Comprehensive Analysis of Evaluation Result "Technical Cooperation Implemented Over a Long Period of Time – In the Field of Technical Education"

Summary of Survey Result

1. Outline of the survey

1-1 Background and purpose of the survey

Based on the definition of "JICA Cooperation Program", JICA has been recently promoting the enhancement of project implementation through the "strategic framework to support the achievement of mid- and long-term development goals in developing countries (cooperation purpose and scenario appropriate for its achievement).25 On the other hand, regarding individual projects that are the constituents of a "JICA Program", the "technical cooperation project" was established in 2002 to promote cooperation more flexible than conventional ones in the aspects of input factors and project size. However, reflecting the recent project budget reduction, projects are tending to be downsized and shortened in general.

This survey was implemented with the changing process of JICA's aid policy as its background. In the area of technical education, the target area of this survey, there are many projects that have been implemented over a long period of time, phase after phase. They include continuous cooperation given from the time of establishing and strengthening an institution that would be the core of technical education to the construction of a region wide network which involves surrounding countries with the institution at its core. In addition to project-type technical cooperation for the core institution, they also include the ones combining multiple schemes, such as grant aid cooperation and third country training programs26. The series of cooperation are generally recognized both in the target countries and in Japan for its great contribution to the improvement of technical education and vocational training in the target countries. However, although individual projects that constitute long-term cooperation have been evaluated, the total impact and the development process of these long-term cooperation have not been analyzed in the past.

This survey, will comprehensively analyze the effect and process of cooperation in the area of technical education implemented over a long period, then to specify its expected impact on development, and make recommendations for how "effective cooperation based on a long-term perspective" should be conducted.

1-2 Target of the survey

Among all the long term technical cooperation projects, this survey targets on higher education institutions (agriculture and engineering) and vocational training project, for which there is a comparatively high number of records of previous cooperation. The four targeted projects for this survey are defined as "technical education projects". (See Table 1).

Grant aid cooperation projects are basically not in the category of analyzation, but some were included in the analysis when necessary, mainly from the viewpoint of occurrence of synergy effect through interaction between projects.

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[25] Annual Evaluation Report 2007 (JICA 2008)

[26] It is a program to invite, by monetary and technical support from Japan, trainees from neighboring developing countries where the social or cultural environment is the same and give technical training more appropriate for the local conditions in each country. (JICA International Cooperation Handbook 2003)

1-3 Viewpoint of evaluation

The above mentioned four targeted projects in each example country was analyzed in accordance to the questions listed below, followed by an inter-project analysis of the result. “Major outputs produced through a long period of cooperation” here means that the outputs that could not have been achieved only through the implementation of one project cycle (including original project, extension, and follow-up cooperation for the project) even with the intensive input of human resources and funds.

Questions for Analysis

1. What is the major output due to long cooperation period?
   (Output brought about to the cooperation target institution and output(s) brought about to the target country or surrounding countries/areas)
2. What are contributing factors and impeding factors that are common when outputs are produced by cooperation implemented over a long period?
3. What are the risk factors surrounding the future maintenance of the outcome produced by the cooperation implemented over a long period?
4. What are the merits and demerits of cooperation implemented over a long period?

1-4. Implementation period and system of the survey

JICA Evaluation Department was in charge of this survey, and an Evaluation Study Committee was established, which consists of JICA Human Development Department, JICA Department of Human Resources for International Cooperation, JICA Research Institute, and an external expert (adviser). A report was made after the process of formulation of a survey framework, implementation of case study, comprehensive analysis, and extraction of recommendations during March to October 2008.

1-5 Restrictions for the survey

The existing evaluation reports used as the first information source for this survey were evaluations of individual projects and were not made from the viewpoint of analysis of the effect of long-term cooperation. In addition, before the year 2000, making a Project Evaluation Summary was not yet systematically made nor quality controlled as it is today. Hence, some summaries were missing or not informative as compared to the present summaries. The study team tried to supplement additional information necessary for the analysis by interviewing people concerned at the time of project implementation, but some interview results were difficult to confirm it’s reliability . As for qualitative and quantitative amounts of the data acquired, there were differences between the four sample countries, and this hindered the study to be carried out with equal quality.

2. Outline of individual target projects

2-1 King Mongkut's Institute of Technology Ladkrabang, Thailand (Case Study 1)

2-1-1 Survey target

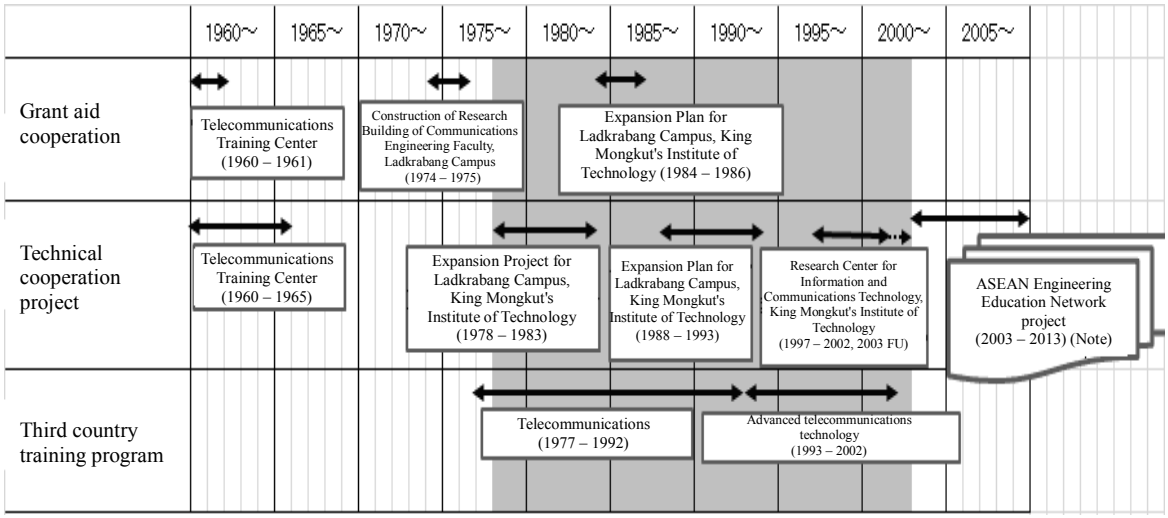
Institution: King Mongkut's Institute of Technology Ladkrabang (KMITL)

