Evaluation Report

2017-03

Thematic Evaluation of Vietnamese TVET Projects:

Focused on EDCF Standard Performance Indicators

The Export-Import Bank of Korea

Government Agency for EDCF

Evaluated by

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The evaluation was entrusted to Kyung Hee University by EDCF for the purpose of an independent evaluation. The opinions, findings and conclusion or recommendations expressed in this report are those of the external evaluator and do not necessarily reflect the views of EDCF.

1. Introduction

- (Background of Evaluation) Economic Development Cooperation Fund (**"EDCF"**) established a standard performance indicators for the systematic performance management of its technical and vocational education and training (**"TVET"**) project in 2015. However, no case has not yet applied and verified such standard performance indicator for evaluation.

- (Purpose of Evaluation) By applying the established TVET standard performance indicator(s) to equipment loan projects, this evaluation will verify the indicators and recommend considerations and/or improvements.

- (Scope of Evaluation) The three TVET compact loan projects (**"Equipment Loans"**) in Vietnam are the core target of this evaluation and another integrated TVET project (**"Development Project Loan"**) is also considered for comparison. Selected sets of the standard performance indicators will be selectively applicable to evaluate both target and comparative projects.

- (Evaluation Procedures) This evaluation consists of three parts: (i) Evaluation preparation; (ii) Review of the preexisting performance model and application thereof; and (iii) Lessons and recommendations.

    - In the evaluation preparation, the background, subject and detailed methodology for evaluation are established and any and all basic information of the examination, execution and completion of the target projects is identified.

    - In the review of the pre-existing performance indicators and application thereof, EDCF's TVET standard performance indicators and pre-existing evaluation cases are analyzed and reviewed. Based on the results of analysis, EDCF's current TVET standard performance indicators as well as other candidates for performance indicators apply to the evaluation of the target projects.

    - The section of lessons and recommendations provides the implications focused on the application of the standard performance indicators and the operational definitions based on evaluation results and suggests recommendations, such as alternative indicators and/or modified "operational definition".

- (Evaluation Methodology) Various methods, including literature review, in-depth interview, overseas on-site visit and survey, are adopted for evaluation.

2. Review of Target Projects

- Project Size

    - The target projects are Equipment Loans with budget of about USD 3 million.

    - The comparative project is a Development Project Loans with budget of USD 35 million.

[Table 1] Project Size

Classification	Target Project			Comparative Project
	Vocational Training Equipment Provision to Thanh Hoa Vocational College of Industry Project	Vocational Training Equipment Supply to Ha Tinh Vocational Intermediate School Project	Vocational Training Equipment Supply to Quang Binh Vocational Junior College Project	Five Vietnam-Korea Vocational Colleges Establishment Project
Loan Type	Equipment Loan	Equipment Loan	Equipment Loan	Development Project Loan
Loan Approval (Unit: USD 1 Million)	3	2.98	2.96	35
Approval Year	2008	2009	2009	2007

Source: Project approval and completion report of each project

❍ Project Scope

- The scope of core target projects is to provide TVET equipment for various education courses in Vietnam.
- The comparative project consists of provision of equipment, construction of new buildings, procurement of TVET equipment, development of TVET programs and consulting services.

[Table 2] Project Scope

Vocational Training Center	Detailed Project Scope
Thanh Hoa	- Provision of TVET equipment (568 types) for five courses: electronics, oil pressure, welding, machinery and automotive engineering - Training and maintenance of the provided equipment
Ha Tinh	- Provision of TVET equipment (148 types) for five courses: crane operation, construction material operation, driving special machinery, maintenance of transportation machinery and applied welding - Training and maintenance of the provided equipment
Quang Binh	- Provision of TVET equipment (145 types) for four courses: general and refrigeration electricity, welding, machine cutting and automobile - Training and maintenance of the provided equipment
Five Vietnam-Korea Vocational Colleges Establishment Project[1]	- Construction of the college building in five areas (i.e. Hanoi, Quang Ninh, Quang Ngai, Binh Duong and Ca Mau) - Provision of training equipment to five TVET colleges - Development of training and education programs such as development of curricula, teaching materials and technology standards, and training of faculty members - Provision of consulting services such as supervision of overall business management and support for bidding documents

