

Republic of Senegal

FY2015 Ex-Post Evaluation of Japanese Grant Aid Project

“Project for the Reinforcement of the Vocational and Technical Training Center (CFPT)
Senegal-Japan”

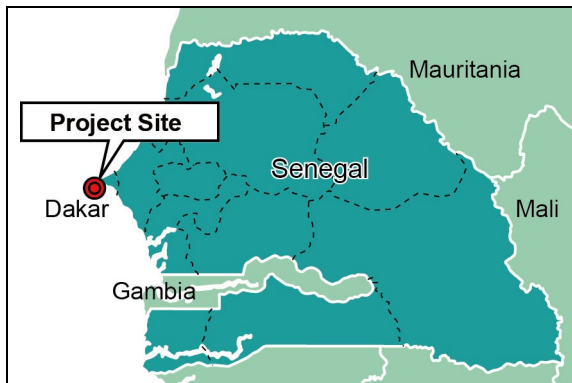
External Evaluator: Miho Kawahatsu, OPMAC Corporation

0. Summary

The objective of this project was to improve the quality of engineering education and training desired by industry, through the construction of facilities such as a building for Maintenance of Heavy Machinery courses and the procurement of equipment for two newly opened high level technician (Brevet de Technicien Supérieur: BTS) courses (Maintenance of Heavy Machinery, Maintenance of Construction Equipment) and three existing BTS courses (Electronic Machinery, Automatics, and Informatics) in the Vocational and Technical Training Center (Centre de Formation Professionnelle et Technique CFPT), thereby contributing to fostering human resources in the industrial sector as the foundation of economic development. The relevance of this project is high, as it was relevant to the policies and needs of Senegal both at the time of planning and the ex-post evaluation, as well as to the ODA policy of Japan at the time of planning. Also, the project was carried out as scheduled and provided the planned outputs. The project cost and project period were mostly within the plan. Therefore, the efficiency of the project is high. With regard to effectiveness, it has been confirmed that the total number of trainees in the BTS courses and the average BTS acquisition rate of trainees on all three existing courses have substantially increased. Furthermore, those in related business circles are in favour of improved quality of CFPT training service as this is fairly demonstrated in increases in CFPT income, the source of which is mainly from the holding of seminars for private enterprises. Also, as a qualitative effect of the improvement of the training environment, it has been confirmed that the project has particularly contributed to strengthening practical training. By the same token, with regard to intended impact, the contribution of CFPT in the fostering of skilled graduates who meet the needs of industry has also been confirmed, and there have been a series of international and domestic training activities, and an increase in the intake of foreign trainees. Thus, the effectiveness and impact of this project are high. Regarding sustainability, although equipment and facilities procured by the project are in good condition, there is a concern about the institutional aspect since CFPT has suffered from the resignations of instructors in recent years and thus faces the challenge of how to recruit instructors as well as how best to train and retain young instructors. This will affect the financial and technical aspects if the problem is not properly solved. Therefore, the sustainability of this project effect is fair.

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

1. Project Description



Project Location



Building for practical training
(Maintenance of Heavy Machinery Course)

1.1 Background

The government of Senegal has undertaken a series of structural adjustment reforms since the 1990s and this endeavour has put the economy on a track to growth. Also, relatively stable macro-economic management has allowed the maintenance of a positive growth rate. Under the previous administration led by President Wade, the government embarked on large-scale economic infrastructure development programs that brought about the construction of commercial buildings, hotels and an urban road network which extended from downtown to the suburbs of Dakar. Concurrently, a large-scale intraregional construction plan has been initiated, including the Road Improvement and Transport Facilitation Program on the Southbound Bamako-Dakar Corridor. However, the booming construction business required the maintenance of heavy machinery and construction equipment; it thus elicited an unprecedented shortage of technicians and engineers. In order to make up this inevitable downside, dependence on engineers from abroad became an issue. As a growing industry with international competitiveness had not yet been fostered, there were concerns that, with the fragile economic structure, there would be further soaring deficits, both fiscal and in the current balance of payments.

Furthermore, in a projection from 2005 onward, it was estimated that the population would almost double in a 30-year period. Such rapid growth of the young population in particular has been considered problematic as it may likely result in massive unemployment of the young labour force by the application of *Ceteris paribus*, i.e. "all other things being the same." Therefore, effective job creation to cope with population growth has always been a pressing issue for the government.

As above, in order to achieve sustainable economic growth, it has been an urgent task to train young people to become the skilled workers who can fulfil the labor demands for the building

of an economic infrastructure. However, there was no public institution in Senegal to provide vocational and technical training and education in this area. The government of Senegal, therefore, requested the assistance of the government of Japan and through it was able to open two new courses in CFPT¹, where Japan had already assisted through grant aid and technical cooperation projects, and which had been the important regional hub for the development of human resources for the industrial sector in West Africa since its establishment in 1984.

1.2 Project Outline

The objective of this project was to improve the quality of engineering education and training desired by industry, by the construction of facilities such as a building for Maintenance of Heavy Machinery courses and the procurement of equipment for the BTS courses (two new courses and the existing three courses) in CFPT, thereby contributing to fostering human resources in the industrial sector as the foundation of economic development.

<Grant Aid Project>

E/N Grant Limit / Actual Grant Amount	1,074million yen / 1,054million yen
Exchange of Notes Date (/Grant Agreement Date)	March, 2011 / March, 2011
Implementing Agency	Centre de Formation Professionnelle et Technique Sénégal-Japon (CFPT)
Project Completion Date	August, 2012
Main Contractor	Construction & Procurement of Equipment Consortium of Toda Corporation and Sirius Corporation (for the maintenance of heavy machinery course)
	Procurement of Equipment Kanto Bussan Co., Ltd. (for the other 4 courses)
Main Consultant	Consortium of INTEM Consulting, Inc. and Yokogawa Architects & Engineers, Inc.
Basic Design	December, 2010

¹ Established in 1984, CFPT, as a public vocational training center, providing two diploma programs: industrial technician (Brevet de Technicien de l'Industrie: BTI) and high level technician (Brevet de Technicien Supérieur: BTS). BTI is a three-year program for junior-high school graduates, consisting of 3 courses: electrotechnics, automobile engineering and electronic machinery. BTS is a two-year program at the junior college level, consisting of five courses: the maintenance of heavy machinery (opened by the project) and the maintenance of construction equipment (opened by the project), electronic machinery, automatics, and informatics. Daytime classes are free for Senegalese trainees, but night classes are subject to fees. All foreign trainees are obliged to pay for tuition.

Related Projects	<p>[Grant Aid]</p> <ul style="list-style-type: none"> - Vocational and Training Center Construction Project (1982-1984) - The Vocational Training Center Expansion Project (2003) <p>[Technical Corporation]</p> <ul style="list-style-type: none"> - The Senegal-Japan Vocational Training Center (1984-1991) - The Senegal-Japan Vocational Training Center After Care I (1995), - The Senegal-Japan Vocational Training Center Expansion Project (1999-2004) - Entrepreneurship and Management Development (2006) - Project for Reinforcement of CFPT Senegal-Japan (2011-2015) <p>[Non-JICA project]</p> <ul style="list-style-type: none"> - CIDA “curricula formulation for the course of Maintenance of Construction Equipment” (2011)
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2. Outline of the Evaluation Study

2.1 External Evaluator

Miho Kawahatsu, OPMAC Corporation

2.2 Duration of Evaluation Study

Duration of the Study: October, 2015 – November, 2016

Duration of the Field Study: February 14, 2016 – February 27, 2016, and May 23, 2016 – May 31, 2016,

3. Results of the Evaluation (Overall Rating: A²)

3.1 Relevance (Rating: ③³)

3.1.1 Relevance to the Development Plan of Senegal

At the time of project planning, the Second Poverty Reduction Strategy Paper (Document de Stratégies de Réduction de la Pauvreté: DSRP II) had been formulated in 2006 to serve as a framework for national development policy. With regard to the 4 main pillars of the strategy, the following areas were to be retained: 1) wealth creation, 2) the promotion of access to basic social services, 3) good governance and decentralized and participatory development, 4) social protection, prevention and the management of risks and disasters. Furthermore, for the encouragement of substantive job-creation, it emphasized technical and

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

³ ③: High, ② Fair, ① Low

vocational education and the training sector. Later, a follow-on strategy, the National Strategy for Economic and Social Development (Stratégie Nationale de Développement Économique et Social 2011-2015: SNDES) highlighted the strategic path which Senegal must follow in the context of poverty reduction. As its strategic axes, it emphasized “growth, productivity and wealth creation”, “human capital, social protection and sustainable development” and the development of the selected strategic sectors. Furthermore, employment was addressed as a cross-cutting issue for the strategy. With the advent of a new administration in 2012, “SNDES 2013-2017” was revised with a new timeframe. However in 2014, it was incorporated into the Emerging Senegal Plan (Plan Senegal Emergent: PSE) that had been formulated in 2012. At the time of the ex-post evaluation, with the aspiration of joining other emergent nations by 2023, the ten-year strategic orientation of the PSE was based on the following three axes: 1) structural transformation and growth of the economy, 2) governance, systems/institutions, security and social stability, and 3) human capital, social protection and sustainable development. Socio-economic growth is envisioned through a balanced approach with the reinforcement of human development in areas such as education and health services. In terms of financing the strategy, notably it is stated that some projects and programs are to be financed by matching funds under the auspices of public-private partnership. A collaborative role on the part of the private sector is thus featured in national development.

