VTC restructuring programme was supposed to be implemented by obtaining assistance from the World Bank. However, implementation was delayed, and as a result after commencement of the project there was no progress in the transfer of authority. Output 1 was revised as transfer of authority was not considered essential for achieving the project purpose, although it would have facilitated the introduction and implementation of the VTC operating model, and also because the project needed be implemented in line with the actual situation.

The schedule for industry training was also modified following requests from local industry.[10] The instructors observed that after these modifications the level of satisfaction of the private companies that accept trainees increased, and that trainees were more confident in participating in the training.

Box 1:

Examples of improvement of training to meet the needs of local industry[11]

Training programme for air conditioning and refrigeration

- English names for the parts were introduced in the training after getting a suggestion that English is used for these in the workplace, while only Arabic names were taught in the training. English names for the parts were also added in the hand-out for the training.
- The duration of practical training for welding of pipes attached to refrigerators was increased from 20 hours to 80 hours, as it was suggested that the trainees were not skilled enough at that work.
- A module to learn to plan and cross-section drawings was introduced in the training, as it was pointed out that the trainees faced difficulties in the workplace as they could not understand the drawings.

Training programme for plumbing

- The plumbing of polyethylene pipes was added to the training as it was suggested that these pipes had started to be used for water supply facilities. Only plumbing of zinc-coated pipes was taught earlier.
- The practice of excavation to lay plumbed-in pipes was added to the training following a suggestion it was important in the workplace.

Training programme for air conditioning and refrigeration

Indicator 1 for Output 2 was “Levels of understanding of the instructors and other staff at the model training centers on TMC is increased”. According to the questionnaire survey conducted by the project, the level of understanding of the instructors and other staff of the model training centers on TMC had increased significantly on completion of the project compared to the commencement of the project. This was because they had obtained knowledge about TMC by participating in training programmes on the subject, conducted by the JICA expert team, and also because they had gained practical

[10] Before the project, trainees were trained at the training center for the first three months; thereafter they had industry training every other week, while continuing the training at the center for around nine to eleven months until they completed the programme. This system was changed for the pilot training programme so that they are trained at the training center for the first six to nine months, and thereafter obtain practical experience in industry for three to six months, because local industry requested the training centers to send the trainees after they gained more skills.

[11] The Curriculum Development Committees of VTC accept suggestions from local industry after studying their relevance in accordance with Jordanian job descriptions and the occupational classification of Arab countries, and also confirming that the suggestions can be accommodated in the given hours of training.

experience in management of the training programmes according to TMC not only once, but two or three times during the project period.

Indicator 2 is “Achievement of the pilot training programmes is more than 90 per cent according to the designed training plan”. The word “achievement” in the indicator means implementation of the training programme according to the training plan. Indicator 2 was attained as the training was implemented according to the training plan which had been developed based on the new curriculum in all six pilot training programmes.

Indicator 3 is “Frequency of inspection and times of follow-up of training evaluation”. This indicator was also attained as the Curriculum Development Committees monitored and reviewed the training programmes, firstly once a month during the introduction of the new curriculums, and later at least once a year in all pilot training programmes.

As mentioned above, all the indicators of Output 2 were attained and the management of the training programmes was improved appropriately. The level of attainment of Output 2 was more than planned because, with leadership from staff at VTC, during the project period the curriculum development by CUDBAS and training course delivery based on TMC were introduced to fifteen training programmes in addition to the pilot training programmes, which had not been planned originally.

3) Output 3

Output 3 is “The model training centers will accumulate knowledge on training management”. At the time of project planning, there were issues with regard to the management of the training centers: for example, the directors of the centers had to make most of the decisions on management, and as a result management tasks of the centers were not handled efficiently and the directors could not find time to take a leadership role in studying the needs of manpower and training. To solve the above-mentioned issues, the project introduced the posts of middle managers, such as unit heads for administration and training; various committees, such as for maintenance of equipment and monitoring the training programmes; and periodic staff meetings.

Indicator 1 of Output 3 is “Level of understanding of the directors and other staff of the model training centers on operational management increases”. According to results from interviews at the terminal evaluation, it was confirmed that the level of understanding of staff at the model training centers on management of the centers was significantly improved compared to that at the time of commencement of the project, especially on the meaning and importance of middle managers. This was a result of their participation in the seminars on management of the centers which were held by the project, and implementation of the above-mentioned activities.

Indicator 2 is “Availability of training seminars/workshops for staff members on training management”. Seminars and workshops were held for the staff and instructors of the model training centers so that they would realize the need to improve the management of the centers and gain knowledge about activities needed for this improvement. There were 243 participants in total.

Indicator 3 is “Use of manuals for improvement of the training center operation”. For management of the training centers, the project developed manuals for the introduction of middle managers, TMC, and guidelines for CUDBAS and for instructors. Of these, the TMC manual and the guidelines for CUDBAS were utilized especially well at the time of the training programme on improvement of the management of the training programme.

Indicator 4 was “the number of private companies which participate in training management increases from ten to twenty-five”. At the completion of the project, eighteen representatives from local industry were participating actively in curriculum development and monitoring the pilot training programmes. In addition to that, around twenty private companies provided financial and technical assistance (such as being judges) for the Skills Competition, which was introduced by the project to improve skills and increase motivation of trainees and instructors. Therefore around thirty-eight private companies participated in the training management.

As explained above, all four indicators for Output 3 were attained. The staff of the model training centers also expressed their view in interviews conducted by the evaluation team that, as a result of the activities for improving management of the centers, management tasks of the centers were handled efficiently, communication in the centers was rationalized and monitoring progress of the training went on smoothly. Participation of private companies in the management of the training was also realized. Output 3 was achieved in this manner.

4）Output 4

Output 4 is “VTC Headquarters and Regional Directorate can control and monitor the model training centers”.

At the time of commencement of the project, there were problems with the control and monitoring of the training centers: for example, the volume of information was small, information management was not unified, and making a summary of information took a long time as information was exchanged in paper format. As a result, it was difficult to identify and analyze the information which was needed for decision-making. The project developed a database system which contains basic information on the training programmes, such as number of trainees registered, status of attendance and results of the examinations, as well as basic information on instructors, such as past experience and participation in the training programmes, and installed this in VTC Headquarters and the model training centers to overcome the above-mentioned problems.

Indicator 1 for Output 4 is “Availability and use of the monitoring guidelines by VTC Headquarters”. Firstly, there was a discussion about the items to be included in the database system for control and monitoring of the training centers, and it was decided to collect information about the number of trainees enrolled, under training and graduated, results of examinations, personal information on the trainees and instructors, past experience of the instructors on training, and others. Secondly, monitoring formats (same as monitoring guidelines) were developed for use in the training centers. The training

centers started collection of the necessary information according to the formats. A self-monitoring system was also introduced for trainees to keep a daily record of what they had learned about and whether they understood it, which could be referred to by the instructors subsequently. Indicator 1 was attained in this manner.

Indicator 2 is “Satisfaction level of staff of model training centers regarding monitoring and evaluation system”. Most of the staff of the model training centers and VTC Headquarters mentioned in the interviews conducted in the terminal evaluation that, as a result of the introduction of the database system, monitoring and evaluation of the training centers became convenient and management of the training center became efficient, and their level of satisfaction with the monitoring and evaluation system had increased compared to what it was at the time of project planning.

Indicator 3 is “Availability and use of the database for management and monitoring of the model training centers”. Equipment and software for the database system were installed, and training on operation of the system was conducted. The model training centers were inputting the above-mentioned basic information on the computers in their office. The VTC Headquarters and Regional Directorates became able to refer to the information and utilize it for their records and analysis.

It is clear from the above-mentioned factors on attainment of the indicators that the introduction and utilization of the database system was satisfactorily conducted. Meanwhile, the status of control and monitoring of the training centers by VTC Headquarters and the Regional Directorates, not only by using the database system but also “in general”, was studied in the ex-post evaluation, as it can be understood that Output 4 was aiming at the latter.[12]

It was confirmed that VTC Headquarters visit training centers frequently and conduct monitoring and evaluation of the training programme appropriately according to the monitoring items in the various formats, and that the training centers submit reports periodically to VTC Headquarters and the Regional Directorates on the progress and issues about the training programme. It was evaluated that Output 4 had been achieved not only because of the introduction and utilization of the database system, but also as control and monitoring of the training centers by VTC Headquarters and the Regional Directorates in general were satisfactory.

[12] It is mentioned in the progress reports of the project that VTC had been expecting assistance from JICA on the monitoring and evaluation system for the instructors’ skills as a part of Output 4, although JICA had understood that Output 4 only related to the control and monitoring of the training centers by using the database system until the terminal evaluation. It seems that the two parties had a different understanding of Output 4, which was rather broad. After discussion at the terminal evaluation, JICA had taken the above-mentioned expectation of VTC into consideration and tried to provide assistance; however, this was not realized as the JICA expert team found that such a system was not available in Japan for reference and there was little time to make further effort. This ex-post evaluation had taken the above-mentioned factor also into consideration and evaluated that Output 4 had been achieved, because monitoring and evaluation of the instructors’ teaching skills is only one of the detailed items in the system of control and monitoring of the training centers; therefore, there should be only an insignificant impact on the level of achievement of Output 4 due to the fact that these activities were not realized; and also because it is more significant that the monitoring and evaluation had been conducted appropriately with proper operation of the database system.

3.2.1.2 Achievement of Project Purpose

Project Purpose is “An efficient VTC operating model will be established to ensure that the training programme is in tune with the needs of industry”. The following is the result of the evaluation on the level of achievement of the project purpose in accordance with the indicators for the same. Indicator 6, the dropout rate, was found to be less meaningful in the evaluation of the level of achievement of the project purpose; therefore the evaluation was conducted in accordance to the first five indicators rather than Indicator 6 in this ex-post evaluation, as mentioned later.

Indicator 1 is “Development and use of the manual of TMC”. The TMC manual and guidelines for CUDBAS were developed and used by the staff of VTC and Regional Directorates in the workshops for introduction and dissemination of TMC; therefore, this indicator had been attained.

Indicator 2 is “Development of new organization chart of VTC Headquarters and training centers”. The middle-level managers were appointed in the model training centers and the new organizational structure was functioning; therefore, this indicator had been attained.

Indicator 3 is “Satisfaction level of the trainees of the pilot training programmes at the beginning and end of the pilot training programmes”. A study had been conducted with regard to the level of satisfaction of the trainees with the aspects of textbooks, equipment, training methods and instructors. The levels of satisfaction on average were 80.5 per cent, 81.5 per cent, 81.5 per cent and 78.0 per cent in 2006, 2007, 2008 and 2009 respectively. There was a tendency of improvement in the level of satisfaction with regard to equipment, training methods and instructors, although there was no significant change with regard to textbooks. The level of satisfaction on average was decreasing as a result of the level of satisfaction for textbooks decreasing in 2009. However, there was no possible reason to decrease the level of satisfaction for textbooks, as the textbooks had been improved. Therefore, to review the level of satisfaction of the trainees, the external evaluator studied the opinion of the graduates of the training programme at the time of the beneficiary survey in the ex-post evaluation.[13] As a result, it was found that 67 per cent of the graduates who were employed at the time of the survey stated that the training programme was “very useful” in their workplace; this went up to 87 per cent when including those who stated it as “useful”, as Figure 3 shows. This figure is better than the one at the time of commencement of the project. From these factors, it is considered that this indicator was largely attained.

Indicator 4 is “Increase of employment offers to the pilot training programmes”. There is no system for private companies to send job postings to the training centers in the country. The graduates often obtain employment at the companies where they had undergone industry training, or where they had been introduced by acquaintances,

[13] The beneficiary survey was conducted in January 2014 with the graduates of the pilot training programmes. The number of samples was 128.

relatives or instructors of the training centers, so VTC did not have information on the number of job offers. Therefore, it is unknown if the number of job offers had increased when comparing before and after implementation of the project. Meanwhile, the external evaluator studied job offers and opportunities of the graduates of the pilot training programmes in the ex-post evaluation. The private companies above a certain size, which had employed the graduates and were visited by the external evaluator, mentioned that they liked to employ graduates of VTC as much as possible whenever they were available. The directors and instructors of the training centers believe from their experience that there were an adequate number of job offers from local industry to graduates of the pilot training programmes. Figure 2 shows the average employment rate of the graduates is 73 per cent. As Figure 4 shows, 86 per cent of them had obtained employment within six months after graduation. From these factors, it can be understood that the graduates are having adequate job offers; and, therefore, it is evaluated that this indicator has been attained to some extent.

Indicator 5 is "The number of graduates of the pilot training programmes who can obtain a job in the field related to their specialization." As Figure 5 shows, 69 per cent of the graduates who were employed stated that their first employment was "very much related" to the training programme. It is 77 per cent if those who stated "related" or "related a little" are added. The rate of the graduates who obtained employment related to the training programme is high; therefore, this indicator has been attained.

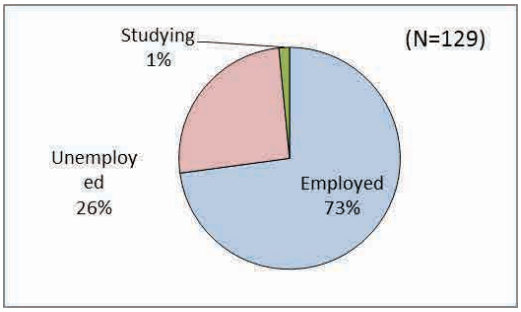


Figure 2 Are you employed now?

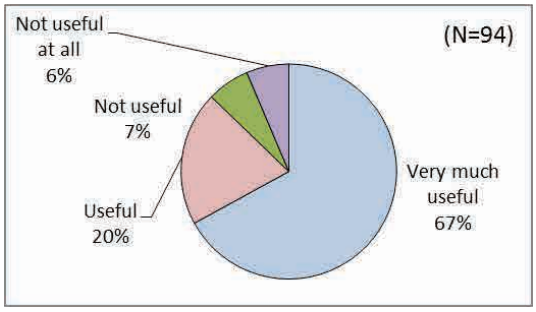


Figure 3 Is the training useful in your workplace?

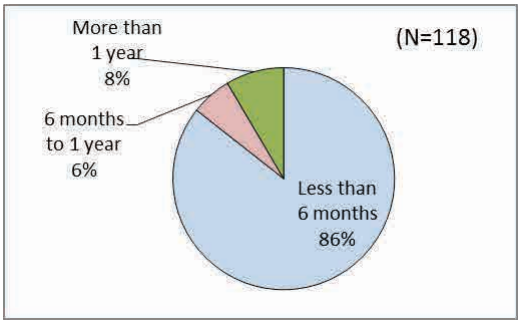


Figure 4 How long did it take for you to obtain a job?

