Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Bhutan Office: February 2018

Country Name	Strengthening of Quality of Vocational Education and Training Delivery
Kingdom of Bhutan	

I. Project Outline

Background	The Royal Government of Bhutan (RGOB) had introduced a policy encouraging employment in the private sector due to the limited growth of job opportunities in the public sector. However, the vocational training system in Bhutan had not fully reached enough quality to satisfy the needs of the private sector. Moreover, the youth population of Bhutan had been booming rapidly. It was urgently required that RGOB provide qualified vocational trainings for young Bhutanese in order to secure their employment.		
Objectives of the Project	Through strengthening planning, implementation, monitoring and evaluation system of Department of Human Resources (DHR) and capabilities of the electrical course of Khuruthang Institute of Electrical Engineering (KIEE) and electrical instructors of Technical Training Institutes (TTIs), the project aimed at producing human resources who have necessary knowledge and skills based on industrial needs in the electrical course of KIEE and accumulating know-how applicable to other TTIs, thereby expanding project effects to electrical courses of other TTIs. 1. Overall Goal: Electrical courses of TTIs produce human resources who have necessary knowledge and skills based on industrial needs. 2. Project Purpose: Electrical course of KIEE produces human resources who have necessary knowledge and skills based on industrial needs, and know-how which can be applied in the other TTIs is accumulated.		
Activities of the Project	1. Project Site: Thimphu, Khuruthang 2. Main Activities: (1) Conduct training needs assessment, develop guideline and workflow of training management and monitoring and evaluation (M&E) guideline, and hold workshop to promote the activities/outputs of the project; (2) Develop lesson plans to provide effective training, conduct pilot courses in electrical at KIEE, and develop resource (materials and equipment) management system (Inventory Management System (IMS)); and (3) Train TOT trainers in electrical courses, conduct cascade training by TOT trainers, and develop guidelines on training of instructors etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 4 persons 2) Trainees Received in Japan: 27 persons 3) Trainees in third countries (Thailand and the Philippines): 44 persons 4) Equipment for trainings for electrical course 5) Operational expenditure Bhutan's Side 1. Staff Allocated: 4 persons 2. Project office and office furniture		
Project Period	June 2009 – June 2013	Project Cost	(ex-ante) 280 million yen, (actual) 304 million yen
Implementing Agency	Department of Technical Education (DTE)[1] of Ministry of Labor and Human Resources (MoLHR), Technical Training Institute Khuruthang (TTI-K)[2], Technical Training Institute Ranjung (TTI-R), Technical Training Institute Sershong (TTI-Ser) and Technical Training Institute Chumey (TTI-C)		
Cooperation Agency in Japan	Ministry of Health, Labour and Welfare, Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers (JEED) and Overseas Vocational Training Association (OVTA)		

II. Result of the Evaluation

<Constraints on Evaluation>

- It was found out that the electrical course of TTI-Ser and TTI-C was discontinued in 2014. Based on domestic needs, TTI-Ser has been transformed from TTI to the newly established Jigme Wangchuk Power Training Institute that focuses on transmission and distribution, transformer maintenance and underground cable trenching etc., while TTI-C has focused on civil construction and furniture making courses. Thus, the survey for the ex-post evaluation was conducted for TTI-K and TTI-R only.
- Regarding the Indicator 2 of both Project Purpose and Overall Goal, while surveys on employment status of graduates have been conducted by TTIs, not all graduates have responded to the survey, and thus the employment status of all the graduates are not available. Therefore, in this ex-post evaluation, the achievement level of the Indicator 2 is assessed based on the ratio of the number of graduates who were employed within six months after graduation against the number of graduates who responded to the employment status survey.

1 Relevance

<Consistency with the Development Policy of Bhutan at the Time of Ex-Ante Evaluation and Project Completion>

The project was consistent with Bhutan's development policy on 'human resource development' and 'Technical and Vocational Education and Training (TVET)' etc. as set forth in the "Bhutan 2020, A Vision for Peace, Prosperity and Happiness (1999)", "The Ninth Five Year Plan (2002-2007)" and "The Tenth Five Year Plan (2008-2013)" at the time of both ex-ante evaluation and project completion.

