

**Ex-Post Project Evaluation 2010: Package III-4
(Zambia, Nigeria, Uganda)**

December 2011

JAPAN INTERNATIONAL COOPERATION AGENCY

Ernst & Young Advisory Co., Ltd.

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Preface

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

This volume shows the results of the ex-post evaluation of ODA Loan projects that were mainly completed in fiscal year 2008, and Technical Cooperation projects and Grant Aid projects, most of which project cost exceeds 1 billion JPY, that were mainly completed in fiscal year 2007. The ex-post evaluation was entrusted to external evaluators to ensure objective analysis of the projects' effects and to draw lessons and recommendations to be utilized in similar projects.

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

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

December 2011
Masato Watanabe
Vice President
Japan International Cooperation Agency (JICA)

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Ex-Post Evaluation of Japanese ODA Grant Aid Project
“The Project for the Construction of Basic Schools in Lusaka, Phase II”

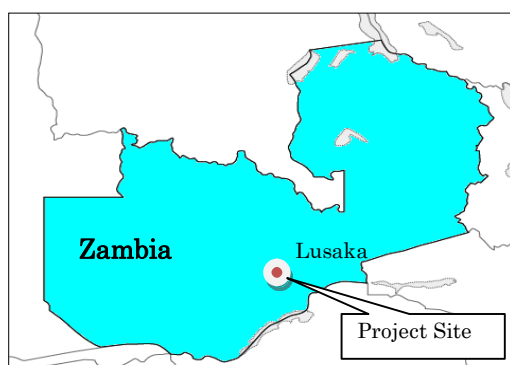
External Evaluator: Hisae Takahashi, Ernst & Young Advisory Co., Ltd.

0. Summary

In the Lusaka district, where the improvement of access to basic education is imperative, about 30% of the population of seven-year-olds, the school age in Zambia, have no access to any school, despite the enrolment policy for all school age children introduced by the Government of the Republic of Zambia in 2007. The government of Zambia defines infrastructure development, including the construction of school facilities, as effective measures; therefore the effectiveness of this project, which has implemented the construction of new schools in the Lusaka District, is very high. Although the construction of two schools, among the 12 schools initially planned, was stopped due to land issues, construction of the other ten schools has increased the number of students in primary and secondary schools in the Lusaka District, and has also produced the following effects, including a decrease in the number of students per classroom, reduction in the distance travelled to school and safer commuting routes to the schools, together with improved access to education. In addition, several other impacts have been observed, such as an increase in gross school enrolment rate among girls, the improvement of public safety in neighbouring areas, and the creation of employment for local residents, and improved performance of students. However, there is concern about sustainability in terms of budget problems and the variable maintenance situation in each school.

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

1. Project Description



Project Location



Constructed Classroom

1.1 Background

During the 1990s, the Zambian Government created a policy of “Educating Our Future”¹ as a

¹ “Educating our Future” is an education policy that was formulated in 1996. This policy aims at ensuring

guideline for educational plans and a “Basic Education Sub-Sector Investment Program” for its execution in order to improve the educational environment, provides learning opportunities at primary schools for all children in Zambia and enrol them in secondary schools. In Zambia, the high rate of population growth² and the drop in investment in the education sector due to the adverse financial situation have led to a decline in gross primary school enrolment³ rate due to the lack of sufficient capacity to accept students. Particularly in the capital, Lusaka, the inflow of people from local areas into the urban area has not slowed down. The rate of increase in the population is 5-6% and the gross enrolment rate is below the national average.⁴

The Zambian government view this situation as an educational crisis for the country, and it has prioritized resolving the shortage of educational facilities in Lusaka and undertaken the improvement of school facilities with the cooperation of the World Bank, etc. Japan also implemented a grant aid project entitled “Project for the Construction of Basic Schools in Lusaka” from 1999 through 2000, which completed the construction of school facilities and the procurement of equipment for 8 schools in the Lusaka District, resulting in mitigation of the shortage of school capacity.

Nevertheless, the increased demand for expansion of the number of classrooms has still overwhelmed the supply and the educational environment did not improve. The Japanese government therefore implemented this project for the construction of basic schools in Lusaka District to contribute to the development of human resources in Zambia.

1.2 Project Outline

The objective of this project is to improve access to and an opportunity as well as study environment of basic education in the Lusaka District through the construction of school buildings and water supply/drainage facilities as well as the provision of furniture and equipment for classrooms in twelve basic schools.

Grant Limit / Actual Grant Amount	1,269 million yen / 1,103million yen
Exchange of Notes Date (/Grant Agreement Date)	August, 2004 and March, 2005 (Extended E/N Date)(1/2) July, 2005 and March, 2006 (Extended E/N Date) (2/2)
Implementing Agency	Ministry of Education
Project Completion Date	February, 2006 (1/2), February, 2007 (2/2)

that all students are able to access a primary school by 2005 and a secondary school by 2015.
² Based on the information from the Central Statistics Office of Zambia, the average of the annual rate of increase in the population from 1990 to 2000 was 3%.
³ After the independence of Zambia, the gross enrollment rate primary schools had continued with an average increase of 6.5% per year. Although the total enrollment rate reached 95% by 1985, it started to decline thereafter to 77.9% in 2000.
⁴ As of 2000, the national average gross enrollment rate in primary schools in Zambia was 78% and for the Lusaka District it was 66%. In addition, at schools in Lusaka District, where the population influx from the outskirts of the city is increasing, there is no tendency, for instance, for those new immigrants from the outskirts to find it difficult to be accepted for enrollment in school. Moreover, in the event that the number of those wishing to enroll in a school for the first time is greater than the number of children it can accept, schools permit the enrollment of children by prioritizing those over the age of seven. (From an interview with the implementing agency)

Main Contractor	Shimizu Corporation
Main Consultant	Shimizu Industrial Corporation
Basic Design	Basic design study report on the project for construction of basic schools in Lusaka District. May -October, 2002
Detailed Design	August – December 2004 (1/2), July to December 2005 (2/2)
Related Projects (if any)	Grant Aid Project /“The Project for Construction of Basic Schools in Lusaka District”(1999-200)

2. Outline of the Evaluation Study

2.1 External Evaluator

Hisae Takahashi: Ernst & Young Advisory Co., Ltd.

2.2 Duration of Evaluation Study

Duration of the Study: November, 2010 – December, 2011

Duration of the Field Study: February 21, 2011– March 3, 2011, June 19, 2011-June 26, 2011

3. Results of the Evaluation (Overall Rating: B⁵)

3.1 Relevance (Rating: ③⁶)

3.1.1 Relevance with the Development Plan of Zambia

The Poverty Reduction Strategy Paper (PRSP) in 2002 and the Transitional National Development Plan (TNDP⁷) (2002-2005) have set the goals of achieving sustainable high rates of economic growth, diversifying the economy and improving access to and the quality of social services. Education has been particularly identified as one of the most important areas in these plans and is thus reflected in the government budget priorities with the recognition of the importance of the education sector. The Public Investment Programme (PIP) also clearly describes improved access to the basic services of school facilities.

In addition, the Six National Development Plan (SNDP) (2011-2015) basically follows the concept of the PRSP/TNDP, taking improvement in the education sector as a core measure of the advancement and development of the country and indicating one of the six high priority areas for government spending. In addition, the Educational Sector National Implementation Framework III (NIF III) (2011-2015) views that the shortages in infrastructure, textbooks, chairs and desks, etc., are important issues to be resolved and that the most effective form of support is to develop the infrastructure, especially the construction of schools.

As noted above, from planning through to the ex-post evaluation, the education sector has importance as a core aspect of economic and social development and poverty reduction measures in Zambia. This project supports education through the development of basic schools. Therefore the

⁵ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁶ ③: High, ② Fair, ① Low

⁷ The TNDP is planned based on the PRSP that was designed in 2002.

project is highly consistent with the implementation of the development policy of Zambia.

3.1.2 Relevance with the Development Needs of Zambia

The Zambian Government created the national education policy “Educating Our Future” in 1996, which promoted access to basic education as a top priority. Nevertheless, the high rate of population growth and the drop in investment in education due to the adverse financial situation have led to a severe shortage of classrooms. At this time, approximately 30% of the population of 7-year-old school age children have no access to schooling. In particular, in the capital, Lusaka, the inflow of people from local areas into the urban area has not slowed down, resulting in the most severe shortage of classrooms in the country.

Furthermore, since the announcement of the introduction of a “Free Basic Education Policy⁸” for primary school children (1st to 7th grade), it is obviously impossible for classroom expansion to keep up with the increased demand and therefore the shortage of infrastructure is continuously considered as an important issue. According to statistics provided by the Ministry of Education, 37% (Approximately 12,000 children⁹) of the population of 7-year-old school age children have no access to schooling in Lusaka District.

As described above, in Lusaka District, the project area, one of the current issues for improvement is the shortage of educational facilities and furniture to handle the increasing number of school-age children resulting from the introduction of a free education system and the inflow of people from local areas into the urban area. Therefore, the level of need for school facilities continues to be high in this area.

3.1.3 Relevance with Japan’s ODA Policy

Japan has identified the following three items as priority areas for ODA in Zambia at the time of Planning:

- ① Agriculture, Rural development (resolving the problem of poverty)
- ② Health, Healthcare (especially the control for infectious diseases such as HIV/AIDS)
- ③ Education (especially Basic Education)

Item ③ emphasizes the policy of supporting the physical aspects, such as buildings, maintaining facilities and providing equipment for improving access to basic education, as a short-term challenge.

As mentioned above, this project has been highly relevant with the Zambia’s development plan, development needs, as well as Japan’s ODA policy, therefore its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

⁸ This is a policy introduced by the Zambian Government, which aimed to increase the incentive for children to attend school by making the user fee (the fee borne by parents or guardians for school education) for tuition fees, etc. free of charge, thereby alleviating the burden on parents or guardians.

⁹ Based on information provided by the Lusaka District Education Board.

In this project, 10 basic schools have newly built within Lusaka District and the major school equipment such as desks and chairs, have been provided. The planned and actual state are shown in Tables 1 and 2.

Table 1 Planned and Actual Output for the Construction of Facilities

	Classrooms	Offices	Library	Home economics room	Administration Blocks	Laboratories (Men, Women)	Guard houses	Water supply and Borehole
Planning	276	12	12	12	12	24	12	12
Actual	230	10	10	10	10	20	10	10

Sources: Basic Design Report and Completion Report.

Although it was planned that 12 schools would be built, 10 schools were eventually built after halting the construction of two schools due to land encroachment of the planned construction site (Chelston site) and the duplicate land ownership registration of another planned construction site (Chawama site). Both schools ended up being excluded from the project site due to the difficulty of resolving land ownership issues as well as securing new potential locations. In Lusaka District, with the population increasing on a daily basis, it is quite difficult to secure land and construction efforts continue to encounter such land problems. Given the fact that there was no prospect of a concrete solution regarding the land ownership issue and that it has become a serious social problem, excluding these two sites from the project was a realistic approach to ensuring the smooth progress of the project. On another front, it became clear that it took more than two years from when the planned construction sites were determined to the start of construction and also that these sites have not been surrounded by even basic fences during these two years. In this regard, preventive measures should be considered. Moreover, as it did not lead to the appearance of the planned output, one can point out that efficient project management was not adequately implemented in the case of this project.

Table 2 Planned and Actual Output regarding the Procured Furniture and Equipment

	Classrooms	Home economics rooms	Offices	Administration Blocks	Library	Classrooms	Home economics rooms
	Pupil's desk, teacher's desk & chair		Teacher's tables and chairs	Desks, chairs, tables, lockers and cabinets	Tables and chairs, bookshelves	Easels for supporting blackboards	Refrigerator, irons, pedal-operated sewing machines, stoves with ovens
Planned	276 set	12 set	12 set	12 set	12 set	276 set	12 set
Actual	230 set	10 set	10 set	10 set	10 set	230 set	10 set

Source : Basic Design Report and Project Completion Report

The procurement of items of educational furniture and equipment were also halted to the two sites mentioned above, the Chelston site and Chawama site. Although some items of furniture and equipment have been altered to suit each site, there was no difference in the effect of their impact.