With regard to education policy at the time of project planning, the Ten Year Programme for Education and Training (Programme Décennal de l'Éducation et de la Formation, 2000-2010: PDEF) placed high importance on technical and vocational education and the training sector in the three strategic sectors of construction, food processing, and port & harbor improvement. As such, the selected fields of the project — the maintenance of heavy machinery and construction equipment — were in line with the strategic intent of upper level policy. At the time of the ex-post evaluation, in the Program to Improve the Quality, Equity and the Transparency of the Education and Training Sector (Programme d'Amélioration de la Qualité, de l'Équité et de la Transparence dans l'Éducation et de la Formation, 2013-2025: PAQUET-EF) which was adopted by the current administration, the significance of vocational and technical training in terms of poverty reduction and economic modernization was concurrently emphasized as addressed in the PSE above. Furthermore, in order to crystallize the policy directions stated in the PAQUET-EF such as the promotion of strong public-private partnerships in aspects of decision making and the mobilization of funding for public vocational and technical training centers, the basic law stipulating provisions for national vocational and technical training was revised and then became effective as of January 2015.

Thus, a project aiming to improve vocational and technical training and education was

relevant to Senegalese development policy, growth strategy, education policy and related laws both at the time of project planning and ex-post evaluation, and the issue has been consistently and clearly addressed.

3.1.2 Relevance to the Development Needs of Senegal

The following observations illustrate the need for human resources in the industrial sector, both at the time of project planning and ex-post evaluation, in related fields based upon the business trends of incorporated enterprises in Senegal.

According to the corporate analyses report⁴ issued by the National Agency of Statistics and Demography (Agence Nationale de la Statistique et de la Démographie: ANSD), since the implementation of the PSE in 2012, the general business environment has mostly improved, furthering private sector development as the number of enterprises in all sectors has steadily increased (see Fig. 1). However, the trends in the related sectors⁵: “Others in the Industrial Sector” and “Construction and Civil Engineering Work”, indicate that compared to the commerce and service sectors, the number of enterprises in the industrial sector has been consistently small, although increasing yearly, as shown in Fig. 1. Moreover, according to a productivity analysis by the ANSD, the percentage of personnel costs in total added value⁶ in the industrial sector has risen up to 60.2% in recent years. There is a concern that this rise, elicited by a continued serious shortfall in desired human resources, has been pushing down the profit ratio of the sector⁷. In addition to this, a significant portion (43.3%) of equipment in the sector has become obsolete over the period 2008 to 2012⁸. Also, at the time of the ex-post evaluation, since it may not always be possible for the management of each business to renew equipment, it was deemed indispensable that productivity performance was maintained by the proper maintenance of existing equipment.

The macroeconomic data obtained by the ANSD shows a decline of total added value production in the industrial sector⁹ and there is a concern, based on the analysis, that there has been a shortfall in the desired human resources in such industries. Therefore, it was seen

⁴ Ministère de L' Economie, des Finances et du Plan, Agence Nationale de la Statistique et de la Démographie, Banque de Données Economiques et Financieres, Dec.2015.

⁵ In corporate statistics in Senegal, enterprises are classified into four sectors: "industrial", "service", "commerce", "construction and civil engineering." These are further divided into 35 smaller categories. For example, "the food processing industry" in the industrial sector is further classified into nine groups by type of food. In addition, "others" in the industrial sector is classified into nine groups. Energy-related and mechanical industries fall into this category. Of the service industry, "other personal services" refers to repair shops, education, medical care and the other services. On the other hand, "others" in commerce refers to either retailing or wholesaling.

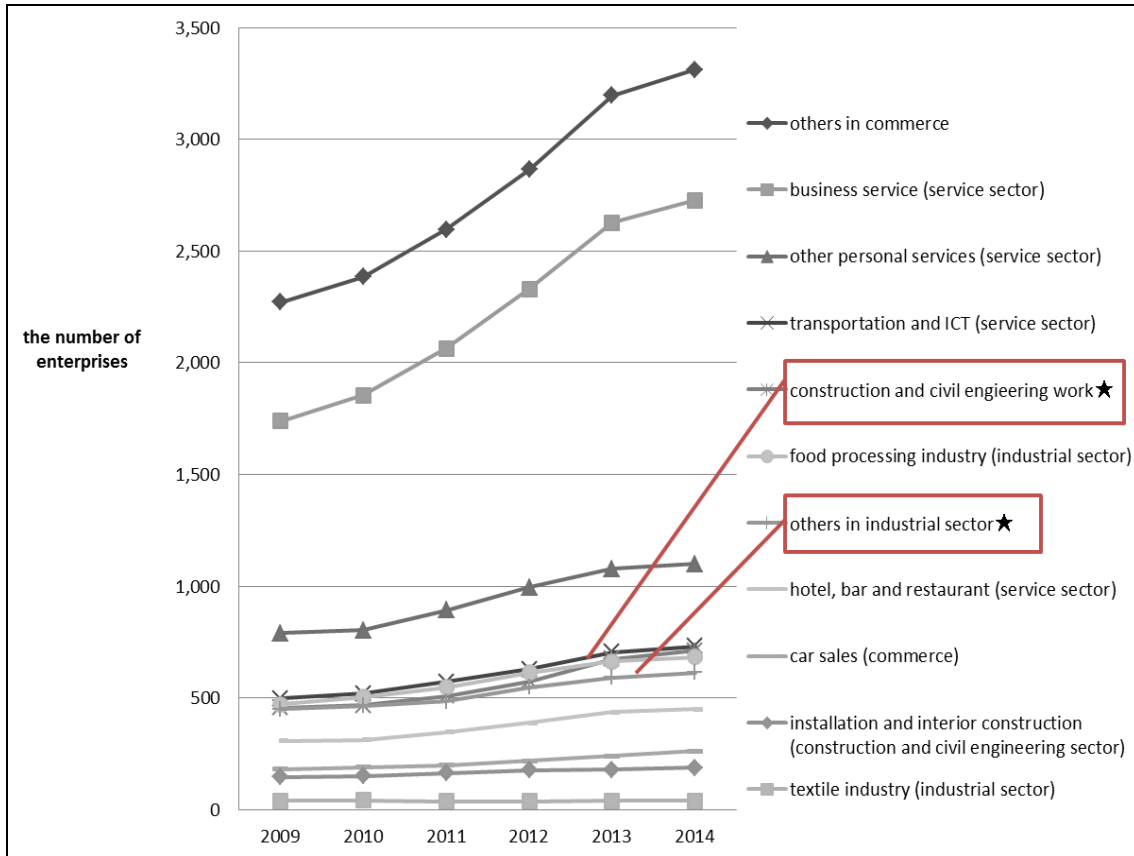
⁶ Total added value is generally obtained either by deducting the various production costs of raw materials, purchase, fuel and outsourcing from total production, or by summing up operating profit, personnel expenses, rent, royalties, amortization expenses, etc.

⁷ ANSD (2015), op.cit., p5.

⁸ ANSD (2015), op.cit., p7.

⁹ ANSD (2015), op.cit., p3.

at the time of ex-post evaluation that there had been a continued need for human resources in the industrial sector and for acquisition of the skills required for the operation and maintenance of equipment.



Source: Compiled based on two tables from Ministère de L' Economie, des Finances et du Plan, Agence Nationale de la Statistique et de la Démographie (ANSD), Banque de Données Economiques et Financieres, Décembre 2015, pp.15-16.