<Consistency with the Development Needs of Bhutan at the Time of Ex-Ante Evaluation and Project Completion >

At the time of ex-ante evaluation (2009), major industries in Bhutan were agriculture and exports of electricity from hydropower generation to India. The unemployment issue due to an increase of youth population was a social problem. The government established the Ministry of Labor and Human Resources (MoLHR) in 2003 and set up eight vocational training institutes under MoLHR (of which four

[1] The Department of Human Resources (DHR) has become the Department of Technical Education (DTE) from April 2017.

[2] Khuruthang Institute of Electrical Engineering (KIEE) is currently called Technical Training Institute Khuruthang (TTI-K).

institutes had electrical courses) to tackle this issue. However, they lack capabilities to prepare curricula and training materials reflecting industrial needs and training systems for instructors. At the time of project completion, Bhutan was planned to be fully electrified by 2013 and it was expected to increase the demand for electricians. Thus, there were still needs for vocational education and trainings in electrical courses.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, social development was emphasized as one of priority areas of assistance to Bhutan, in which human resource development for employment generation was included[3].

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose had been achieved by the time of project completion. Regarding the Indicator 1, the project conducted a survey by sending a questionnaire to employers of TTI-K graduates of 2012 batch[4] (graduated in June 2012) as the first batch of the project, and was able to collect answers from 13 companies. Eleven out of 13 companies had employed TTI-K graduates even before 2012, and 10 out of these 11 companies replied that TTI-K graduates of 2012 batch were more advanced than previous graduates. Among them, five companies evaluated skills of these graduates highly, eight companies evaluated their knowledge highly, and eight companies evaluated their motivation/attitude highly (however, there were comments from companies that it was difficult to make their performance evaluation, as only a short time passed since these companies employed these graduates). Regarding the Indicator 2, according to the result of employment status monitoring conducted for graduates of 2012 batch, 78% of 59 graduates were employed half year after their graduation (as of January 2013). Regarding the Indicator 3, the average score of satisfaction for the workshop conducted for representatives from DTE and Department of Occupational Skills Standard (DOS) and principals of TTIs in February 2012 was 3.9 in five-grade evaluation. The average satisfaction score of 126 participants (trainers and staff of TTIs) of M&E workshop was 3.86.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

Project effects have been partially sustained since project completion. Regarding the Indicator 1, a survey on the expectation for TTI-K electrical graduates has not been conducted by MoLHR or TTI-K since project completion. Thus, a questionnaire survey was conducted to nine companies (employers of TTI-K electrical graduates) in this ex-post evaluation. All the companies replied that they are satisfied with technical skills and knowledge of graduates of TTI-K electrical courses, these graduates have met their expectations and they are perfectly capable of performing their tasks. Regarding the Indicator 2, TTI-K conducts a mobile telephone survey after six months of graduation to find out the employment status of the graduates. While the number of graduates fluctuates year to year[5], more than 80% of the target (70% of jobseekers are employed within six months after graduation) has been achieved, as shown in the table below. Regarding the Indicator 3, no workshop to promote the activities or outputs of the project has been conducted since project completion (the reason is unknown). However, M&E has been conducted based on M&E tools developed under the project, which were modified by DTE in 2015, at DTE, TTI-K and TTI-R, IMS has been utilized at TTI-K and TTI-R, TOT on pedagogy has been conducted by MoLHR twice a year and TOT on technical skills related to electricity such as switchgear and protection and transformer maintenance has been conducted by Bhutan Power Corporation (BPC) once a year since project completion, while the Industrial Advisory Body (IAB) meeting, which was established under the project to assess training needs, has not been organized since 2014, due to the lack of interests from other agencies and no guideline for IAB.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been achieved by the time of ex-post evaluation. Regarding the Indicator 1, all of the nine companies (employers) replied in the questionnaire survey that graduates of electrical courses of all TTIs (TTI-K and TTI-R) are perfectly capable of performing their tasks. Regarding the Indicator 2, the employment status of graduates of TTI-K electrical courses is as stated above. As for the employment status of graduates of TTI-R electrical courses, more than 70% of graduates have been employed within six months after graduation since project completion, as shown in the table below.