Photo : Constructed building and classroom (Left : Chunga site, Right : Northmead site)

3.2.2 Project Inputs

3.2.2.1 Project Cost

The project cost was lower than planned. While the planned cost was 1,269 million yen, the actual project cost was 1,103 million yen, or 87% of the planned cost. The main reason that the actual project cost less than planned was due to the exclusion of two sites from this project, as noted above¹⁰.

Looking at the planned and actual cost by project phase, the planned cost was 633 million yen while the actual cost was 471 million yen at first phase. This planned cost assumed the construction of six basic schools so that the planned cost for four schools is 422 million yen¹¹. Therefore, compared to the planned cost, the actual cost was 112% higher, which slightly exceeded the planned cost. According to the implementing agency, this is attributable to inflation at the time of the procurement of the equipment in first phase. In the second phase, while the planned cost was 636 million yen, the actual cost was 632 million yen, or 99% of the planned cost, that is, the project cost in the second phase was lower than planned.

3.2.2.2 Project Period

The project was implemented in two phases (First phase: from September 2004 through March 2006, Second phase: from February 2006 through April 2007¹²). Even though construction at two sites was halted, the project period fell two months behind the planned period, and was thus slightly longer than planned (107% of the planned period). The delay was due to the rise in prices at the time of procurement, which resulted in it taking more time to procure equipment within the budget. However, the bidding and the contract went smoothly and the construction and procurement periods in the second phase were also shorter than planned, leading to 33 months in total for the entire project, which was shorter than planned (34 months) as well. The planned and actual periods are shown below:

¹⁰ The Project was composed of two phases. In the first phase (2005-2006) it was planned to construct school buildings at 6 sites (Jack, Chunga, Chazanga, Ngombe, Chelstin and Chawama). In the second phase, additional basic schools at another six sites were planned to be constructed (Mandevu, Chilenje South, Northmead, Mtendere, Kabanana and Libara Stage III).

¹¹ In the project, the primary schools and junior high schools were constructed to the same standard. The construction expense per school is calculated to be 105.5 million yen, dividing 633 million yen of construction costs in the first half by six schools. Accordingly, the construction expense for four schools is calculated to be 422 million yen.

¹² The total period required for tenders and contract-related work, and construction and procurement.

Table 3 Planned and Actual Project Periods

	First Phase		Second Phase	
	Bidding • Contract	Construction • Procurement	Bidding • Contract	Construction • Procurement
Planned	3 months	14 months	3 months	14 months
Actual	2 months	15 months	2 months	14 months

Source : Basic Design Report and Project Completion Report

As described above, although the actual output at first phase was lower than the original plan, both the project cost and period were within the plan and it does not meet the decreasing of the output, therefore efficiency of the project is fair.

3.3 Effectiveness¹³ (Rating: ③)

3.3.1 Quantitative Effects

The project was implemented for the purpose of expanding learning opportunities and improving the educational environment of the project area. From this point of view, the ex-post evaluation was performed by a baseline comparison with the actual state of the following as indicators of the effective operation of the project. For the items with a planned value, the achievement levels are also reviewed and the effects of this project were validated.

(1) The number of students at the project schools

“Proportion of students supported by this project”

In this project, 10 basic schools were newly constructed in Lusaka District. As a result, about 20,000 students¹⁴ are considered to have gained access to schooling or to have been able to go to a school that was closer to their home. Moreover, as shown in Table 4, after the project ended, the number of children attending school in Lusaka District had increased by just under 30,000 children compared with the situation before the project was implemented, so one can point out that this project has contributed 20,000 of those children.

In addition, the foregoing project, “The Project for the Construction of Basic Schools in Lusaka (1999-2000)” built eight basic schools in Lusaka District and provided access to schooling for about 21,000 children. That is, a total of 41,000 children benefited from this entire Grant Aid Project. Therefore, the implementation of this project is considered to have contributed to access to schooling for 20% of the approximately 178,600 students in basic school in Lusaka District ¹⁵(Refer to Table 4).

¹³ The rating of the impact will be included in the rating of the effectiveness of the project.

¹⁴ This indicates the actual number of students at the project schools as of 2010 (Source: Lusaka District Education Board). During the planning, it was expected that each basic school would accept 1,640 students (16,400 students in the 10 project schools). Therefore, it can be judged that the Project is currently accepting a larger number of students than was planned.

¹⁵ As of 2011, there are 96 basic schools in the Lusaka District.

Table 4 Number of Enrolled Students at Basic Schools in the Lusaka District

	Before the Project	After the Project		
	2005	2007	2008	2009
Total	149,724	163,059	171,207	178,661
Primary school	133,502	144,935	149,438	151,769
Secondary school	16,222	18,124	21,769	26,892

Source: Documents provided by the Lusaka District Education Board

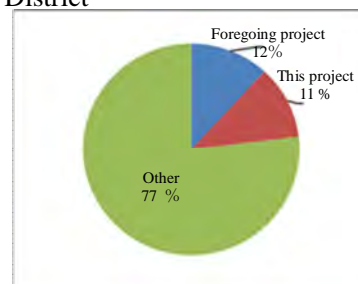


Figure 1 Proportion of Children Enrolled in Basic Schools in Lusaka District Accounted for by Children Attending Schools Targeted by the Grant Aid Project (2009)

(2) Enhancement of the educational environment in Lusaka

“Increase in the number of new students”

In the capital, Lusaka, the inflow of people from local areas into the rural area has not slowed down and more than 30% of children did not have access to a basic school at the time of the planning of this project. In this project, 230 classrooms in 10 schools have been newly constructed based on data on the number of children and the size of existing schools nearby. According to the Ministry of Education, around 30% of the children had no access to a basic school in Lusaka District at the time of the completion of the project (in 2009), thus it can be considered that the situation has not worsened despite a substantial growth in the population¹⁶. The number of new school children was 18,819 in 2009, which exceeded the planned target number of 18,088. The number of students who went to secondary school was 12,294, which also substantially exceeded the planned target number of 5,831.

Furthermore, the above target number assumes the construction of 12 schools. Recalculating the planned target number for ten schools, number of new school children in primary school was calculated to be 15,073 and number of students who went to secondary school to be 4,776. Compared with actual number, number of new school children increased nearly 30%, and number of students who went to secondary school increased about 30%. As a result, it was confirmed that the implementation of the project contributed to the increase in number of new school children.

In addition, this project features the construction of junior secondary schools, which was the first attempt at this in Zambia¹⁷. As some students were unable to advance to a junior secondary schools due to the long distance from their home or to the full capacity of the nearby school, the project also enabled these students to continue to study at a junior secondary and then secondary school.

Therefore, the construction of the basic schools in this project can be considered to have contributed to a rise in the number of new students at secondary schools.

¹⁶ According to a report published by the Central Statistical Office of Zambia, the population of the Lusaka District increased from 1.08 million in 2000 to 1.74 million by 2010.

¹⁷ Hitherto, due to budgetary problems, a primary school would be built first and then, if the budget were secured, a junior secondary school would be added several years later.

“Improving school shifts¹⁸”

At the time of planning, it was expected that the project would improve the average number of school shifts from 2.26 to 2.02 at basic schools in Lusaka District by transferring some students to the new schools from existing schools that have accommodated an excessive number of students. In the case of the regular 2-shift system, students have around 4 hours of schooling per day. When it comes to the 3-shift system, a school is only able to secure 3 or fewer hours of schooling per day, which does not provide enough school hours of schooling for the students. As shown in Table 5, the average number of shifts at basic schools in Lusaka District decreased to 1.7, which indicates an average 4.7 hours of schooling per day. Although the data schooling hours per day before implementing the project could not be obtained, improvement by reducing the average number of shifts is considered evidence of an increase in schooling hours per day.

Table 5 Improvement of the Educational Environment in the Lusaka District

	Baseline (2002)	Planned (2006)	Actual (2009)
Proportion of pupils without access to basic education	40.5% ^{Note1}	-	30.32%
Number of newly enrolled pupils at primary schools	15,688	18,088	18,819
Number of newly enrolled pupils at secondary schools	4,391	5,831	12,294
Average number of shifts	2.26	2.02	1.70 ^{Note2}

Note 1: Data for the year 2004

Note 2: Data for the year 2010

Source: Documents provided by the District Education Board

3.3.2 Qualitative Effects

(1) Shortening of the distance travelled to school

Thanks to the construction of new schools, the commuting distance to school has been shortened. Pursuant to the guidelines¹⁹ from the Ministry of Education, primary schools are supposed to be located within a walking distance of five kilometres. Before the implementation of the project, many of the students living in compounds²⁰ had to walk several kilometres to school, sometimes up to ten kilometres, due to the limited number of schools in this area. According to a beneficiary survey²¹ conducted as a part of this ex-post evaluation, 90% of the respondents answered that their commuting distance has been shortened owing to the newly constructed schools. Among these respondents, nearly 60% answered that the distance was shortened by two to three kilometres and for some by more than five kilometres. (Please refer to Table 6)

¹⁸ In Zambia, due to a lack of primary schools and classrooms, schools across the country routinely operate double sessions (a two-shift system), in which a single classroom is used by two classes, one in the morning and one in the afternoon. Furthermore, there are many schools in urban areas which operate a three-shift system. There are no particular regulations about the number of shifts that can operate, but the Ministry of Education provides guidance recommending that the number be no more than two.

¹⁹ “Standards and Evaluation Guidelines” by the Ministry of Education

²⁰ Represents unplanned settlements

²¹ Beneficiary survey was conducted to the principle, the deputy head, PTA members (two-four members each), local residents (four- six people each) from ten target schools by interview-style.

Table 6 Change in the Commuting Distance (Results of a Beneficiary Survey)

Reduction in the commuting distance and the number of students affected	0km(no change)	1 km	2 km	3 km	4 km	5 km
	6	18	38	26	7	5

(2) Improvement of safety when commuting to school

The location of the construction was determined by the Lusaka District Education Board (DEB) in consideration of the location and density of existing schools and also the traffic situation in the neighbourhood. Accordingly, newly constructed schools are dotted evenly throughout Lusaka and this has led to safer commuting together with a reduction in the commuting time to school. For example, before the project, a serious issue was that some students became involved in accidents when they crossed a main road that was on the way to and from school. However, after the project, much safer school routes could be secured, free of the danger of the heavily-travelled main roads.

(3) Improvement in the basic skills of students thanks to the home economics rooms

In this project, students were expected to acquire basic skills to encourage their independence by the end of the course of basic education through the introduction of a home economics room in each school and also through the procurement of the necessary educational materials. Home economics rooms are equipped with sewing machines, irons, and ovens for cooking practice, and both boys and girls enjoy the opportunity to receive practical training once a week. According to the beneficiary survey, almost 70% of the respondents answered that basic skills for daily life had improved thanks to this practical training, such as training in the use of sewing machines/irons and cooking practice, including cooking methods for Nshima, their staple diet. Consequently, the implementation of this project is considered to have produced some effects in the development of basic skills.

Question: Does the home economics room offer students the opportunity to improve their basic skills?	Yes, very much	Yes, somewhat	No	Don't know
	17	51	0	32

As outlined above, this project achieved its objectives mostly as planned; therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

(1) Increase in the gross rate of school enrolment among girls

As a result of the construction of ten basic schools, more students have been accepted into a school and this has led to an improvement in the gross rate of school enrolment in Lusaka District. In particular, it has contributed to an increase in the gross rate of school enrolment among girls. This is mainly because their parents have become more accepting of school attendance by girls owing to the new construction of a school in their neighbourhood and the safer school commuting routes. (Please refer to Table 7.) The gross rate of school enrolment among girls in Lusaka district finally caught up

the national average by 2008, although it used to be more than 20% below the average. Regarding the increased gross rate of enrolment among girls, the Ministry of Education has been playing an important role as well by developing a programme aimed at an increase in the gross enrolment rate among girls and encouraging each school to accept more girls.