Number of projects: 1 grant aid cooperation, 3 technical cooperation projects, 2 third country training

programs

Period: 1978 – 200327

Fig. 1 Series of cooperation projects for Thailand (KMITL)



Note
1. For technical cooperation projects, the solid line shows original cooperation projects and the dotted line shows follow-up cooperation projects.
2. In the table, the gray part shows the period analyzed by this survey.
3. The ASEAN Engineering Education Network (SEED-Net) project is one of the cooperation projects KMITL implements for surrounding countries. Several other cooperation projects, including Laos IT Bridge, have been implemented. With the SEED-Net project, cooperation for Phase I from March 2003 to March 2008 is over, and now cooperation for Phase II is under way.
Source: compiled from various data

2-1-2 Outline of the target projects

The followings points are the main characteristics of the content and changes of a series of cooperation projects for the cooperation target institution concerned (KMITL).

(1) A project to establish a new educational institute (construction of the facility and establishment of curriculum) from the very beginning.

(2) The cooperation over 48 years consisted of linking schemes, with four discontinuous technical cooperation projects at its core.

(3) The maintenance and improvement of facilities, equipment, and materials were emphasized through the entire project period. The improvement of equipment and materials was promoted in parallel with the establishment and enhancement of the curriculum.

(4) Implementing project after project, the level of education as the target of cooperation became higher (from Diploma →Bachelor →Master/Doctor).

(5) Transition of political emphasis from improvement of educational activities (formulation and revision of curriculum, preparation of teaching materials) to enhancement of research functions, including the

[27] For cooperation target institution KMITL, Japan has implemented cooperation for 48 years, including the support for "Telecommunications Training Center", KMITL's predecessor. A considerable amount of time has passed since the closing of the Telecommunications Training Center, and it was extremely difficult to collect information. Therefore, the Center was excluded from the focus of the analysis of this survey, and the period from 1978 to 2003, when continuous cooperation was implemented, was set as the target period of this survey.

establishment of a research institute

(6) After the completion of a series of cooperation projects, the institution's activities developed to regional cooperation projects..

2-1-3 Summary of the analysis of the output produced through long period of cooperation

This case study of shows an example of cooperation with one institution (KMITL) over the long period of 48 years, and, even after the institution became sustainable, cooperation through technical cooperation projects continued. At the beginning of the project, the policy on Japanese side was not yet firm whether to assist to university level or to graduate school level. At the time of completion of each project phase, a flexible approach was taken to cope with the institution's needs, by considering the status of the cooperation target institution. The cooperation period thus resulted in being extended over a long time. But this long-term cooperation consequently strengthened the research functions of KMITL, and enabled the institution to contribute towards region-wide human resources development.

Supporting structure consisting of various Japanese organizations (Japanese experts, supporting university in Japan, JETRO, Japanese companies in the target country, etc) can be pointed out as important factor for the success of the Project Particularly, close connections with Japanese companies with the help of Japan External Trade Institution (JETRO) led to the employment of many graduates, as well as to outcomes such as the promotion of joint research with these companies.

2-2 Electronics Engineering Polytechnic Institute of Surabaya, Indonesia (Case Study 2)

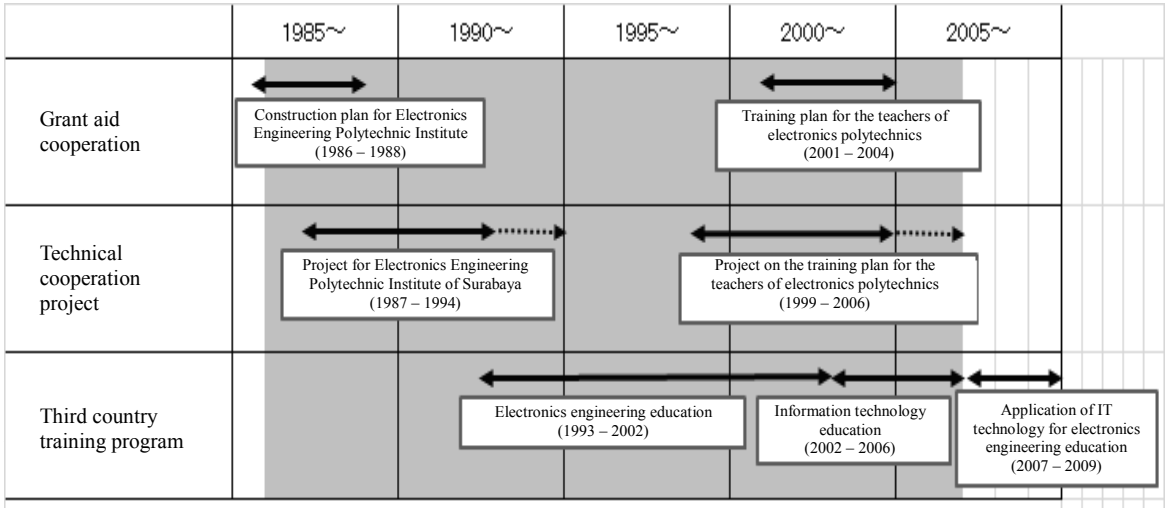
2-2-1 Survey target

Institution: Electronics Engineering Polytechnic Institute of Surabaya (EEPIS)