<Other Impacts at the time of Ex-post Evaluation>

No negative impact on natural and social environment has occurred under the project. As other positive impacts, IMS and modified M&E tools developed under the project have become mandatory in all TTIs.

<Evaluation Result>

In light of the above, through the project, the Project Purpose had been achieved by project completion, project effects have partially sustained, and the Overall Goal has been achieved by the time of ex-post evaluation. Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Electrical course of KIEE produces human resources who have necessary knowledge and skills based on industrial needs, and know-how which can be applied in the other TTIs is accumulated.	1. Average evaluation rate of employers to graduates of electrical course of KIEE exceeds average rate of expectation.	Status of the Achievement: partially achieved (continued) (Project Completion) Most companies replied in the questionnaire survey that TTI-K graduates of 2012 batch were more advanced than previous graduates, though there were also comments that it was difficult to make their performance evaluation as only a short time passed since these companies employed these graduates. (Ex-post Evaluation) All of the nine companies (employers) replied in the questionnaire survey that TTI-K electrical graduates have met their expectations and they are perfectly capable of performing their tasks.

[3] Source: ODA Country Data Book (2009)

[4] Project effects were expected to be observed in 2012 batch onwards.

[5] The reason for the number of graduates in 2014 being larger than other years is that the trainees from TTI-Ser and TTI-C were shifted to TTI-K for their final semester and graduated from TTI-K.

<table>
<tr><td></td><td>2. More than 70% of jobseekers among graduates of electrical course of KIEE are employed half year after their graduation.</td><td>Status of the Achievement: achieved (continued)
(Project Completion) 78% of graduates of 2012 batch were employed half year after their graduation (as of January 2013).
(Ex-post Evaluation) The number of graduates in TTI-K electrical course who were employed within six months after graduation since project completion is as below.
<table>
<tr><td></td><td>Graduation in 2013</td><td>Graduation in 2014</td><td>Graduation in 2015</td><td>Graduation in 2016</td></tr>
<tr><td>The number of graduates in total in electrical course of TTI-K</td><td>57</td><td>148</td><td>80</td><td>55</td></tr>
<tr><td>The number of graduates who responded to the employment status survey</td><td>N/A</td><td>105</td><td>72</td><td>55</td></tr>
<tr><td>The number of graduates who were employed within 6 months after graduation[6]</td><td>29 (N/A)</td><td>57(54%)</td><td>50(69%)</td><td>41(75%)</td></tr>
</table>
Note: The percentage within the bracket shows the rate of graduates who were employed within six months after graduation among the number of respondents to the survey.</td></tr>
<tr><td></td><td>3. Satisfaction of participants of workshops to promote the activities /outputs of the project exceeds 4 in five-grade evaluation.</td><td>Status of the Achievement: achieved (not continued)
(Project Completion) The average score of satisfaction among representatives from DTE and DOS and principals of TTIs was 3.9 in five-grade evaluation. The average score of 126 participants (trainers and staff of TTIs) of M&E workshop was 3.86.
(Ex-post Evaluation) No workshop to promote the activities or outputs of the project has been conducted since project completion.</td></tr>
<tr><td>(Overall Goal)
Electrical courses of TTIs produce human resources who have necessary knowledge and skills based on industrial needs.</td><td>1. 80% of employers find graduates of electrical course of TTIs can perform their jobs they are trained in.</td><td>(Ex-post Evaluation) achieved
All of the nine companies (employers) replied in the questionnaire survey that graduates of electrical courses of all TTIs (TTI-K and TTI-R) are perfectly capable of performing their tasks.</td></tr>
<tr><td></td><td>2. More than 70% of jobseekers among graduates of electrical course of TTIs are employed half year after their graduation.</td><td>(Ex-post Evaluation) achieved
For TTI-K, see the Indicator 2 of Project Purpose.
The number of graduates in TTI-R electrical course who were employed within six months after graduation since project completion is as below.
<table>
<tr><td></td><td>Graduation in 2013</td><td>Graduation in 2014</td><td>Graduation in 2015</td><td>Graduation in 2016</td></tr>
<tr><td>The number of graduates in total in electrical course of TTI-R</td><td>57</td><td>98</td><td>58</td><td>56</td></tr>
<tr><td>The number of graduates who responded to the employment status survey</td><td>N/A</td><td>56</td><td>48</td><td>33</td></tr>
<tr><td>The number of graduates who were employed within 6 months after graduation</td><td>N/A</td><td>41(73%)</td><td>48(100%)</td><td>26(79%)</td></tr>
</table>
Note: The percentage within the bracket shows the rate of graduates who were employed within six months after graduation among the number of respondents to the survey.</td></tr>
</table>