Table 7 Improvement in the Gross Enrolment Rate among Girls

	Planned	Actual	
	2002	2007	2008
Lusaka district	58%	86%	89%
National Average	81%	90%	91%

Source : Documents provided by Lusaka DEB and EDASIST from Ministry of Education

(2) Utilization of the school facilities after school hours

At the time of planning of this project, the newly constructed basic school were planned to be open to the public after school hours and utilized for adult education, such as literacy education and community activities. Eventually, it was expected that this would increase opportunities for local activities. According to interview surveys conducted in each school concerning the utilization of facilities after school hours, six schools out of the ten target schools responded that the classrooms and schoolyard are available for literacy education for adults or church activities.

On the other hand, only 30% of respondents in the beneficiary survey answered that the school facilities were utilized after school hours. The major reason is that concerns about security discourage the opening of school facilities to the public. In addition to this, the low recognition of the need for adult education might be one of the reasons that school facilities were not utilized enough, since the number of students participating in adult education classes is normally limited to 10-15, and some schools only started adult classes from this year (2011).



Photo: Literacy education classes that are held after school hours (Mandevu site)

Question After school hours, are the school facilities utilized for adult education or community activities?	Yes, very much	Yes, somewhat	Same as before	No	Don't know
	5%	24%	1%	0%	70%

(3) Improved performance of the students

According to interview surveys conducted at the ten target schools, the number of students who passed nationally uniform exams for the seventh grade has been on the increase at eight basic schools. In addition, the beneficiary survey gave the result that over 60% of the respondents answered that the performance of the students had increased. Teaching and learning at the new schools with facilities that were well-equipped with desks, chairs, and instructional equipment has motivated both the teachers and students, and has also contributed to the improvement of the performance of the students

to a certain degree.

The data on examination pass rates or the number of successful applicants for nationally uniform exams in the Lusaka District before and after the project was not available, after confirming with the Lusaka DEB and Examination Council. As an alternative²², the examination pass rate in the Lusaka Province was obtained. Data showed that the pass rate of seventh grade students had increased up to 75.1% in 2010 from 33.9% in 2003, which was before the project, and also that the difference from the national average pass rate had been narrowing. (Please refer to Table 8.) Other than the above, the encouragement²³ provided by the construction of new basic schools in Zambia as a whole is also one of the factors that have contributed to the great increase in the pass rate in 2009. Thanks to this, more and more students have been accepted into secondary schools, and as a result, more students have prepared for taking examinations.

Question Has the performance of students in this area (number of successful applicants for nationally uniform examination) improved?	Yes, very much	Yes, somewhat	No, deteriorated	Don't know
	40%	22%	3%	35%

Table 8 Pass Rate of Seventh Grade Students for Nationally Uniform Examinations

	2003	2008	2009	2010
Lusaka Province	33.9%	57.8%	73.5%	75.1%
National Average	52.2%	65.4%	71.5%	84.2%

Source : Documents provided by Lusaka DEB

3.4.2 Other Impacts

(1) Impacts on the natural environment and Land Acquisition and Resettlement

As a result of hearings held by the implementing agency and school officials, no major problems have been observed with regard to the environment. Regarding the location of this project, it was confirmed that all the planned construction sites belonged to the Ministry of Education at the time of basic design study. However, it was found that the sites for two schools among the six schools targeted for the first phase of the project, had problems of land encroachment and duplicate land ownership registration at the stage of contracting with the consultants. In the Lusaka District, it is often the case that even acquired land suffers from forcible entry and illegal occupation, and regarding the ownership of illegally occupied land, it is difficult to solve those problems in most cases. Accordingly, construction at the above two sites was stopped as described in section “3.2 Efficiency”.

(2) Other Indirect Impacts

The creation of employment is one of the other indirect impacts of this project. According to the beneficiary survey, 94% of the respondents pointed out the creation of new jobs for local residents as

²² The population of the Lusaka District accounts for 80% of those living in the Lusaka Province, therefore information on the Lusaka District is considered to be reflective of the Lusaka Province.

²³ In Zambia, before the implementation of this project, the construction of primary schools was given priority over that of secondary, which were newly constructed as funds permitted.

an indirect impact. In each school, several workers (clerical employees, security guards, cleaners, migrant workers for mowing the lawn) have been employed with financial assistance from the PTA, and in the target schools many teachers have been employed from the neighbouring areas. Local vendors have been provided with job orders, such as the repair of broken windows and other repair work although, of course, the number of such opportunities is limited. Consequently, the project is highly appreciated by the local residents thanks to the creation of new jobs.

In addition to this, the project has contributed to improvements in public safety around the schools owing to the deployment of security guards and the fact that the surrounding streets have become busier after the construction of the schools. According to the beneficiary survey, 87% of the respondents answered that public safety in neighbouring areas had improved.

As explained above, this project, which implemented the construction of school facilities and the procurement of equipment and teaching materials, is considered to have had positive impacts, such as 1) an increase in the gross enrolment rate among girls thanks to the shortened distance and time taken to get to school, 2) improved performance of the students thanks to a better educational environment, 3) the creation of employment opportunities for local residents, and 4) improvements in public safety.

3.5 Sustainability (Rating: ②)

3.5.1 Structural Aspects of Operation and Maintenance

In principle, each school is responsible for the maintenance of its own school facilities after the completion of construction. A School Maintenance Committee (SMC), consisting of the head teacher, the deputy head, teachers, and the PTA members, has been organized in each school and is responsible for the management and maintenance of the school facilities and equipment. The main role of the SMC is to check the school facilities periodically, to identify and confirm the places or items that need repair, and also to check up on the budget. Periodic meetings and checks have been implemented in each school, and so far no major problems have been observed in the system of each school.

Extensive repair work that the school cannot handle is reported to the Lusaka DEB²⁴. After receiving a report, an inspector and a building officer from the DEB visit the school and check the degree of damage and obtain an estimation of the cost of the repairs. If the damaged parts are judged to be repairable, DEB will take care of this. According to the DEB, they currently have only one inspector and two building officers, and have suffered a shortfall in human resources²⁵ considering the number of schools they are responsible for. The DEB is supposed to visit each school and conduct a quarterly check even without a request from the school. However, under the present circumstances, the

²⁴ There are district educational authorities under the Ministry of Education in nine provinces throughout Zambia. Besides, in each district, there are educational authorities for each area. The main roles of the Ministry of Education are to draw up acts related to education, to develop curriculums, and to allocate the budget. On the other hand, the main roles of the district educational authorities are to make plans at the district level and to monitor the quality of education. Lastly, the area educational authorities are responsible for the execution of educational policies, planning and practice, and monitoring of the schools and the quality of education in the area.

²⁵ Currently, the Lusaka DEB is responsible for 96 basic schools in the Lusaka District.

DEB only visits a school at the request of the school due to the shortage of human resources. In addition, according to the hearings held at each school, some schools were not aware of the process of reporting to the DEB regarding extensive repair work that the school cannot handle. Therefore, in terms of sustainability, there is a concern about the future establishment of a system of cooperation.

3.5.2 Technical Aspects of Operation and Maintenance

According to school officials, the DEB, and the Ministry of Education, the skills required for the management and maintenance of school facilities are not something special but rather part of a basic approach, such as daily cleaning and periodic checks. Regarding the daily cleaning, students do the sweeping, and litter bins have been set up in schoolyards at the initiative of the head teacher or deputy head. Consequently, no problem was observed regarding this point during the actual inspections. In addition, regarding the repair of street gullies, assistance from the SMC and the local community was available, and therefore there were no problems regarding this matter either.

According to interview for the DEB, there were no problems with regard to the technical aspects reported by engineers who belong to the DEB and no technical issues were observed in the actual inspections.



Photo : Students clean the classroom after school under the guidance of teachers (Kamlanga school at the Jack site)

3.5.3 Financial Aspects of Operation and Maintenance

According to preliminary calculations made during the basic design survey, the operation and maintenance fees per year were estimated at 18 million Zambian Kwacha (ZMK). Among these, ZMK2.1 million was supposed to be covered by allocations from the government, and the remainder from fees for PTA membership. Interviews conducted concerning the actual situation involving school officials, the DEB, and the Ministry of Education on the NIIF budget, which is fiscally distributed from the Ministry of Education, showed that it is very little and its use is also limited. In addition, in reality, the distribution of NIIF, which is often behind schedule, cannot be included as part of stable earnings, and as a result expenses for operation and maintenance all depend on financial assistance from the PTA. In this ex-post evaluation survey, it was found the operation and maintenance fees amount to an average of ZMK20 million for each school. Considering the current inflation rate (8-10% per year), this amount might not be enough. In addition, the act on educational tuition fees established by the Zambian government does not allow for financial aid from the PTA for the 1st and 7th grades. The operation and maintenance fees only consist of the PTA membership fee, which is only collectable from the 8th and 9th grades, as well as funds collected as the need arises. Accordingly, the responsibilities of the PTAs for the 8th and 9th grade have been increasing every year.

At this time, assistance from the DEB is not so necessary since only three or four years have passed since the construction of the target schools. However, as time goes by, the need for assistance from the DEB will increase. The budget of the DEB is consisted of the following two: the budget of

Ministry of Education and the pool of educational sector fund. The former is directly allocated to DEB from Ministry of Finance, not from Ministry of Education (monthly in regulation). The latter is quarterly allocated to DEB from Ministry of Education. The actual expenditures are paid to a school for any extensive repair costs that the school cannot afford to pay. Recently, funding assistance from donors has decreased, and the budget allowance for the DEB has remained at the same level, as shown in Table 9. Among the income sources, operation and maintenance fees account for only 4% of the total budget of the DEB, therefore the funds available to the DEB are apparently not sufficient²⁶.

Table 9 Budget for Operation and Maintenance Fees of the DEB

(Unit: thousand ZMK)

	2008	2009	2010	2011
Budget for management and maintenance fees	53,592	33,396	33,396	34,396

Source : Documents provided by the Lusaka DEB

3.5.4 Current Status of Operation and Maintenance

To the extent that this evaluation survey was able to ascertain, the condition of the school facilities and equipment is generally good. However, a limited amount of damage was occasionally observed, which remained unrepaired due to fund shortages. For example, the following problems were observed in almost all the schools; breakage of plastic piping in the bathrooms, roof leakage during the rainy season, cracks in the walls and floors, etc.

In addition, it was found that maintenance and management conditions in each school vary depending on the perception and initiative of each head teacher. Actually, the variation in the conditions is proportional to the differences in the level of initiative shown by the head teacher and the deputy head. According to the results of interview surveys held in each school, the facilities are well-maintained in schools that take on the management of the school facilities as their own responsibility. In some cases when a head teacher moves to another school, consideration for the importance of management and maintenance is not taken over by the replacement. Therefore, the DEB should notify the head teacher of each school that management and maintenance should be implemented as part the ownership by the school. In addition, it is necessary to provide opportunities for people to understand the importance of management and maintenance for sustainable self-motivated activities by the school. For example, it might be useful, at the initiative of the DEB, to encourage events such as a “School Cleaning Campaign”, and periodically demonstrate its importance or award prizes to schools with well-maintained facilities at the initiative of the DEB. Such activities may contribute to the strengthening of collaboration among schools, and of each school with the DEB, and can be an effective means of promoting the management and maintenance of school facilities, furniture, and equipment.