Number of projects: 2 grant aid cooperation, 2 technical cooperation projects, 2 third country training programs

Period: 1986 – 2006[28] (21 years[29])

Fig. 2 Series of cooperation projects for Indonesia (EEPIS)



focus of the analysis of this survey, and the period from 1978 to 2003, when continuous cooperation was implemented, was set as the target period of this survey.

[29] Because a third country training program "Application of IT technology to electronic engineering education" is a project now under way, the data available at the time of this survey was limited, and it was excluded from the target of direct analysis.

Note
1. For technical cooperation projects, the solid line shows original cooperation projects and the dotted line shows follow-up cooperation projects.
2. In the table, the gray part shows the period directly analyzed by this survey.
Source: compiled from various data

2-2-2 Outline of the target projects

As a result of a series of cooperation projects, EEPIS has realized the horizontal expansion of establishing new departments, in addition to the vertical development of educational level from associate degree (junior college graduate) level to bachelor's level (university graduate). It has also become an institution that actively holds various kinds of seminars for the regional society and private domestic companies.

The followings are designated as the main characteristics of the content and changes of the series of cooperation projects for Indonesia.

(1) Through grand aid cooperation, an EEPIS facility was constructed on the campus of Tenth of November Institute of Technology (Institute of Technology, Surabaya: ITS) and a new curriculum was established. EEPIS started by using existing resources, e.g., many teachers from ITS were employed at the time of its establishment.

(2) A series of cooperation projects over 23 years was conducted with two technical cooperation projects at its core. During the period when technical cooperation projects were not implemented, cooperation under other schemes (third country training programs, etc.) was conducted. Japanese cooperation was implemented continuously for 23 years.

(3) Both preceding technical cooperation projects and succeeding technical cooperation projects continued cooperation for a long term of seven years respectively, including the follow-up cooperation after the implementation of the original projects.

(4) The target education level of the cooperation ascended from the preceding technical cooperation project (junior college level (D3)) to the succeeding technical cooperation project (bachelor's degree level (D4))

(5) Regarding the succeeding technical cooperation project, in addition to the cooperation for operational and administrative enhancement, cooperation for research activities were conducted as well.

(6) Through the series of periods of cooperation, support for employment placement was implemented.

2-2-3 Summary of the analysis of the output produced through long period of cooperation

In this case of Indonesia, from the early stages of the cooperation projects, the curriculum of Japanese vocational high schools was utilized as the model, and this led to the effective project activities of the cooperation target institution (EEPIS). In particular, activities to support employment placement were included as one of the school activities from the early stage of the Project. This led to constructing a system to produce graduates who match the needs of local enterprises which were appreciated by the industrial sector. Another characteristic derived from this example is that even during the period without any technical cooperation projects, continuous cooperation was given to the target institution through other schemes. Particularly, the implementation of third country training programs resulted in being able to

monitor the outcome produced by the cooperation until then as well as the follow up the project.

2-3 Jomo Kenyatta University of Agriculture and Technology, Kenya (Case Study 3)