Source: Project approval report

❍ Cost, Procurement and Execution

1 Among the five vocational colleges, this evaluation report considers only Hanoi vocational college for comparison.

- In the case of the Thanh Hoa and Ha Tinh projects, some loans have been unused because the bidding price for procurement of training equipment was lower than expected.
- In the case of the Quang Binh project, the project scope changed to meet additional demand for equipment which was created in the course of procurement. As such, the minimum bidding price exceeded the EDCF loan limit including the contingency and the Vietnamese government offered additional funds for the project.[2]

❍ Output and Maintenance Period

- Based on the project completion report (PCR), there is no big difference between actual output and planned output in the core target projects.
- While the maintenance period was only one year in the project approval sage, the maintenance period of the Thanh Hoa, Ha Tinh and Quang Binh projects increased to three years in the PCR.
- As for the Five Vietnam-Korea Vocational Colleges Establishment Project, there is almost no difference in output compared to the plan, except for a small decrease in the civil engineering construction area.

3. Pre-existing Performance indicators and Evaluation Cases

❍ In 2015, EDCF established the standard performance indicators for its TVET projects based on the analysis of EDCF's and other international organization's pre-existing TVET projects.

- EDCF's standard performance indicators provides the representative indicators to measure output, outcome and impact to be created based on input and activities.

[Table 3] Standard Performance Indicators of EDCF TVET Projects

Project Summary	Performance Target/Indicator
Impact	
- More youth employability	- Youth (15 to 24 years) unemployment rate of municipality* - Ratio of youths who received vocational training in the community*
Outcome	
- Enhancing vocational training capacity	- Employment rate of graduates* - Utilization rate of vocational training facilities and educational equipment - Enrollment rate of current students* - Course completion rate (dropout rate)* - Stakeholders' satisfaction level (student/teacher/staff)*
Output	

2 As for the Five Vietnam-Korea Vocational Colleges Establishment Project, the final cost data were not available since the project has not yet officially ended.

Project Summary	Performance Target/Indicator
- Vocational training infrastructure	- Number of training facilities - Number of educational equipment
- Vocational training program	- Number of developed training curricula and programs
- Trainee management	- Number of currently enrolled students*
- Teacher empowerment	- Number of students per teacher - Number of teachers who participated in a training workshop*

* Gender sensitive indicators

Source: *The Establishment of Performance Indicators for EDCF's Vocational Training Center Project*, The Export-Import Bank of Korea, 2015.

- Analysis of EDCF's previous TVET projects showed that these projects are categorized, depending on elements and support methodologies, as one of the following: integrated type, infrastructure extension type and equipment loan type.

- Depending on the project type, different standard performance indicators may be applicable. For example, all indicators in [Table 3] are used for the Integrated TVET project, whereas training equipment-related indicators, such as 'utilization rate of educational equipment', are used for the Equipment TVET project which usually supported by equipment loans[3].

- Since this evaluation considers equipment loan projects the core target, the applicable indicators among the standard performance indicators are as follows: "Number of training facilities" in output and "employment rate of graduates" and "utilization rate of educational equipment" in outcome.

- In order to employ these indicators, setting the relevant "operational definition" and obtaining materials for quantitative measurement are very important. The "operational definition" of the EDCF standard performance indicators is listed below:

  - "Employment rate of graduates" is measured by the ratio of trainees who have been employed within 6 months after graduation, including employment during training sessions.

  - "Utilization rate of educational equipment" is measured by actual training hours using training equipment out of total training hours in order to examine whether training equipment is used as planned.

❍ To figure out what types of performance indicators are practically used in the ex-post evaluation of TVET projects, several TVET ex-post evaluation reports of EDCF and KOICA (Korea International Cooperation Agency) are reviewed.[4]

- The performance indicators used in the ex-post evaluation reports can be classified into two categories—Indicators related to equipment performance and those related to operation of vocational training schools.

3 For more details on the EDCF's TVET project types, please see 'the Establishment of Performance Indicators for EDCF's Vocational Training Center Projects'

4 Three post-evaluation reports of EDCF and seven post-evaluation reports of KOICA were analyzed.

- Of the equipment performance indicators used in the ex-post project evaluation, the most popular are “equipment utilization level”, “equipment appropriateness” and “equipment satisfaction”.

- As for the indicators for operation of vocational training schools, “employment rate of graduates”, “number of graduates” and “number of currently enrolled students” are frequently employed.