Figure 1: The Number of Domestic Enterprises by Sector in Senegal

With regard to the balance of payment in two respective areas (Table 1 and Table 2), there was a pressing need for the right sets of skills for the operation of imported equipment and the use of materials, since the expansion of economic infrastructure development at the time of project planning. Furthermore, both the use of heavy machinery and construction has increased imports of related equipment in recent years. Also, there has been a constant excess of imports in both areas. It can be said that the practical sets of skills and expertise in these sectors are desirable in order to handle foreign materials as well as to operate equipment that is manufactured abroad. Therefore, the equipment procured by the project to be utilized in training was to meet these very needs.

Table 1: Balance of Payment for the Heavy Machinery Sector

Unit: billion CFA¹⁰

	2009	2010	2011	2012	2013	2014	2015
Import	6.1	11.3	9.1	12.5	19.3	15.2	19.8
Export	0.3	1.0	0.9	3.1	0.1	1.6	2.6

Source: ANSD

Table 2: Balance of Payment for the Construction Sector

Unit: billion CFA

	2009	2010	2011	2012	2013	2014	2015
Import	20.3	21.8	22.3	23.7	26.6	29.1	27.0
Export	1.6	2.0	1.5	1.4	1.2	1.8	1.8

Source: ANSD

The aforementioned report by the ANSD gives a breakdown of the total operating expenses by sector and includes the amounts for the annual external service¹¹ costs in construction and civil engineering work¹². According to an interview with the ANSD, as there were not many domestic enterprises of good standing in the construction and civil engineering sector, the external service costs are virtually equivalent to the payments for technical services made by foreign enterprises. Business in the sector is increasingly dependent on foreign enterprises. Table 3 shows the percentage of the external service cost: the cost of outsourcing technical services in the sector abroad has risen to around 30% of the total operating expenses in recent years. Therefore, from the point of view of improving profitability in construction and civil engineering, it is essential that skilled Senegalese technicians of relatively low cost are trained to effectively replace external services. Likewise, in terms of macroeconomic management, in order to narrow the trade balance deficit as well as promoting economic infrastructure development, it is important to facilitate the process of the domestic substitution of external services, first and foremost by producing many more skilled workers, and then by improving the job market so that they can promptly perform to the fullest extent in Senegalese enterprises.

Table 3: External Service Costs in Construction and Civil Engineering work

Unit: million CFA

	2009	2010	2011	2012	2013	2014
External Services	78,213	75,636	116,260	180,465	183,816	185,655
Total Operating Expenses	399,556	375,970	509,932	608,431	602,087	559,438
Ratio of External Services against Total Operating Expenses (%)	19.5	20.1	22.7	29.6	30.5	31.2

Source: Ministère de L' Economie, des Finances et du Plan, Agence Nationale de la Statistique et de la Démographie (ANSD), Banque de Données Economiques et Financières, Décembre 2015, p264

¹⁰ CFA francs (CFA) have a fixed exchange rate to the EURO. At the time of ex-post evaluation, 1 CFA was equivalent to 0.17 JPY.

¹¹ It refers to the outsourcing necessary services in order to produce and/or sell their own products or services.

¹² It's called BTP (Bâtiments et Travaux Publics)

As the graduates of the two new courses targeted by the project will be most likely be employed by enterprises in the sector of construction and civil engineering work, which has been growing in recent years, this may mean that the number of enterprises which are able to hire trainees of CFPT are also increasing. According to the beneficiary survey described in detail later, almost all respondents from enterprises said that they always seek and welcome candidates who have a good skill set. On the other hand, it is also true that some enterprises in the industrial sector most likely face critical challenges such as financing for the renewal of existing equipment as well as inevitable price hikes for certain raw materials and equipment. With such management priorities the employment situation for young unskilled workers will certainly be harsh.

Therefore, the project has been highly relevant to the development needs for the training of competitive and skilled technicians and engineers in Senegal.

3.1.3 Relevance to Japan's ODA Policy

At the time of project planning, the Country Assistance Policy for Senegal in May 2009 had described the need for vocational and technical training and education as one of the objectives of "fostering human resources in the industrial sector" under the section "laying the foundation for sustainable economic development." Here, human resources in the industrial sector were deemed to serve as an engine of the building of a foundation for economic growth. More specifically, regarding the assistance for CFPT, it has been clearly stated that in light of the promotion of human resources development and employment aligned with needs of industry in Senegal, Japan has mainly assisted CFPT, which has been playing a leading role in the training of middle and high level technicians since its establishment in 1984. Also, the intention has been to seek further development.

Therefore, as CFPT was the specific target in the country assistance policy for Senegal, the project was relevant to Japan's ODA policy.

This project was highly relevant to Senegal's development plan and development needs, as well as to Japan's ODA policy both at the time of planning and the ex-post evaluation. Therefore, its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

Details of the planned outputs of the project are shown in Table 4 and 5.

Table 4: Construction plan: facilities for the Maintenance of Heavy Machinery course

Floor	Main components	Floor area
“Maintenance of Heavy Machinery” building		
2fl.	2 Classrooms, multi-functional rooms etc.	234.90m ²
1fl.	Entrance, Space for practice of operations, Hangar, Storage, Teachers’ room, Changing room, Electric lab room, Injection pump room, etc.	950.68m ²
Power generation building		
1fl.	Electric control room, Non-utility generator room	42.00m ²
Total		1,227.58m ²

Source: Reference document provided by JICA

Changes from the original construction plan were only minor ones¹³. As CFPT requested them on the grounds of usability improvement, they are deemed to be adequate.

Table 5: Procurement plan for training materials

Equipment by course	Quantity
Maintenance of construction equipment	
Training materials for Electrotechnics and electronic machinery (renewable energy and installation of photovoltaic (PV) panels etc.)	62
Training materials for teleinformatics (intercommunication network system etc.)	65
Training materials for air-conditioning and refrigeration	26
Maintenance of heavy machinery	
Bulldozer	1
Backhoe loader	1
Training materials for diesel engine	7
Sets of general tools	10
Set of repair tools	14
Set of special tools	3
Major components for assembly/disassembly	13
Testing stand device for injection pump	1
Forklift	1
Electronic simulator	3
Simulator for ABS brake	1
Electronic machinery	
Training materials for electronic machinery (grinding machine, lathe etc.)	106
Training materials for hydraulic system	4
Training materials for pneumatic system	8
Automatics	
Training materials for automation system (production process system model etc.)	52
Informatics	
Training materials for ICT (server, PC etc.)	110
Common for all courses	
Training materials for drafting	20
Equipment to make teaching materials for the Third Country Training Program (projector etc.)	9

Source: Reference document provided by JICA

¹³ (1) Move lavatories for trainees from the 2nd floor to the 1st floor, (2) move a changing room to the 2nd floor, and replace the space with storage on the 1st floor; (3) move tool storage to replace the space of the men’s lavatory (for trainees) on the 2nd floor.

Procured equipment was almost as planned both in the quantity and items¹⁴. Major equipment is regularly maintained and cleaned so that it is ready for use on a daily basis. Also, equipment is always protected from dust with a cover whenever it is not in use for training. By and large, the operational status is considered to be good. CFPT reported that only the forklift recharger was broken and that the forklift could not be used. However, during the field study, a trainee was able to fix it and it was confirmed working without problems.



Installation of photovoltaic (PV) panels training equipment with a cover (Maintenance of Construction Equipment Course)



Production process system model (Automatics Course)

The outputs that were to be undertaken by Senegalese side, such as the removal of obstacles, fence installation, waste disposal, utilities and fire-extinguisher appliances during construction and tax exemption procedures, were mostly carried out and disbursed as planned. However, regarding fence installation, as there was a large open area of public land with no adjacent buildings and roads around the construction site, CFPT reported that it had been decided not to build the fence to enclose the site as physical damage to people or physical objects was not foreseen. There was no bottleneck or other problem caused by not having a fence during the construction period.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The planned project cost was 1,073 million yen for the Japanese side and 9 million yen for the Senegalese side. Thus the total planned cost was 1,082 million yen. Of the planned cost, the actual cost borne by the Japanese side was 1,054 million yen. Thus was due to the fact that, for the enhancement of efficiency, CFPT requested that the method of procurement be changed so that the total contract work for equipment could be divided

¹⁴ When CFPT inspected equipment received, they pointed out that they had requested a “grinding machine” for the electronic machinery course and not the drill machine that had actually arrived. This was therefore additionally procured during project implementation.

into 2 lots and assigned by each contracting party¹⁵. As such, unnecessary transaction costs of procurement and for the work period were reduced as expected.