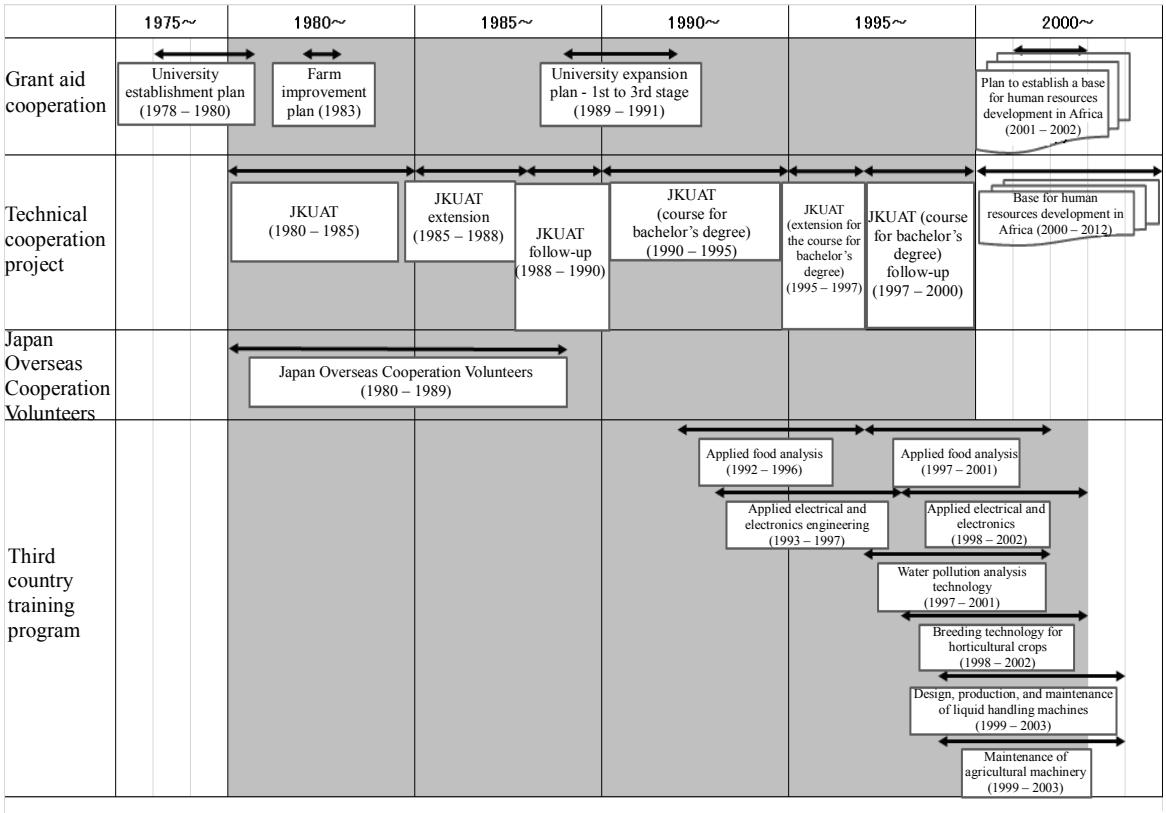
2-3-1 Survey target

Institution: Jomo Kenyatta University of Agriculture and Technology (JKUAT)

Number of projects: 3 grant aid cooperation, 2 technical cooperation projects, 8 third country training programs

Period: 1978 – 2003 (23 years)

Fig. 3 Series of cooperation projects for Kenya (JKUAT)



Note: In the table, the gray part shows the period directly analyzed by this survey.
Note 2: Japan Overseas Cooperation Volunteers was included in a technical cooperation project.
Source: compiled from various data

2-3-2 Outline of the target projects

As a result of 23 years of continuous cooperation from Japan, JKUAT has not only realized the horizontal expansion of seeing functional improvements through the establishment of new departments, in addition to the vertical development of progressing from college to university college[30] (extension campus) to independent university to graduate school, but is now also able to have an influence within the country and

[30] Colleges can decide the content of education by itself, but the syllabi are put together by the Kenya Institute of Education. To receive a college graduation certificate, the Kenya National Examinations Council national exam has to be taken. A university college is an institution separately administered from a university (parent university) and has its own syllabus and examinations for academic degrees but needs the approval of the senate of the parent university. As for the content of education, the university college has jurisdiction but needs the approval and guidance of the senate of the parent university. "1990 Integrated Report for JKUAT Project (1985 – 1990)"

on the surrounding countries/regions.

The followings are pointed out as the main characteristics of the content and changes of a series of cooperation for the institution concerned (JKUAT).

(1) The cooperation over 23 years started with grand aid cooperation to construct the university facility, establish a curriculum, and train teachers, in other words, to establish a new educational institution from the very beginning.

(2) It consisted of linking schemes, with two consecutive technical cooperation projects at its core. The two technical cooperation projects were long-term projects of about 10 years each, comprising a 5-year original project plus a two to three-year extension and follow-up phase. Grant aid cooperation was also implemented consecutively for 23 years from the start of the project until 2000.

Furthermore, Japan Overseas Cooperation Volunteers also carried out activities during the implementation period of the preceding technical cooperation project. Third country training programs were implemented in parallel with the succeeding technical cooperation project.

(3) The target education level of the cooperation rose from the preceding technical cooperation project (diploma technician level) to the succeeding technical cooperation project (bachelor's degree level)..

(4) In addition to the improvement in educational activities through the preceding technical cooperation project (formulation and revision of syllabus, creation and improvement of teaching materials), the project attempted to strengthen research functions, and management capabilities were enhanced furthermore during this period.

(5) The maintenance and improvement of facilities, equipment, and materials was emphasized through the entire project period. The improvement of equipment and materials was promoted in parallel with the establishment and enhancement of the curriculum.

2-3-3 Summary of the analysis of the output produced through long-term cooperation

Among the four target countries in this survey, Kenya was the only case where technical cooperation project were implemented continuously. By considering the situation at the completion of each technical cooperation project, the Japanese policy was decided with flexibility. But on the other hand, it resulted in excessive adjustment work for the government of the target country and within JICA. In addition, in the early stages of the project implementation, the cooperation had to be implemented within the framework of the British education system, which required a large amount of labor for both sides. In spite of these difficulties, the fact that a consistent direction for cooperation was adhered, and the implementation system of the Japanese side was rigid, led to the significant outcomes of the Projects. In addition, the long-term commitment of the Domestic Support Committee members/leaders/specialists strengthened the effect of the Project.