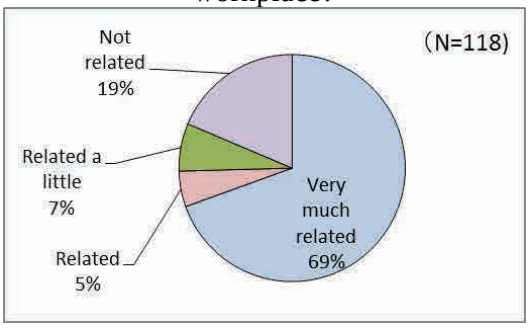


Figure 5 Was the first employment related to the training course?

Source: Beneficiary Survey

Indicator 6 is "Dropout rate is reduced from 30 per cent in 2006 to 15 per cent in 2010". There was no adequate data with regard to the dropout rate of the trainees at the time of the terminal evaluation; however, the dropout rate of the trainees, including that of the pilot training programmes was available at the time of the ex-post evaluation as a result of utilization of the database system which had been introduced by the project. According to the information, the average dropout rate was 30 per cent at the time of completion of the project in 2010; however there had been ups and downs depending on the programmes and years. The rate did not reach the target of the project, i.e. 15 per cent.

The external evaluator analyzed a survey of the dropouts of all training programmes, including the pilot training programmes, conducted by VTC in 2010 to study the reasons and background of the dropouts. It was found that 70 per cent of the dropouts quit the training programme after giving the training center a reason for withdrawal.[14] The most common reasons for withdrawal were "obtained a well-paid job (26 per cent)", "went back to school for further study (14 per cent)", "financial difficulties of the family (12 per cent)", and "being employed by the police or army (10 per cent)". There were other reasons, such as health, marriage and distance from home to the training center. No one mentioned the quality of the training programmes as a reason for withdrawal. At the time of the project, there was a vague expectation that the dropout rate would reduce when the management of the training programme improved; and therefore, the reduction of the dropout rate was identified as an indicator for the project purpose. However, as the above-mentioned survey shows, the main reasons for the dropout are personal matters and financial situation, and thus the dropout rate does not have much relationship to the operation and content of the training programme. Therefore, it is not meaningful to consider this indicator for the evaluation of level of achievement of the improvement in management of the training programme. Information about VTC's role as a safety net for children from low-income families is explained in Box 2 for reference information with regard to the dropout rate.

Box 2: VTC is functioning as a safety net for youths

Eligibility for enrollment to the training programme of VTC is 16 years old or above, can read and write, and to be in good health. It doesn't require any educational qualification. Therefore, the majority of youths who enrolled in VTC are those who did not proceed to secondary education after completing primary education for ten years, who could not performed well at *Tawjihi,* the general examination conducted on completion of secondary education, and were not qualified to proceed to higher study in universities and community colleges. There are a number of youths from low-income families, as training programmes

[14] 30 per cent of the dropouts were absent from the training programme without giving a reason to the training centers, and were dismissed after the days of absence exceeded the limit. The reason for these trainees dropping out was not known.

in VTC are almost free of charge, and some of them even provide them with an allowance. VTC's primary role is provision of vocational training. However, it is also functioning as a safety net for youths who could not go on to secondary and higher education and who are in low-income families, by offering them a place on the training programme.

As just explained, four outputs had been achieved and the important indicators for project purpose were also largely attained. Provision of the training programme in tune with the needs of industry, which is the project purpose, had been realized, as a result of the curriculum of the training programme being improved to reflect the needs of industry through the Curriculum Development Committees, which have representatives of local industry as members; and the employment situation of the graduates and their reputation with private companies were satisfactory. Therefore, the project purpose had been largely achieved.

3.2.2 Impact

3.2.2.1. Achievement of Overall Goal

The overall goal of the project is "VTC and training centers are managed and operated based on the VTC operating model". There were four indicators to measure the level of achievement of the overall goal. Indicators 1 and 2 are to measure the status of dissemination of the VTC operating model, and Indicators 3 and 4 are to measure the employment situation of graduates from the pilot training programme and their reputation with the companies where they are working. Altogether, it should be confirmed whether the training programmes are conducted reflecting the needs of industry in accordance with the VTC operating model introduced by the project. VTC Headquarters was scheduled to introduce measures to improve the management of the training programme and training centers to all the programme under the purview of VTC, according to the *Three year expansion plan for VTC operating model* which was documented by the end of the project. The plan was not used as an indicator of the overall goal in this ex-post evaluation because it was set as a non-binding target, with an aim of enhancing sustainability of the effect of the project.

(1) Indicator 1

Indicator 1 is "The outputs of the project are spread to training programmes other than the pilot training programmes in the three model training centers". This indicator targets expansion of the outputs of the project to other training programmes, in addition to the pilot training programmes within the model training centers. The outputs of the project include measures to improve the management of both the training programmes and the

training centers, and monitoring of the training using the database system, which are the primary elements of the VTC operation model as illustrated in Figure 1, and were undertaken in Outputs 1, 2 and 3. It is understood that Indicator 1 aimed at expansion of the measures for improving management of the training programme, because measures to improve management of the training centers and monitoring using the database system had already been introduced in the model training centers during the project period.

By the end of the project, the measures for improving management of the training programme had been introduced to nine training programmes in addition to the six pilot training programmes at the model training centers. After completion of the project, staff at the VTC Headquarters conducted training workshops on TMC and CUDBAS to disseminate the measures for improving management of the training programmes. As a result, the measures were introduced and implemented in twenty-six training programmes in the model training centers (see Table 2). This means that the measures were introduced to all the training programmes conducted in the model training centers, except for the tourism courses which had been conducted as special programmes. As planned, Curriculum Development Committees were formed for these training programmes. The committees reviewed the existing curriculum by using CUDBAS. Thereafter, committee meetings were held at least once a year and the curriculums were revised when necessary. Decisions in the meetings were adopted in the next training course according to the TMC. When there was a need to improve the teaching skills of instructors as a result of a revision of the curriculum, training programmes were conducted for them with cooperation of local industry.[15] In this way, the measures for improving management of the training programme introduced to the model training centers have been functioning well.

Indicator 1 had been attained, as the measures for improving management of the training programme had been disseminated to almost all the training programmes in the model training centers and had been functioning well, as mentioned above.

Table 2 Number of training programmes in the model training centers, which introduced the measures for improving management of the training programme

Model training centers	Plan (Pilot training programme)	At the time of project completion	At the time of the ex-post evaluation
TTI	2	6	12
Jerash VTI	2	7	8
Aqaba VTI	2	2	6
Total	6	15	26

Source: VTC

[15] See “3.4.3 Technical Aspects of the Implementing Agency” in the section on Sustainability for examples of the training for instructors held with cooperation of industry.

(2) Indicator 2

Indicator 2 is “The outputs of the project are spread to other training centers than the model training centers”. This indicator targets expansion of the outputs of the project to other training centers in addition to the three model training centers. As mentioned in Indicator 1, the outputs of the project include measures for improving management of both the training programmes and training centers, and monitoring of the training centers by VTC Headquarters and the Regional Directorates. The following are activities conducted by VTC after the project with regard to the above-mentioned expansion of the outputs and achievements at the time of the ex-post evaluation. There are no quantitative targets of dissemination for this indicator.

Measures for improving management of the training programmes

As mentioned in Output 2, the measures for improving management of the training programmes were disseminated to six training programmes in six training centers, in addition to the model training centers, by the end of the project. At the time of the ex-post evaluation, it was further disseminated and implemented in thirty-one training programmes in the six training centers (Table 3). If the dissemination in the model training centers shown in Table 2 are included, in total fifty-seven training programmes in the nine training centers implemented the measures for improving management of the training programmes at the time of the ex-post evaluation,

Table 3 Number of training programmes, other than the model training centers, which introduced measures for improving management of the training programme

Name of the training center	At the time of the project completion	At the time of the ex-post evaluation
Irbed	1	3
Al Masharee	1	13
Ayn Al Bash	1	4
Zarqa	1	4
Tafila	1	3
Princess Tagreed	1	4
Total	6	31

Source: VTC

At the time of the ex-post evaluation, the external evaluator studied the status of curriculum improvement at the training centers where measures for improving management of the training programmes were disseminated after the programme, and found various examples. These included training for maintenance of hybrid vehicles being added to the automobile training programme, and training on hair-dye and skincare being added to the male hair-cutting and beauty training programme, which originally

provided training only on hair-cutting and shaving. VTC staff stated that the curriculum of these training programmes would never have been updated if the project had not been implemented. It is appreciated that, as an impact of the project, VTC became able to implement training programmes that reflect the needs of industry.

Measures for improving management of the training centers

As mentioned in Output 4, the project introduced positions of middle managers and various committees as measures for improving management of the training centers. To solve problems of the centers at that time, for example, directors of the centers had to make most of the decisions on management and, as a result, management tasks of the centers were not handled efficiently and the directors could not find time to take a leadership role in studying the needs for manpower and training. After completion of the project, VTC was preparing dissemination of the measures for improving management of the training centers to the training centers other than the model training centers, by selecting target centers and developing new organizational structures for them. However, in the middle of 2012, this activity was interrupted as the senior management of VTC decided to slow down expansion of the VTC operating model,[16] because a project which aimed at holistic restructuring of VTC, assisted by the World Bank, had become fully operational. Therefore, dissemination of the measures for improving management of the training centers had not been realized by the time of the ex-post evaluation. To understand the impact of this, the external evaluator studied if there were still problems with management of the centers, especially lack of time for needs identification for manpower and training, in the nine training centers where the measures for improving management of the training programmes had been introduced. As a result, it was found that needs of manpower and training were collected and analyzed by the Curriculum Development Committees, which have representatives of local industry among their members, and that as a result, the needs were recorded in the minutes of meetings of the committee and reflected in the next training programmes. The instructors and directors of the training centers explained about this that, “We had felt that the curriculum was outdated and had not met the needs of industry for a long time. However, the training centers did not have authority to modify the curriculum. As a result of the project, Curriculum Development Committees have been provided with authority to collect and analyze the needs of industry and to review the curriculum. Therefore it has become possible to adjust the curriculum according to the needs of local industry. Meetings of the Curriculum Development Committee were held at least once a year. There was no

[16] The VTC Headquarters had to form a task force for documentation of a proposal for adoption of new and/ or amended by-laws in human resource, finance, administration and procurement. A senior staff member of VTC, who was in charge of dissemination of the VTC operating model, was appointed as a leader of the task force as his experience and achievement were appreciated. VTC decided to suspend the activities for dissemination temporarily, as it was difficult for VTC to appoint a replacement for the post of staff member in charge for these activities as VTC did not have a sufficient number of staff.

occasion that the meeting was not held for lack of time." In this way, not by an introduction of the post of the middle managers and various committees, but by the introduction and implementation of the Curriculum Development Committee, the improvement of management of training centers was realized partly by the introduction; and through these, a time for collecting needs of manpower and training was ensured. This improvement was realized not by the form of introduction of the post of middle managers and various committees.

Meanwhile, VTC is planning to disseminate measures for improving management of the training centers by introducing posts of middle managers and various committees, as it believes that management of the training centers would be further improved if the above-mentioned measures were introduced and work of the training centers were handled more efficiently. It was decided by the VTC Policy Committee in April 2014 to re-start activities for expanding the VTC operating model with a plan for three years, as the work for the restructuring project had been almost completed. A new expansion plan has been approved, and a staff member in charge of the expansion has been appointed in VTC Headquarters.[17] VTC plans to disseminate measures for improving management of training centers to six more centers, and measures for improving management of training programmes to nine more programmes, and is conducting preparation, including selection of the training centers and training programmes for dissemination.[18]

Monitoring of the training centers by the VTC Headquarters and Regional Directorates

The database system for monitoring and evaluation of the training centers introduced by the project had been installed in all the training centers of VTC after the project. The data input by the training center is utilized continuously by VTC Headquarters and the Regional Directorates for administration and monitoring of the training centers. VTC added functions of on-line registration for enrollment and job-matching to the system. The VTC Headquarters and the Regional Directorates appropriately conduct administration and monitoring of the training centers under VTC, including the model training centers, as mentioned in Output 4. They also assist the training centers with continuous implementation of measures for improving management of the training programmes, by identifying issues at the training centers and taking measures to overcome the issues.

As mentioned, measures for improving management of training programmes had been disseminated to thirty-one training programmes in six training centers, in addition to the model training centers; measures for improving management of the training centers had been realized partly; the database system had been introduced to all the training centers under VTC; and monitoring of the training centers had been conducted continuously by

[17] Reference: Minutes of the meeting of the VTC Policy Committee dated April 28, 2014.
[18] Progress as of May 6, 2014.

VTC and the Regional Directorate. Therefore, it is evaluated that Indicator 2 had been largely attained.

(3) Indicator 3

Indicator 3 is "The graduates of the pilot training programmes are employed in training-related fields". According to the beneficiary survey of the graduates, 73 per cent of graduates were employed, and 76 per cent of the employed were engaged in work related to their training. Eighty-seven per cent of those employed were utilizing skills gained by the training at their workplace (see Figures 2, 3 and 5 for totals from the six programmes). The employment situation of the graduates was satisfactory and Indicator 3 had been attained, as not only the ratio of those who are working in fields related to their training but also ratios of employment and utilization of the training, were found to be more than 70 per cent, although this indicator did not have a specific quantitative target.

(4) Indicator 4

Indicator 4 is "70 per cent of the private companies which employed graduates of the pilot training programmes are satisfied with the graduates". The instructors and the staff of the pilot training programmes believe that graduates have a good reputation with industry in general. During the visit in the ex-post evaluation to seven private companies where graduates were working, six companies, more than 70 per cent of the total number visited, were highly satisfied with the graduates.[19] Examples of comments from these companies are: the graduates do not readily quit work compared to those without training; they have a sincere attitude and manner to their work; and the knowledge and skills of the graduates were improving. There were hardly any negative opinions from them. They also appreciated that the opinions of industry had been adopted at the time of reviewing the training programmes, and commented that it is important to continue such a partnership.