❍ There are certain differences between EDCF’s standard performance indicators and those practically used in ex-post evaluation.

• Of EDCF’s standard performance indicators, “utilization rate of educational equipment” is not employed in the ex-post reports. Similarly, “maintenance performance (i.e. number of maintenance work per year)”, which was suggested as an alternative indicator for output, has never been practically used in the ex-post evaluation report.

• “Equipment defective rate”, another alternative indicator, is used only in “Ex-post Evaluation on the Creation of Capabilities in Vocational Training Centers Project.”

• “Employment rate of graduates” is used as a key indicator in many ex-post evaluation reports, even as most reports use the slightly different the “operational definition” thereof: These reports use “employment rate at the time of graduation”, instead of “employment rate within 6 months after graduation”. Also, many reports state that getting reliable data pertaining to that indicator is very difficult.

4. Application and Results of Performance Indicators

1) Application of Performance Indicators

❍ In this evaluation, EDCF’s standard performance indicators for the TVET equipment loan project, such as “utilization rate of educational equipment”, “equipment defective rate” and “employment rate of graduates”, apply to the evaluation of Vietnamese TVET projects.

❍ In addition, “equipment utilization level”, “equipment satisfaction” and “number of graduates” are employed in the evaluation. These indicators have been frequently used in the previous post-evaluation reports.

❍ This evaluation not only assesses performance by applying the above selected indicators but also finds other factors that could have affected such performance.

[Table 4] Performance Indicators Used in Pilot Evaluation

Classification	Indicator	Operational Definition	Remarks
Equipment Performance Indicator	Utilization rate of educational equipment	- Ratio of actual training hours using training equipment out of total training hours - Document or information provided by TVET schools for evaluation	EDCF standard performance evaluation indicators
	Equipment defective rate	- Ratio of defective equipment among the provided equipment - Document or information provided by TVET schools for evaluation - Direct investigation into each equipment	
	Equipment utilization level	- Level of subjective perception about equipment utilization - Survey or interview as to equipment users (i.e. teachers and students)	Ex-post evaluation report indicators
	Equipment satisfaction	- Level of subjective satisfaction about equipment utilization - Survey or interview as to equipment users (i.e. teachers and students)	
TVET School Operation Indicator	Employment rate of graduates	- Ratio of trainees who have been employed either (i) within six months after graduation or (ii) since graduation - Document or information provided by TVET schools for evaluation	EDCF standard performance evaluation indicators
	Number of graduates	- Number of graduates per year - Document or information provided by TVET schools for evaluation	Ex-post evaluation report indicators

Source: Author

2) Results of Application

❍ "Utilization rate of educational equipment": No data or information is available to measure the "utilization rate of educational equipment" in the four TVET schools of the target projects.

- Although all of the TVET schools have a very good management system for equipment, they fail to keep detailed records of equipment utilization
- Considering the fact that even schools with the excellent equipment management system fail to keep detailed records of equipment utilization, such as use hour, it is deemed that applying "utilization rate of educational equipment" as a standard indicator will be very difficult.

❍ "Equipment defective rate": Any school with the excellent equipment management system may possibly measure this indicator based on its equipment management register. In his evaluation only one school out of the four schools, i.e. Thanh Hoa, was able to calculate this rate (1.55%).

- As for the Ha Tinh and Quang Binh TVET schools, no information on the current state of equipment was available. The Hanoi TVET school is found to have no defective equipment since it has been less than a year after equipment provision.

❍ "Equipment utilization level": Other than the students of the Quang Binh TVET school, the level of equipment utilization perceived by teachers and students is significantly high—not less than 80%.

- In the case of the Quang Binh TVET school, the level of equipment utilization perceived by students was relatively low—only 71.2%.

❍ "Equipment satisfaction": The equipment satisfaction of teachers and students in all TVET schools is relatively high—80 points or more.

- Factors analysis shows that utilization, easiness of use, and design/shape influence overall satisfaction, but safety and quality/durability do not.