2-4 Japan Senegal Vocational and Technical Training Center, Senegal (Case Study 4)

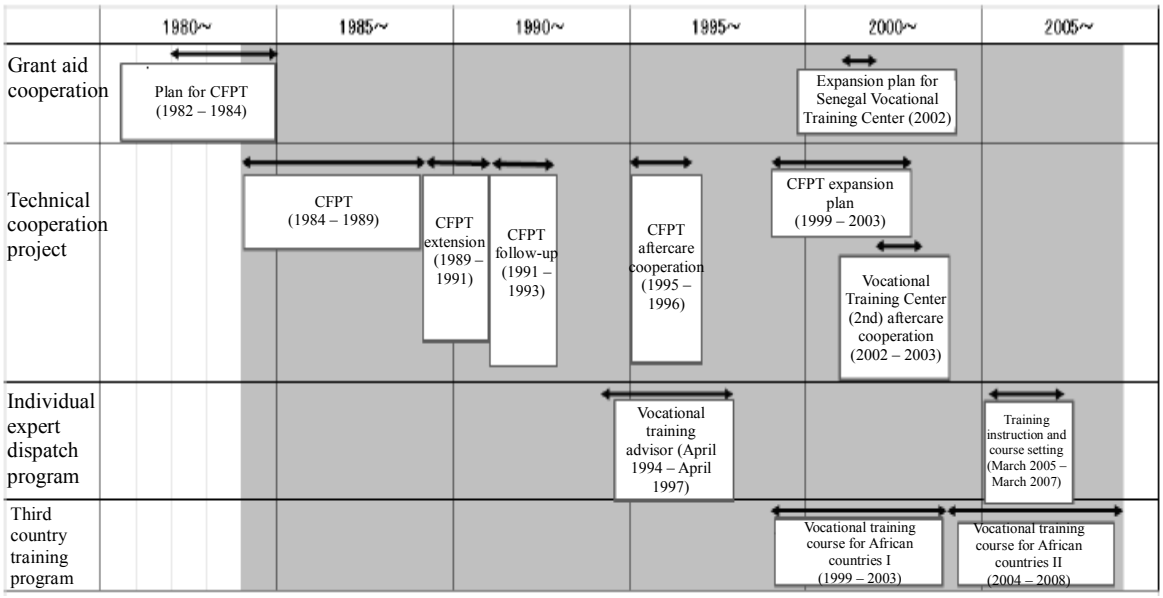
2-4-1 Survey target

Institution: Japan Senegal Vocational and Technical Training Center (Le Centre de Formation Professionnelle et Technique: CFPT)

Number of projects: 2 grant aid cooperation, 2 technical cooperation projects, 2 third country training programs, 2 individual expert dispatches

Period: 1984 – 2008 (24 years)

Fig. 4 Series of cooperation projects for Senegal



Note: In the table, the gray part shows the period directly analyzed by this survey.
Source: compiled from various data

2-4-2 Outline of the target projects

As a result of the series of cooperation, although CFPT showed vertical development from graduate level of industrial high school to graduate level of junior college, it had not developed to university technical education.But, it realized the horizontal expansion of upgrading training and night classes, training for entrepreneurs. It also maintained a high employment rate within the country and has grown into an institution to support other Western African countries.

The following are pointed out as the main characteristics and changes of a series of cooperation for the institution concerned (CFPT).

(1) The cooperation over 25 years started with the construction of a facility and the establishment of an institution for vocational training and training courses.

(2) It consisted of linking schemes such as grant aid cooperation, third country training programs, and individual expert dispatch, with a technical cooperation project at its core. In addition, after the completion of preceding technical cooperation project, extension and follow-up phase was implemented and after the follow-up phase, aftercare projects were implemented twice. The third country training program started at the same time as the succeeding technical cooperation project.

(3) During the cooperation period, the level of certificate provided by the institution to the participants of the training course advanced from medium-level technicians (industrial high school graduate level) to advanced-level technicians (junior college graduate level).

(4) Through the succeeding technical cooperation project implementation, supports for operation and management capabilities were strengthened.
(5) The maintenance and improvement of facilities, equipment, and materials was regarded as important factor through the entire project period. The improvement of equipment and materials was promoted in parallel with the establishment and enhancement of the curriculum.

2-4-3 Summary of the analysis of the output produced through long-term cooperation

Regarding this example, the government of Senegal had a clear goal to develop this institution to be a model for other Western African countries. Furthermore, JICA continued the cooperation by paying full attention to labor market conditions in Senegal, and to concentrate on fostering of medium-level technicians in vocational training schools at the level of industrial high school and junior college. As a result, in spite of impediments such as the handicap of language, outbreaks of strikes, and budget shortages of the government of Senegal, the school has gained a high reputation as a vocational training school that fosters the excellent medium-level human resources that the industrial world expects, and has grown into an institution that can support training schools in the same region as a model for vocational training schools in Western Africa. What can be pointed out as the factors that contributed to bringing about this outcome are that 1) the counterpart teachers participated in language and technical training in Japan and Japanese experts were dispatched to the country to give one-on-one technical instruction, allowing the counterpart to learn not only expertise but also how an expert should work, for example, how to manage work, 2) cooperation continued until the counterpart teachers became core personnel in the institution, and, 3) the personnel who became the core of the institution worked on the improvement of teachers' incentives and on the construction of a financial basis of the institution while keeping partnerships with companies. In addition, various types of schemes were implemented at the right time in accordance with the changing needs of the industrial world, visibility of CFPT in the industrial world and surrounding countries, and the level of the institution's financial sustainability, which also contributed to the production of outcomes.

3. Inter-project analysis

In the above four case studies, outcomes of long-term cooperation were verified for each project by dividing them into two levels: outcome (the level of cooperation target institution) and impact (the level of the target country or surrounding countries/regions).
The analysis then focused on whether this outcome or impact could be expected at the time of the project commencement. Verification was carried out simultaneously of the factors that contributed to or impeded the production of these outcomes and of the risk factors for maintaining the outcomes.
Based on the results of the analysis for each project, an inter-project analysis was carried out of the four projects, and the outcomes common to all of them are as follows.