As mentioned above, the four indicators for overall goal were largely achieved. It was also found that for the three main elements of the VTC operating model: (a) "improvement in management of training programme" had been disseminated to fifty-seven programmes in nine centers; (b) "improvement in management of training centers" had been realized partly; and (c) "the system for monitoring the training centers by VTC Headquarters and the Regional Directorates" had been introduced to all the training centers and was functioning continuously. It was also clear that, as a result of introduction of the VTC operating model, the training of VTC is meeting the needs of industry, from the fact that the employment situation and reputation of the graduates of

[19] The owner of a micro-enterprise of aluminum fabrication mentioned that the graduates should have had more practical training. The owner probably had this opinion because he was expecting graduates to engage in production as soon as they were employed, and he did not have time to improve their skills as the size of his business is small.

the pilot training programmes with the companies where they were working was satisfactory. Therefore, the overall goal has been largely achieved.

3.2.2.3 Other Impacts

No impact was observed on the natural environment as a result of implementation of the project. There was no involuntary resettlement or land acquisition by the project.

A total of eighteen JICA volunteers were dispatched to the model training centers during the project period. JICA Jordan Office conducted programme coordination meetings periodically, and provided opportunities for the project team and JICA volunteers to share information. The volunteers cooperated with the project by offering information at the meetings and assisting project activities at the training centers, so that the project was implemented as planned.

This project has largely achieved the project purpose of "An efficient VTC operating model will be established to ensure that a training programme is in tune with the needs of industry". As for the overall goal, too, the planned impact was created: for example, the measures for improvement in management of the training programmes was disseminated; the number of training programmes offering training in line with the needs of industry had been increased; and the employment status of the graduates and evaluation of graduates by private companies were satisfactory. Therefore, effectiveness/impact of this project is high.

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

Table 4 shows planned and actual inputs of the project. The dispatch of JICA experts, implementation of training programmes for counterpart officers, and provision of equipment was conducted without a delay.

Table 4 Planned and Actual Inputs of the Project

Inputs	Plan	Actual
(1) Experts	● For Long-term: Four experts (chief advisor/institutional management, training planning, training center management and database establishment), for around 60 man-months ● For Short-term: none	● For Long-term: Expertise of the experts was as planned. Dispatched 84 man-months in total. ● For Short-term: none (as planned)

(2) Trainees received	Fields of training: Vocational training administration, vocational training management, and others.	Fields of training: 27 in total. The fields of the training were as planned.
(3) Third-country Training Programmes	Not planned	11 in total
(4) Equipment	Basic equipment for training, servers and computers for the database system	As planned
Total Project Cost	350 million yen	357 million yen
Total Local Cost	Amount not specified	Not available

3.3.1.1 Elements of Inputs

Four long-term JICA experts were dispatched for the planned four fields. The period of dispatch was planned as sixty man-months and was actually eighty-four man-months, which exceeded twenty-four man-months. The planned period seems to have been changed during the time between the ex-ante evaluation and the commencement of the project, although exactly when is unknown, as the actual period of dispatch was almost the same as what had been estimated at the time of commencement of the project. The third-country training in Malaysia was implemented in addition to counterpart training in Japan. Equipment was provided as planned.

3.3.1.2 Project Cost

Inputs of the project cost from Japan were planned as 350 million Japanese yen and was actually 357 million Japanese yen, which was higher than planned (102 per cent). It is considered that the project cost was exceeded mainly because the duration of the dispatch of the experts was exceeded.

3.3.1.3 Period of Cooperation

The period of cooperation was planned as four years from October 2005 to October 2009 and was actually four years as planned (100 per cent).

Although the project period was within the plan, the project cost exceeded the plan. Therefore, efficiency of the project is fair.

3.4 Sustainability (Rating: ②)

3.4.1 Related Policy towards the Project

The national development policy of the country at the time of the ex-post evaluation is *National Agenda (2006-2015)*, which is the same as the one at the time of project planning. One of the important tasks in the policy is the development of the workforce and expansion of vocational training. According to the *E-TVET sector reform* of the Ministry of Labour, establishment of autonomy of VTC and transfer of authority to the training centers are one of the programmes to be implemented. These policy and strategy documents support sustainability of the effect of the project.

VTC realizes the necessity of restructuring, including establishment of autonomy of the organization and transfer of authority to the training centers. It formed a task force with assistance from the World Bank, and documented and submitted a proposal for adoption of new and/or amended by-laws of human resource, finance, administration and procurement to the Ministry of Labour in January 2014. As of April 2014, the proposal was under consideration by the higher authorities of VTC. The senior management of VTC was negotiating with them to facilitate early adoption of the proposal. Promotion of restructuring like this is a positive move for ensuring sustainability of the effect of the project.

Activities for dissemination of the VTC operating model were temporary suspended in 2012 and 2013, as mentioned in the section on Impact of this report. In April 2014, the senior management of VTC decided to resume the activities for dissemination, and adopted a new plan for the dissemination. According to the plan, in 2014 measures for improving management of the training programmes would be introduced to nine programmes and measures for improving management of the training centers would be introduced to six centers. The resumption of activities for expansion will help to expand the impact of the project further.

3.4.2 Institutional Aspects of the Implementing Agency

Activities for dissemination of the VTC operating model were implemented in 2011 by a VTC staff member who was in charge of the dissemination. After some time, the activities were temporary suspended as the post of staff member in charge of dissemination became vacant when the preparation work for the restructuring was being conducted at full scale, and VTC could not find a replacement due to chronic shortage of staff.[20] However, the monitoring and follow-up for the fifty-seven training programmes

[20] Jordan has been affected by the Palestinian issues and conflict in the surrounding countries, such as Iraq and Syria. The budget deficit of the government of the country has been increasing due to interruption in imports of the primary energy sources, acceptance of a lot of refugees, and other reasons. The VTC Headquarters and JICA Jordan Office explained that, as a result, not only VTC but also many other government institutions of the country were facing problems of budget shortage and delay in disbursement.

in the nine training centers were conducted without a problem by the Assistant Director General for training and the Quality Control Directorate of the VTC Headquarters and directors of the Regional Directorates.[21] VTC decided to resume the dissemination activities in April 2014. VTC was planning to implement the activities for dissemination with leadership from a staff member at VTC Headquarters, who had been appointed as the person in charge for these activities.

There is a system in the fifty-seven training programmes in the nine training centers for holding a meeting of the Curriculum Development Committee at least once a year, and this has been held continuously since it was introduced; the next training programme is updated once the committee accepts the modification of the training contents proposed by representatives of industry as a result of the review of the training contents. Staff from VTC Headquarters sometimes could not attend the meetings of the Curriculum Development Committees held at the training centers due to a shortage of staff. However, according to the explanation given by the Regional Directorate, the director and instructors of the training centers had become able to handle the meetings of the committees without a problem even on such occasions by utilizing their past experience and achievements.

In this way, the sustainability of the effect of the project with regard to the institutional aspects is ensured as: a staff member in charge of the new dissemination plan has been appointed; and a sustainable system has been established for holding meetings of Curriculum Development Committees.

3.4.3 Technical Aspects of the Implementing Agency

The counterpart officers of the project of the VTC Headquarters and the Regional Directorates have rich knowledge and experience about TMC and CUDBAS. This is apparent from the fact that they have conducted training workshops on TMC and CUDBAS without the help of JICA experts during the project; and also the fact that they have conducted training courses of TMC and CUDBAS for the staff and instructors who are working on the training programmes by using the manuals which were targeted for dissemination after completion of the project. The VTC Headquarters and Regional Directorates also conducted monitoring and follow-up of the training centers and training programmes by utilizing the knowledge and experience they have gained so far, as mentioned earlier. The directors and instructors of the fifty-seven training programmes where TMC had been introduced became able to hold meetings of the Curriculum Development Committees and review the content of the training autonomously. In this manner, there is no technical problem with the dissemination activities. Most of the

[21] During the period, two follow-up meetings were conducted to review progress with improvement in management of the 57 training programmes in the 9 training centers. Training programmes for instructors were conducted with cooperation of private companies, as a result of the need to improve teaching skills of the instructors being identified in the meetings.

manuals and guidelines developed by the project are utilized.[22]

VTC is giving greater importance to improvement of technical skills and knowledge of the staff and the instructors, and has made at least forty hours of training per year a provision for promotion. The staff and instructors of VTC participate in training which is organized and implemented by the training unit of VTC, as well as technical training conducted in Arab countries. The training history of the staff is recorded in the database.

VTC also identified the needs for improving training skills of instructors which will be required once the curriculum is reviewed, and actively organized and implemented training programmes for the instructors by obtaining cooperation from local industry. For example, during the time of dissemination of the effect of the project, a training programme on maintenance of hybrid vehicles was conducted for instructors of three training centers by getting cooperation from Japanese automobile companies at the time training on the subject was introduced to the automobile training programme. VTC also obtained cooperation from the supplier of computer numerical control (CNC) machines at the time of the training for instructors to improve their training skills for the same in the carpentry training programme. Instructors of electric and electronic training programmes were sent to the factories of LED screens to improve their knowledge. Training programmes for instructors of the auto-mechanic and the auto-electric training programmes of Aqaba training center were conducted by getting assistance from the neighboring Special Economic Zone.

In this manner, there is no particular concern about the technical aspects, as the counterpart officers of the project possess the necessary technical capacity to sustain and expand the effect of the project and measures for improving the skills of the instructors have been taken.

3.4.4 Financial Aspects of the Implementing Agency

The budget of VTC was reduced in 2010, stayed almost same in 2011, and was again reduced in 2012 compared with the previous year, due to the influence of the financial difficulties of the country. Disbursement of the budget is sometimes delayed for the same reason, which made it difficult for VTC to spend according to the plan. However, training and practicals were conducted without a delay as the staff and instructors of the training centers somehow managed to purchase consumables and materials and maintain

[22] Manuals on TMC and guidelines and formats of CUDBAS, developed by the project, were used by the staff of VTC during and after the project at the time of the relevant training workshops. The manual for introduction of middle-level managers has not been used at the time of the ex-post evaluation, because the dissemination of the post of middle-level managers had been delayed. Manuals for monitoring and evaluation of the training programme were also developed and distributed by the project. However, VTC is using its own format for monitoring and evaluation which had been used beforehand, and the one developed by the project was only used as a reference. This is mainly because the methodology of monitoring and evaluation explained in the manual was only used by the JICA experts once during the project as a trial, and was not introduced to VTC for real; and also because some parts of the manual are difficult to understand as the translation in Arabic was not done appropriately.

machinery for the training. Meetings of the Curriculum Development Committees, which were introduced by the project, and purchasing of necessary materials for the training programmes and maintenance of equipment, should be continued in future in spite of the financial difficulties, as the staff of VTC Headquarters consider the above-mentioned activities as a priority in order to meet the needs of industry.

In this manner, development of the workforce and enhancement of vocational training are important tasks in the policy of the country, and the effect of the project is expected to be expanded further with the resumption of activities for the dissemination of the VTC operating model. There is no concern about sustainability in terms of institutional aspects, as a system was established to hold meetings of Curriculum Development Committees periodically, and a person was appointed to be in charge of the new dissemination plan of VTC operating model. Sustainability is ensured in terms of technical aspects, as the technical capacity of the counterpart officers of the project is high and VTC has a system for improving skills of the instructors. There is a prospect that the financial arrangements to sustain the effect of the project would be made. However, some problems have been observed in terms of financial aspects of the implementing agency, as there is a tendency for a shortfall and disbursement delays for the budget of VTC in general. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented with the aim for of VTC establishing the VTC operating model, so that VTC would be able to conduct training programmes in line with the needs of industry.

Relevance of the project is high, as the objective of the project is consistent with the national development policy and development strategy of Jordan and ODA policy of Japan.

The project purpose, “An efficient VTC operating model will be established to ensure that a training programme is in tune with the needs of industry” had been largely achieved at the completion of the project. After completion of the project, measures for improving management of the training programmes were disseminated to training programmes and the training centers which were not targeted in the project. Training is conducted in line with the needs of industry in these training programmes, just as the project intended. The employment situation of graduates of the pilot training programmes for which the project provided assistance was satisfactory, and the reputation of the graduates with the companies where they were working was favorable. The expected impact of the project has been created by implementing measures for improving management of the training programmes. Therefore, effectiveness/impact of the project is high.

Although the project period was within the plan slightly, the project cost exceeded the

plan. Therefore, efficiency of the project is fair. At the time of the ex-post evaluation, activities for disseminating the VTC operating model had been resumed and the effect of the project is expected expand further. Sustainability in terms of institutional and technical aspects is ensured. However some problems have been observed in terms of the financial aspects; therefore, sustainability of the effect of the project is fair.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

It was confirmed in the ex-post evaluation that the employment status of graduates of the pilot training programmes, for which the measures for improving the management of the training programme was introduced by the project, was satisfactory at the time of the evaluation. However, it was not possible to study whether the employment situation had improved as a result of the introduction of the measures, because a similar kind of survey on employment status of the graduates of the training courses had not been conducted before the introduction of the project and during the project. It is recommended that VTC, at the time of introducing measures to improve the management of the training programmes, conduct a baseline survey on employment status and the reputation of the trainees of the training programmes with local industries prior to their introduction, and conduct a similar survey periodically after their introduction, so that the effect of the measures could be identified or verified.

4.2.2 Recommendations to JICA

None.

4.3.Lessons Learned

Adequate experience and achievement is crucial for establishment and dissemination of the training management cycle

The staff of VTC took a leadership role in operating the training management cycle consisting of “planning, implementation, monitoring and evaluation” several times during the project at the model training centers. They also introduced the cycle to other training centers before the project was completed. As a result, the cycle had been operated in the model training centers and also further disseminated to other centers at the time of the ex-post evaluation. In order to ensure sustainability of the effect of the project, which aims to establish and disseminate the training management cycle to enhance the function of vocational training centers, it is important that the counterpart officers of the project gain adequate knowledge and experience of the operation of the cycle during the project period, and also obtain experience in dissemination of the cycle by being involved in the

activities for dissemination before the completion of the project.

BOX 3 : Suggestions and lessons learned from a comparative study of four technical cooperation projects of vocational training

While conducting this ex-post evaluation, a comparative study of technical cooperation projects was conducted to find their features and effects, by taking examples from four projects: "The Project for Instructors Training for Vocational and Training" in Uganda, "The Project on Strengthening the Programme of Expanding Automation Technologies Department (SPREAD)" in the Republic of Turkey, "Project for Establishment of Japan Sri Lanka College of Technology to Strengthen Technical Education and Training" in Sri Lanka and this project. The following suggestions and lessons were learned from the analysis of the main components of the four projects: (1) development and implementation of policies and systems of vocational training; and (2) strengthening of functions of vocational training centers.