Source : JICA document, questionnaire survey to MoLHR, DTE, TTI-K, TTI-R and nine companies (Construction Development Company Ltd., Zimdra Industries, UDee Enterprise, Bhutan Ferro Alloys Limited., Tala Hydropower Plant, Department of Roads, Lamla Sales and Services, Computer City, and Bhutan Power Corporation)

3 Efficiency

The project cost exceeded the plan, while the project period was within the plan (ratio against plan: 109%, 100%, respectively). Therefore, the efficiency of the project is fair.

[6] The youth unemployment rate in Bhutan has continued to rise since project completion, which was 9.6% in 2013, 9.4% in 2014 and 10.7% in 2015 (Source: TVET Blueprint 2016-2026).

4 Sustainability

<Policy Aspect>

TVET is still regarded important in "the 11th Five Year Plan (2013-2018)", "TVET Blueprint (2016-2026)" and "National Workforce Plan (2016-2022)" etc., which are effective at the time of ex-post evaluation.

<Institutional Aspect>

As stated above, the electrical course of TTI-Ser and TTI-C has been discontinued since 2014. TTI-Ser has been reformed as Jigme Wangchuk Power Training Institute[7], and the first batch of enrollment has started from August 2017. TTI-C has focused on civil construction and furniture making courses since 2014. At the time of ex-post evaluation, DTE is comprised of three divisions, in which there are one chief and eight program officers in the TVET Professional Services Division, which is responsible for capacity building of instructors and trainers, reviewing and updating existing curricula, developing curricula for new training courses, and monitoring and supervising training delivery etc. There are six program officers in the TVET Promotion Division, which is responsible for facilitating and coordinating implementation of the national human resource development policy, conducting research on human resource development issues, and developing a human resource development master plan for private sector etc. There are one chief, one program officer and one supporting staff in the TVET Institute Support Division, which is responsible for supervising management and administration within DTE, and coordinating communication skills development programs, special skills development programs, apprenticeship programs etc. The number of staff within DTE is not sufficient, and thus staff are requisitioned from other institutions for conducting M&E of TTIs, curriculum development and TVET advocacy. However, at least three new professional staff are planned to be recruited shortly in the TVET Professional Services Division, and one professional staff will soon be assigned in the division after completing his studies abroad. There are nine instructors for electrical courses at TTI-K and seven instructors for electrical courses at TTI-R at the time of ex-post evaluation, and according to MoLHR, these numbers are sufficient, as it fulfills the criterion set by MoLHR, in which the ratio of instructors and trainees is set within 1:12. TOT trainers who were trained under the project are designated as lead trainers for TOT on industrial wiring, programmable logic controller (PLC) and power transformer testing, which is conducted when new instructors are recruited at TTIs. TOT on technical skills related to electricity such as switchgear and protection and transformer maintenance is conducted by professionals from BPC which has their own training institute called the Central Training and Maintenance Division. According to TTI-K, TTI-R and BPC, the number of trainers for these TOTs is sufficient at the time of ex-post evaluation, though the data on the number of trainers is not available.