3-1 Major outputs produced through long-term cooperation

<Output brought about for the target institution>

1. The ability to independently enhance the function of the institution with flexibility of coping with

changing social and economic needs was acquired

In the four example countries, the cooperation for Thailand, Indonesia, and Kenya was for higher education level and the cooperation for Senegal was for a vocational training school of junior college level, but all of them consisted of cooperation in the field of engineering, a field that is rapidly changing and improving in accordance with social and economic developments. In each country, cooperation was given from the time of establishing the cooperation target institution, and bases were established for education, operation and management, and research activities (in the case of the universities), and continued through the stage of establishing sustainability until the institutions acquired the ability to independently enhance their functions. It took at least 20 years to reach this stage.

2. By continuing cooperation until the counterpart personnel trained became core personnel, the cooperation target institution adopted the Japanese education method, which led to the enhancement of the functions of the institution.

All four countries dispatched counterpart teachers to Japan in the early stages of the cooperation, and, in many cases, they were dispatched for long-term training program for the purpose of obtaining academic degrees. The personnel, who had a chance to be supervised continuously over a long period of time by the Japanese experts in Japan and in the countries concerned, remained in the cooperation target institution and grew to be the core personnel. The teaching method the teacher himself/herself learned became the teaching method of the institution he/she belongs to with emphasis on practice, scrupulous instructions, small number of students, etc. Some countries have a low rate of retention of counterpart teachers returning from study or training abroad, and as the institution expands, the rate of teachers with experience of study or training in Japan is decreasing. However, among the people who have been to Japan for study or training, some now have managerial positions and exercise clear vision and leadership, which may be a big factor for its development.

<Output brought about within the target countries or in surrounding countries/regions>

3. Cooperation target institutions are producing excellent human resources needed by industrial sector

The cooperation target institutions in the four countries have been smoothly producing graduates since the first graduation. Among the graduates of the cooperation's early stages, many are actively working at present as managers of large corporations or as entrepreneurs. It takes 10 years in average to start establishing the new curriculum, to producing the first graduates, and then to become sustainable institution to produce graduates acceptable for the industrial sector. What can commonly be seen as among the example countries to establish sustainable development are (1) introduction of a curriculum to foster practical technicians who have both theoretical and practical skills (commencement of cooperation), (2) visiting companies to cultivate companies to hire graduates (especially at the time of the first graduation), (3) monitoring and follow-up after producing the first graduates (after producing the first graduates, and in the early stages of cooperation) and maintenance of consistency between curricula and the needs of rapidly innovative engineering companies (after producing the first graduates).

4. Cooperation target institution started to implement cooperation for surrounding countries

The four example countries have become capable of giving assistance to surrounding countries. The forms of cooperation are (1) human resources development in surrounding countries through third country training programs (all 4 countries), (2) dispatch of third country experts to surrounding countries (3 countries except Indonesia), (3) human resources development of surrounding countries through region-wide projects implemented after the completion of a series of cooperation projects (Thailand, Kenya). To be able to give cooperation assistance to surrounding countries, function and ability of cooperation target institution must be fully strengthened; and this has to be recognized by others. In this sense, the implementation of third country training programs contributed to gain the popularity among the neighboring countries.. However, it took over 10 years after starting the project for the two African countries and several years even for the two Asian countries to start a third country training program. Although it took longer for the African countries, in Senegal's case, education for CFPT was steadily done by taking sufficient time. The teachers had already acquired the ability to prepare the training programs and to conduct training program and it gained its reputation more short a while compared to the other three countries' cases. By the time the first training was implemented, high standard of vocational training of CFPT was recognized not only in Western Africa but also in other African countries.

5. Cooperation target institutions are sharing the accumulated knowledge and technology with the regional societies

In the cases of the university cooperation projects KMITL (Thailand) and JKUAT (Kenya), the cooperation focused on research after the establishment of the basis for sustainability in the aspects of education and operation/management. It can be said that because the cooperation was implemented over a long period of time, the cooperation target institutions were able to acquire research function and became capable of contributing to the regional societies through research activities. However, quality of research needs to improve. On the other hand, EEPIS (Indonesia) and CFPT (Senegal) are sharing knowledge on technology accumulated through the cooperation to stimulate regional revitalization through training implemented in the region (seminars for jobholders, workshops for companies, etc.).

3-2 Factor analysis (Contributing factors, impeding factors, risk factors)

Listed below are the contributing factors and impeding factors commonly seen when cooperation project be implemented over a long period of time, as well as the risk factors for maintaining the outcome.

<Factors in planning>

1. Selection of Japanese counterpart: Key is "continuation"

The fact that major Japanese assisting institutions for the projects of Thailand, Kenya, and Indonesia were universities (in the case of Indonesia, from the succeeding project), it not only enabled the project outcome to be effective but it also helped to build a continuous relationship between the cooperation target institutions even after the cooperation period.

2. Continuous fostering of teachers in Japan and in the target countries

Through technical guidance by Japanese experts both in Japan and in the countries concerned, the counterpart personnel of the cooperation target institutions learned the Japanese curriculum, which places it's emphasizes on practice. As a result, the curriculum of the target institution placed it's emphasize on practice and the teachers' close relationship with the students through practical instructions had been developed and maintained. By implementing cooperation until the teachers who had received education in Japan took up managerial positions, this kind of education was continued in the cooperation target institutions and it has been contributing to the continuous production of human resources that are needed by the industrial world.