As explained above, some problems have been observed in terms of structure and financial

²⁶ According to a hearing held at the DEB

conditions, therefore sustainability of the project effect is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

In the Lusaka district, where the improvement of access to basic education is imperative, about 30% of the population of seven-year-olds, the school age in Zambia, have no access to any school despite the enrolment policy for all school age children introduced by the Government of the Republic of Zambia in 2007. The government of Zambia defines infrastructure development, including the construction of school facilities, as effective measures; therefore the effectiveness of this project, which has implemented the construction of new schools in the Lusaka District, is very high. Although the construction of two schools, among the 12 schools initially planned, was stopped due to land issues, construction of the other ten schools has increased the number of students in primary and secondary schools in the Lusaka District, and has also produced the following effects, including a decrease in the number of students per classroom, reduction in the distance travelled to school and safer commuting routes to the schools, together with improved access to education. In addition, several other impacts have been observed, such as an increase in gross enrolment rate among girls, the improvement of public safety in neighbouring areas, and the creation of employment for local residents. However, there is concern about sustainability in terms of budget problems and the variable maintenance situation in each school.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) Strengthening of management and maintenance activities through collaboration among the schools

It is important for the maintenance of school facilities to use the facilities and equipment in the proper way and to carry out daily activities, such as periodic cleaning. In this survey, it was also found that the facilities are well-maintained in schools where a responsible official, normally the head teacher or deputy head, demonstrates initiative. In some schools, the responsible officials have a negative attitude towards management and maintenance activities, while other schools try various measures to improve the school environment. It is therefore preferable to strengthen cooperation among the schools and share their experience in the improvement of management and maintenance. In addition, the DEB mentioned that the implementation of observation tours by school officials to schools with good practices will be effective. For the future, it is desirable to reinforce the linkages between the DEB and the schools and eventually among the schools and to provide opportunities to share their experience or lessons learned, supported by the DEB, towards the improvement of the management and maintenance conditions.

(2) Intensive notification and the enhancement of monitoring activities by the DEB

As time goes by, repairs and maintenance of school facilities will become more necessary, which

the school cannot take care of on its own. Currently, some schools are not aware of the reporting line to the DEB for extensive damage; therefore prompt support cannot be expected for these schools. In addition, the DEB has only one inspector and cannot implement periodic monitoring. Thus, it is preferable that the Ministry of Education and the DEB let each school know of the reporting line related to management and maintenance and also to increase the number of staff so that periodic monitoring can be implemented by the DEB.

(3) Budget related to the maintenance of educational facilities

Currently, the expenses for management and maintenance cannot be all covered by the allocation from the Ministry of Education, and so are mostly dependent on funding assistance from the PTA in each school. This is because the budget allocation is low, and its use is also limited to consumable goods, such as notebooks and chalk. Furthermore, there is the major challenge that the allocation from the Ministry of Education cannot easily be included in the budget of each school since the allocation is often behind schedule. Therefore, it is desirable for the Ministry of Education to secure the budget for DEB and facility maintenance and to have a close discussion with financial authorities about the periodic allocation of the budget. .

4.3 Lessons Learned

The Lusaka District has suffered from land issues, such as illegal encroachment and duplicate land ownership registration. This project also had problems related to ownership of the land, which meant that it took almost two years from determining the planned construction site to the start of construction. Accordingly, construction at two sites was excluded from the plan. From this experience, it is necessary for JICA to develop a plan that covers the planning phase and implementation phase in consideration of the special circumstances of each country. In addition, in cases where it takes time to start the implementation of the project after the planning phase, it is desirable for the executing agency to take care of any issues resulting from the time lag when necessary. In other words, it is necessary to respond to the issues in the consideration of the special circumstances that each project faces. (For example, to set up temporary fences in the planned construction area or to prevent forcible entry by involving the local residents at the planning phase of the project.)

Nigeria

Ex-Post Evaluation of Japanese Grant Aid Project
“The Project for Construction of Additional Classrooms for Primary Schools”

External Evaluator: Hisae Takahashi, Ernst & Young Advisory, Co., Ltd.

0. Summary

Nigeria is working to provide free basic education, with the aim of improving access to primary education. However, educational facilities were inadequate and unable to cope with the rapid rise in the number of pupils. To address this problem, this project installed and equipped additional primary school facilities, in accordance with the national policies of Nigeria, which has earmarked basic education as a priority area. As for project implementation, the outputs, the cost and the period of the project were in line with the original plan. Some project outcomes, such as alleviating classroom congestion and disseminating maintenance management systems to neighboring schools, did not fulfill the planned values due to an increase in the enrolled population over and above what was expected. However, the project was recognized as having an extensive impact on improving developments in the basic education sector in Nigeria. This included increasing the number of school children, improving the enrollment ratio of and sanitary conditions for girls, and improving pupils’ academic performance; all as a result of strategically implemented collaborative assistance in the form of technical support and grant aid for grassroots projects. With respect to sustainability, while positive changes were seen in awareness relating to maintenance at many of the target schools, conversely, there are still some issues to be tackled in terms of maintenance conditions and the institutional systems for ensuring the project’s outcomes.

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

1. Project Description



Project Locations



Gwangwada Primary School, Kaduna State

1.1 Background

The Obasanjo administration that was established in May 1999 formulated the Universal Basic Education (UBE) Plan with the objectives of providing all pupils with access to basic education and reducing the illiteracy rate. Under this plan, it implemented the necessary measures to make the nine years of basic education (primary and lower secondary education)¹ free and compulsory, improve its quality, improve teacher training, and so on. As a result, the annual rate of increase for the population enrolled in primary education showed a high growth rate of 14.0%.

On the other hand, school facilities in Nigeria have undergone considerable deterioration, with the claim of a deficiency of roughly 540,000 classrooms nationwide. The country has also been beset by problems such as a chronic fiscal deficit caused by an oil-dependent economic structure and lax economic management, as well as the accumulation of huge debts. This has left it in a state where it is incapable of handling the facility improvements accompanying the rapid surge in the population enrolled in basic education. Under these circumstances, the Government of Japan has come to recognize the importance of improving educational facilities in Nigeria. As such, it has come to implement assistance pertaining to constructing classrooms in primary schools and installing facilities including headmasters' offices in three northern states (Niger, Plateau, and Kaduna) where there is a particularly salient lack of classrooms.

1.2 Project Outline

The objective of this project is to improve the educational environment in the schools at Kaduna, Niger and Plateau state by construction of additional classrooms, provision of educational furniture, teacher's office, water supply facility as well as toilet.

Grand limit/Actual Grant Amount	1,647 million yen / 1,636 million yen
Exchange of Notes Date	August, 2004 (1/3 phase)、 July, 2005 (2/3 phase)、 July, 2006 (3/3phase)
Implementing agency	Universal Basic Education (UBEC), Federal Ministry of Education
Project Completion Date	January, 2006 (1/3 phase)、 January, 2007 (2/3 phase)、 February, 2008 (3/3 phase)
Main Contractors	Yuatec Corporation
Main Consultants	Yachiyo Engineering Co., Ltd.
Basic Design Study	"Basic Design for Construction of Additional Classrooms for Primary Schools in the Federal Republic of Nigeria.", Yachiyo Engineering Co., Ltd. November, 2003 - March, 2004
Detailed Design	August, 2004- March, 2005 (1/3 phase), July, 2005- March, 2006(2/3 phase), August, 2006, March 2007 (3/3 phase)
Related Projects	(Technical Cooperation)

¹ The educational system in Nigeria is the same 6-3-3-4 system that Japan has, which consists of six years of primary education, three years of lower secondary education, three years of upper secondary education, and four years of higher education. The nine years from primary education through to lower secondary education is regarded as "basic education" and is treated as compulsory education.

	<p>“Strengthening of Mathematics and Science Education (SMASE) (2006-2009)”: In-service Training in three target states.</p> <p>“SMASE Phase II” (2010-)”: In-service Training in three target states and other 34 states.</p> <p>(Grassroots Grand Aid) “Improvement of Mathematics and Science at primary education at 12 schools in Niger State(2008)” : Procurement of education materials</p>
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2. Outline of the Evaluation Study

2.1 External Evaluator

Hisae Takahashi, Ernst & Young Advisory Co., Ltd.

2.2 Duration of Evaluation Study

Duration of the Study: November, 2010 – December, 2011

Duration of the Field Study: February 2 –February 20, 2011 and June 26 –July 4, 2011

2.3 Constraints during the Evaluation Study

A religious conflict broke out in December 2010 in Plateau State, which is one of the project’s target states. This left more than 80 people dead and destabilized the security situation. For this reason, a site visit could not be carried out. Therefore, in order to perform the evaluation, an interview survey was conducted with official on the State Universal Basic Education Board (SUBEB) for Plateau State in the state capital of Abuja in order to collect and confirm the necessary information required. However, the impact on the 26 target schools in Plateau State was not reflected in some of the qualitative outcomes or impacts because the beneficiaries from this state could not be included within the results of the beneficiary surveys. Furthermore, this project targeted 70 schools in the states of Niger, Plateau, and Kaduna, but due to time constraints, 27² out of the 44 schools in Niger and Kaduna States were selected for the implementation of the onsite surveys and the beneficiary surveys.

3. Results of the Evaluation (Overall Rating: B³)

3.1 Relevance (Rating: ③⁴)

3.1.1 Relevance with the Development Plan of Nigeria

In Nigeria, the National Economic Empowerment and Development Strategy (NEEDS; 2003-2007), which is a medium-term national development plan that is equivalent to a Poverty

² 27 schools were selected based on discussions with the implementing agency and local consultants. Basically, they were selected among the schools where deep wells have been installed. Also, schools located in both urban areas and suburb areas were selected.

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

⁴ ①: High, ② Fair, ③ Low

Reduction Strategy Paper (PRSP), was formulated in 2004.⁵ This strategy is comprised of four basic strategies for national development.⁶ Under one of these—“implementing a social charter for the people”—it declares that the basic education sector is the most essential sector to promote in order to make progress with eradicating poverty. Education is also stipulated as being an important sector for raising the latent potential of the people within Vision 20: 2020 (2008 – 2020), which is the current development policy. This policy raises the goal of 100% primary education completion by both boys and girls by 2015, and 100% lower secondary education completion by 2020. As noted above, the education sector has importance as a core aspect of eradicating poverty and maximizing the capabilities of the people in Nigeria from planning through to the ex-post evaluation.

Furthermore, at the time of the basic design study, the UBE Plan had already been formulated and nine years of basic education had been made free and compulsory. The UBE lays out the goal of providing all the pupils with educational opportunities, and indicates that both quantitative and qualitative improvements in classrooms and facilities will be required. After this, specific measures and timeframes concerning improving classrooms, toilets, and water supply and sanitary facilities to improve the environment for primary education were indicated within the Education Sector Roadmap that was formulated in 2009. This project provides assistance for constructing classrooms, toilets, and deep wells to contribute to realizing these policies and measures. Therefore, the project is highly consistent with the implementation of the development policy of Nigeria.

3.1.2 Relevance with the Development Needs of Nigeria

At the time of the planning, Nigeria was working to make basic education free and compulsory, but the deterioration of education facilities and lack of classrooms in primary schools were a serious problem and made it difficult to handle the rapid surge in the number of pupils following in the wake of the implementation of UBE. What is more, the proportion of the budget channeled towards the education sector in Nigeria was low at just under 7% as a percentage of gross domestic product (GDP). On top of which the majority of the budget was spent on teachers' salaries, meaning that a budget that was adequate for constructing the facilities that are crucial for the implementation of UBE had not been allocated. Given such circumstances, the construction of new classrooms, installation of auxiliary facilities, and procurement of educational furniture and fixtures has been recognized as being significant in terms of alleviating the lack of classrooms and improving the environment for basic education. Considering the fact that this project was Japan's

⁵ PRSPs are three-year economic and social development plans that are formulated with the participation of a wide range of interested parties under the ownership of developing countries which focus on poverty reduction. Since international consent for their formulation was given at the Annual General Meetings of the IMF and World Bank in September 1999, many countries have positioned them as a substantially “new type of national development plan” to replace their former national development plans.

⁶ The four strategies of: 1) Reforming the way government works and its institutions, 2) growing the private sector, 3) implementing a social charter for the people, 4) and value re-orientation.

first assistance for the education sector in Nigeria, three major states in the northern region were selected as the target region due to their proximity to the capital and the ease of monitoring them. Seventy schools in the three states were selected as target schools based on selection criteria such as the urgent need for the construction of classrooms and the number of classrooms needed being more than two.⁷

At present there are approximately 10 million pupils in Nigeria who are unable to attend primary school, with it believed that roughly 250,000 classrooms are needed in order to allow them to go to school.⁸ Therefore, there is an ongoing strong need to construct new classrooms and supply their accompanying furniture and equipment in primary schools, and so the implementation of this project is relevant with the development needs of Nigeria.