As stated above, the total actual cost, including the 9 million yen Senegalese financial burden, was 1,063 million yen against an EN grant limit of 1,074 million yen (98%). Thus it was mostly as planned.

3.2.2.2 Project Period

The planned project period was 18 months at the time of project planning. The project was implemented from March 2011, the time of the Exchange of Notes, until August 2012. Thus the actual total project period was 18 months as planned.

Both the project cost (98% to the planned cost) and project period (100% to the planned period) were mostly within the plan. Therefore, the efficiency of the project is high.

3.3 Effectiveness¹⁶ (Rating: ③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

(1) Operation Indicator

The number of trainees on all five BTS courses was identified as an operation indicator.

Table 6: Comparison of the Target and the Actual of the Operation Indicator

Number of trainees (of 2 Grades)	Baseline value	Target value	Actual Value			
	2009	2015	2012	2013	2014	2015
	Planning year	3 years after completion	Completion year	1 Year After Completion	2 Years After Completion	3 Years After Completion
Maintenance of Construction Equipment (open after the project)	0	32	16	32	30	28
Maintenance of Heavy Machinery (open after the project)	0	32	16	31	32	30
Electronic Machinery (existing before the project)	40	48	96	111	109	101
Automatics (existing before the project)	32	48	66	68	87	93

¹⁵ The contract work was divided into 2 Lots as following;

Lot 1 (Construction of a building for maintenance of heavy machinery courses & Procurement of Equipment): Cautious coordination was required to create a building design to retract heavy machinery and the pipe arrangement for utilities and air-conditioning. A construction company consortium was adopted to build the facilities and a trading company used to procure equipment.

Lot 2 (Procurement of Equipment planned to be installed in the existing facilities): By combining the type of practical training equipment for which price competition was less likely to occur, and generic products such as PCs for which price competition was most likely to occur, the makeup of Lot 2 on the whole provided economies of scale as well as price competition. It was thus assumed that both the total transaction cost would be reduced and the bidding process facilitated.

¹⁶ Sub-rating for Effectiveness is to be put with consideration of Impact.

Number of trainees (of 2 Grades)	Baseline value	Target value	Actual Value			
	2009	2015	2012	2013	2014	2015
	Planning year	3 years after completion	Completion year	1 Year After Completion	2 Years After Completion	3 Years After Completion
Informatics (existing before the project)	32	48	59	75	96	88

Source: CFPT

Note: At the time of project planning, the quota for the 2 new courses was set at 16 people per grade. It was planned that the quota for the existing 3 courses would increase to 24 people by the target year. All BTS courses require a 2-year training period. Thus the basis for the target value was primarily set to fulfil the planned quota described above.

In order to evaluate the actual value, we have reviewed the current enrollment status of both daytime and night classes including whether the actual numbers of trainees fell below the quota¹⁷. With regards to the two new courses, the actual figure is slightly below the target. According to CFPT, a reason why the target was not reached is that among those who passed exams, some declined to enter as they decided to study abroad. Also, CFPT would not admit any candidate who failed to meet the standard, just to fill up a vacancy. Moreover, at the time of the ex-post evaluation study, it was not yet permissible to open new night classes, which may include corporate training, as the government required 3 to 4 years of steady training as a prerequisite for authorization. Therefore, the reason that the target figure was not reached was not because of a lack of popularity, but was a consequence of the current admission system through which CFPT duly selected eligible candidates.

With regards to the actual figure for the existing three courses, after project completion, CFPT decided to increase the quota following a visit from the Minister in charge of vocational training to request that the CFPT management double the number of trainees. This indicates a strong recognition on the part of the government regarding the importance of human capacity development in the industrial sector in which CFPT has been engaged for years.

As stated above, with regard to the two new courses, it can be said that the intended objective was essentially achieved. Also, considering that the overall number of trainees in the existing three courses has more than doubled, the project has accomplished presupposed effectiveness.

(2) Effect Indicator

The target was to increase from the baseline value of the average BTS diploma acquisition ratio, the employment rate of BTS graduates and CFPT self-generated income to measure effectiveness.

¹⁷ All courses except the two new courses have opened night classes that are subject to fees. The majority of the trainees are employees of enterprises.

Table 7: Comparison of the Target and the Actual of the 3 Effect Indicators

	Baseline value	Target value	Actual Value			
	2009	2015	2012	2013	2014	2015
	Planning year (2010)	3 years after completion	Completion year	1 Year After Completion	2 Years After Completion	3 Years After Completion
(1) BTS diploma acquisition ratio (%) (Average of all courses)	Revised baseline value 89.4% ^(*)	Increase	N/A ^(*)	79.3% *New courses were not yet applicable	75.8% *Average figure of the existing 3 courses is 96%	85.6% *Average figure of the existing 3 courses is 93%
Maintenance of Construction Equipment			--	--	44	67
Maintenance of Heavy Machinery			--	--	47	81
Electronic Machinery			--	77	97	95
Automatics			--	97	96	97
Informatics			--	64	95	88
(2) Employment rate of BTS graduates (%)			80%	Increase	N/A ^(*)	
(3) CFPT self-generated income and revenue from seminars for private enterprises (CFA) ^(*)	235,297,023 (14,756,500)	Increase	217,437,572 (10,920,000)	235,365,000 (31,200,000)	198,143,923 (12,424,300)	202,574,500 (19,452,000)

Source: CFPT

Note 1: The baseline value was originally 91% at the time of project planning. However, according to data obtained from CFPT at the time of the ex-post evaluation study, the figures for the existing 3 courses were 88.5% (Electronic machinery), 84% (automatics) and 95.8% (informatics). Thus, the average value of the baseline was revised as 89.4%.

Note 2: Relevant data for the year 2012 is missing at CFPT.

Note 3: CFPT has stopped collecting data about graduates' employment status since 2009.

Note 4: Those figures shown in parentheses are revenue from Public-Private Partnership (PPP) related activities such as the holding of seminars for enterprises. The classified items for self-generated income consist of tuition of night class trainees, tuition of foreign trainees, seminar participation fees from enterprises, third country training program grants, and miscellaneous income from facility usage charges such as dormitory rooms for foreign trainees, a cafeteria, an athletic field and classrooms.

(1) BTS diploma acquisition ratio

Taking into account each actual value of the ratio by course, the low ratios for the two new courses push down the average figure for all BTS courses. According to CFPT, for those industrial fields, the BTS examination method of the government has been changed to be based on an approach¹⁸ that is limited to a set of technical skills that relevant private enterprises find necessary. It was extremely difficult for CFPT to make a timely revision of curriculums and pedagogical content for the first year trainees. However, the figures of success rates improved in 2015, as revision and reform has made steady progress.

¹⁸ Introduction of the concept of the competency-based approach, namely l'Approche Par Compétences (APC) in French to the vocational training, was mainly supported by the Canadian government. In the context of the new courses of CFPT, CIDA selected several enterprises to let them choose an essential skill set to be learned intensively. MFPA decided to use the concept of APC for the national examination for BTS. Consequently, CFPT needed to eliminate some of the ongoing class subjects and reform pedagogy and the overall curriculum.

Furthermore, considering that the baseline value of 89.4% was calculated by the ratios of the existing three courses, it is notable that the exclusive acquisition rate of the three courses increased to 93%, in spite of the fact that the number of trainees per instructor in the courses doubled. Table 8 shows that the national average has remained stagnant at around 50%. There is the reservation that a comparison at face value of the average figures includes different subjects, however, generally speaking, the CFPT achievement is noteworthy.

Table 8: The National Average of BTS Diploma Acquisition Ratio

	2009	2010	2011	2012	2013
National average of BTS diploma acquisition ratio	57.34%	42.80%	55.40%	53.62%	48.26%

Source: Rapport National D’Evaluation de L’Éducation pour Tous (EPT) 2015, p34

(2) Employment ratio

Currently, CFPT does not have systemically recorded information regarding the employment status of graduates. This was deemed to be a management issue that CFPT must cope with. However, it has never been considered the duty of such public vocational institutions to have job search, guidance and placement services for their trainees. Finding a job in Senegal¹⁹ is generally assumed to be solely done through the effort of individual job seeker. The desirable new approach to facilitate employment may require systemic data collection and analysis of trainees, enterprises and industries as a workable base for proactive public relations and outreach activities. Thus, it may be indispensable to assign a full-time expert in human resource management as a part of the organizational and functional restructuring.

The following BOX shows the outline of the beneficiary survey.