3. Involvement in school management from the beginning of cooperation (Kenya, Senegal)

In Kenya and Senegal, Japanese experts were involved in the operation and management of the cooperation target institutions. This helped not only to strengthen the institutions' operational and management capabilities but also to maintain an education system oriented towards "practical training with small numbers of students", which is the characteristics of Japanese cooperation for engineering education.

<Factors in the process>

1. Japanese cooperation was able to be solely continued without other interventions from the beginning of the establishment

From the establishment of the cooperation target institution, Japan continued cooperation without giving opportunity to other donors. This led to the establishment of the unique characteristics of cooperation target institutions , i.e. emphasis on practice, scrupulous instructions by the teachers, small number of students.

2. The cooperation covered the full cycle of introducing the curriculum, producing the first graduates, monitoring and following-up, and updating the curriculum

For all four example countries, the cooperation covered the cycle starting with the introduction of a curriculum to foster practical human resources and the production of the first graduates. Furthermore, based on industrial and private companies' evaluations of the performances of the first graduates, the cooperation continued until the evaluation was reflected in an updated curriculum. Through cooperation that covered a series of cycles, a system has been established that steadily continues to foster human resources needed by the industrial world and to revise the curriculum accordingly.

3. Production of synergetic effect through the organic combination of each scheme

- **Improvement of quality of education and research through the combination of grant aid cooperation and technical cooperation projects**

Through grant aid cooperation, leading-edge facilities, equipment, and materials were installed. This enabled the Japanese experts to transfer the counterpart teachers of practical teaching methods, based on the practical curriculum, which became the characteristics of the education method of the institution

concerned. In addition, grant aid cooperation which equipped the target institution with leading-edge facilities, equipment, and materials from Japan, led to the acquisition of excellent students.

- **Role of third country training programs**

The cooperation target institutions continuously implemented third country training programs during the series of cooperation projects. This led to (1) the improvement of the education quality and management capabilities of the cooperation target institution, (2) the construction of a regional network, and (3) (especially with Thailand and Indonesia) the enhancement of function and capability of cooperation target institution by monitoring/following-up the sustainability of the outcomes on completion of the technical cooperation project.

- **Strategic planning of teacher training through Japanese Government School Program (Kenya)**

Teacher training through strategic cooperation with Japanese Government Scholarship Program had been implemented in the case of Kenya.[31] The Japanese Embassy in Kenya gave priority to JKUAT's teachers, and each university that was a member of the Domestic Support Committee and was dispatching short-term experts to Kenya accepted foreign students. This contributed to the increase in foreign students in the succeeding project.

4. Strong leadership of the person in charge at cooperation target institution and partnership with Japanese experts

Among the four countries, especially Thailand and Indonesia, the people in charge at the cooperation target institutions exercised strong leadership, especially at the stage of project formation, and cooperation continued through the support of Japanese experts. This led to the enhancement of the functions of the cooperation target institutions. In the case of the two African countries, the innovative management of the cooperation target institutions led to the current successful level of development.

5. Counterpart government's political and financial commitments (Thailand, Indonesia)

To develop project outcome and to enhance it's long term effect, ensuring the political and financial commitment of the target country is extremely important. Successful examples can be seen with Indonesia and Thailand.

<Impeding factors>

1. Resignation of trained teachers

In the case of the three countries except Indonesia, it was confirmed that some teachers who were intensively trained during the early stages of the cooperation process, had changed jobs for private companies with higher salaries, resulting in a lack of teachers in numbers. In addition, in the examples of Thailand and Kenya it is reported that even if they did not resign, some teachers were forced to take side jobs for economic reasons, which considerably impeded research activities in particular.

2. Difficulty in continuous expert dispatchment

[31] some counterpart personnel from Thailand also had benefited from the same scholarship program but with no strategic approach.

It was difficult to dispatch the same expert on a continuous basis to the target countries during the cooperation period since the Japanese experts dispatched for university level cooperation were university teachers (professor, associate professor, etc.). They were unable to be dispatched for a long-term and , so they were often dispatched as short-term experts during university vacations seasons. And even under this condition, it was also difficult to arrange the same expert to visit the target country several times. For Senegal, necessary experts were secured because the Employment and Human Resources Development Institution of Japan (former Employment Promotion Corporation) had systematically arranged to dispatch the experts.

<Risk factors>

1. Influence of the expansion of cooperation target institution on the practical guidance for small numbers of students

Cooperation target institutions in the four example countries have grown through the series of cooperation projects to be able to cope with changing social and economic needs.

After the completion of the cooperation, although there are differences in the process, the expansion of curricula (courses) is proceeding. Accordingly, the number of students is increasing and although each institution is endeavoring to increase the number of teachers there is a possibility that the practical guiding lessons introduced through Japanese cooperation may not be sustained if the number of students per group arises..

2. Necessity to improve the quality of research through self-help efforts

As a result of cooperation implemented over a long period of time, the target institution in Thailand and Kenya, acquired research functions as a university and became capable of sharing their research with other institutions in the region. However, after the completion of cooperation, the concerned personnel are starting to refer to problems such as that research activities are becoming stagnant or of unsatisfactory.

3. Influence of over aged equipment and materials on education activities and research activities.

With the equipment and materials supplied through the series of cooperation projects, an environment for education and research was established. A practical curriculum was efficiently implemented, enabling the cooperation target institutions to continue to acquire and produce excellent students for the industrial sector..