3.1.3 Relevance with Japan's ODA Policy

At an economic cooperation policy meeting in August 1999, it was agreed that four areas would be set as priority areas for Japan's official development assistance (ODA) to Nigeria: (1) Health and medical care, (2) water supply, (3) basic education, and (4) rural electrification. In a policy conference in 2005, the agriculture sector was also added as a priority area, and finally, five sectors were designated as continued priority areas in 2007. For the basic education sector in particular, a policy was laid out that would continue to implement assistance focused on the improvement of primary education facilities and the qualitative and quantitative expansion of teaching faculty. In addition, various types of assistance have been deployed in the target region of this project. These include the improvements in the installation of primary education facilities through grant aid (this project), in-service teacher training through technical cooperation via the Strengthening Mathematics and Science Education Project (SMASE) as well as the distribution of teaching materials through grassroots grant aid projects via the Improvement of Mathematics and Science at Primary Education in the state of Niger. The implementation of this comprehensive assistance has been acknowledged as being relevant in terms of initiatives aimed at resolving Nigeria's development challenges⁹ in basic education, and was also consistent with Japan's aid policy at the planning stage.

Therefore, this project has been highly relevant with the Nigeria's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

⁷ The breakdown of these 70 schools is as follows: 12 schools in Niger, 26 schools in Plateau, and 32 schools in Kaduna.

⁸ According to preliminary calculations by UBEC.

⁹ (1) Improving access to educational services and (2) raising the quality of education, primarily for that of primary math and science education, have been specified as development challenges for the basic education sector in Nigeria. See the following site for details. <http://www.mofa.go.jp/mofaj/gaiko/oda/seisaku/jigyuu/pdfs/nigeria.pdf>

This project conducted the development of school facilities, procurement of furniture and teaching tools, and a soft component for those involved in the maintenance and operation of facilities (on the job training by consultants).¹⁰ The planned and actual outputs are shown in Table 1 and Table 2 below.

Table 1 Planned and Actual Output (Facilities and Major Equipments)

Sates (Number of target schools)	Items		Planned	Actual	Difference
Niger (12 schools)	Facilities	Classroom	78	78	None
		Headmaster's Office & store Room	5	5	
		Toilet Booths	68	68	
	Furniture/ Fixtures	Integral Desk-Bench	1,794	1,794	
		Blackboard	78	78	
	Deep Well	Deep Well	4	4	
Plateau (26 schools)	Facilities	Classroom	147	147	None
		Headmaster's Office & store Room	4	4	
		Toilet Booths	144	144	
	Furniture/ Fixtures	Integral Desk-Bench	3,381	3,381	
		Blackboard	147	147	
	Deep Well	Deep Well	10	10	
Kaduna (32 schools)	Facilities	Classroom	265	265	None
		Headmaster's Office & store Room	4	4	
		Toilet Booths	170	170	
	Furniture/ Fixtures	Integral Desk-Bench	6,095	6,095	
		Blackboard	265	265	
	Deep Well	Deep Well	5	5	

Source: Basic Design Report and Completion Report

Table 2 Planned and Actual Output (Soft Component)

	Contents		Difference
	Planned	Actual	
Period	7 M/M	7 M/M	None
Contents	Training conducted by Consultants Contents: 1. Preparation of the guideline 2. Explanation of the guideline to local C/Ps. 3. Establishment of Task Force	Training conducted by Consultants Contents: 1. Preparation of the guideline 2. Explanation of the guideline to local C/Ps 3. Establishment of Task Force	None

¹⁰ A custom of valuing public property and performing maintenance on it was lacking in Nigeria. It was pointed out that there was an extremely high risk of the facilities constructed and procured through this project being damaged and deteriorating if facilities alone were newly constructed without promoting awareness of the importance of routine cleaning and maintenance activities. Therefore, a soft component was also included, with the goals of instilling a sense of ownership in those involved in the maintenance of school facilities and laying the foundations for continued maintenance.

	<p>4. Selection of Model schools and grouping of the project school</p> <p>5. Orientations to project schools and model schools</p> <p>6. Preparation of the Manual for facility maintenance and instruction posters</p> <p>7. Practice of daily maintenance activities at model schools</p> <p>8. Organization of zonal training workshops</p> <p>9. Preparation of monitoring manual</p>	<p>4. Selection of Model schools and grouping of the project school</p> <p>5. Orientations to project schools and model schools</p> <p>6. Preparation of the Manual for facility maintenance and instruction posters</p> <p>7. Practice of daily maintenance activities at model schools</p> <p>8. Organization of zonal training workshops</p> <p>9. Preparation of monitoring manual</p>	
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Source: Basic Design Report and Completion Report

The construction of school facilities and the procurement of furniture and fixtures were carried out as planned, and it was confirmed through field observations and interview surveys with SUBEB official that at present they are being adequately utilized. Some of the reinforcing rods used to construct the classrooms were changed following the strengthening of standards within the country, but these were consistent with Nigeria’s standards, the modifications were minor, and this had no impact in terms of consequences arising or ensuring safety. Therefore, the content of the changes are considered to be valid.

The aim of the soft component was to have head teachers, teachers, community leaders, and others who constitute the principle undertakers of school maintenance activities take ownership and to create a foundation for them to carry out maintenance activities by themselves in a continuous manner. This was implemented as shown in Table 2.

More specifically, the SUBEB official from each state joined the consultants in holding orientation classes and workshops on: (1) hygiene management, (2) facility maintenance, (3) school management methods, and other issues, for members of task forces (TF) for each target school. In actuality, cleaning and sanitary activities were carried out together with the pupils. The workshops were held at model schools¹¹ to raise awareness at all of the target schools through the participation of the TF members situated at every target school. This scheme was designed to allow them to disseminate the content they learned within their schools and communities. What is more, maintenance manuals for facilities and materials for awareness-raising were created and a number of schemes were employed to strengthen the sense of ownership of the participants and their use of manuals and materials. These include creating posters that interweave pictures and photographs that are easily for pupils to understand, and creating posters in the Hausa language that is more commonly used by the communities in Kaduna State.



Photo: A poster to raise awareness of maintenance for school facilities that was created in the local language (Hausa)

¹¹ Schools that are relatively easy to access from the other target schools in consideration of the location of the target schools in each state and schools with deep wells installed by this project were primarily chosen as model schools.

When confirmation was performed on the contracted consultant and the executing agency to see whether the input quantity of the activities and their content were appropriate, they responded that the content and input quantity implemented over the implementation period were appropriate. But conversely, the status regarding the soft component could not be confirmed through the defect survey or the like following project implementation. For this reason, the opinion was raised that a scheme is desired that would address monitoring for items related to the soft component at the time of the defect survey.¹²

3.2.2 Project Inputs

3.2.2.1 Project Cost

The actual project cost was lower than planned, at 16.36 million yen compared to the 16.47 million yen, from the exchange of notes (E/N) (99% of the plan). This was due to the difference between the planned cost and the amounts tendered by the contracted companies (consultant and builders). According to interview survey to the UBEC and SUBEB officials, while the construction costs from Japan were higher than those in their own country, the fact that this project used exceptional, high quality specifications would make it possible to keep maintenance and repair costs in check. For this reason it was evaluated extremely highly by those involved.

3.2.2.2 Project Period

The project came in under the planned length at 42 months from August 2004 to February 2008, compared to the 44 months planned (95% of the plan).

As above, both project cost and project period were mostly as planned, therefore efficiency of the project is high.

3.3 Effectiveness¹³ (Rating: ②)

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation and Effect Indicators

1) Average Number of Pupils per Classroom

It was expected that newly constructing classrooms through this project would reduce the average number of pupils per classroom from 121 at the time of the plan to 45. Yet the results of the ex-post evaluation survey show 69 pupils on average and this figure came in above the planned figure of 45 pupils at the target schools (see Table 3). The main reason being that there was a greater increase in the number of school children than expected throughout the entire country including the target region¹⁴ and Nigerian side could not construct classrooms in responses to this

¹² From the interview survey to the contracted consultant.

¹³ Rating of Impact will be included in the rating of effectiveness.

¹⁴ The net number of pupils enrolled in primary schools in the three target states rose to 2.79 million in 2009 from 2.36 million in 2004, an increase of roughly 430,000 over five years.

great increase in number of pupils¹⁵. Furthermore, there were also confirmed cases where the number of pupils increased due to calls for them to attend school by their communities on account of the construction of new classrooms. Yet even though the project did not reach its target value, in contrast with the greater-than-expected increase in the enrollment number for school, the number of pupils per classroom dropped from an average of 121 to 69. In this sense, this project could be judged as having contributed to alleviating the congestion within classrooms in the target schools to a certain degree. However, basic design survey concluded that 45 pupil per classroom (56m²) was appropriate. Therefore, the current condition, where the number of pupils per classroom exceeds 45 pupils, has a room for improvement to achieve the better education environment and it is a challenge for Nigerian side to improve this current situation.

Table 3 Average Number of Pupils per Classroom at Target 70 Schools

	Original(2004)	Planned	Actual (2010)
Average of target states	121	45	69
Niger state	109		80
Plateau state	117		60
Kaduna state	128		68

Source: Documents provided by UBEC and SUBEBs

2) Number of Schools without Head Master's Room or Stockroom

At the time of the planning, 13 of the 70 target schools lacked working space for their teachers and storage areas for teaching tool and textbooks, which was impairing the operation of the schools. Therefore, it was expected that this project would eliminate target schools that lacked head master's rooms and stockrooms, thereby contributing to improving the operation of the schools and their educational environments. As it indicates in Table 4, all of the target schools were outfitted with the necessary facilities (head master's rooms, stockrooms, etc.). From the results of the field survey and interview survey with SUBEB official, it was also confirmed that all of the head master's rooms and stockrooms constructed through the project are being effectively used for storing teaching materials and as venues for class preparation by teachers, PTA assemblies, and community meetings. It was also confirmed that this has contributed to improving the teaching environment for teachers in particular.

Table 4 Number of Schools without Head Master's Room or Stockroom

	Original (2004)	Planned	Actual (2010)
Total	13	None	None
Niger state	5		
Plateau state	4		

¹⁵ From the interview survey to UBEC. Officials in UBEC explained that it is a challenges as well as responsibility of Nigerian side to understand and respond to these changes since it is not realistic to design the scope (the number of classroom) which exceeds the capacity of expected increase in the number of students at the time of planning stage.

Kaduna state	4		
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Source: Documents provided by UBEC and SUBEBs

3) Number of Schools without Toilet Facilities

At the time of the planning for this project, almost all of the target schools either lacked toilets or had ones that were damaged to the point that they were not fit for use. For this reason, female teachers and others had to borrow the toilets of nearby private residences, while the children were forced to relieve themselves in the bushes. This resulted in poor hygiene conditions on the school grounds and in the surrounding areas.

This project constructed a total of 382 toilet booths to achieve the goal of installing separate boy and girl toilets in all the target schools. As it is claimed that the lack of toilets is one of the causes for the decline in enrollment rates in the higher grades, installing toilets in all of the target schools can be judged as having contributed to improving the school environments.

Table 5 Number of Schools with No Toilet Facilities

	Original (2004)	Planned	Actual (2010)
Total	51	None	None
Niger state	9		None
Plateau state	25		None
Kaduna state	17		None

Source: Documents provided by UBEC and SUBEBs

4) Number of Schools which Have Difficulties in Getting Water

Prior to the implementation of this project, it was confirmed that there were 19 target schools that had difficulties obtaining water from their surrounding areas. These schools depended on facilities supplying water from far away or river water to obtain the water they needed for cleaning, hand washing, and toilets. Therefore, this project installed deep wells at these 19 schools and aided in supplying schools that had had trouble getting water with safe water. It was expected that all of the target schools would obtain water from inside the school or nearby, but over the past several years a number of problems have arisen with this, such as several formerly usable wells breaking down and water running dry. This has made it difficult to obtain water at 19 of the 70 target schools which was not installed deep wells by this project, particularly during the dry season.