Outline of the beneficiary survey	
Main feature of responding groups	(1) Trainees including graduates and foreign trainees (valid responses 104, of which 42 graduates and 62 current trainees, 36 female, 68 male) Regarding the sampling of graduates and trainees, about 120 respondents were selected based on the respective lists given by CFPT. Also, considering the quota of each course, sampling numbers by course were randomly proportional to each quota of the course. However, taking into account that there were only 90 graduates of the two new courses, which was very few compared to the number of graduates of other 3 existing courses (about 400 people at the same period), the graduates of the two courses were selected with an approximate 3 times to adjust the group composition of the population. There are few female trainees so we selected at least one female for each course of both BTI and BTS from a gender segregated list.

¹⁹ According to the study below, for all the approaches for seeking a job, the use of personal connections is quite common (54%). On the other hand, only 4 % use public services. It was pointed out that information asymmetry is rampant in the labor market as shared knowledge and information between job-seekers and enterprises is virtually non-existent. This may result in the stifling of the motivation and confidence of young people with no working experience as their qualification and skills that were acquired at school are not very useful for getting a job. République du Sénégal. Étude réalisée dans le cadre de l’Initiative conjointe pour l’emploi des jeunes en Afrique Mai 2014. *Diagnostic sur L’emploi des jeunes au Sénégal*, p71.

Outline of the beneficiary survey	
	(2) CFPT Instructors: director, instructors and lecturers. (valid responses: 9) Besides using a survey questionnaire, the consultant conducted interviews mainly with some instructors of the 2 new courses. (3) Enterprises or institutions which have hired the graduates of CFPT (valid responses: 15) Besides using a survey questionnaire, the consultant conducted interviews with 2 enterprises.
Method	Questionnaire response, focus group and/or individual interview
Main contents	<ul style="list-style-type: none"> • Confirmation of the effect and impact of the project (intended for all groups) • Cost-benefit performance of the training (intended for all groups) • CFPT competitiveness, uniqueness, and current facts of quality and quantity about its technical education and vocational training (intended for instructors and enterprises) • Issues and problems with how to respond to the needs of the industry sector (intended for instructors and enterprises)

As the beneficiary survey was not a complete census, it does not definitively express the employment status of CFPT graduates. However, an inquiry was made into the salary level of 42 graduates and the data obtained was used to supplement our judgment. These were asked to respond with information about how many percent their actual salary is higher than the salary they had expected prior to training at CFPT. Five graduates from the 2 new courses answered that it was more than double than the expected level. Therefore, this suggests that private enterprises offer favourable hiring conditions for those who trained on the courses.

(3) CFPT self-generated income

At the time of project planning, “increase in self-generated income” was considered as an indicator for measuring enhanced Public-Private Partnership (PPP) by this project. Also, discretionary income generation for CFPT was limited only to the holding of seminars for private enterprises. With regard to the rest of the items, except for the Third Country Training Program conducted mainly through a JICA grant, the government imposes certain restrictions²⁰ as a public institution. Furthermore, the level of tuition based income has its own limits along with its capacity based on a set quota, although there must have been a potential demand for training. Thus, in light of the above, it would be rather more sensible to assess revenue solely from the holding of seminars for private enterprises rather than from the total amount of self-generated income of CFPT.

Although revenue from the services to private enterprises has fluctuated, Table 7 shows an increasing trend; from the baseline value of about 14 million CFA in 2010 to the actual value of about 19 million CFA in the target year, 2015. CFPT would continue to assign importance to PPP related activities, such as holding seminars in particular, as this is a source of income that utilizes existing assets including equipment procured by the project to the fullest possible extent and without any legal restriction. It can be predicted that revenue

²⁰ As stated above, it is not permitted to open night classes without a certain examination period for authorization. The 2 new courses, therefore, have not yet become a source of income in this respect.

will increase from here onwards.

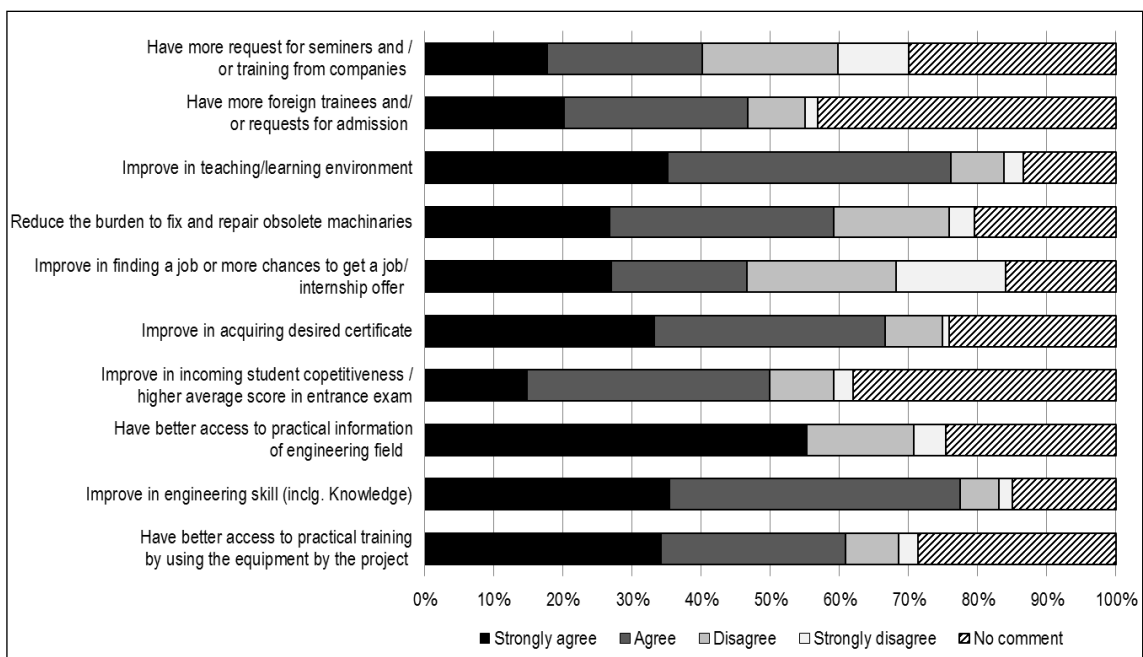
As stated above, due to a lack of numerical data, it is difficult to fully examine the quantitative effects of the project. However, in light of the supplement data and information based on the premises and structural constraints of CFPT, we can conclude that the effectiveness of the project has been confirmed in this regard.

3.3.2 Qualitative Effects

At the time of project planning, improvement of the training environment at CFPT was set as a qualitative effect of the project.

It has to be noted that improvement here might have a twofold significance; that there is improved access, both in quality and quantity, for people in terms of training opportunities as was rightly addressed by the aforementioned PDEF, as well as institutional improvement of technical education and vocational training through the upgrading of facilities and equipment.

In order to confirm the nature of the improvements in skills and knowledge observed after project completion, during the beneficiary survey, 10 multiple-choice questions (which also allowed for free descriptions) were given to trainees and instructors (total 113 respondents). More than 70% of them responded that, in descending order, “engineering skills and knowledge”, “the teaching/learning environment”, and “access to practical information in the engineering field” had improved.



Source: Beneficiary survey

Figure 2: Improvement of Vocational Training at CFPT after the Project

We also asked if the project had helped strengthen practical training at CFPT which was useful in responding to the actual job needs on site, and if so, why. Forty people responded to this question and 38 respondents²¹ said that “practical training had been strengthened”. As for the reason for this, 30 people answered that it was “because of the new equipment”. This shows that the project has assisted CFPT to perform practical training.

In light of the above, with regard to improvement of the training environment both in terms of quality and opportunity, it can be said that the project has substantially accomplished the qualitative aspect of the effects.

3.4 Impacts

3.4.1 Intended Impacts

The project sought to achieve the following 3 impacts at the time of project planning:

- (1) By improving the existing courses, trainees are enabled to become technicians with skills to meet the demands of industry in Senegal. Thus, the performance of private enterprises is helped to improve by hiring these graduates. This would eventually contribute to the development of industry.
- (2) The reputation for service of CFPT would facilitate public-private partnerships.
- (3) As the number of foreign trainees and third country training programs are increased, there would also be a contribution to the human resource development of other African countries.

On the matter of the contribution to private enterprises which leads aggregately to the development of industry, as CFPT does not have a reliable database on the situation of graduates, it is difficult to quantitatively examine the impact. While the government intends to facilitate PPP and encourages public institutions to be financially more independent, in order to retain a good reputation and promote competitiveness through collaboration between private enterprises, it is essential that there is a clear understanding of the status of trainees after graduation. Furthermore, it is increasingly indispensable that the service for trainees and private enterprises is expanded with regard to employment. CFPT itself should initiate an analysis of the needs and the problems of private enterprises through the asset of having so many graduates.