Since the completion of cooperation, all the institutions have been managing to maintain and update equipment and materials through self-support efforts, but it is highly possible that they will face difficulties renewing expensive equipment and materials with their own finances when they start to age.

3-3 Merits and demerits of the long-term cooperation

<Merits>

The following points can be stated as merits of the long-term cooperation: to develop key human resources for the developing cooperation target institution; and furthermore, for the institution to be highly evaluated by others (the society of the country concerned and surrounding countries), it requires long period of time.

In these four cases, the cooperation target institution could be nurtured over time enabling it to grow into an institution with the ability to sustainably enhance its functions to cope with changing social and economic needs and become able to contribute to the society of the country concerned and surrounding countries.

<Demerits>

When the cooperation period is prolonged without clear scenario for the whole period, the expected period of cooperation tends to grow longer and it can be said that the target country would tend to expect the continuation of the cooperation which would in some cases bring negative influences for establishing leadership of the government and the target institution.

4. Recommendations

Based on the case studies, recommendations were extracted from two viewpoints: (1) How is long-term cooperation judged to be necessary; and (2) if long-term cooperation is judged to be necessary, what should be done at each stage of the cooperation process to achieve the goal. An extract from the report is introduced below.

4-1. Setting a cooperation period (whether long-term cooperation is necessary)

4-1-1 Decision on the target growth level upon completion of for the cooperation

Regarding the supposed targeted growth level of the target institution upon completion of cooperation, three growth level which were identified through undergoing four case studies are presented. The decision points and consideration points for each supposed growth level are as follows

(1) Level1: Sustainability of the target institution is established

<Decision points>

The target institution needs to develop the following functions before the completion of cooperation: 1) the four functions of education, research, operation and management, and, in the case of higher education, contribution to the regional society mainly through research; and 2) the four functions of education, operation and management, and, in the case of technical training and technical education, contribution to the regional society mainly through allowing public access to education and technical training. In the case of vocational training and technical education, whether to develop medium-level technicians or advanced-level technicians should be decided upon starting the cooperation.

< Consideration points upon decision making>

- Confirm the human resources that can be used at the time of ex-ante research (especially, level and number of teachers who can be involved upon starting the cooperation), political and financial commitments of the target government, stability of the economy and government
- After understanding the situation of cooperation target institution at the time of the start of the cooperation, set a yardstick by which to judge whether sustainability has been established for each function of the institution, referring to Table 21 “Cooperation period and development stages of cooperation target institution as seen in the examples” in “Recommendations.” Attention should be paid especially to the human resources development, operational and management capabilities for independent planning and implementation, ability to cope with changes, insurance of source of funds

of the cooperation target institution.

- If social and economic needs changed during the cooperation period while the establishment of sustainability was confirmed in accordance with the above criteria, the direction should be confirmed whether or not a higher level should be aimed at by the cooperation for the level of education and the level of technicians to be developed.

(2) Level 2: The institution develops into one of the country's representing institutions among the relevant organizations.

<Decision points>

The status the target institution should achieve before the completion of cooperation, needs to be discussed and be decided (For example; whether to become a model for other educational institutions or for other vocational training institutions, or to develop into one of the best institutions in the country should be discussed and the goal should be set clearly.)

< Consideration points upon decision making>

If cooperation is to be implemented until the target institution becomes one of the best educational institutions or one of the best vocational training institutions in the country, rough criteria needs to be set for the standards to make assessment. e.g., competition rate for entrance, objective and official evaluation of educational institutions, national exam pass rates.

(3) Level 3: the Institution becomes capable of strengthening it's function to social and economic changes.

<Decision points>

The extent of cooperation should be decided upon commencing the cooperation; whether it would be continued until the cooperation target institution becomes capable of establishing and independently managing new subjects and courses, or to cope with social and economic needs through its own efforts (in cooperation with the industrial world, when necessary), or until it becomes capable of sharing the experiences gained through the cooperation from Japan with other countries.

< Consideration points upon decision making >

Confirm the direction of human resources development policy of the target institution, including the possibility of developing region-wide cooperation activities.

4-1-2 To set the adequate number of years to achieve the target goal

It can be seen through the four examples that if cooperation starts from newly setting up a target institution, it is assumed that the implementation of two technical cooperation projects is necessary for sustainability to be established. A technical cooperation project was usually conducted for about 5 years term, so it means 10 years in total would be necessary. However, depending on the conditions of the cooperation target institution at the beginning of cooperation (lack of teachers with the necessary qualifications, lack of government budget, etc.), extension after the completion of the technical cooperation project and further follow-up cooperation and after care may be necessary. It is clear from the African examples that necessary period to complete one cycle of a technical cooperation project doubles to about 10 years in Africa's case

with the necessary follow ups and aftercares. Therefore, it is necessary to set the cooperation period at the beginning of the cooperation by fully checking the available resources, etc.

4-2 To set the cooperation scenario for each phase for achieving the long-term goal.

Based on the four case studies, it can be said that effective cooperation scenarios for each cooperation period should be recommended from the viewpoints of (1) cooperation structure (combination of projects), and (2) input size and input method, for the cases of: 1) cooperation is given until the establishment of sustainability (situation where the cooperation target institution has gained desired basic functions and abilities), and 2) the cooperation is continued, even after the establishment of sustainability, until the institution develops into one of the best in the country or by targeting the stage when the cooperation target institution has gained the ability to strengthen its functions by itself to adapt to changes.

(End)