1. Development and implementation of policies and systems of vocational training

When a project is implemented along with the development of new policies and systems for vocational training, a delay in the development or change in the systems can be a risk factor for the project to achieve its purpose or create the expected effects. With the project in Uganda, a qualification system was established as planned partly because the project activities included the activities to contribute to the establishment of the system; and the established system had facilitated the creation and continuation of the expected effect of the project. A change in the conditions of qualification of the instructors with the project in Turkey, a delay in the restructuring of Vocational Training Corporation assisted by the World Bank with the project in Jordan, and a delay in establishing a new vocational qualification system assisted by the Asian Development Bank with the project in Sri Lanka, gave a negative influence for the creation and continuation of the project effects. These examples suggest the importance of adequate study of the implementation capacity of the government institutions which are responsible for the development of the policies and systems, and the importance of collecting information on the contents and progress of the policies and the systems to be developed.

2. Strengthening of functions of vocational training centers

(1) Assistance with establishment of training management cycle

It is essential to assist the counterpart officers until they are able to operate the training management cycle independently in projects to assist the establishment of a cycle, which includes planning, implementation, monitoring, evaluation and improvement of training courses. With the project in Jordan, the training management cycle was further disseminated after the project, as a result of the staff of VTC operating the cycle two to three times independently and also experiencing dissemination of the cycle to other training centers than the model training centers. As for the projects of Turkey and Sri Lanka, the counterpart officers could not gain adequate knowledge and experience of the cycle during the projects;

therefore, they were not able to gain the necessary technical skills to operate the cycle on their own.

(2) Reflection of the needs of industry in the training courses

For introduction of measures to reflect the needs of industry in the training courses, it is important to establish a system that incorporates advice from industry representatives into the training courses immediately, not just to receive advice from them. With the project in Jordan, Curriculum Development Committees, which included industry representatives, were provided with authority to add training items, review the hours of practical lessons, etc. The project also introduced a system for decisions of the committees to be incorporated in the next training courses. This system was functioning at the time of the ex-post evaluation. Technical committees formed in the project of Sri Lanka, on the other hand, did not have authority to decide on revisions and improvement of the training courses; therefore, the suggestions of the committees were not incorporated into the revision and improvement of the training courses immediately. As a result, the industry representatives of the committees gradually lost interest in participating in the committees, and the committees became non-operational.

(3) Capacity building of the instructors

It is important for projects aiming at capacity building of instructors to adequately identify the gaps between the existing capacity of the instructors and what is required to conduct the training courses; and to establish a system for the implementing agencies to improve capacity of the instructors continuously by using resources available in the countries, in addition to the training sessions in Japan and technical transfer from JICA experts. With the project in Jordan, VTC had planned and conducted in-plant training for the instructors during the project and has been continuing such trainings even after project completion. With the project in Uganda, no new master trainers, who conduct training for the instructors and managers, had been trained after completion of the project; this was a result of master trainers only being trained in Japan, and, therefore, the implementing agency had not learned how to carry out the training. With the project in Sri Lanka, capacity building of the instructors of the model training courses was mainly conducted in the training in Japan, and a system for the relevant ministry and department to plan and conduct measures for capacity building of instructors had not been introduced by the project. As a result, some of the instructors having insufficient teaching skills, was still a problem at the time of the ex-post evaluation.

Democratic Socialist Republic of Sri Lanka

Ex-Post Evaluation of Japanese Technical Cooperation Project "Project for Establishment of Japan - Sri Lanka College of Technology to Strengthen Technical Education and Training in Sri Lanka"

External Evaluator: Tomoko Tamura, Kaihatsu Management Consulting, Inc.

0. Summary

This project was implemented with the objective of assisting the Department of Technical Education and Training (DTET), which is the supervisory organization of the Sri Lanka College of Technology (SLCoT) to gain the necessary capacity to establish and operate Colleges of Technologies (CoTs), which were planned to be established in every province of the country, by gaining experience in establishing NVQ[1] levels 5 and 6 training courses at SLCoT; and thereby contributing to producing middle-level technicians. Enhancement of technical education and training programmes for development of workforce was an important task in the middle- and long-term development plan of the country, both at the time of planning and completion of the project. There was a development need in the country to improve technical education and produce workforce which meets the demands of industry. These plans and needs were also in line with the strategy of Japanese assistance to Sri Lanka. Therefore, relevance of the project is high.

The project purpose was not achieved by the time of project completion mainly because: accreditation of the national skill standard and endorsement of the curriculum of the NVQ levels 5 and 6 training courses had been delayed, and as a result SLCoT was not able to accumulate the know-how for training course delivery; DTET was not sufficiently committed to solving issues in the course delivery; the long-term JICA experts were not dispatched as planned, and as a result the progress of project activities was affected. At the time of the ex-post evaluation, the managerial and technical capacity of DTET for training course delivery had not developed up to the expected level, and the project had not contributed adequately to the creation of workforce with NVQ levels 5 and 6 qualifications. The impact created by the project is less prominent than what was expected, and therefore effectiveness and impact of the project is low.

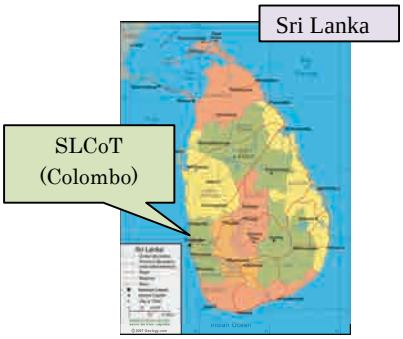
Although the project period was within the plan, the project cost exceeded the plan. Therefore, efficiency of the project is fair. A specific plan to transfer resources of CoTs, such as achievements in the operation of NVQ levels 5 and 6 courses, knowledge and experience of the instructors and equipment, to University Colleges which are to be established all over the country in future, has not yet been prepared. DTET has several problems in terms of operation of the institute and technical aspects, such as a chronic shortage of staff, inability to take effective measures to enhance the quality and quantity of instructors at CoTs, and to activate

[1] NVQ: National Vocational Qualification. There are levels 1 to 7 for the NVQ in Sri Lanka. NVQ levels 5 and 6, which were introduced by the project, are to produce middle-level technicians, including supervisors and process managers. Those who pass the assessment of NVQ levels 5 and 6 are given a National Diploma.

relationships with industry. Therefore, sustainability of the project is low.

In light of the above, this project is evaluated to be unsatisfactory.

1. Project Description



Project Location

Training in the Metalwork Course at SLCoT

1.1 Background

At the time of planning the project, the government of Sri Lanka planned to upgrade nine of the twenty-nine Technical Colleges (TCs) in the country to be CoTs, which would conduct training for NVQ levels 5 and 6 diploma courses, and thereby produce middle-level technicians. At that time, the country had introduced Competency Based Training (CBT)[2] and was making it a mainstream training methodology, with the objective of providing training that reflected the needs of industry. In this regard, the framework of the NVQ had been developed up to level 4. In order to introduce technical training of NVQ levels 5 and 6 based on CBT, it was necessary to: develop the framework of the NVQ, including accreditation of the National Skills Standard which defines the skills required by industry for workers of this level; obtain endorsement of the curriculum which is to be used in the training courses to train the skills specified in the NVQ; install necessary infrastructure, tools and equipment for the training; provide training to instructors; and prepare teaching materials. The government planned to develop this framework by obtaining assistance from donor agencies. This technical cooperation project selected SLCoT[3], which is located in the city of Colombo in the Western Province, out of the nine TCs scheduled to be upgraded to CoTs, and to provide the necessary assistance to introduce model training courses for NVQ levels 5 and 6, and then to disseminate the know-how of training course delivery to the other CoTs. It was planned that the Asian Development Bank (ADB) would provide assistance to the government from 2000 to 2011 to develop an implementation framework for NVQ levels 5 and 6, and to establish the eight other CoTs in the country.

[2] The CBT (Competency-based Training) method was introduced because conventional training, which was training-provider-oriented and curriculum-based and did not consider the needs of industry, had been found to be ineffective. The CBT method is to provide training so that trainees obtain the necessary skills for the labour market. In CBT, a qualification is offered by evaluating the skills of the trainees after training.

[3] SLCoT was called Maradhana Technical College at the time the project commenced.

1.2 Project Outline[4]

Overall Goal		1. Quality of the manpower trained in TCs/CoTs meets the the labor market demand. 2. CoTs are established and managed by utilizing lessons and experience of SLCoT.
Project Purpose		DTET gains managerial and technical capacity to establish CoTs in each province by introducing model courses of NVQ levels 5 and 6 in SLCoT to train middle-level technicians.
Outputs	Output1	NVQ levels 5 and 6 model training courses are introduced and conducted effectively in SLCoT in the fields of information and communication technology (ICT), mechatronics and metalwork.
	Output2	DTET establishes a system for the training courses to fulfill the industry's needs.
	Output3	Management capacity of DTET for training delivery of the NVQ levels 5 and 6 courses and for implementation of career guidance/counseling and textbook development and skills competitions is improved.
	Output4	Know-how in the fields of implementation of NVQ levels 5 and 6 courses, industry collaboration, career guidance/counseling and skills competitions is accumulated in DTET through the establishment of the 3 model courses in SLCoT to share it with other TCs/CoTs.
Inputs		Japanese Side: 1. Experts: 8 for long-term and 18 for short-term 2. Twenty-four trainees received for counterpart training in Japan 3. Five trainees for Third-Country Training Programme 4. Equipment : 300 million yen 5. Local cost : 35 million yen Sri Lankan Side: 1. Thirty-three counterparts 2. Land and facilities, classrooms and project office 3. Cost for refurbishment of classrooms and workshops
Total cost		707 million yen
Period of Cooperation		July, 2005 - June, 2010 (5 years)
Implementing Agency		Ministry of Vocational and Technical Training (Current Ministry of Youth Affairs and Skills Development)
Cooperation Agency in Japan		Employment and Human Resources Development Organization
Related Projects		- Skills Development Project (ADB): March, 2000 – January, 2007 - Technical Education Development Project (ADB): January, 2006 - August, 2011

[4] This is the project outline described in PDM version four. This ex-post evaluation was conducted based on PDM version four, although the PDM was revised to version five after the terminal evaluation of the project (see details in the section on effectiveness and impact).

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement of Project Purpose at the time of the Terminal Evaluation

Training courses for NVQ levels 5 and 6 were introduced at SLCoT. However, there were several issues with regard to delivery of the training courses; therefore it could not be considered that the system for delivery of the training courses by DTET had been established. Dissemination of know-how of SLCoT on course delivery to other CoTs also had not been started. Although the report of the terminal evaluation did not mention the prospect of achieving the project purpose clearly, the possibility of achieving the project purpose by the time of completion of the project was not considered to be high, as it pointed out that "Further effort and active involvement in the project by SLCoT and the supervising authorities would be essential to achieve the project purpose".

1.3.2 Achievement of Overall Goal at the time of the Terminal Evaluation

The establishment of CoTs in every province of the country, which was one of the overall goals of the project, had been achieved with assistance from ADB by the time of the terminal evaluation of the project. The degree of contribution by the project to achieve another overall goal, the development of workforce by TCs and CoTs, was evaluated to be limited mainly because outputs and project purpose of the project had not been achieved to the expected level.

1.3.3 Recommendations at the time of the Terminal Evaluation

It was recommended to the Ministry of Vocational and Technical Training and DTET: to conduct a study to analyze the problems that SLCoT was facing at that time with regard to administration of the training courses and teaching capacity of the instructors, and to implement measures to improve the course delivery; to ensure the budget for operation and maintenance of the machinery and equipment used for the training courses; and to allocate necessary staff members to maintain the quality of the model courses. It was recommended to SLCoT: to conduct review meetings periodically; to introduce student training record books; to implement monitoring of the training courses by utilizing the results of a questionnaire survey of students and others; to improve the delivery of training courses based on the monitoring results; to develop further collaboration with relevant industries; to continue sharing the experience and lessons of SLCoT with the instructors of other CoTs; to continue the in-service training programme conducted by the instructors of SLCoT; and to improve the administration of the in-plant training.

2. Outline of the Evaluation Study

2.1 External Evaluator

Tomoko Tamura, Kaihatsu Management Consulting, Inc.

2.2 Duration of Evaluation Study

Duration of the Study: September, 2013 - October, 2014

Duration of the Field Study: November 5 - 16, 2013 and February 28 - March 5, 2014

3. Results of the Evaluation (Overall Rating: D[5])

3.1 Relevance (Rating: ③[6])

3.1.1 Relevance to the Development Plan of Sri Lanka

Both at the time of planning and completion of the project, the medium- and long-term national development plan of the country[7] emphasized the need to enhance technical education and vocational training programmes to develop high-quality workforce and to create employment for the youth. Therefore, the objective of the project is consistent with the development plan of the country.

3.1.2 Relevance to the Development Needs of Sri Lanka

At the time of project planning, the unemployment rate of the country was as high as 8.8 per cent (2002) and it was especially high among the youth. Primary and secondary education was widely available in the country; however opportunities for tertiary education were limited as the enrolment capacity of the universities was increasing only slowly. Therefore, a large number of youth, who had received primary and secondary education but did not have any vocational skills, left school every year; therefore, it was necessary to eradicate unemployment among the youth by expanding a programme of technical education and vocational training. There was a shortage of middle-level technicians in the country, and this shortage should be met by providing the necessary training. SLCoT was selected as the project site as it is located in the city of Colombo, the center of the country's economy, and had an advantage for securing employment opportunities for the students and promoting collaboration between the colleges and industry. Three training areas, information and communication technology (ICT), mechatronics and metalwork, were selected, as the country did not have training courses on ICT and mechatronics at that time although the demand for workforce was high, and there was a high demand for middle-level technicians in metalwork from industry.

The unemployment rate among 15-year-olds and above had been improving, and was 7.7 per

[5] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory.
[6] ③: High, ② Fair, ① Low.
[7] *Creating Our Future, Building Our Nation* (July 2004) was the national plan of the country at the time of planning the project. *Mahinda Chintana* (2006～2016) was the national plan of the country at the time of completion of the project.

cent[8] at the time of completion of the project in 2010. However, that of the youth between 20 and 29 years old was still as high as 13.8 per cent in 2010.[9] The demand for middle-level technicians was also high. The CBT method had been introduced to the training programmes and as a result the programme was improving gradually: however, further improvements to the programme were needed to produce the workforce that would meet the needs of industry.

As mentioned above, the objective of the project – the expansion of technical education - was in line with the development needs of the country both at the time of planning and completion of the project.