According to a comparative study conducted by the national specialized institute²² on the

²¹ This question was designed to get responses only from those graduates and instructors who know the situation before and after the project.

²² The Study was conducted to analyze 17 vocational training centers including CFPT in Senegal. The results of comparative assessment from interviews with 20 enterprises concerning CFPT graduates (p14, pp42-45) were reported on. However, the number of enterprises is limited to only 20 and the study may just incidentally reflect a subjective view of respondents. Also, it does not clarify the number of hired graduates. Therefore, we only take note

assessment of CFPT graduates on the part of enterprises, shown in Table 9, a majority appreciate the discipline, attendance and punctuality of CFPT graduates, compared to other items of assessment. In addition, they are relatively satisfied with their technical skills.

Table 9: Summary of the Assessment of CFPT graduates on the part of Enterprises
(Comparison of Competing 17 Vocational Training Centers)

	Number of enterprises whose assessment is favorable to CFPT	Number of enterprises that made a mixed assessment	Number of enterprises whose assessment is unfavorable to CFPT
Technical Skills	10	9	1
Soft skills	5	11	4
Behavior	14	3	3
Adaptability	7	7	6

Source: Office National de Formation Professionnelle, March 2015. *Study and Data Collection in the Field of Vocational and Technical Training in Senegal*, p44, Table 25.

Furthermore, in the beneficiary survey, 15 enterprises were asked if the cost of recruiting and hiring engineers with the required skills had been raised after 2012, the year of project completion. Nine enterprises out of 15 answered that the cost has been raised. They were also asked if they will invest more (c.f. the training cost) to retain qualified technicians in the future. Thirteen enterprises responded they will invest more. Thus, there is a substantial need among private enterprises for more technicians and engineers in the labour market. This indicates the continuing importance of human resources development in the engineering field.

With regard to the CFPT service for private enterprises, the holding of seminars and training, it was targeted that the number of seminars be increased by the year 2014 based on the accumulated value from 1989 to 2009 as the baseline value at the time of project planning. As Table 10 shows, CFPT has held seminars every year and the accumulated number thus amounted to 344 in 2014. However, the annual average number has fluctuated. According to the aforementioned comparative study, it is confirmed that CFPT has a good reputation for the quality of its services²³. It also argues that CFPT can be distinguished from other competing institutions because of the technical and financial support from Japan²⁴.

of the propensity of the assessment. Office National de Formation Professionnelle, March 2015. *Study and Data Collection in the Field of Vocational and Technical Training in Senegal*.

²³ Office National de Formation Professionnelle, op.cit., p40.

²⁴ On the other hand, it is also mentioned that the network of 14 Higher Vocational Education Institutes (HVEI) was created by the support of the World Bank, Agence Française de Développement (AFD) and the Korean International Cooperation Agency (KOICA); the management of HVEI is encouraged to be more autonomous and independent as business leaders are involved in decision making on the basis of financial performance. CFPT is now under pressure to compete with others in terms of PPP activities.

Table 10: Number of Seminars for Private Enterprises and Participants

	1989-2009	2010	2011	2012	2013	2014	2015
Number of seminars	*292 accumulated number of seminars *Average 14 times per year	12	10	13	8	9	12
Number of participants	N/A	117	103	153	106	57	112

Source: CFPT

During the interviews in the beneficiary survey, 15 enterprises were asked about the purpose of participating in CFPT activities (multiple answers allowed). “Upgrading their/their staff’s skills” got the highest score, among which were “acquirement of state-of-of-the-art standards and innovative methods”, “providing them/their staff with useful skills”, “learning how to maintain machinery at work”, “getting trained to operate equipment”, “recruiting new staff (engineers).” This indicates that there was a wish to be promoted by gaining BTS or BTI diplomas through the training at CFPT. It can be said that the training service for night classes is also much in demand.

Moreover, there is a notable case in point where it may be advantageous in the medium to long-term to utilize equipment for future collaboration with the private sector. The production process system model procured for the automatics course may have much to offer in extending possible joint research with engineering research groups of universities and institutes,. According to CFPT, as Senegalese researchers are very interested in the model of 8 integrated production processes, they often request visits to CFPT in order to study it. Gaining a holistic understanding of integration is essential as it would be critical engineering knowledge for a viable upscaling of commercial manufacturing in industrial development. At the time of the ex-post evaluation study, the model was unique, with one-of-a-kind equipment in Senegal, and this may have contributed to facilitating the endeavour for envisioned development.

On the matter of international cooperation, as Table 11 shows, the third country training programs have been almost constantly implemented except for the year of 2014. Also, Table 12 also shows that the total number of foreign trainees has shown an increasing trend²⁵ .

Table 11: Records of the Third Country Training Program by JICA Grant

	2009	2010	2011	2012	2013	2014	2015
The number of Third Country Training	2	2	2	2	2	0	2

Source: CFPT

²⁵ According to CFPT, recently the number of BTI trainees is increasing as the tuition level is a half of BTS. Foreign trainees are from 23 countries: Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Comoros, Ivory Coast, Djibouti, Gabon, Guinea, Guinea-Bissau, Equatorial Guinea, Lebanon, Madagascar, Mali, Mauritania, Niger, Republic of the Congo, Democratic Republic of the Congo, Togo, Chad, France, and USA.

Table 12: Number of Foreign Trainees by Course

		2009	2010	2011	2012	2013	2014	2015
		Baseline year			Completion year	1 Year After Completion	2 Years After Completion	3 Years After Completion
BTS	Maintenance of Construction Equipment (open after the project)					1	2	0
	Maintenance of Heavy Machinery (open after the project)					0	0	1
	Electronic Machinery	5	5(7)	6(1)	7(2)	5	5 (of which 1 female trainee)	6 (of which 1 female trainee)
	Automatics	5	8(1)	8(1) (of which 2 female trainees)	5 (of which 2 female trainees)	3(1)	5	7
	Informatics	4(1)	5(3)	4	2(1) (of which 1 female trainee)	1(1)	3	3
	BTS Total	14(1)	18(11)	18(2)	14(3)	10(2)	15	17
BTI	Electrotechnics	3	3(1)	7	8	4	3(1)	3
	Automobile engineering	0	0	1	1	2	2(1)	6(2)
	Electronic machinery	3	2	1	2	1	4	4(1)
	BTI Total	6	5(1)	9	11	7	9(2)	13(3)

Source: CFPT

Note: Those figures shown in parentheses are the numbers of night-class foreign trainees.

Table 13: Revenue from Admission of Foreign Trainees

		Unit: CFA						
		2009	2010	2011	2012	2013	2014	2015
Total amount of tuition from foreign trainees		23,530,000	23,580,000	26,239,998	22,161,000	26,190,000	21,348,350	28,415,000

Source: CFPT

The aforementioned comparative study concludes that CFPT has comparative advantages with its experience of international cooperation and unique, one-of-a-kind, training courses such as on the maintenance of heavy machinery and automatics²⁶. Its long-standing experience of leading international cooperation in the West African region is particularly important. It was also reported that further reinforcement of the development of networks and the extension of its influence through such activities is desirable. Furthermore, the government also considers that its international cooperation such as the admission of foreign

²⁶ Office National de Formation Professionnelle, op.cit., p46.

trainees and third country training has a great impact in terms of playing a leading role in the regional economy. Being fully aware of the importance, the CFPT management reported that it will try its best to dedicate itself to cooperation.

On the other hand, CFPT has set a 15% admission quota for foreign trainees so far based on the respective enrolment limit of each course. That automatically results in the imposition of a limit on the maximum tuition income from foreign trainees. Therefore, as we cannot expect large increase in number of intakes, the level of contribution should be assessed rather by the qualitative aspect of the foreign trainees' networks both during training and post-graduation. It was recognized that the planned network building of graduates should include foreign graduates. In CFPT, it is thus deemed necessary that a strategy plan to organize alumni associations, including branches in foreign countries, is thoroughly examined in order to invite more foreign trainees through the international advertising campaign.

3.4.2 Other Impacts

3.4.2.1 Impacts on the Natural Environment

According to CFPT, no negative impacts on the natural environment through implementation of the project were observed. Also, it was confirmed that there was not even noise and vibrational damage that may have negatively affected the surroundings during the construction period.