Table 6 Number of Schools which Have Difficulties in Getting Water

	Baseline (2004)	Planned	Actual (2010)
Total	19	None	19
Niger state	4		6
Plateau state	10		13
Kaduna state	5		None

Source: Documents provided by UBEC and SUBEBs

3.3.2 Qualitative Effects

(1) Improving Sanitary Conditions at the Target Schools (Results of the Beneficiary Survey)

Because only a small number of the target schools from this project had toilets installed before the implementation of this project, pupils needed to relieve themselves in vacant lots and in the bushes around the schools. This contributed to the problem of poor hygiene conditions on the school grounds

BOX 1:

Prior to the installation of toilets, the pupils would relieve themselves in the bushes or on the school grounds. Because of this, hygiene conditions in Schools could not be maintained, which caused serious problems.

Many girls were observed who would not (or could not) attend school due to the lack of toilets. Now cleanliness is maintained within the school grounds, and the installation of toilets through the project has led to improving the sanitary conditions of the target schools.



and in the surrounding areas. In the results of the beneficiary survey,¹⁶ a little more than 40% of the respondents indicated “poor sanitary conditions due to the lack of toilets” as a challenge facing the schools before the implementation of the project. This project installed toilets in all of the target schools that had been lacking them, and also carried out the construction of deep wells at schools that had difficulty obtaining the water necessary for their cleaning. As a result, roughly 90% of the respondents responded that the aforementioned problem had improved following the project. Many opinions regarding the improvement in the sanitary conditions like those shown in the Box were also heard during the interview surveys, owing to which it is believed that the installation of toilets and deep wells by the project contributed to improving the sanitary conditions at the target schools.

(2) Improving the Learning and Teaching Environments at the Target Schools (Results of the Beneficiary Survey)

In the basic design study, it was envisioned that constructing new education facilities and procuring desks, chairs, and other furniture would improve the learning and teaching environments. According to the beneficiary surveys, 116 of the 150 responses said that the learning environment had improved, while 108 of the 150 responses said that the teaching environment had improved. Roughly 70 – 80% of the respondents for both of these responded that the learning environment and the teaching environment had improved.

In the interview surveys as well, it was reported at almost all of the target schools visited that learning and teaching were carried out in a more agreeable environment than before. For example, there were concerns regarding the learning environment such as: “The number of classrooms prior to the implementation of the project was insufficient, so many of the pupils had class under a tree.” “There are no desks and chairs, so the pupils had class sitting on the ground.” “Classes can’t be held on days where the temperature is high or days when it rains, so that the holding of classes had

¹⁶ Beneficiary surveys were conducted at 16 target schools in the states of Niger and Kaduna and received responses from a total of 158 concerned parties. The breakdown of the respondents is 33 head masters and assistant head masters total, 45 teachers, 39 PTA members, 35 community members, and 6 security officers.

been determined by the weather.” But following the implementation of the project, chairs and desks were distributed and classes could be held even on rainy days, which are among the testaments to the substantial improvements in the learning and teaching environments.



Photo (left): A classroom where chairs and desks have not been installed (classrooms in such circumstances are still common in Nigeria today)

Photo (right): A classroom for which furniture was procured through the project

(3) Dissemination of Maintenance Systems

With this project, it was expected that the maintenance skills and systems for the school facilities at the schools targeted for cooperation would be improved and that the effects from this would be spread to other schools in the three states through the implementation of a soft component. A scheme was devised for the target schools that aimed to raise the awareness of the TF members at all of the schools by having them participate in workshops. By doing so, it was confirmed during the field survey that the head masters from the various schools and community members that had participated in the workshops would collaborate with the Local Government Education Authority (LGEA) and SUBEB in working towards better maintenance. In the results of the beneficiary surveys as well, roughly 70% of the respondents had participated in workshops held through the project. Of these, 98% responded that the knowledge they learned there had contributed to better maintenance of the school facilities and improving their maintenance systems.

As mentioned above, the implementation of this soft component that provided instruction on the importance of and methods for maintenance is believed to have led to improving the maintenance systems of the target schools. Conversely, while there were expectations that LGEAs would take initiatives to spread this through workshops to schools other than the target schools, these have only been carried out in a few areas. At the moment, the spillover effects that have been observed have been quite limited.

As noted above, some project outcomes which indicate the improvement of education environment did not fulfill the planned values due to an increase in the enrolled population and external factors. However, the project was recognized as having an impact on improving developments in the basic education sector in Nigeria. Therefore, this project has somewhat achieved its objectives, therefore its effectiveness is fair.

3.4 Impact

3.4.1 Intended Impacts

(1) Improvement of Gross Enrolment Rate

This project was expected to increase the gross enrollment rate as an impact by alleviating the shortage of classrooms and improving the attendance environment through the development of classroom facilities in 70 primary schools in three states in the northern part of the country.

As indicated in Table 7, it was confirmed that the current gross enrollment rate in the target region has increased by around 10% on average compared to what it was before the implementation of the project. In addition, the percentage of girls among the number of school children has also risen by around 5% on average. During the planning, it was a problem that girls would frequently not attend school for the reason that toilets had not been installed. But installing toilet booths through this project alleviated this factor inhibiting the girls' desire to attend school, and thereby is believed to have contributed to boosting the girls' enrollment rate.

Table 7. Gross Enrollment Rate and the Percentage of Girls in the Target Region

State	Gross enrollment rate		Percentage of girls	
	2002/03	2009/10	2002/03	2009/10
Average	71%	81%	42%	47%
Niger state	71%	68%	38%	45%
Plateau state	74%	94%	47%	48%
Kaduna state	69%	80%	40%	48%

Source: From data provided by UBEC and the SUBEBs in each state.

From the results of the beneficiary surveys as well, all of the respondents answered that the enrollment rate had risen following the implementation of the project. According to school officials, the most significant factor in this was the fact that the new installation of classrooms improved the learning environment and, upon ascertaining the situation, parents would proactively send their children off to attend school. With regards to attendance by girls, 98% of the respondents responded that this had increased compared with before the project implementation. Ensuring the privacy of girls is considered to be extremely important, particularly in areas where Muslims account for the majority, and so the installation of toilets is thought to have been beneficial in encouraging the attendance of many girls. It was also confirmed that the awareness-raising activities carried out independently by the LGEAs and communities have contributed to improving the attendance status of girls.

(2) Innovations in Classroom Design and Reduction of the Maintenance Costs

According to information in the basic design study, the existing classrooms in Nigeria were low in durability and the facilities tended to be treated poorly, and repair and maintenance costs were frequently incurred. For this reason, a variety of different innovative schemes were devised under the project from the design stage onward in order to handle this problem. For example, the

classroom wall material has been changed from concrete blocks to bricks¹⁷ that do not need to be painted led to a reduction in the painting costs. It was also confirmed in the interview surveys with the SUBEB official from Kaduna State that this actually made it possible to save roughly 200,000 to 250,000 naira¹⁸ (per school per year) in painting costs.

When considering the project design and specifications, the design and specifications were adopted by factoring in the ease and durability of maintenance. Examples of this include selecting inexpensive, high quality materials due to the ease of local procurement, improving areas that should be improved when it comes to criteria while conforming to Nigeria's standards (for example, installing skylights because it is dark when the doors and windows are shut), and not setting in place ceilings in order to fully utilize space. The cost reduction effects from these schemes have been highly appraised, and the Kaduna SUBEB has currently adopted the design from this project for all primary school construction (see photo at right). Due consideration was given to the fact that materials could be procured locally and that local contractors could shoulder the design and construction by themselves, and the specifications allowed for the mitigation of maintenance costs. This has made it possible for Kaduna State itself to procure materials from the neighboring Niger State and have local contractors build facilities that are of the same quality.



Photo: Classroom constructed by a SUBEB (Kaduna) by adopting JICA's design

Moreover, according to UBEC, other donors that are currently considering providing assistance with constructing classrooms in other regions are using the design of the primary schools built by Japan as reference, indicating the high praise they are garnering for their design and durability.

3.4.2 Other Impacts

School facilities were newly constructed at the location of existing schools, and so no resident relocation or land acquisitions occurred as a result of implementing the project. Moreover, it was confirmed that no negative environmental impact arose before or after project implementation according to the results of the interview surveys with the executing agency and site visits to the target schools.

The synergistic effects with other technical cooperation and grant assistance for grassroots projects could be brought up as another indirect impact. In the project's target area in all three states, the SMASE technical cooperation project worked to raise the quality of teachers through in-service

¹⁷When concrete blocks are used for the walls they need to be painted periodically. But as can be ascertained from the photo above (of a classroom constructed by a SUBEB (Kaduna) by adopting JICA's design), the fired bricks used through this project are a reddish brown due to the iron content found in the soil, and so they do not need to be painted.

¹⁸ Approximately 100,000 – 135,000 Japanese yen.

teacher training. According to official from the Federal Ministry of Education, a reason behind the fact that SMASE was implemented in the target states for this project is that they have laid out a strategy that aims to improve access to and the quality of education by improving the quality of teachers for the three states in which an increase in the number of accepted pupils is anticipated due to the implementation of this project. The Improvement of Mathematics and Science at Primary Education at 12 Schools in Niger State, a grassroots grant aid human security project, was also implemented in Niger. This project provided assistance for distributing mathematics and science teaching materials in conjunction with training for mathematics and science teachers. The number of pupils advancing to secondary school in the target region (the pass rate for the nationwide standardized test held prior to graduating from primary school), or namely the pupils' academic performance, has risen. As shown in table 8, by comparing the original number with actual at the time of the ex-post evaluation, the number of pupils advancing to secondary schools increased 60% on average in target region and 35% on average in Nigeria. Therefore the increase rate in the number of pupils in target region is relatively high compared to the average in Nigeria. It is believed that this is the outcome contributed to the improvement of education quality from the organic linkage of different cooperation schemes—including the installation of primary school facilities through grant aid, in-service teacher training through technical cooperation, and the provision of mathematics and science teaching materials through grassroots grant aid projects—or hard aspects (construction of educational facilities) and soft aspects (teacher training).

Table 8 Increase in the Number of Pupils Advancing to Secondary School in the Target Area

	Before project implementation (2005/06)	Results (2009/10)	Increase Rate (%) ^{Note 1}
Number of pupils advancing to secondary school in target area	85,717	137,120	60%
Niger state	37,684	66,555	77%
Kaduna state	48,033	70,565	47%
Number of pupils advancing to secondary school in Nigeria	1,002,691	1,351,083	35%

Note: Figures from the ex-post evaluation for Plateau state could not be obtained so it was not included.

Note ¹: Figures show the change (%) from 2005/6 to 2009/10.

Source: "Nigeria, Digest of Education Statistics (2006-2010)," Federal Ministry of Education

As indicated above, the implementation of the project was acknowledged to have a wide-ranging impact, including improvements in the enrollment rate in the target area through the development of school facilities, design innovations and the reduction of repair and maintenance costs as a result of these, and the manifestation of synergistic effects through the strategic use of multiple schemes.

3.5 Sustainability (Rating: ②)

3.5.1 Structural Aspects of Operation and Maintenance

The basic design study planned the roles for the operation and maintenance of the primary schools constructed through the project in the following manner.

- The SUBEBs in each target state would have jurisdiction under the guidance of UBEC. The SUBEBs would coordinate with the LGEAs in which the target schools are located to perform supervision and monitoring of the schools.
- Actual maintenance would be handled by the communities in which the schools were located and their PTAs, rather than the government.

It was confirmed by the ex-post evaluation survey that in Kaduna there is a clear sharing of roles whereby tasks like routine cleaning and repairs to minor damage are being handled by the School Based Management Committees (SBMCs) situated within each school, while relatively large-scale restoration that cannot be handled by the schools are under the jurisdiction of the LGEAs or SUBEBs.

On the other hand, in Niger some of the head masters and SUBEB staff left their posts before an appropriate handover. Because of this, it was observed that the importance of facility maintenance has not been properly communicated in some schools. Other schools have issues like how to handle restoration work on a scale that the schools cannot handle and ambiguity regarding reporting procedures in terms of where reports should be made. UBEC understands the situation and is considering providing instruction to the newly appointed head masters. Furthermore, Plateau SUBEB officials also acknowledged similar problems at some of the schools, based on the interview survey.