3.1.3 Relevance to Japan's ODA Policy

The Country Assistance Policy of Sri Lanka (2004) at the time of project planning listed assistance for peacebuilding and rehabilitation as one of the important areas of assistance. As examples, assistance for human resource development and economic infrastructure development were mentioned. Assistance for vocational training and management was stated as a priority area. In this way, the project had relevance with Japanese cooperation policy.

3.1.4. Appropriateness of the Plan and Strategy for Project Implementation

The project expected DTET to obtain and utilize the experience and lessons learned from the training course delivery in SLCoT, and to solve any problems SLCoT faced when providing training. It also strategically planned to enhance the administrative and technical capacity of DTET which is necessary to establish and operate CoTs throughout the country, through the above-mentioned experience and lessons. The capacity of DTET was not enhanced by the completion of the project in spite of such strategy, mainly due to delay in endorsement of the curriculum, the problem of input, such as JICA experts not being dispatched as planned, and inadequate commitment of DTET to the project, as mentioned later in this report. In general, utilization of the experience and solving the problems were some of the roles and responsibilities of DTET, the supervising authority for CoTs, including SLCoT. Therefore, the strategy of the project, which aimed to enhance the capacity of DTET through activities in SLCoT, was appropriate.

This project has been highly relevant to Sri Lanka's development plan and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact[10] (Rating: ①)

The PDM[11] of the project was revised from PDM version four to PDM version five after the terminal evaluation of the project. The main revisions were: the target of overall goals, project

[8] Source: *Labour Force Survey Annual Report 2010*, Department of Census and Statistics, Sri Lanka.
[9] Ibid.
[10] Sub-rating for Effectiveness is to be put with consideration of Impact.
[11] PDM: Project design matrix.

purpose and the outputs, which had referred to DTET, were revised to refer to SLCoT; and the second overall goal was changed to “experience of SLCoT is utilized by other CoTs”, as the other CoTs had already been established at the time of the terminal evaluation. The reason for the target of the project purpose being changed from DTET to SLCoT at the time of the terminal evaluation was that most of the activities of the project were conducted at SLCoT. At the time of the ex-post evaluation, the external evaluator firstly studied the background and appropriateness of this change. As a result, it became clear that the ex-post evaluation should be conducted based on PDM version four, not the modified PDM version five. It is true that the project conducted most of its activities at SLCoT. However, the project had conducted its activities and provided various inputs for around four and a half years before the time of the terminal evaluation, and it was aiming to enhance the capacity of DTET to manage the CoTs in the country by obtaining experience from SLCoT. Therefore it is apparent that the project had the objective of enhancing the capacity of DTET throughout the project period. It was also true that DTET was not deeply involved in the project activities as mentioned later. However, it is not appropriate to modify the project purpose just before completion of a project. In addition, as the terminal evaluation was conducted based on PDM version four, the basis of the terminal and ex-post evaluations is the same.

3.2.1 Effectiveness

3.2.1.1 Project Output

The following four items were identified as the outputs of the project, which were necessary to achieve the project purpose.

1) Output 1

Output 1 was “NVQ levels 5 and 6 model training courses are introduced and conducted effectively in SLCoT in the fields of ICT, mechatronics and metalwork”. The following describes indicators of the output and their status of achievement on completion of the project:

(1) The endorsed National Skill Standard and Curriculum Outlines of the three model courses become available: Not achieved.
(2) Appropriate syllabuses and teaching materials for the model courses are developed: Not achieved.
(3) Equipment necessary for the model courses are purchased and installed: Achieved.
(4) Training infrastructure necessary for the model courses established: Achieved.
(5) Counterpart staff gain sufficient knowledge to teach in the model courses: Not achieved.
(6) Adequate weekly and monthly training schedules for each course are formulated: Achieved.
(7) More than 80 per cent of the full-time students of the first batch complete their course and obtain their diploma, and part-time courses are established: Not achieved.
(8) Monitoring is conducted periodically and lessons learned are reflected in the courses and documented: Not achieved.

Development of the National Skills Standard for the NVQ levels 5 and 6 was undertaken by NAITA (National Apprentice and Industrial Training Institute), and development of the curriculum for the same was undertaken by UNIVOTEC (University of Vocational Technology) at the time of the project implementation. It was planned that they would be endorsed by TVEC (Tertiary and Vocational Education Commission).[12] However, the above-mentioned work was significantly delayed. The National Skills Standard for NVQ levels 5 and 6 was accredited by January 2010;[13] however, their curriculum had not been endorsed before completion of the project[14]. Therefore, the SLCoT developed teaching materials and conducted training based on a draft of the Skills Standard and a tentative curriculum, as the endorsed curriculum was not available.

Instructors of the model courses were provided with opportunities to improve teaching skills through technical transfer from JICA experts, and in the training programmes conducted in Japan and in third-party countries. However, there were several instructors among those who were teaching the new courses - ICT and mechatronics - that could still not develop teaching skills up to the required standard. There were some complaints from students with regard to inadequate teaching skills of the instructors.

Forty-seven per cent of students who completed training in the ICT and metalwork model courses in 2008 passed their assessment at NVQ levels 5 or 6 and obtained their diploma. This NVQ pass rate was lower than what was planned by the project, which was eighty per cent. This was mainly because implementation of the NVQ assessment was delayed for almost a year and was conducted in March 2010; by then those students who had already obtained employment were busy with their work, and could not find enough time to prepare for the assessment. Inadequate teaching skills of the instructors could have been another reason. The mechatronics course was commenced in 2008 due to a delay in procurement of training equipment; therefore the first batch of students on this course were still being trained on completion of the project.

Part-time courses were not conducted mainly due to a shortage of instructors. Questionnaire surveys were conducted with students at the end of the training courses as a part of course monitoring; however the findings and lessons learned from the surveys were not reflected in the courses or documented.

Model training courses of NVQ levels 5 and 6 were introduced to SLCoT; however there were several issues in the operation of the courses. Therefore, Output 1 had been achieved only

[12] NAITA (National Apprentice and Industrial Training Institute) operates several training institutions according to the apprentice system, and is also in charge of the in-plant training for universities, TCs and CoTs in the country. UNIVOTEC （University of Vocational and Technical Education） was established in 2008 with the assistance of ADB. It has faculties of industrial and vocational technology and training technology. It operates the undergraduate programmes of NVQ level 7. Students who studied at CoTs and obtain NVQ levels 5 or 6 can continue their studies at UNIVOTEC. TVEC is a strategic commission which is in charge of development of policies and programmes of technical education and vocational training, quality control of education and training, and other areas. NAITA, UNIVOTEC and TVEC are under the purview of the Ministry of Youth Affairs and Skills Development.

[13] National Skills Standards for ICT and metalwork courses were accredited in December 2009, and that for mechatronics was accredited in January 2010.

[14] Although the tentative curriculum had been developed, endorsement of the curriculum was delayed as it took more time than expected to coordinate the administrative process for the endorsement. This was because there needed to be consistency between the skills standard and curriculum of NVQ levels 5 and 6 and that of the existing NVQ levels 3 and 4. Work for endorsement of all courses, not only for the three model training courses conducted in the project, was carried out at the same time.

to a limited degree.

2) Output 2

Output 2 was “DTET establishes a system for the training courses to fulfill industry’s needs”. The following describes indicators of the output and their status of achievement at the end of the project:

(1) Technical Committee is formed for each model course and meetings are held more than three times a year: Not achieved.
(2) Industries visit the model training courses to monitor and evaluate the courses three times a year: Not achieved.
(3) Recommendations are made by industry to improve the courses: Achieved.
(4) Survey on the needs of industry is conducted continuously: Not achieved.
(5) System of in-plant training is established and students of the model courses gain experience in industry: Not achieved.
(6) Short-term courses are held: Achieved.
(7) Periodical industrial placement for counterpart staff is implemented: Not achieved.

Technical committees, which included some representatives of relevant industries as members, were formed at every model course of SLCoT. Meetings were held periodically soon after formation of the technical committees. The committees provided advice and assistance for development of teaching materials. However, members of the committees gradually lost interest and meetings were stopped because the committees did not have any authority to review and decide ways to improve the training courses, and there was no review and improvement of the courses conducted according to the advice of the committees. Monitoring and evaluation by representatives from industry was supposed to be conducted three times a year. However, it was not continued for the same reason. A survey on the needs of industry was conducted only once, as there was no staff member in charge of the survey at DTET. Industrial placement of instructors was not realized as it was difficult to find industries which would accept them as trainees. In-plant training for students was introduced. However, it was still at a trial-and-error stage, and systems for administration of the training, and monitoring and evaluation of the students’ progress with acquiring skills, had not been institutionalized. In this way, the system for in-plant training had not yet been established.

In this manner, the system for conducting training courses to meet the needs of industry had not been established; therefore, Output 2 had not been achieved.

3) Output 3

Output 3 was “Management capacity of DTET for training delivery of NVQ levels 5 and 6 courses and for the implementation of career guidance/counseling and textbook development and skills competitions is improved”. The following describes indicators of the output and their status of achievement by the end of the project.

(1) More than 90 per cent of students are using the career guidance/labor market information

available at SLCoT: Achieved.

(2) Individual counseling is held for more than 5 students per month: Achieved.
(3) Career guidance seminar is held for applicants to give ideas on course-related employment: Achieved.
(4) Career guidance seminar is conducted for CoT students 11 times a year: Achieved.
(5) A system of conducting periodic studies to ensure the relevance of the quality and level of training is established: Not achieved.
(6) Results of the studies are effectively used to improve quality and level of training: Not achieved.
(7) The teaching materials, such as textbooks, visual tools, etc., that have been developed are used effectively and appreciated at all CoTs/TCs: Not achieved.
(8) Skills competitions are held continuously, and budget is allocated to make the events financially sustainable: Not achieved.

The students of SLCoT utilized the services of the career guidance center positively. Career guidance became a part of the training courses from 2009. However, the activities on evaluation of the quality and level of the training, and improvement of the training course delivery as a result of the evaluation, were not conducted adequately. Therefore, the system to ensure the adequacy of the quality and level of training was not established at either SLCoT or DTET. As a part of project activities, the survey to study the level of satisfaction of students of the model courses was conducted every year; however, the results of the survey were rarely analyzed or utilized for improvement of the next training courses, as the stakeholders of the project did not pay much attention to the results. The level of achievement of Indicator 7 is unknown, as no survey was conducted on the status and effect of utilization of the textbooks and teaching materials developed by the project.

A National Skills Competition was introduced to provide incentives and encourage skills development of the students and instructors, and it was conducted every year from 2005 to 2007. In 2008, although the competitions were conducted in the provinces, the national competition was cancelled due to a shortage of funds. The competition was not held in 2009 or 2010.

In this manner, Output 3 was only achieved in relation to career guidance.

4) Output 4

Output 4 was “Know-how in the fields of implementation of NVQ levels 5 and 6 courses, industry collaboration, career guidance/counseling and skills competitions is accumulated in DTET through the establishment of the three model courses in SLCoT to share it with other TCs/CoTs”. The following describes indicators of the output and their status of achievement at the end of the project:

(1) Documents on delivering NVQ levels 5 and 6 courses are prepared: Achieved.

(2) Technical Committees/Advisory Councils are established in other TCs/CoTs: Not achieved.
(3) The improved system to collect and update labor market information is introduced in other TCs/CoTs: Achieved.
(4) Know-how to support students' job placements is introduced in other TCs/CoTs: Not achieved.
(5) Studies are conducted in other TCs/CoTs to ensure the relevance of the courses: Not achieved.
(6) Seminars and workshops are held by counterpart staff of the Project: Achieved.

With regard to know-how on training course delivery of NVQ levels 5 and 6 courses, several manuals were prepared (see Indicator 3 of the project purpose), and in-service training for instructors in other colleges was conducted by the counterpart instructors of SLCoT, so that know-how on teaching the courses was disseminated.[15] With regard to a system to collect and update labor market information, the Career Guidance Unit of DTET installed a database system for job vacancies to all the twenty-nine TCs and eight CoTs in the country, and provided relevant staff of the colleges with training on operation of the system. This system was similar to the one the project had introduced to the career guidance center at SLCoT. As a result, a system for collection and updating labour market information was introduced to other colleges. Know-how to support students' job placements was introduced to other TCs/CoTs; however this was a result of a programme conducted at that time with the assistance of ADB; there was no particular contribution to this from the project.

As mentioned in Output 2 and Output 3, SLCoT could not implement activities with collaboration of industry or assure relevance of the courses adequately; therefore, SLCoT was not in a position to accumulate the know-how on these areas. Therefore, sharing know-how on these areas with other colleges was not realized.

As mentioned above, several manuals were prepared and SLCoT and DTET shared the know-how gained by the project with other colleges only with regard to teaching skills of the courses and collecting and updating information on the labor market, but not in other areas such as collaboration with industry and assuring the relevance of the courses; therefore, Output 4 was achieved partly.

3.2.1.2 Achievement of Project Purpose

The project purpose was "DTET gains managerial and technical capacity to establish CoTs in each province by introducing model courses of NVQ levels 5 and 6 in SLCoT to train middle-level technicians". The status of achievement of the indicators of project purpose is explained as follows:

[15] The in-service training was conducted seven times in total during the project period with the participation of eighty-three instructors from other colleges.

1) Indicator 1

Indicator 1 was "90 per cent of the students who complete the model courses obtain expected level of course-related employment". As Table 1 shows, the ratio of the first batch of students who completed the model courses and obtained course-related employment was 50 per cent and 18 per cent for ICT and metalwork courses respectively. These figures were lower than what was planned.[16]

Table 1 Status of Employment of the First Batch of Students of the Model Training Courses

Courses	Engaged in Course-related Employment	Engaged in Course-unrelated employment	Unemployed/ went on to higher study	Total
ICT	10 (50%)	6 (30%)	4 (20%)	20 (100%)
Metalwork	3 (18%)	0 (0%)	14 (82%)	17 (100%)

Note: Employment status at the time of the terminal evaluation of the project of the first batch students, who studied in the model training courses from January 2007 to the end of 2008.
Source: Achievement grid attached to the report of the terminal evaluation of the project.

The first batch of students of the model courses completed the course by the end of 2008. However, the first assessment of the NVQ was delayed and conducted in March 2010, as a result of the delay in accreditation and endorsement of the National Skills Standard and the curriculum. Therefore, the first batch of students had to find employment without having a certificate of NVQ. Six students from the ICT course engaged in employment that is not related to the training course for this reason. Three students of the metalwork course obtained employment in the company they went to for in-plant training. Other students were seeking employment that they could commute to from their homes, which would provide the expected level of salary.