[Table 5] Level of Equipment Utilization and Equipment Satisfaction

TVET School	Teacher		Student	
	Utilization Level (%)	Satisfaction Level (Out of 100 Points)	Utilization Level (%)	Satisfaction Level (Out of 100 Points)
Thanh Hoa	86.1 (17.3)	89.6 (13.5)	96.3 (1.3)	96.6 (0.9)
Ha Tinh	95.3 (6.1)	95.7 (4.8%)	91.7 (9.0)	90.8 (9.2)
Quang Binh	86.7 (6.8)	90.1 (4.9)	71.2 (4.43)	83.2 (3.9)
Hanoi	90.0 (10.7)	90.3 (6.9)	81.0 (12.4)	80.5 (9.9)

※ Figures in parentheses refer to standard deviation.

❍ "Employment rate of graduates" and "number of graduates": Sine no school manages the number or percentage of graduates who have started to work within six months after graduation, it was impossible to apply the "operational definition" suggested in EDCF's standard performance indicators. However, the employment rate of graduates at the time of graduation and the number of graduates can be evaluated.

- In the case of Thanh Hoa and Ha Tinh, it was possible to collect the data on the employment rate at the time of graduation and the number of graduates because they systematically manage the status of employment of graduates by themselves.

- In case of Thanh Hoa, in 2016, the number of employees (541) and the employment rate (90.0%) decreased compared to the number of graduates (1,238) and employment rate (94.4%) in 2010.
- In case of Ha Tinh, when the graduates of the driver's license course are included, a total number of graduates increases drastically and the employment rate is down. However, taking into account general employment-related training courses only, such as applied welding, the number of graduates is down, but the employment rate is similar.

• As for Quang Binh, it is impossible to measure the detailed annual employment rate because the school has not separately managed employment-related statistics. Also, any information about the number of graduates per year is not provided by the school. The only available information was a total number of graduates and total employment rate for a particular year, i.e. 2016.

- Although it is hard to evaluate the precise performance due to the lack of baseline data, the employment rate of Quang Binh (88%) is found to be similar to that of other two schools.

❍ "Easiness of application of performance indicators": As a result of examination of the practical applicability of the performance indicators, the "utilization rate of educational equipment" and the "employment rate of graduates" are deemed to be difficult to apply due to lack of accurate and reliable data and/or information.

• In the case of "equipment defective rate", it is possible to apply, but easiness of use is relatively low.

• It was relatively easy to apply "equipment utilization level", "equipment satisfaction", and "number of graduates".

• If certain indicators are not easy to apply, it may be necessary to change the "operational definition" or to use alternative indicators.

[Table 6] Application Easiness of Performance Indicators and Alternative Indicators

Classification	Indicator	Easiness of Application	Alternative Indicator
Equipment Performance Indicator	Utilization rate of educational equipment	- Difficult to apply because no data is managed and recorded for evaluation	Equipment utilization level
	Equipment defective rate	- Applicable to the extent that the evaluation subject has a very good equipment management system	Equipment satisfaction
	Equipment utilization level	- Easy to apply with active cooperation from the evaluation subject	N/A

Classification	Indicator	Easiness of Application	Alternative Indicator
	Equipment satisfaction	- Easy to apply with active cooperation from the evaluation subject	N/A
TVET School Operation Indicator	Employment rate of graduates	- Difficult to apply because the evaluation subject fails to manage and trace graduates after six months from their graduation - Alternatively, the employment rate at the time of graduation may be collected	Employment rate at the time of graduation or number of graduates
	Number of graduates	- Relatively easy to apply because most schools manage it as the fundamental information of school operation	N/A

Source: Author

3) Additional Factors of Project Performance

❍ Even though the main objective of this evaluation is to review standard performance indicators in the actual project evaluation, other factors which can affect project performance are considered herein in terms of relevance, efficiency, sustainability and so on.

❍ Appropriate and systematic project implementation

- The target projects were appropriately selected in accordance with Vietnam's vocational training development strategy and Korea's cooperation strategy.
- Despite certain restrictions of compact loans, e.g. the omission of on-site survey for approval and the absence of procurement consultant, the projects were implemented systematically.

❍ Efficient project implementation

- The core target projects are deemed to have been implemented relatively efficiently in terms of cost and period.