3.4.2.2 Land Acquisition and Resettlement

The project was to construct facilities on the land owned by the government. However, it was reported that there was the removal of informal businesses that had illegally occupied some portion of the area. As the project site is situated on official land, the Ministry was solely in charge of the negotiations and the removal was duly processed. There was no problem of such a serious magnitude as to delay project completion.

3.4.2.3 Unintended Positive/Negative Impacts

According to CFPT, the utilization of equipment procured for the Maintenance of Construction Equipment course also became a component of cooperation projects of other donors. The result of this was that multifaceted cooperation was made possible in the light of policy-based promotion of employment. In one notable case, since 2016, with the assistance of the World Bank and the French government, a four-year program has been launched targeting approximately 10,000 trainees of six selected public vocational and

technical training centers in an effort to promote productivity and employment²⁷. CFPT has been selected as one of the pilot centers and the target project is the practical training for the installation of photovoltaic panels, which is part of the Maintenance of Construction Equipment course.

Furthermore, it is noted that as the government of Senegal has made a commitment to promote renewable energy, and in line with this policy it may well establish a new qualification for the installation of photovoltaic panels. CFPT anticipates positive results from the program such as having trainees certified in the new field.

With regard to effectiveness, the quantitative effects of the project could be obtained as the target figures were on the whole achieved. While quantitative data on employment were not obtainable, other supplementary data indicates that CFPT has a positive reputation. As for the qualitative effects, according to the beneficiary survey, the majority of respondents agreed that the project had contributed to improving the training environment. The reinforcement of practical training was attributed largely to the equipment procured by the project.

Concerning impact, it was confirmed that CFPT has made contributions in terms of producing quality graduates with the desired skill sets for industry, holding seminars for private enterprises and international cooperation through the third country training programs and also in the increase in the number of foreign trainees. Further, as an unintended impact, CFPT has been able to take part in a new assistance program for the promotion of employment led by other donors utilizing equipment procured by the project. As above, it is concluded that impact can be identified as the project enabled CFPT to receive increased recognition both domestically and internationally.

As stated above, this project has largely achieved its objectives. Therefore, the effectiveness and impact of the project are high.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

At the time of project planning, the Ministry responsible was the Ministry of Technical Education and Vocational Training (Ministère de l'Enseignement Technique et de la Formation Professionnelle: METFP). With the new administration led by President Sall, in

²⁷ In line with the policy implementation of the Vocational and Technical Training for Employment and Competitiveness (Formation Professionnelle pour l'Emploi et la Compétitivité: FPEC), based on assistance from the World bank and the French government, the program is to train young people from a three to six month period at the pilot centers. Thereby it is expected that special certificates will be provided (Certificats de Spécialité) to facilitate job creation for the benefit of young people.

2012, it was reorganized by integrating the jurisdiction of the handicraft sector and was renamed the Ministry of Vocational Training, Apprenticeship and Handicraft (Ministère de la Formation Professionnelle, de l'Apprentissage et de l'Artisanat: MFPAA). As MFPAA was responsible for the project at the time of ex-post evaluation, there has not been any substantial change in terms of the organizational framework of O&M with respect to CFPT as the Implementing Agency²⁸. Furthermore, from the time of project planning to the time of the ex-post evaluation, the Ministry and CFPT have consistently shared an understanding of the due responsibility of CFPT for the exercising O&M on a daily basis. As such, 2 laboratory assistants (contract staff) for each course are engaged in daily check-ups, maintenance and repairs of equipment. In the case of any breakdown or malfunction, the designated instructors of each course are immediately given a report from the assistant and the problem is dealt with by the organization.

However, out of all 47 instructors, 4 instructors have recently resigned or retired from CFPT (2 of them were in charge of the Maintenance of Heavy Machinery course). In order to fill their posts, instructors have been redeployed and attempts have been made to rehire those who reached retirement age as part-time instructors. As it has been difficult to recoup the balance of government budget for personnel costs, a position for the superintendence of precision measuring at the electric machinery course has not yet been filled.

Furthermore, a major organizational challenge for CFPT is embedded in the imbalanced age structure of the 47 instructors, as illustrated in Table 14. Within the next decade, 42% of current instructors will be sequentially retired with slightly less than half of those instructors being replaced by new hires. As there were very few instructors in their forties at the time of ex-post evaluation, the instructors in their thirties will have to play the role of the veteran instructors in their fifties.

As CFPT has long had the reputation of providing quality vocational training for those industrial sectors of high demands in the economy, it will not be at all easy to recruit well-adapted instructors from the outside. Urgent attention is therefore needed on how young instructors can be trained, for example, by prudently building incentives into the salary packages based on a personnel evaluation system that runs along with the training plan.

Table 14. Distribution of Instructors by Age Group

Age Group	Instructors	%
30-35	14	30
35-40	11	24
40-45	1	2
45-50	1	2
50-55	9	19
55-60	11	23
Total	47	100

Source: Study and Data Collection in the Field of Vocational and Technical Training in Senegal, Office National de Formation Professionnelle, March 2015, p31 Table 17.

²⁸ According to an interview with officials of MFPAA at the time of ex-post evaluation, it was mentioned that the government has set a policy direction that all public vocational training centers will be transformed into independent administrative institutions in the near future.

As seen above, the organizational challenge of CFPT revolving around the issue of the instructors, affects not only O&M but also the future succession of technical knowledge and skills among instructors, the hands-on training of young instructors, the utilization of equipment, and the quality levels of training and education for trainees. Therefore, in the mid-term action plan of CFPT, it is important that pending issues of management such as how to secure MFPAA support for personnel costs are substantiated and that a reinforcement of the personnel system is realized.

3.5.2 Technical Aspects of Operation and Maintenance

At the time of project planning, there was concern that the procurement of spare parts from abroad and the repair of foreign-made equipment may cause problems. So far, however, instructors on each course have dealt with these matters on their own. There has been no record of the sending out of broken equipment to any foreign manufacturer. Furthermore, at the time of the ex-post evaluation, there was almost no broken equipment left unrepaired and this has ensured that the operation status has remained good. In addition, all manuals were duly translated into French as a follow-up of Japan's technical cooperation project. Based on the manuals, CFPT has had a policy that the instructors of each course are primarily responsible for repairs, even including the manufacture of some necessary spare parts by themselves. Thus, they have acquired the skills and technical knowledge to ensure the function of O&M²⁹.

No major problems are observed in terms of the technical aspects of operation and maintenance.

3.5.3 Financial Aspects of Operation and Maintenance

According to CFPT, expenditure items disbursed from the budget of MFPAA were legally established and utilities³⁰ and personnel costs (regular personnel) were duly paid by the government. At the time of project planning, a part of the annual financial burden of CFPT for the costs of the O&M of the equipment of the project, such as the purchase of consumables, was about 12,500,000 CFA. The cost of the O&M of the facilities, including the cost of diesel oil for power generation, the replacement of lamps, and the maintenance of non-utility generation facilities was about 5,122,000CFA. The total annual expenditure was

²⁹ Air-conditioning and refrigeration training equipment was chosen from a German manufacturer, GUNT. Some instructors made an inquiry about certain in-depth principles for operation which was presumed to be in the manuals but, as it was only explained in German, it was not totally clear that it was fully understood. Young instructors are generally positive about learning new technical knowledge. However they are also aware of their lack of training and experience compared to the veteran instructors. They commented that they need to upgrade their skills and get more hands-on experience.

³⁰ With regard to utilities, it is the governmental arrangement that bills are directly forwarded to the government to pay. No CFPT administrative procedure is required.

about 18 million CFA. CFPT reported that the actual expenses incurred through the project were fully within the planned amount as shown in Table 15. They also had no trouble making payments. However, as the total costs of O&M seem to have been falling in tandem with decreasing personnel costs over the period, there is a concern as to whether this might have caused a lower operation rate of equipment.