2) Indicator 2

Indicator 2 was "Youth applying for the model courses increases 10 per cent annually". As Table 2 shows, all the courses had enough applications to fill their available 20 places each in general; however the ratio of increment went up and down, and did not increase by 10 per cent annually as planned. The number of applicants for the metalwork course increased in 2010 as a result of the career guidance center conducting public relations activities especially for that course.

[16] As mentioned in the section on Output 1, students of the mechatronics training course graduated from SLCoT after completion of the project.

Table 2 Number of Applications for the Model Training Courses

Years	2007	2008		2009		2010		2011	
Courses	Applied	Applied	Increase/ decrease	Applied	Increase/ decrease	Applied	Increase/ decrease	Applied	Increase/ decrease
ICT	194	180	-8%	157	-15%	209	25%	177	-18%
Mechatronics	230	128	-80%	72	-78%	80	10%	95	16%
Metalwork	78	52	-50%	38	-37%	87	56%	14	-521%

Source: Tabulated by the External Evaluator based on figures in the report of Terminal Evaluation of the project

3）Indicator 3

Indicator 3 was "Manuals/documents developed in SLCoT and DTET are utilized in other CoTs". The project team produced the CoTs' operation manual, career guidance master plan and industry relations manual, which were the summary of their experience on operation of NVQ levels 5 and 6 training courses at SLCoT. These were shared with other colleges and stakeholders of the project at a seminar held by the project on completion of the project. However, at the time of the completion of the project, these manuals were defined as reference material; whereas the "NVQ Framework"[17], which had been produced by TVEC with assistance from ADB[18] had been distributed to all CoTs and was defined as a formal manual for operation of the courses.[19]

The project expected DTET, the supervising institution of SLCoT, to gain necessary capacity in the future operation and management of all CoTs in the country by participating in activities on the introduction of model training courses of NVQ levels 5 and 6 at SLCoT, and by taking a leadership role in solving various issues on operation and management of the courses. At the completion of the project, as mentioned earlier, SLCoT had several issues, such as the need to enhance teaching capacity of the instructors, and lack of progress with collaboration with industry. SLCoT also had other issues which were not described in the above-mentioned indicators, such as: screening of applicants at the entrance exam had not been conducted properly, and there was a significant difference between the curriculum and the skills and knowledge of students at the time of enrollment.[20] However, according to project reports and discussions with the relevant agencies at the time of the field survey, it was pointed out that there was inadequate commitment and leadership from DTET in solving these issues during the

[17] While the manuals documented by the project describe the operation of NVQ levels 5 and 6 training courses at SLCoT based on the experience of the project, the manual produced by ADB/TVEC is a comprehensive one about the operation of the vocational qualification system, including description of the NVQ and skills standards, background and process of curriculum development, methodology and standard of NVQ assessment, etc.

[18] Technical Education Development Project (January 2006 to August 2011).

[19] National Vocational Qualifications Framework of Sri Lanka, Operation Manual, October 2009, Tertiary and Vocational Education Commission.

[20] Besides the entrance exam, another reason for the gap was that students who complete level 3 often find it difficult to follow the training courses of NVQ level 5 as there is a big difference between these levels (even though students who have completed NVQ levels 3 and 4 are eligible to enter the courses of NVQ level 5).This was particularly noted in the ICT and mechatronics model training courses.

project, and enhancement of the operational and managerial capacity of DTET, which was the project purpose, had not been realized.

The project purpose had not been achieved mainly because: SLCoT had just produced the first batch of graduates from two of the three model courses, and had obtained experience in operation of the training cycle, including planning, implementation, monitoring, evaluation and improvement, only once by the time the project was completed, and, therefore, was not in a position to address the issues with regard to training course delivery; participation of DTET in the project was not adequate due to chronic shortage of staff and lack of commitment of the then directors; and the project team could not take strong leadership to promote enhancement of the capacity of DTET as the long-term JICA experts were not dispatched as planned.[21]

The project purpose had not been achieved because the enhancement of operational and managerial capacity at DTET through the introduction and operation of NVQ levels 5 and 6 courses at the SLCoT had not been realized.

3.2.2 Impact

3.2.2.1. Achievement of Overall Goal

The two overall goals of the project were "Quality of the trained manpower in TCs/CoTs meets the labor market demand" and "CoTs are established and managed by utilizing lessons and experiences of SLCoT". The overall goals were revised in PDM version five after the terminal evaluation; however, this ex-post evaluation was conducted according to the overall goals in PDM version four, as mentioned earlier.[22]

1) Overall Goal 1

The first overall goal was "Quality of the trained manpower in TCs/CoTs meets the labor market demand", and there were five indicators to measure the level of achievement of the goal:[23]

(1) 70 per cent of students of the TCs/CoTs obtained course-related employment on/immediately after completion of the courses: Relevant data was not available.
(2) Applications from the youth to TCs/CoTs increase by 2 per cent annually: Achieved.
(3) Every course obtains a sufficient number of qualified students according to their seating capacity: Not achieved.
(4) Drop-out rates of students reduce from the present 20 per cent to 10 per cent: Not achieved.

[21] Refer to the section on efficiency of this report for the status of participation of DTET in the project and the actual period when the JICA experts were dispatched.
[22] The status of the overall goals of PDM version five, "Lessons and experience of SLCoT on management and course delivery are utilized by other CoTs" and "Quality of the trained manpower in SLCoT meets the labour market demand", are also explained in the section on Indicators 1 and 2 of the overall goals respectively as reference information.
[23] The project aimed at enhancement of the capacity of DTET in operation of CoTs. However, the indicators for the first overall goal indicator show that it was expected that the project would have an impact not only on SLCoT, but also on all CoTs and TCs. This was because it was expected that enhancement of the operational capacity of DTET would have a positive impact on the operation of CoTs and TCs which are under the purview of DTET.

(5) DTET produces 1,000 technicians of NVQ levels 5 and 6 annually: Not achieved.

The external evaluator tried to obtain necessary data of the twenty-nine TCs and nine CoTs in the country that are under the purview of DTET, to study the level of attainment of the above-mentioned indicators at the time of the ex-post evaluation. There was no data for Indicator 1, as a comprehensive study about the employment status of former students had not been conducted. The recent status of Indicators 2, 3 and 4 are shown in Table 3. As planned by the project, the number of applicants to TCs and CoTs in 2011 and 2012 increased compared to the previous years. The average utilization ratio of the capacity of the training courses also increased year by year, from 69 to 75 per cent and then to 86 per cent; however it did not reach the planned ratio of 100 per cent. The average latest drop-out rate in 2012 for all the courses was 15 per cent, which was lower than the 20 per cent at the time of project planning; however, it was higher than the planned rate of 10 per cent. As for Indicator 5, the number of middle-level technicians who completed CoT training courses under DTET and obtained NVQ levels 5 or 6 is estimated as 240, which was fewer than the planned number of 1,000.[24] In this manner, three out of the five indicators were not achieved; the fifth indicator, the number of technicians of NVQ levels 5 and 6, which was significantly related to the human resource development aimed at by the overall goal, was much lower than planned. Thus, the first overall goal had not been achieved.

Table 3 Status of Operation of the TCs and CoTs

Items/Years	2010	2011	2012
No. Applied (year-to-year comparison)	35,023	45,653 (30%)	50,384 (10%)
No. Registered (year-to-year comparison)	15,822	17,210 (9%)	19,705 (14%)
Capacity (approximate figures)	23,000	23,000	23,000
Utilization Rates of the capacity	69%	75%	86%
Drop-out Rates (average of nine CoTs)	n/a	18%	15%

Source: Tabulated by the External Evaluator based on the records submitted by DTET.

As a part of the ex-post evaluation, the status of operation of the model training courses of SLCoT and employment of former students of the courses were studied to ascertain the level of contribution of the courses to the human resource development.

The three model training courses introduced by the project had been conducted without any interruption, and every year students who completed the courses participated in the labour market. It was witnessed when visiting workplaces of former students that some of them are

[24] The number of students who enrolled to NVQ levels 5 and 6 training courses in the colleges under the purview of DTET was 515 in 2012. The number of students, who passed the assessment of NVQ levels 5 and 6 was estimated as 241, with the assumption that the dropout rate is 15 per cent and the pass rate of the NVQ assessment is 55 per cent. These percentages were given by DTET during an interview.

performing well in the workplace and utilizing the skills obtained in the training courses. See "Box" for an example.

Box: Interview with a Former Student at his workplace : An opinion of the first-batch student of the ICT course

I studied theory of ICT comprehensively at SLCoT, and it was very useful for me to perform well in my job, software development. Recently, I was promoted to assistant manager. I had never even touched a computer before I enrolled at SLCoT. I'm very lucky to have obtained an opportunity to study in the college and got a job as a specialist. I'm very grateful to everyone at SLCoT who helped me to study. When I look back at the course, I may feel that the training we underwent was somewhat with limitations as the instructors did not have working experience in the industry. I would suggest increasing the number of lessons conducted by external instructors and enhance the training course. The college may invite former students like me as a volunteer instructor, if it has a shortage of budget to do so.

However, there are some concerns about the human resource development by the model courses of SLCoT. Table 4 shows the number of students of the model courses who enrolled, completed the course, passed the department examination conducted by DTET and passed the NVQ assessment. A sufficient number of students entered the ICT and mechatronics courses every year for their capacity of 20 each, while metalwork courses received fewer students than their capacity in recent years which shows that the course has been underutilized.[25]

More than 80 per cent of the students who enrolled in the courses completed the course study every year. However, 43-61 per cent of those who completed the course study passed the department examination. The ratio of those who passed the assessment of NVQ levels 5 or 6, out of those who completed the course study, was only 33-53 per cent.[26] Considering that Output 1 planned an 80 per cent pass rate for NVQ levels 5 and 6 among the first batch of students on the model courses, the above-mentioned actual figure was much lower than what was originally expected by the project.

According to interviews with staff and instructors of DTET and SLCoT, the reasons for the lower pass rate was mainly because: teaching capacity of the instructors, especially ICT instructors, had not been enhanced adequately, although the level of the skills standard and curriculum of NVQ levels 5 and 6 became high as they were developed to meet industry's needs; there are some students who have difficulty in following the training of their course, particularly those on the metalwork course, as their basic academic ability at the time of enrollment was fairly low; and some students, particularly on the metalwork and mechatronics

[25] The number of students enrolled to the metalwork course in recent years has also been less than the capacity. There were 4 in 2013 and 14 in 2014. According to the Director of SLCoT and senior management of DTET, there are only a few applicants to the course as some people consider metalwork as a "3D job" (dangerous, dirty and demanding). DTET plans to increase the number of students by introducing a weekend course for employees in industry from 2014, and adding a new category for enrolment for the course.

[26] The department examination is held by DTET. There is a mid-term examination and a final examination. Only students who pass all the subjects of these examinations are eligible to sit for the assessment of NVQ levels 5 and 6.

courses, cannot pass the department examination and NVQ assessment because they do not have adequate English proficiency.[27] In order to overcome some of the above-mentioned issues, intensive lessons for English and Mathematics, and gap-filling courses for those who have not studied particular subjects, were introduced by DTET to all CoTs and conducted at the beginning of training courses from 2012.

Table 4 Performance of Students of the Model Courses after Project Completion

Year	Item	ICT	Mechatronics	Metalwork	Total	(%)
2010	Enrolled	45	24	17	86	
	Course completed	39	21	12	72	(84%)
	Passed department exam	17	13	1	31	(43%)
	Passed NVQ assessment	17 (44%)	7 (33%)	1 (8%)	25	(35%)
2011	Enrolled	20	22	12	54	
	Course completed	19	21	9	49	(91%)
	Passed department exam	17	7	6	30	(61%)
	Passed NVQ assessment	17 (89%)	7 (33%)	2 (22%)	26	(53%)
2012	Enrolled	24	22	11	57	
	Course completed	22	18	6	46	(81%)
	Passed department exam	11	9	0	20	(43%)
	Passed NVQ assessment	6 (27%)	9 (50%)	0 (0%)	15	(33%)

Note: "Course Completed" are those who completed the course study with the successful attendance rate.
Percentages shown in the table indicate as follows:
"Course completed": Completed the course study/enrolled x 100
"Passed department exam": Passed DTET exam/completed the course study x 100
"Passed NVQ assessment": Passed assessment of NVQ 5 or 6/completed the course study x 100
Sources: Number of students who enrolled, completed the courses and passed department exam were given by DTET, and the number of students who passed NVQ assessment was given by TVEC.

The status of employment of former students of the model courses of SLCoT was also studied. As Table 5 shows, the sample beneficiary survey for former students conducted in the ex-post evaluation shows the employment rate was 75 per cent on average.[28] The employment rates of students who studied the mechatronics and metalwork courses were as high as 90 and 86 per cent respectively, while that of the ICT course was 58 per cent and comparatively low.[29] The

[27] The department examination and the assessment of NVQ levels 5 and 6 are conducted in English, because of the need for middle-level technicians to use English in their workplace.
[28] The external evaluation team conducted telephone interviews with 113 former students of the model courses, whose telephone numbers were correct on the list given by the college. This is 38 per cent of all former students of the model courses, i.e. 301. The interviews were conducted in November 2013. The team defined "former students" as those who completed the course study. Those who dropped out were excluded.
[29] During and after completion of the project, the number of ICT training courses in both public and private institutions was increasing rapidly in Sri Lanka; however, the demand for manpower in the ICT sector in the country has been limited due to the impact of the global financial crisis, Lehman's fall. This is probably the main reason that

ratio of former students who are engaged in course-related employment out of those who are employed was 71 per cent on average of the three courses; and 57, 88, 63 per cent for the ICT, mechatronics and metalwork courses respectively. The figure for the ICT course was again the lowest among the three.

Table 5 Status of Employment of Former Students of the Model Courses (N=113)

Items	ICT	Mechatronics	Metalwork	Total
a. Employed (including self-employment)	23	26	19	68
b. Looking for employment	17	3	3	23
c. Not looking for employment due to study, sickness, etc.	16	6	0	22
d. Total (a + b+ c)	56	35	22	113
e. Employment Rate (a/(d-c) x 100)*	**58%**	**90%**	**86%**	**75%**
f. Engaged in course-related employment	13	23	12	48
g. Percentage of those engaged in course-related employment out of the total employed (f/a x 100)	57%	88%	63%	71%

*Note: "e. Employment rate" is the ratio of those who are employed out of the samples excluding those who are not looking for an employment due to study or sickness.
Source: Beneficiary Survey

In this way, the model courses of SLCoT contributed to some extent to the development of human resources, which was aimed at in the overall goal of the project. The status of employment of graduates of the mechatronics and metalwork courses is satisfactory, although there are some problems, such as the pass rate at NVQ levels 5 and 6 for students of the model courses not reaching the level the project originally expected, and the metalwork course having less students than its enrolment capacity.