<Technical Aspect>

At the time of ex-post evaluation, all the project counterparts (C/Ps) still work in DTE, TTI-K and TTI-R, except for one instructor at TTI-K, who has retired. The technical skills of staffs at DTE are sufficient to monitor and supervise TTIs, as M&E has been continuously conducted at TTI-K and TTI-R by DTE based on modified M&E tools developed under the project, as stated above. According to MoLHR, all the instructors at TTI-K and TTI-R have been sufficiently trained through the JICA project, in-house capacity development programs and TOT provided by MoLHR and BPC, and have adequate skills to deliver electrical courses for the National Certificate (NC)-2 and NC-3 levels[8]. Lead trainers for TOT on industrial wiring, PLC and power transformer testing have also been sufficiently trained through the JICA project and have adequate skills to conduct TOT for new instructors. BPC has the necessary training infrastructure and experienced staff, and the trainers for TOT on technical skills related to electricity such as switchgear and protection and transformer maintenance have necessary skills to conduct TOT. Modified M&E guideline and tools developed under the project are utilized at TTI-K and TTI-R. Equipment for electrical courses procured under the project are mostly utilized, however, five PCs and one photocopy machine at TTIs have no longer been functional and replaced. Other equipment are maintained by operation and maintenance (O&M) personnel at TTIs.

<Financial Aspect>

At the time of ex-post evaluation, certain amount of budget is allocated to DTE every year, as shown in the right. However, DTE faces general budget constraint, and these amounts are insufficient to employ necessary number of staff to monitor and supervise TTIs properly and to carry out curriculum development and TVET advocacy satisfactorily. According to DTE, in the next (12th) Five Year Plan (2018-2023), it is expected that budget allocation to DTE will increase by 102%. As for budget allocation to TTIs, according to the principals of TTI-K and TTI-R, the amount of budget allocation to TTI-K and TTI-R is sufficient to deliver electrical courses.

[Annual budget and expenditure of DTE]

(Unit: million Ngultrum)

	2014	2015	2016
Total budget allocated	135.62	328.70	225.96
Total expenditure	132.50	308.93	220.31

Source: Annual Report of MoLHR 2014-2015 and 2015-2016

[Budget allocation to TTI-K and TTI-R]

(Unit: million Ngultrum)

	2014	2015	2016
TTI-K	24.09	28.52	27.29
TTI-R	18.10	23.41	22.57

Source: Annual Report of MoLHR 2014-2015 and 2015-2016

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

Through the project, the targets of indicators for Project Purpose had been achieved by project completion. Project effects have partially

[7] The electrical courses of TTI-K and TTI-R focus on house wiring, commercial/industrial wiring, electric appliance repair and maintenance etc., while the power training courses of Jigme Wangchuk Power Training Institute focus on transmission and distribution, transformer maintenance and underground cable trenching etc.

[8] Levels (NC-2 and NC-3 etc.) are defined in the National Competency Standard (NCS). All the instructors are now certified to provide NC-3 level trainings. Trainees of the first batch of NC-3 level trainings in the electrical course of TTI-R were graduated in April 2017, and TTI-K will commence NC-3 level trainings in November 2017.

sustained, and the Overall Goal has been achieved by the time of ex-post evaluation. As for sustainability, some problems have been observed in terms of the institutional and financial aspects, and in particular, the number of staff and budget allocation in DTE are not sufficient. However, it has been confirmed that there is no problem in policy and technical aspects. As for efficiency, the project cost exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Lessons Learned for JICA:

Bhutan has a huge hydropower generation potential, and there are needs for human resources in power transmission and maintenance. That is why TTI-Ser has been transformed to the Jigme Wanghcuk Power Training Institute. There are also growing needs for other vocational courses such as civil construction and furniture making, and that is why TTI-C has shifted its focus on these courses. As there are some cases in which government policies and strategies change in accordance with the labor market's needs, government policies and strategies should be carefully monitored, shared among stakeholders of a project and timely incorporated into the scope of the project as necessary.

TTI-K electrical course classroom

TTI-K electrical course practical session