3.5.2 Technical Aspects of Operation and Maintenance

The content of the maintenance on the school facilities and furniture and so on does not require advanced techniques, but rather it consists of keeping things orderly and voluntary cleaning as part of a daily routine, as well as moral education to foster a sense of values towards public facilities. This education must become customary. Since it was assumed that a long period of time would be needed for instruction on maintenance due to the state of the schools from the time of the planning, a soft component was implemented to provide instruction on the importance of and methods for facility maintenance as was described in “3.2.1 Project Outputs.” The manuals for facility maintenance and posters for awareness-raising that were developed through the activities of this soft component are still being effectively utilized at the target schools today. In the interview surveys with those involved, areas that required advanced techniques or which are considered to be problematic in a technical sense were not observed. Moreover, from the results of the beneficiary survey it was confirmed that 95% of the respondents who participated in the soft component workshops (85 people) gained new knowledge related to the maintenance of school facilities, with their newly-acquired capabilities and knowledge conducive for actual maintenance activities.

3.5.3 Financial Aspects of Operation and Maintenance

As for the facility maintenance costs at the target schools, relatively minor repair costs such as for damaged windows are covered through the assistance of the PTAs for each school. If assistance cannot be collected from the PTA, then repairs of things like damage to windows is postponed, with such conditions having been seen here and there in Niger. Conversely, relatively large damage such as roof damage or the replacement of doors is paid for out of the budgets of the SUBEBs or UBEC in each state. It has been decided that 2% of the UBEC’ budgets are to come from a Consolidated Revenue Fund (CRF),¹⁹ with the trend in this amount on a gradually rising as indicated in Table 9.

Table 9 Budget of UBEC

	2005	2006	2007	2008	2009
Budget of UBEC	24.3	30.5	35.3	44.0	42.6

Unit: Billion Naira

Source: UBEC, “40 Frequently Asked Questions on Universal Basic Education Programme”, Central Bank of Nigeria, “Statistical Bulletin.”

Roughly 70 – 80% of this budget is allocated to the SUBEBs in each state in the form of a matching fund program. A uniform 530 million naira was allocated to each state in 2009, with the obligation that 70% of this be allotted to expenses for classroom construction and furniture procurement. According to the officials at Kaduna and Niger SUBEBs, the majority of these expenses were channeled towards the construction of facilities, which only left a very tiny amount of money over for maintenance costs. Originally, there have been cases in Nigeria where repairs were not carried out and things were left as they were where large-scale repairs of school buildings were needed. Currently, there is little recognition of the importance of facility maintenance. At present, no serious financial problems have arisen with the facilities constructed through the project. This is due to the fact that not that much time has elapsed since facilities were constructed, and because they were designed with forethought given to the national circumstances and the burden of maintenance costs. However, sufficient budgets for maintenance could not be secured across the target states as a whole, and so securing proper maintenance costs for school facilities have been deemed a challenge for the future.

3.5.4 Current Status of Maintenance

In Kaduna State, efforts are being made by each school to maintain a favorable environment under the management of the SUBEBs and LGEAs through the implementation of the soft component. It was confirmed through the site visits that most of the school facilities and furniture such as desks and chairs are being maintained in good condition. In Niger State, the LGEAs and SUBEBs monitor the state of facility maintenance and the school environments and hygiene

¹⁹ UBEC budgetary allocations (2% of the CRF) were formally decided upon as an ordinance by the National Assembly in 2004.

conditions. But there are examples of schools that are not so scrupulous about maintenance, particularly broken windowpanes, damaged hinges, broken chairs, and graffiti. One of the reasons for why maintenance is not meticulously carried out at some of the schools in the state is because officials at SUBEB and officials at some of the schools left their posts without performing an appropriate handover, and so the importance of maintenance was not communicated. As was mentioned in “3.5.1 Structural Aspects of Operation and Maintenance,” UBEC and the SUBEB in Niger State have recognized the problem and are considering future improvement measures, such as explaining this to newly appointed head masters in the future and offering training.

As indicated above, in terms of project maintenance there are some minor problems with structural aspects and the financial conditions, and so the sustainability of the impacts realized through the project are moderate.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

Nigeria is working to provide free basic education, with the aim of improving access to primary education. However, educational facilities were inadequate and unable to cope with the rapid rise in the number of pupils. To address this problem, this project installed and equipped additional primary school facilities, in accordance with the national policies of Nigeria, which has earmarked basic education as a priority area. As for project implementation, the outputs, the cost and the period of the project were in line with the original plan. Some project outcomes, such as alleviating classroom congestion and disseminating maintenance management systems to neighboring schools, did not fulfill the planned values due to an increase in the enrolled population over and above what was expected. However, the project was recognized as having an extensive impact on improving developments in the basic education sector in Nigeria. This included increasing the number of school children, improving the enrollment ratio of and sanitary conditions for girls, and improving pupils’ academic performance; all as a result of strategically implemented collaborative assistance in the form of technical support and grant aid for grassroots projects. With respect to sustainability, while positive changes were seen in awareness relating to maintenance at many of the target schools, conversely, there are still some issues to be tackled in terms of maintenance conditions and the institutional systems for ensuring the project’s outcomes.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) Notifying and Strengthening Maintenance Activities through Adequate Handovers

Some problems have been confirmed at some of the primary schools in Niger. These include cleaning not being scrupulously carried out, damage to some of the facilities and fixtures, and the

reporting line from the school sites to the SUBEBs not being clearly specified. The major reason for this is that no handover was carried out when head masters at the target schools and SUBEB officials left their jobs, so that the people currently in charge are not fully aware of how to properly handle the facilities and the importance of maintenance. For this reason, a number of measures are thought to be necessary for the sake of continuing on with proper maintenance activities. Such measures include providing instruction to the newly appointed head masters and staff, as well as offering training to the head masters and SUBEB officials who have currently taken up their posts without undergoing any sort of handover. It is also thought that setting up a forum that would periodically invite school officials from each state; thoroughly inform them regarding maintenance activities; share roles between the schools, LGEAs, SUBEBs, and UBEC; and clarify the reporting lines would lead to ensuring sustainability.

(2) Determining the Learning Environment and Performing Follow-Ups

In keeping with the substantial rise in the population in Nigeria, the enrolment number in schools in the target region is on track to increase substantially. As a result, the number of pupils per classroom of 45 that was planned during the basic design study has been exceeded, and the situation will gradually continue to deteriorate in the future if the status quo persists. It is not realistic to design facilities that would make it possible to accommodate a number of enrolled pupils that is greater than what was anticipated during the planning. As such, it will be essential to perform follow-ups on the SUBEBs in each state after the end of the project in order to maintain a suitable learning environment. Hereafter, efforts will be required to determine the rise in the number of enrolled pupils and the number of classrooms needed, as will responses for newly building appropriate classrooms, under the responsibility of UBEC and the SUBEBs.

4.3 Lessons Learned

(1) Comprehensive Assistance to Resolve Development Challenges

This project developed educational facilities with three states in the northern part of Nigeria as its target region. Following this, in-service teacher training targeting the same region (technical cooperation; currently underway), the distribution of mathematics and science teaching materials in the state of Niger, which is part of the target region (a grant assistance for grassroots project), and other types of assistance were strategically developed. These comprehensive initiatives were considered to have had indirect positive impacts that were not foreseen during the planning, such as improving the number of advancement to secondary schools. It is expected that providing assistance in a strategic manner like this from both hard and soft aspects will lead to the improvement of the quality of education and resolving development challenges in the target sector.

(2) Ensure Sustainability through Innovations in Facility Design

At the time of the planning, a lack of awareness concerning maintenance in Nigeria and the difficulty of continuing with maintenance activities were pointed out. As such, technical assistance for maintenance activities were incorporated into the project, and innovations related to the facility design were worked out in order to keep maintenance costs in check and allow the facilities to be used over an extended period of time. For example, using blocks that do not need to be painted for the classroom walls and adopting vaulted ceilings to ensure that the roofs do not collapse serve to mitigate maintenance costs. On top of this, only materials that could be acquired within the target region were used, and so currently the Kaduna SUBEB is constructing school buildings by adopting the facility design from the project. It is believed that incorporating design that gives thought to maintenance that imposes a minimal burden and high versatility in this manner is effective from the standpoints of ensuring sustainability and diffusion.

Uganda

Ex-Post Evaluation of Grant Aid Project

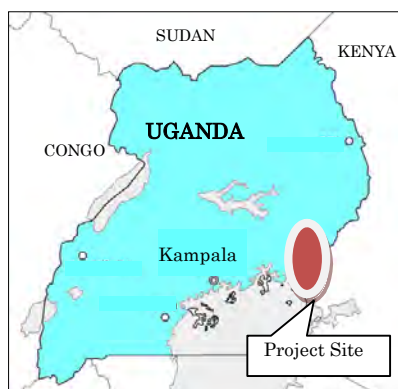
“The Project for Improvement of Health Facilities and Supply of Medical Equipment in the Eastern Region in the Republic of Uganda”

External Evaluator: Hisae Takahashi, Ernst & Young Advisory Co., Ltd.

0. Summary

This project emphasizes the development of health facilities and medical equipment, and is therefore relevant to the needs and development plans of Uganda, which considers the enhancement of medical services in rural areas as a top priority as also do the ODA policies of Japan / JICA. Accordingly, the relevance of the project is considered to be high. The efficiency of the project is also high as the project costs and project period was mostly as planned. In addition, through the construction of facilities and the provision of medical equipment, the numbers of outpatients, deliveries and operations in the target hospitals have been increased significantly, and the functions of the hospitals have been improved. A wide range of effects has been observed, including the improvement of delivery services in healthcare centres due to the provision of solar systems for lighting and the improvement of referral systems in the target areas due to the provision of ambulances and medical equipment. However, their effectiveness is considered fair since, in part, the number of medical inspections using advanced medical equipments increased only at a sluggish pace. In terms of the sustainability, the management condition of medical equipments is still a concern, which is the result of shortages of medical staff, deficiencies in their skills to handle and maintain those equipments; the same problem that the whole country is confronted with. In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project location



Outpatient ward at Bududa GH

1.1 Background

After independence from the United Kingdom in 1962, Uganda has suffered from domestic

political turmoil and economic disorder due to repeated coups. Since the administration of Museveni, which came to power in 1986, the country has put its efforts toward economic reconstruction with the support of international donors, such as the World Bank, International Monetary Fund. However, the GNI per capita as of 2002 remained at 240 US dollars, which is the lowest level among the neighbouring countries. To achieve breakthroughs in this situation, the government of Uganda developed a “Poverty Eradication Action Plan (PEAP)”, which placed the emphasis on agricultural modernization, improvements in the rural infrastructure, the revitalization of private markets, and the improvement in primary education and primary health care (PHC). Public healthcare indicators have partially improved thanks to free healthcare, the reinforcement of community healthcare, the diffusion of PHC and also preferential inputs of budgetary and human resources

However, in rural areas, healthcare conditions have remained poor as indicated by the high mortality rate among pregnant women of 510 per 100,000 (as of 2004, higher than the world average of 400) and child mortality rate (under 5 years old) of 124 per 1,000 (as of 2004, the 36th highest in the world). The reasons are considered to be as follows; 1) access to healthcare services are limited in particular for women and children in poverty; 2) facilities and equipment in hospital facilities constructed mainly from the late 1970s and early 1980s became obsolete; 3) referral systems were not maintained properly. The government of Uganda has been committed to the improvement hospital facilities and the foundation of, new ones, but restrictions on budgets and human resources made it difficult to respond to all needs.

Under these circumstances, the project targeted four eastern districts (Mbale, Tororo, Bugiri and Busia)¹ where the deterioration in facilities and equipment was extreme and improvements were urgently required, and it was considered that these districts were very important in the light of the need for progress in rural healthcare services for the whole country and came to be implemented.