2) Overall Goal 2

The second overall goal of the project was "CoTs are established and managed by utilizing lessons and experiences of SLCoT". The CoTs were established during the project with the assistance of ADB. Therefore, in the ex-post evaluation, the external evaluator studied whether DTET was improving the operation of training courses at CoTs in the country by utilizing the experience and lessons learned from SLCoT, because this overall goal of the project aimed to utilize the experience and lessons learned from the project in other CoTs in the country.

As mentioned in the section on project purpose, there were several problems with regard to the operation of the model courses at SLCoT at the time of completion of the project. The external evaluator studied the status of operation of the training courses at CoTs during the ex-post evaluation, and found that some problems had been solved and course delivery had been improved to some extent. Examples of these improvements are: revision of the curriculum of

the employment rate of the ICT course students is comparatively low.

the mechatronics course, introduction of a gap-filling course, mid-term examination[30] and intensive courses for English and Mathematics; and improvement of the screening process at enrollment. Some of the improvements addressed concerns of instructors of the model courses at SLCoT at the time of the project implementation. According to interviews conducted with instructors of the model courses at SLCoT and staff of DTET at the time of the ex-post evaluation, it was confirmed that these improvements were implemented based on suggestions and proposals made by the instructors of the model courses and the director of SLCoT. It was, therefore, understood that the experience and lessons learned from the project were utilized to solve these problems in the course delivery.

However, a programme to activate relationships with industry, and implementation of short-term courses for employees of industry, were not conducted successfully in CoTs or in SLCoT even at the time of the ex-post evaluation, because DTET was still unable to promote these programmes positively.[31] Some SLCoT instructors still find it difficult to teach several modules in the curriculum of NVQ levels 5 and 6; however, this problem of inadequate teaching skills of the instructors had not been solved even at the time of the ex-post evaluation, partly because during the project period the capacity-building of SLCoT instructors was conducted mainly by training in Japan, and a system was not introduced for DTET to plan and implement a capacity development programme within the country.[32] It was also found that there are not enough instructors for the course delivery in some CoTs. However, DTET was still unable to implement drastic measures to solve this problem either.[33] At the time of the ex-post evaluation, SLCoT and DTET were not aware of the manuals developed by the project; therefore, it was not possible to find out if these manuals were utilized after completion of the project.

In this manner, DTET introduced several improvements for operation of CoTs after completion of the project by utilizing the experience of SLCoT; however, with regard to the promotion of industry relationships and development of capacity and quantity of instructors, what was achieved by SLCoT and the degree of knowledge and experience gained from this achievement were not sufficient, and, because of this, DTET was not able to disseminate the

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[30] The mid-term examination was introduced to ensure progress was made with the learning process in stages.

[31] The main reason that short-term courses for employees of industry were not conducted was that some instructors teach more hours than they should due to the shortage of instructors in the colleges; therefore, it was not encouraged to increase their teaching hours as a result of introduction of short-term courses. The reason that the activation of industry relationships was not realized is that staff posts for promotion of industry relationships in CoTs and in DTET were sometimes vacant or not full-time; and the "technical committee" or "advisory council", which has members from the representatives from industry, do not have a right to make decisions on implementing measures to improve the training courses, which discourages participation of the industry representatives, as explained in "Output 2" of this report.

[32] For example, the instructors of the ICT model course found they do not have sufficient skills to conduct the practical lessons of the modules, such as printing and graphic design, quality assurance of software development and database management. The need for improvement of the teaching capacity is explained in detail in "3.4.3 Technical Aspect of the Implementing Agency (Sustainability)" of this report.

[33] DTET calls for applications for instructors almost every year; however recruitment does not show much progress as there were only a small number of applicants who had the required qualifications for the posts. It is also because the salary of instructors is lower than that of the private sector in general. With regard to training for the instructors, DTET discussed this with the instructors and collected information about the modules for which they need to improve their teaching skills during the monitoring visits to the colleges; however, the necessary training had not been conducted as DTET could not find ready-made training courses for capacity-building of the particular modules, and also because it was difficult to find institutions which would accept the instructors for in-plant training.

achievement to other CoTs. Therefore, it is evaluated that part of the second overall goal had not been achieved.[34]

3.2.2.2 Other Impacts

There was no negative impact on the natural environment caused by the project. There was no involuntary resettlement or land acquisition caused by the project. The external evaluator did not observe any other impact.

In summary, the project had not achieved its project purpose by the end of the project, because: SLCoT was not in a position to accumulate the know-how on course delivery as a result of the accreditation and endorsement of the National Skills Standard and the curriculum of the NVQ levels 5 and 6 courses being delayed; the commitment of DTET to solving issues on operation of the courses was not sufficient; and the long-term JICA experts were not dispatched as planned, and as a result the progress of project activities was affected. At the time of the ex-post evaluation, the managerial and technical capacity of DTET for course delivery had still not been developed up to the expected level, and the project's contribution to the creation of a workforce with NVQ levels 5 and 6 was also limited. In this manner, the impact created by the project is less than the plan and, therefore, effectiveness and impact of the project is low.

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

Table 6 shows the planned and actual input of the project.

Table 6 Planned and Actual Inputs of the Project

Inputs	Plan	Actual
(1) Experts	- 220 man-months for Long-Term (Chief advisor, ICT, mechatronics, mechatronics and project coordinator) - 3-4 persons per year and 30 man-months in total for Short-Term	- 8 persons and 128 man-months for Long-Term (Chief advisor, ICT, mechatronics, mechatronics and project coordinator) - 18 persons and 33 man-months for Short-Term
(2) Trainees received	Fields of training (training in Japan): Technical education administration: 1; Operation and management of CoTs: 6;	Fields of training: 24 in total. The subjects of the training were as planned.

[34] The status of achievement of the first overall goal of PDM version five, "Lessons and experience of SLCoT on management and course delivery are utilized by other CoTs", was explained in "3.2.2.1.1)", Overall Goal 1 in this report.

Inputs	Plan	Actual
	Training for instructors: 12; 19 in total	
(3)Third-Country Training Programs	Not planned	Total 5 persons trained in Malaysia, Philippines and Singapore
(4) Equipment	ICT (computer-related equipment), mechatronics (component processing and control machinery for practical training), metalwork (cutting, welding and testing machinery): 250 million yen in total	300 million yen. Items purchased were as planned
Total Project Cost	660 million yen	707 million yen
Total Local Cost	Amount not specified (refurbishment of classrooms and workshops)	LKR 30 million (items for expenditure were as planned)

3.3.1.1 Elements of Inputs

The long-term JICA experts on metalwork and coordinators were dispatched as planned. However, the chief advisor, experts on ICT and mechatronics were not dispatched as planned. The period of assignment of the first chief advisor was completed in June 2008. The successor had fallen sick and went back to Japan in November 2008. After that, no one was dispatched for the post of chief advisor until the end of the project as an appropriate candidate was not available. The period of assignment of the first ICT expert was completed in March 2007. After that, no one was dispatched although there were requests from the Sri Lankan side. Several short-term experts on ICT were dispatched to fill the vacancy for the long-term expert. The first expert on mechatronics fell sick and went back to Japan in March 2006. The post was vacant for around 3 months until the replacement was dispatched. As a result of these issues, the actual period of assignment of the long-term experts was 128 man-months in total, whereas it was planned to be 220 man-months (58 per cent against the plan). In order to make up for the absence of the long-term experts, several short-term experts were dispatched additionally and 3 Sri Lankan consultants were assigned on career guidance, industry relations and know-how dissemination.

The JICA expert team of the project could not take adequate initiatives with regard to monitoring and improvement of the training courses and enhancement of the capacity of DTET, because there was no chief advisor in the second half of the project period. Although the long-term expert on mechatronics was only absent for three months, this resulted in a delay in selection and procurement of equipment for the course, and a consequent delay in commencement of the course, as the time of the absence was an important period for the

selection process.

3.3.1.2 Project Cost

The project cost for the Japanese side was planned as around JPY 660 million. It was actually JPY 707 million and exceeded the plan (107 per cent against the plan). It seems that the increase in the cost of equipment and number of participants to the training programme in Japan was probably the cause of the increase in project cost.

3.3.1.3 Period of Cooperation

The period of cooperation was planned as five years from August 2005 to July 2010, and was actually five years as planned (100 per cent).

The level of participation in the project and effort for management of project progress rendered by the Sri Lankan project stakeholders was not strong enough to produce the expected results within the project period. For example, meetings of the project management committees and steering committees chaired by the Director General of DTET were not held periodically in spite of repeated requests made by the JICA experts; and meetings of the joint coordination committee of the project chaired by the Ministry of Vocational and Technical Education, which were planned to be held biannually, were not held for a period of one and a half years from 2008. The above-mentioned inadequate commitment and progress management was one of the causes of the delay in project activities and achievement of the outputs.

Although the project period was within the plan, the project cost exceeded the plan. Therefore, efficiency of the project is fair.

3.4 Sustainability (Rating: ①)

3.4.1 Related Policy towards the Project

The medium- and long-term national development plan of the country was the same both at the time of planning and completion of the project; this stresses the need to enhance technical education and vocational training programme to develop high-quality industrial workforce. The development programme of the technical education and vocational training sector of the country by the Ministry of Youth Affairs and Skills Development is *Skills Development in Sri Lanka – Achievement and Way Forward (2013 / 2014).*[35] The programme considers technical education for NVQ levels 5 and 6 to be important in the future, too, for producing middle-level technicians that are in high demand in the labor market.

As mentioned in the programme, the Ministry is going to establish twenty-five University

[35] *Skills Development in Sri Lanka, Achievement and Way Forward, 2013/2014*, Ministry of Youth Affairs and Skills Development.

Colleges all over the country; these will conduct NVQ levels 5 and 6 diploma training courses, with the aim of further promoting production of middle-level technicians and ensuring opportunities for higher study for the youth who have completed their basic education. The University Colleges are going to conduct NVQ levels 5 and 6 technical education in forty-four subjects. As of March 2014, at the time of the field study of the ex-post evaluation, the Ministry was preparing buildings and classrooms for the colleges and processing recruitment of lecturers, so that several colleges would be opened in 2014. The Ministry was in negotiations with ADB and the World Bank to obtain financial assistance for technical education and vocational training, including the establishment of the colleges.[36]

The Ministry and TVEC explained the reason for establishing University Colleges to expand training of NVQ levels 5 and 6, instead of utilizing CoTs, was that there were a lot of obstacles to expanding NVQ levels 5 and 6 training in CoTs, which are under DTET, and that it is difficult to take drastic measures to overcome these obstacles. One reason, for example, is that it is difficult for DTET to recruit the necessary number of instructors with adequate capability, because their salary and allowances are the standard for civil servants in DTET, and are generally lower than those of employees of private companies and instructors in private training schools and university lecturers. Another reason is that it takes a long time for the staff union of DTET to show their acceptance of the various new programmes introduced in CoTs.[37] According to the Ministry, University Colleges will be established under UNIVOTEC, and will be categorized as universities. Therefore, University Colleges will be able to recruit persons with higher capability for teaching staff, as they will have the status and benefits of "university lecturers". The Ministry also plans to operate five out of the twenty-five colleges to be established in partnership with the private sector, to meet the needs of the labor market more precisely and also to ensure employment opportunities for the students. The Ministry stated that the establishment of University Colleges is a positive strategy to promote technical education of NVQ levels 5 and 6 more effectively.

The Ministry further explained that the NVQ levels 5 and 6 training courses which are conducted in CoTs, including SLCoT, will be gradually transferred to the University Colleges; however, the detailed plan for the transfer, for example, which University Colleges the model courses of SLCoT will be transferred to, had not been documented. The Ministry also explained

[36] ADB's news release dated 31st March, 2014 said that ADB's Board of Directors has approved a US$ 100 million loan for the Sri Lankan government's Skills Sector Development Programme.

[37] As mentioned in "1.1 Background" of this report, prior to commencement of the project the Sri Lankan government promoted transfer of the technical education and vocational training courses conducted by public institutions from a curriculum-based to a competency-based training (CBT) system and introduction of a qualification system based on NVQ. At the time of the ex-post evaluation, the majority of training courses under DTET offered qualifications according to the NVQ system. However, some courses were still conducting training according to the conventional system, and transfer to the NVQ system has not been completed even 10 years after its introduction. According to the ADB report, *The National Qualifications Framework for Skills Training Reform in Sri Lanka, 2011*, transfer to the NVQ system did not show planned progress due to insufficient understanding of CBT among the staff unions and staff of DTET, and resistance to change. However, the Director General of DTET issued a letter addressed to all directors of the colleges to conduct all courses based on the NVQ system. Therefore, the speed of transformation could accelerate in future.

that the resources, experience and lessons taken from the project will be utilized for administration of the University Colleges as much as possible. However, a specific plan for utilization has not yet been prepared. It is anticipated that there will be limited utilization of the instructors at CoTs because it is necessary to have a university degree to be a lecturer at the University Colleges.[38] In this manner, at the time of the ex-post evaluation there was uncertainty with regard to the effective future utilization of the outcomes of the project, including the experience and achievements of the model courses at SLCoT and the resources of CoTs, as well as with sustainability of the project effects, given the present policy background.

3.4.2 Institutional Aspects of the Implementing Agency

DTET is responsible for operation and administration of the nine CoTs and twenty-nine TCs in the country, including personnel and financial management, implementation of entrance examinations and department examinations, monitoring and evaluation of training courses, and supervision of industry relationships and career guidance programmes. There are 2,211 staff members of DTET at present, including instructors and administration staff, while the approved cadre is 3,856 (a shortfall of 1,645). Among them, there are 521 instructors, which include "lecturers" who have a bachelor's degree and general teaching staff called "instructors", while the approved cadre is 1,161 (a shortfall of 640). DTET has a serious shortage of staff in this way. DTET calls for applications for instructors almost every year; however it is difficult to recruit persons with high capability, because the salary of the instructors is based on the standard of public servants in general and is comparatively low. Especially, DTET found it difficult to recruit instructors for the colleges in rural areas, because there are persons with technical skills for teaching, but they can only be recruited if they pass the test for general knowledge. In DTET head office and in the colleges, the posts for quality control of the training courses, relationships with industry and career guidance are sometimes vacant or do not have full-time staff in charge, and this is one of the causes for the programme for monitoring and evaluation of the courses and industry relationships not being conducted sufficiently. In this manner, DTET does not have an adequate solution to solve the shortage of staff, and, therefore, the organization does not have an established system to maintain the project effects in future.