Table 15: Financial Statement of CFPT

Unit: CFA

	2009	2010	2011	2012	2013	2014	2015
Total revenue	265,229,208	282,712,497	268,936,893	256,208,850	255,043,891	185,680,780	192,322,170
Government funding	60,328,000	63,887,497	52,649,117	22,833,703	55,488,786	19,003,275	31,200,000
Revenue	204,901,208	218,825,000	216,287,776	233,375,147	199,555,105	166,677,505	161,122,170
Total expenditure	265,228,391	282,684,788	268,936,893	255,411,230	255,063,891	185,680,774	192,322,170
Personnel cost (regular personnel)	148,999,524	148,827,833	152,600,851	148,063,234	130,377,714	91,292,280	98,038,708
Personnel cost (contract staff)	27,706,923	30,035,924	26,705,689	26,427,673	33,860,055	25,161,493	32,001,797
General administrative overhead	7,287,501	9,914,855	8,726,935	11,762,175	11,983,913	13,977,585	12,980,356
Operation and maintenance cost (consumables & parts)	75,995,928	88,117,338	74,093,428	62,624,554	65,703,821	38,581,731	42,479,489
Repayment	0	2,099,940	0	2,444,833	7,113,638	3,985,899	0
Others (assistance for extracurricular activities of trainees etc.)	5,238,515	3,688,898	6,809,990	4,088,761	6,024,750	12,681,786	6,821,820
Balance (Total revenue –Total expenditure)	817	27,709	0	797,620	-20,000	6	0

Source: CFPT

CFPT has also to cope with any costs incurred in the implementation of their own projects. Thus, in order to realize the active execution of any activity for which strengthening of the personnel system is mission-critical, it is essential, first and foremost, to negotiate with the government for the corresponding increase in personnel cost. If it is impossible to secure the personnel cost from the governmental budget, it may be difficult to carry out income generation activities in a forward-looking manner. If the worst comes to the worst, such activities may taper off, resulting in a vicious circle. Moreover, the government has uniformly announced that implementation agencies such as CFPT are solely responsible for the renewal of obsolete equipment. Thus, it is better that an early introduction of deliberate fund management based on standard corporate accounting practices is considered, as CFPT needs to reserve a depreciation allowance for equipment from its own revenue.

As above, no major problems were observed in terms of the current financial status. However, as the current governmental policy direction is on the furtherance of independence of public institutions it is expected that CFPT will have no choice but to reform its method of financial management.

3.5.4 Current Status of Operation and Maintenance

With regard to equipment procured by the project, a part of the usage such as that of measuring equipment was sluggish, largely because of the resignation of some instructors in their forties. On the other hand, O&M has been properly dealt with on the whole through internal coordination of instructors and assistants.

Facilities have been in a good condition and are kept clean by dedication to the familiarization of staff with the need for O&M.

Some minor problems have been observed in terms of the institutional aspect of operation and maintenance. Therefore sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objective of this project was to improve the quality of engineering education and training desired by industry, through the construction of facilities such as a building for Maintenance of Heavy Machinery courses and the procurement of equipment for two newly opened high level technician BTS courses (Maintenance of Heavy Machinery, Maintenance of Construction Equipment) and three existing BTS courses (Electronic Machinery, Automatics, and Informatics) in CFPT, thereby contributing to fostering human resources in the industrial sector as the foundation of economic development. The relevance of this project is high, as it was relevant to the policies and needs of Senegal both at the time of planning and the ex-post evaluation, as well as to the ODA policy of Japan at the time of planning. Also, the project was carried out and provided the planned outputs. The project cost and project period were mostly within the plan. Therefore, the efficiency of the project is high. With regard to effectiveness, it has been confirmed that the total number of trainees in the BTS courses and the average BTS acquisition rate of trainees on all three existing courses have substantially increased. Furthermore, those in related business circles are in favour of improved quality of CFPT training service as this is fairly demonstrated in increases in CFPT income, the source of which is mainly from the holding of seminars for private enterprises. Also, as a qualitative effect of the improvement of the training environment, it has been confirmed that the project has particularly contributed to strengthening practical training. By the same token, with regard to intended impact, the contribution of CFPT in the fostering of skilled graduates who meet the needs of industry has also been confirmed, and there have been a series of international and domestic training activities, and an increase in the intake of foreign trainees. Thus, the effectiveness and impact of this project are high. Regarding sustainability, although equipment and facilities procured by the project are in good condition, there is a concern about the institutional aspect since CFPT has suffered from the resignations of instructors in recent years and thus faces the

challenge of how to recruit instructors as well as how best to train and retain young instructors. This will affect the financial and technical aspects if the problem is not properly solved. Therefore, the sustainability of this project effect is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

(1) Establishment of a system of employment assistance for graduates

A fundamental challenge is that CFPT cannot solve current problems of job seeking and employment as there is no function to systematically collect data/information on the employment status of graduates. In order to cope with this, it is recommended that a specialized unit of public relations is set up in CFPT that also includes assistance with job-seeking for trainees. Provided that CFPT succeeds in putting this in place, as it must consistently offer reliable information on possible employment opportunities, regardless of economic fluctuation, the primary mission of the unit will be to expand its information network among relevant enterprises and associations through various public-private partnerships in order to update information on a daily basis. In the next stage, matching and placement between enterprises and trainees should be provided by fully analysing individual information registered in the database regarding the desired level of skills and the hiring conditions of each enterprise as well as the desired conditions and characteristics of each trainee. In order to provide such services for trainees, CFPT is responsible for funding the personnel costs of dedicated staff member(s) and this should be considered to be a high priority item of its top management. With regard to the ongoing internships of trainees, CFPT should hold official orientation sessions as needed, ideally together with people from enterprises, to keep them fully informed in advance as to what they should learn at work. Internships are a precious time especially from the perspective of leadership and teamwork that are a required competency for would-be corporate staff members.

(2) Reinforcement of a personnel system of instructors and the utilization of an alumni network

As the political and economic environment has been undergoing substantial change, the training and retaining of instructors is deemed to be a major organizational challenge for CFPT. On the other hand, as the government budget framework for the personnel costs of public workers is not flexible, it is difficult to immediately recruit adequate staff. Therefore, in order to fully cope with any new projects without unnecessarily putting an extra burden on instructors at present, the hiring of part-time instructors who can be in charge of partnering

with the private sector may be a practical proposition. It may be especially effective to offer selected graduates work as part-time instructors and to utilize the alumni network to full advantage. Particularly graduates, who have hands-on experience in corporate management and/or have started their own business as entrepreneurs can be of help in making constructive revisions to the current curriculum and in planning/implementing effective income generation activities. If a team of graduates proposes new projects based on the needs of the private sector as part-time instructors, it would be possible to expand the scope of activities and facilitate the training of young instructors without increasing the workload of full-time instructors. In order to realize this, first and foremost, it is critical that the information database on graduates from home and abroad is improved. Therefore the aforementioned unit of public relations which will assist with employment should deal with the issue in a synergistic manner. As the governmental recommendation to encourage public-private partnership has been announced by law in 2015, it may be relatively easy to budget the project costs for this purpose even including personnel costs.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Promoting incentive measures for retaining and training of instructors in the vocational training centers

The resignation of some mid-career instructors has caused a serious imbalance in the age structure of instructors at one target vocational training center of the project. Not only do instructors instruct trainees, they also plan and carry out seminars for private enterprises, and therefore these instructors play an integral role in income generation. As such, in order to avoid quality degradation and lower revenue levels, urgent attention is needed on how a sensible personnel system for instructors can be deliberately redesigned.

Where income generation is to be driven by a team of instructors, the top management should set proper performance targets in line with a personnel system that enables the remuneration of instructors based on the evaluated degree of contribution to income. Also, the most essential part of sustainable management that serves private sector development is skillful instructors with high morals and ethics. It is indispensable that a properly designed incentive system is established in order primarily to train and retain such instructors. Although such a system can differ depending upon the country or type of organization, providing bonuses or attractive training programs in the context of the development of career paths can be exemplary. Moreover, the prerequisite for the workability of such systems must be that the existing personnel evaluation system is sufficiently fair and transparent. Therefore, these should be

revised as needed if the newly designed incentive systems are not fully aligned.

Optimization of income generation toward autonomous management

According to the government, the Implementing Agency is solely responsible for the renewal of obsolete equipment procured by the project. As such, CFPT needs to reserve a depreciation allowance for equipment from its own revenue. However, currently no such financial projection has been made to deal with this issue.

At the time of project planning, how the depreciation allowance would be managed was not clearly defined. On the other hand, as the current government clearly set out a funding policy which assigns importance to the financial independence of public institutions and their performance in private sector development, it is urgent that financial projections are made by corporate accounting and that measures are established for the expansion of self-generating income.

In cases such as those above, if the vocational training centers themselves need to finance the renewal of facilities and equipment as desired by corporate accounting, it is important to that they are recommended to put deliberate fund management in place over an optimal level of cost and profit by the earliest possible introduction of standard corporate accounting practices. Specifically, when procuring equipment, the concept of depreciation should be fully understood as a requirement, also it is deemed that it would be effective to assist the Implementing Agency to secure the optimal level of self-generating income in the hope of instilling autonomous management from the outset.