❍ Improved sustainability through enhanced maintenance

- Sustainability was improved by increasing the maintenance period, from just one year at the time of project planning to three years at the time of procurement.
- In order to ensure efficient maintenance, it was mandatory to utilize Vietnamese local companies for procurement.
- Upon the completion of the project, additional training programs and equipment repair works were provided for improving performance and sustainability in cooperation with KOICA in 2016

❍ Relatively insufficient training as to equipment utilization

- If developing a new TVET course is included in a project, additional training for equipment utilization is usually provided together with the relevant course. However, when a project consists of equipment provision only, the training for equipment utilization is likely to be restricted.
- In the interviews with the school teachers, the interviewees pointed out that training as to equipment utilization and maintenance was insufficient.
- In general, the equipment suppliers are also required to perform utilization and maintenance training. However, their training quality may not be good enough because they have a tendency to bid with a minimum cost for training in order to win the contract.

❍ Lack of constant, systematic performance monitoring

- The expected outcome was achieved in the target projects. However, if there was constant, systematic performance monitoring and management, a greater outcome would be gained.
- Because establishing performance indicators for the compact loan is not mandatory, (i) determining performance indicators at the project planning and approval stage and (ii) performance monitoring such as baseline survey were not completely conducted.
- Even if performance indicators are established at the early stage of the project, e.g., Five Vietnam-Korea Vocational Colleges Establishment Project, such performance indicators would not be properly monitored at each project stage.

5. Lessons and Recommendations

❍ Modification of EDCF standard performance model/indicators

- There are some practical difficulties in evaluating a project by utilizing some of the current performance indicators in EDCF's standard performance model as to equipment provision and TVET, such as employment rate of graduates (within six months after graduation), utilization rate of educational equipment and equipment defective rate.
- Taking into account the easiness of performance measurement, it is necessary to add indicators with more relaxed conditions or restrictions, or supplement the existing operational definition.
    - If the management system of the project executing agency is inadequate, it is possible to adopt more applicable indicators in the evaluation. For example, equipment utilization level may replace utilization rate of educational equipment.
    - As for a simple equipment provision project, a systematic satisfaction survey including equipment utilization level can be possible.
    - It is possible to measure performance by using the nNumber of graduates instead of the employment rate of graduates. The former information is much easier to collect since most TVET schools generally manage it.

- In case of utilizing employment rate of graduates, measuring it at the time of graduation time instead of within six months after graduation is available for easier measurement.

[Table 7] Modified Standard Performance Indicators of EDCF TVET Project (the Equipment TVET project)

Design Summary	Performance Target/Indicator
Outcome	
- Enhancing training capacity	- Employment rate of graduates (within six months from graduation or **at the time of graduation**) - **Number of graduates** - Utilization rate of educational equipment or equipment **utilization level** - **Equipment satisfaction**
Outputs	
- Vocational training infrastructure	- Number of educational equipment • Number of defected educational equipment • Maintenance record (number per year)

Source: Author

❍ Utilizing standard performance indicators

- Currently, compact loans do not require establishing performance indicators for planning and approval. However, selecting the indicators and setting the performance target is necessary for systematic performance management.
- At each project stage, it is necessary to share performance indicators with major stakeholders, such as project executing agencies, procurement consultants and purchasers, and further to perform continuous monitoring with revision and modification, if applicable.

❍ Strengthening project completion reporting

- For compact loans which only provide equipment and minimal capacity building for operation, analyzing the long-term performance, i.e. influence analysis, is very difficult and thus identifying the short-term performance is important. This short-term performance may be measured in the project completion evaluation.
  - For example, such equipment performance indicators with measurement easiness as suggested in this evaluation may be measured relatively easily, in cooperation with the project executing agency.
- If the project completion reporting is strengthened, project performance will be identified without a separate ex-post evaluation, not only in vocational training but also in other equipment projects.

❍ Integrating sustainability into project implementation

- In terms of sustainability, operation and maintenance after equipment installation is one of the most important factors for greater performance in the equipment provision project. As such, it is necessary to institutionalize a longer maintenance period and mandatory use of local companies.
  - Conventionally, the equipment maintenance period is considered one year after installation. But it may be extended up to three years for more sustainability.[5]
  - To mitigate the difficulties of maintenance in remote countries, local companies may be utilized for maintenance support.
- Since there is a tendency to neglect necessary equipment training and technology transfer in the equipment provision project, more explicit considerations should be given thereto in the course of project planning and procurement.

5 One-year maintenance period was conventional at the time of implementation of the target projects. EDCF has already increased the relevant maintenance periods up to two years to improve sustainability.