In SLCoT, the post of deputy director, who is responsible for the monitoring of training courses, and several posts for administration were not filled. The number of instructors and lecturers for the model courses is eleven in total, although the approved cadre is sixteen (a shortfall of five). However, the training is conducted without any interruption as instructors

[38] The University Colleges will use the curriculum and teaching materials currently used in CoTs. The specific courses of CoTs to be transferred to particular University Colleges will be decided one by one, considering the demand of the workforce and priority of local industry at the location of University Colleges to be established. It is planned to transfer ownership of CoTs' machinery and teaching materials to the University Colleges as much as possible for utilization, although there is no specific plan for this at the time of the ex-post evaluation. There would be limited utilization of the instructors in CoTs. There is no plan to transfer all the instructors at CoTs to the University Colleges, because there are instructors at CoTs who do not have a bachelor's degree, and teaching posts at University Colleges require a bachelor's degree. Those who have a degree are able to apply for a teaching post at the University Colleges. However, those who do not have a degree will most probably stay in CoTs or TCs.

undertake two duties or work for additional hours.

3.4.3 Technical Aspects of the Implementing Agency

The operations manual produced by ADB and TVEC is used for operation of NVQ levels 5 and 6 courses in CoTs. Application of the curriculum, examinations and NVQ assessments are conducted in accordance to the manual. As mentioned in the section on Impact of this report, DTET had introduced several measures to improve the operation of NVQ levels 5 and 6 courses, however, there are still some issues, such as activation of industry relationships and enhancement of the quality and quantity of the instructors. Therefore, the managerial and technical capacity of DTET with regard to the operation of NVQ levels 5 and 6 courses had not been developed up to the expected standard of the project, and there is no particular programme to improve the capacity up to the expected standard in future.

Capacity-building of instructors of the ICT course is an important task for DTET. To meet the needs of industry, the curriculum of NVQ levels 5 and 6 courses includes modules such as quality management of goods and services, teaching of which needs working experience in industry. However, the majority of instructors do not have working experience in the private sector and find it difficult to conduct practical lessons for these modules. DTET encouraged instructors to participate in training courses conducted by donor agencies and others to improve their teaching skills. However, DTET has not conducted a programme to improve teaching capacity of particular modules by arranging in-plant training, which is exactly what the ICT instructors require at the moment.[39] By taking the need for capacity development of the instructors seriously, DTET plans to commence technical training in 2014 for instructors and staff of the organization intensively by implementing the proposed 5-year programme, which was developed in 2014 and includes training for instructors on education methodology, computer and subject-related skills. However, at the time of the ex-post evaluation this programme was still a plan, and there was still no clear prospect of DTET solving the problem of capacity development of the instructors.

In this manner, managerial capacity of DTET on NVQ levels 5 and 6 courses, which were undertaken by the project, has still not reached the expected level, and there is no clear prospect for improvement in future; therefore, it is difficult to say that DTET has adequate technical capacity to maintain the project effects.

3.4.4 Financial Aspects of the Implementing Agency

Table 7 shows the amount of approved budget and actual expenditure of DTET in total and actual expenditure of the nine CoTs in recent years. The amount of approved budget and actual expenditure has been increasing annually by taking the price hikes into consideration. The

[39] The Ministry of Youth Affairs and Skills Development has identified a strong need for in-plant training for instructors, and conducted an in-plant training programme in 2013. Ninety-nine instructors of CoTs and TCs participated in the programme.

amount of actual expenditure is less than the approved budget because disbursement from the Ministry of Finance is sometimes delayed. The amount of budget for each college is sufficient in general to conduct training courses according to the defined curriculum; however, the allocation for materials and consumables for practical lessons is often not enough. The instructors managed to conduct such lessons by saving materials as much as possible, and reusing materials used by previous batches of students.

Table 7 Annual Budget and Expenses of DTET

(Unit: thousand rupees)

	Year	2010	2011	2012	2013
DTET	Approved budget	1,174,075	1,298,810	1,411,835	1,516,000
	Actual expenses	1,008,103	1,091,641	1,288,690	1,046,486*
9 CoTs**	Actual expenses	288,475	385,030	424,130	417,300*

Note：*Amount of actual expenses of 2013 is the total from January 2013 to end of October 2013.
** Amount of actual expenses of 9 CoTs is included in the amount of actual expenses of DTET.
Source: DTET

The equipment and tools provided by the project are utilized well except for some equipment on the mechatronics course.[40] This equipment and tools were provided with appropriate maintenance in general. However, the software installed in some equipment of the ICT and mechatronics courses had not been updated from the time they were provided, and, thus, the versions of the software are older than what is used currently by private companies in Sri Lanka. There is no plan to update them, as DTET does not have a system to allocate a budget for periodic update of the software of training equipment. There is a concern that the training courses using this equipment may become outdated and not meet the needs of the private sector.

Major problems have been observed in terms of the policy background, institutional and technical aspects of the implementing agency. Therefore, sustainability of the project effect is low.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented with the objective of DTET, which is the supervisory organization of SLCoT gaining the necessary capacity to establish and operate CoTs, which were planned to be established in each province, through the experience of establishing NVQ levels 5 and 6 training courses in SLCoT, and thereby contributing to the production of middle-level technicians.

Enhancement of the technical education and training programme for development of

[40] A PIB controller and a PCB cutting machine for the mechatronics course were not being utilized because the operation manuals for the machinery had been misplaced after the instructor who was originally in charge of the relevant modules in the course was transferred.

workforce was an important task in the middle- and long-term development plan of the country, both at the time of planning and completion of the project. There was a development need in the country to improve technical education and produce workforce which met the demands of industry. This plan and needs were also in line with the strategy of Japanese assistance to Sri Lanka. Therefore, relevance of the project is high.

The project purpose was not achieved by the time of project completion mainly because: endorsement of the curriculum of NVQ levels 5 and 6 training courses had been delayed and, as a result, SLCoT was not able to accumulate the know-how for operation of the courses; the commitment of DTET for solving issues with operation of the courses was not sufficient; and the long-term JICA experts were not dispatched as planned, and as a result the progress of the project activities was affected. At the time of the ex-post evaluation, managerial and technical capacity of DTET for operation of the training courses had not been developed up to the expected level, and the project had not contributed adequately to the creation of workforce with NVQ levels 5 and 6 qualifications. The impact created by the project is less prominent than what was expected, and therefore effectiveness and impact of the project is low.

Although the project period was within the plan, the project cost exceeded the plan. Therefore, efficiency of the project is fair.

Although the project period was within the plan, the project cost exceeded the plan. Therefore, efficiency of the project is fair. A specific plan to transfer resources of CoTs, such as achievements in the operation of NVQ levels 5 and 6 courses, knowledge and experience of the instructors and equipment, to University Colleges which are to be established all over the country in future, has not yet been prepared. DTET has several problems in terms of operation of the institute and technical aspects, such as a chronic shortage of staff, inability to take effective measures to enhance the quality and quantity of instructors at CoTs, and to activate relationships with industry. Therefore, sustainability of the project is low.

In light of the above, this project is evaluated to be unsatisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

(1) Transfer experience and resources of the project to the University Colleges effectively

The experience of the operation of NVQ levels 5 and 6 courses, knowledge and experience of the instructors, machinery and equipment of CoTs, including SLCoT, should be effectively utilized in the University Colleges to be established, so that none of it will be wasted. It is advised to develop a specified plan to utilize and transfer the resources of CoTs effectively and implement the same according to the plan at the time the training courses of CoTs are transferred to the University Colleges.

(2) Improvement of the pass rate of assessment of NVQ levels 5 and 6

The pass rate of assessment of NVQ levels 5 and 6 of students of the model courses is far below the initial target of 80 per cent. The pass rate is an important indicator to measure effectiveness and efficiency of the training. It also shows the level of contribution of the

training courses to the development of human resources with skills to meet the needs of industry. It is necessary for DTET to analyze the reasons for the low pass rate and implement necessary measures for improvement, for example, by improving teaching skills of the instructors and enhancing the training by inviting external lecturers from industry.

(3) Budget allocation for the update of software of machinery for training

The software installed in some equipment for the ICT and mechatronics courses of SLCoT had not been updated since they were provided by the project. DTET needs to allocate the necessary budget for periodic update of the software of this machinery, so that the training always meets market needs.

4.2.2 Recommendations to JICA

It is recommended that JICA keep in regular communication with the relevant institutions in this sector, such as the Ministry of Youth Affairs and Skills Development, DTET and ADB, and pay attention to the effective utilization of the effects of the project, especially as there is a plan that CoTs will be transferred to the University Colleges.

4.3 Lessons Learned

(1) Activities and objectives of the project should be more focused when a project is implemented along with the establishment of a new system

The project aimed to introduce the new training courses, improve the teaching skills of instructors, establish industry relationships, monitor and improve the training courses, develop managerial capacity of the implementing agency and utilize the project outcomes in other colleges - although it commenced without waiting for the establishment of a framework for the proposed NVQ levels 5 and 6 training courses. Although the project tried to achieve many things, only a part of the outputs were attained and the project purpose was not achieved due to the influence of the significant delay in establishing the framework of the proposed courses. If a project is going to conduct activities in accordance with a new system, without waiting for the establishment of its framework, it should be aware of the risks caused by a possible delay in establishing the framework and prepare a scenario and measures to be taken if it is delayed. The project design should be developed after narrowing down proposed activities according to the priority, which can be introduced and implemented steadily, taking the given time and resources into consideration.

(2) A focused and continuous effort for improving the teaching capacity of instructors should be made when a training course is introduced where the level is higher than existing ones, or where the curriculum intensively reflects the needs of industry

The project introduced training courses of a higher level than existing ones, based on a curriculum developed reflecting the market needs, in order to deal with an issue of shortage of middle-level technicians and to conduct training that meets market needs. However, the teaching capacity of instructors of the model courses had not been sufficiently enhanced, and this problem became one of the causes for the low pass rate of students for the department

examination and NVQ assessment. This is partly because the capacity development of SLCoT instructors had been conducted mainly through training in Japan, and a system for DTET to plan and conduct programmes for enhancing the capacity of instructors in the country was not introduced. A focused and continuous effort to improve the teaching capacity of instructors should be made when a training course of a higher level than existing ones, or whose curriculum intensively reflects the needs of industry, is introduced, as there could be a difference between the capacity of instructors and the newly-introduced curriculum. It is also important for the enhancement of sustainability of the project effects that the implementing agency establishes a system and activities during the project period to conduct programmes to enhance the capacity of instructors continuously utilizing resources in the country.

BOX : Suggestions and lessons learned from a comparative study of four technical cooperation projects of vocational training

While conducting this ex-post evaluation, a comparative study of technical cooperation projects was conducted to find their features and effects, by taking examples from four projects: "The Project for Instructors Training for Vocational and Training" in Uganda, "The Project on Strengthening the Programme of Expanding Automation Technologies Department (SPREAD)" in the Republic of Turkey, "The Project for Strengthening the Capacity of Training Management of Vocational Training Corporation" in Jordan and this project. The following suggestions and lessons were learned from the analysis of the main components of the four projects: (1) development and implementation of policies and systems of vocational training; and (2) strengthening of functions of vocational training centers.

1. Development and implementation of policies and systems of vocational training

When a project is implemented along with the development of new policies and systems for vocational training, a delay in the development or change in the systems can be a risk factor for the project to achieve its purpose or create the expected effects. With the project in Uganda, a qualification system was established as planned partly because the project activities included the activities to contribute to the establishment of the system; and the established system had facilitated the creation and continuation of the expected effect of the project. A change in the conditions of qualification of the instructors with the project in Turkey, a delay in the restructuring of Vocational Training Corporation assisted by the World Bank with the project in Jordan, and a delay in establishing a new vocational qualification system assisted by the Asian Development Bank with the project in Sri Lanka, gave a negative influence for the creation and continuation of the project effects. These examples suggest the importance of adequate study of the implementation capacity of the government institutions which are responsible for the development of the policies and systems, and the importance of collecting information on the contents and progress of the policies and the systems to be developed.

2. Strengthening of functions of vocational training centers

(1) Assistance with establishment of training management cycle

It is essential to assist the counterpart officers until they are able to operate the training management cycle independently in projects to assist the establishment of a cycle, which includes planning, implementation, monitoring, evaluation and improvement of training courses. With the project in Jordan, the training management cycle was further disseminated after the project, as a result of the staff of Vocational Training Corporation operating the cycle two to three times independently and also experiencing dissemination of the cycle to other training centers than the model training centers. As for the projects of Turkey and Sri Lanka, the counterpart officers could not gain adequate knowledge and experience of the cycle during the projects; therefore, they were not able to gain the necessary technical skills to operate the cycle on their own.

(2) Reflection of the needs of industry in the training courses

For introduction of measures to reflect the needs of industry in the training courses, it is important to establish a system that incorporates advice from industry representatives into the training courses immediately, not just to receive advice from them. With the project in Jordan, Curriculum Development Committees, which included industry representatives, were provided with authority to add training items, review the hours of practical lessons, etc. The project also introduced a system for decisions of the committees to be incorporated in the next training courses. This system was functioning at the time of the ex-post evaluation. Technical committees formed in the project of Sri Lanka, on the other hand, did not have authority to decide on revisions and improvement of the training courses; therefore, the suggestions of the committees were not incorporated into the revision and improvement of the training courses immediately. As a result, the industry representatives of the committees gradually lost interest in participating in the committees, and the committees became non-operational.

(3) Capacity building of the instructors

It is important for projects aiming at capacity building of instructors to adequately identify the gaps between the existing capacity of the instructors and what is required to conduct the training courses; and to establish a system for the implementing agencies to improve capacity of the instructors continuously by using resources available in the countries, in addition to the training sessions in Japan and technical transfer from JICA experts. With the project in Jordan, Vocational Training Corporation had planned and conducted in-plant training for the instructors during the project and has been continuing such trainings even after project completion. With the project in Uganda, no new master trainers, who conduct training for the instructors and managers, had been trained after completion of the project; this was a result of master trainers only being trained in Japan, and, therefore, the implementing agency had not learned how to carry out the training. With the project in Sri Lanka, capacity building of the instructors of the model training courses was mainly conducted in the training in Japan, and a system for the relevant ministry and department to plan and conduct measures for capacity building of

instructors had not been introduced by the project. As a result, some of the instructors having insufficient teaching skills was still a problem at the time of the ex-post evaluation.