1.2 Project Outline

The objective of this project is to promote the improvement of medical services and rural referral systems in the target areas by developing medical facilities and procuring medical equipment for one Regional Referral Hospital (RRH), five General Hospitals (GH)s, and 28 Health Centres (HC)s in four eastern districts (Mbale, Tororo, Bugiri and Busia) .

Grant Limit/Actual Grant Amount	1,669 million yen / 1,633 million yen
Exchange of Notes Date	August, 2005 (1/2), July, 2008 (2/2)
Implementing Agency	Health Service, Ministry of Health (MOH)
Project Completion Date	March, 2007(1/2), March, 2008 (2/2)
Main Contractors	Constructor : The Zenitaka Corporation Procurement : OS Engines MFG. Co., Ltd(1/2)

¹ In Uganda, territorial division has been implemented for several times since 2005. At the time that the project has started, the target districts were consisted of four districts (Mbale, Busia, Tororo, and Bugiri.) Due to the territorial division, Bududa and Manafwa were separated from Mbale, and also Butaleja from Tororo. As of now (2011), target districts were consisted of seven districts (Mbale, Bududa, Manafa, Tororo, Butaleja, Bugiri, Busia).

	Iwatani Corporation(2/2)
Main Consultants	Kume Sekkei Co., Ltd/International Techno Centre Co., Ltd
Basic Design	Basic design study report on the project for rehabilitation on health facilities and supply of medical equipment in Mbale, Tororo, Bugiri and Busia districts in the Republic of Uganda, January-February, 2005
Detailed Design	-
Related Projects	Improvement of Health Infrastructure Management in Uganda (2006-2009) Project on Improvement of Health Service through Health Infrastructure Management (2011-2014)

2. Outline of the Evaluation Study

2.1 External Evaluator

Hisae Takahashi, Ernst & Young Advisory Co., Ltd.

2.2 Duration of Evaluation Study

Duration of the Study: November, 2010 – December, 2011

Duration of the Field Study: January 15 –February 1, 2011 and June 11 –June 17, 2011

2.3 Constraints during the Evaluation Study

The target hospitals; one RRH, five GHs, and 28 HCs are dotted around the four eastern districts (Mbale, Tororo, Bugiri and Busia) . Besides, the 28 HCs are mostly located in areas where there are hazardous road conditions, which blocked the external evaluator’s visit. Consequently, 13 HCs out of 28 HCs were chosen for the evaluation. As for the other 15 HCs that were not chosen due to the poor access, the evaluation was made based on the results of interviews conducted by the implementing agency and district health offices.

3. Results of the Evaluation (Overall Rating: B²)

3.1 Relevance (Rating: ③³)

3.1.1 Relevance with the Development Plan of Uganda

The government of Uganda compiled the PEAP in 2002 as a comprehensive poverty reduction strategy and targeted improvement of the health of the poor. Within the framework of the PEAP, the “Health Sector Strategic Plan I (2000/01- 2004/05)” (HSSP) revealed a plan to strive to improve conditions in the health and medical services through the establishment of support systems, including infrastructure development.

Within the “Five-year National Development Plan” (2010/11-2014/15) succeeds the PEAP, the

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

³ ①: High, ② Fair, ③ Low

improvement of access to high quality medical services is one of the most important strategies on the ground with the shortage of medical equipment and deterioration in facilities remaining crucial tasks in the healthcare sector of Uganda. In addition, within the “Health Sector Strategic and Investment Plan (2010/11-2014/15)”, the improvement of the medical facilities and equipment is positioned as a priority area, and an plan for investment in health infrastructure (especially in RRHs and GHs) is included with the aim of functional advancement in existing facilities and the implementation of maintenance management systems for medical facilities and equipment.

As above, improvement in medical facilities/equipment and healthcare services through the implementation of maintenance management systems is a coherent target in the development plan of Uganda. Therefore, this project, which aims at achieving qualitative progress in rural medical services via the provision of health and medical facilities/equipment, is relevant to the development policies of Uganda.

3.1.2 Relevance with the Development Needs of Uganda

In Uganda, many GHs were constructed in the early 1970s and most of the facilities were obsolete after 30 years from their construction, together with shortages or breakdowns in basic medical equipment. The Ministry of Health (MOH) has strived to improve these conditions, with assistance from the African Development Bank and other donors. However, the functional enhancement of GHs and HCs in rural areas, where 90% of the total population reside, has lagged. At the time of the ex-post evaluation, public health indicators, which were low at the time of planning, showed a trend toward gradual improvement⁴, but the deterioration in health facilities and the shortage of medical equipment remains a challenge for the improvement of health and medical services in Uganda. For example, only a third of the total number of health facilities had the basic medical equipment required for delivery for a pregnant women.

This project has constructed health facilities and procured medical equipment in the four eastern districts with the aim of achieving improvements in health and medical services and is therefore relevant to the development needs of Uganda through the planning period, up to the present.

3.1.3 Relevance with Japan’s ODA Policy

Based on the Annual Bilateral Policy Dialogue for Economic Cooperation in July 1997 and the consultations with the government of Uganda at the time of the project survey in 1999, Japan has identified the following as priority areas for ODA: (1) human resources development, (2) improvement of the basic infrastructure (healthcare/medical infrastructure, water supply), (3) agricultural development, and (4) the economic infrastructure. This project comes under category (2) improvement of the basic infrastructure (healthcare/medical infrastructure, water supply), and as such it is relevant to Japan’s ODA policies.

⁴ For example, the child mortality rate declined from 124 as of 2005 (before the project) to 80 as of 2010 out of 1,000. The maternal mortality was also reduced from 430 to 510 out of 100,000.

As mentioned above, this project has been highly relevant with the country's development plan, development needs, as well as Japan's ODA policies; therefore its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

In this project, the planned and actual outputs of the construction of facilities and procurement of equipment are as follows.

Table 1 Planned and Actual Outputs (Construction of Facilities)

	Planned	Actual	Difference
Construction of facilities	<u>Mbale RRH</u> Operation Theater, X-ray Unit, Maternity Ward, Delivery Unit, Obstetric Operation Theater, Connecting Corridor, Generator Room <u>Bududa GH</u> Outpatient Ward, Delivery Unit, Operation Theater, Generator Room <u>Tororo GH</u> Operation Theatre, Outpatient Ward, Delivery Unit, Female Ward, Connecting Corridor, Generator Room <u>Busolwe GH</u> Electric Wiring for Medical Equipment	<u>Mbale RRH</u> Operation Theater, X-ray Unit, Maternity Ward, Delivery Unit, Obstetric Operation Theater, Connecting Corridor, Generator Room <u>Bududa GH</u> Outpatient Ward, Delivery Unit, Operation Theater, Generator Room <u>Tororo GH</u> Operation Theatre, Outpatient Ward, Delivery Unit, Female Ward, Connecting Corridor, Generator Room <u>Busolwe GH</u> Electric Wiring for Medical Equipment_	None
Construction of facilities	<u>Bugiri GH</u> Electric Wiring for Medical Equipment <u>Masafu GH</u> Outpatient Ward, Maternity Ward, Female Ward, Children's' Ward, Connecting Corridor, Generator Room	<u>Bugiri GH</u> Electric Wiring for Medical Equipment <u>Masafu GH</u> Outpatient Ward, Maternity Ward, Female Ward, Children's' Ward, Connecting Corridor, Generator Room	

Table 2 Planned and Actual Outputs (Procurement of Equipments to RRHs and GHs)

	Name of Hospital	Planned	Actual	Difference
	Mbale RRH	67	67	None
	Bududa GH	83	83	
	Tororo GH	80	80	
	Busolwe GH	68	68	
	Bugiri GH	69	69	
	Masafu GH	64	64	
Major equipments	Ambulance, anaesthesia unit, delivery bed, dental unit, infant warmer, instrument cupboard, surgery instrument set, operation theater, operation table, patient monitor, portable ultrasound scanner, X-ray unit, fluoroscopy X-ray unit, mobile X-ray unit, stretcher, fridge, others			None

Table 3 Planned and Actual Outputs (Procurement of Equipments to HC-III)

	HC level	Planned	Actual	Difference
	HC-III (23 places)	71	73	+2
Major equipments	solar electric system, delivery bed, delivery instrument set, instrument tray, instrument trolley, scale, others			None

Table 4 Planned and Actual Outputs (Procurement of equipment for HC-IV)

	HC level	Planned	Actual	Difference
	HC-IV (five places)	30	30	None
Major equipments	Solar electric system, mobile operation light, operation table, delivery bed, caesarean instrument set, fridge, electric suction apparatus, others			

In the construction of health facilities, there were some minor changes⁵, including changes to the location of delivery units and materials used for the floors and roofs. This is because the original plans had to be adapted to the circumstances of each hospital facility and proper location/materials adopted. These changes were approved by the implementing agency and the persons in charge from the MOH through discussions, therefore the contents of the changes are considered to be valid.

The procurement of medical equipment has been mostly implemented as planned. However, at Kwapa HC- III in the Tororo district, instrument trays, which were not on the procurement list, were purchased and since these met the actual needs they should be justified.



Photo: Outpatient ward at Masafu GH



Photo: Solar system for lighting (Banda HC- III)

3.2.2 Project Inputs

3.2.2.1 Project Cost

The project cost was lower than planned. While the limit in the Exchange of Notes (E/N) was 1,669 million yen, the actual cost was 1,633 million yen, or 98% of the planned cost. The main cause

⁵ For example, the changes were as follows; 1) change in the location of the delivery units in Tororo GH, 2) change to terrazzo from a floor of colored mortar (change in the materials), 3) change in the materials used for a connecting corridor, 4) change in the materials used for floors and roofs, 5) change in the specification of inspection counters in an inspection room, 6) change in the specifications of a sink cabinet in a cleaning room, 7) change in the height of a window in the pharmacy, 8) change in the specifications of a ceiling, 9) change in the specifications of doors in an outpatient ward.

is the discrepancy between the limit in the E/N and the bidding price offered by the companies (consultants and constructors).

3.2.2.2 Project Period

The project period was 26 months, including four months for bidding and 22 months for construction and procurement, mostly as planned.

At Masafu GH, promoted from HC to GH, infrastructure improvements (foundation construction) that were supposed to be completed by Uganda side before the commencement of the project was delayed, however, the total construction period was as planned thanks to the leeway in the schedule. However, especially the electrical construction, which was in the preliminary preparation of the project, was delayed due to the lack of support from the electric power company and the lack of communication among the authorities concerned, such as the MOH, local governments, and the local electric power company. While the description of the work that had been completed by Uganda beforehand was shared with the MOH, coordination with the electric power company and regulatory authorization for electricity was not enough and should have been enhanced.

As above, both project cost and project period were mostly as planned, therefore efficiency of the project is high.

3.3 Effectiveness⁶ (Rating: ②)

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation and Effect Indicators⁷

(1) Number of treatments (Number of outpatients receiving treatment at each hospital and the number of inpatients at Masafu GH)

As in Table 5, the number of outpatients increased at every RRH and GH in this project. Except for a few GHs, the objective of an increase in the number of patients provided with medical services is considered to have been achieved since the rates of increase exceed the population growth rates. The construction of new outpatient wards and the procurement of medical equipment led to a sense of safety and trust in the hospitals, and in addition contributed to a reduction in the treatment time and efficiency of the treatment, which eventually led to acceptance by more patients.

⁶ Rating of the Impact will be included in the rating of its effectiveness.

⁷ At the time of the basic design, the objective of this project was to increase the number of outpatient treatments without specific numerical targets. However, it is necessary to take into account the population growth, together with number of outpatient treatments. Thus, in this ex-post evaluation, the effect of the project is evaluated with consideration taken of the population growth rate in the target areas.

Reference) Population in the target areas before and after the project

	2005	2010	Change (%)
Population at target area	1,463,000	1,791,000	22%

Source : Uganda, Country STAT, <http://www.countrystat.org/uga/>

Table 5 Number of Outpatient Treatments

Target : Increase	Target (2004)	Actual (2009/10)	Increase Rate(%) ^{Note 1}
Target	244,792	379,765	55%
Mbale RRH	50,752	104,004	105%
Bududa GH	29,977	42,896	43%
Tororo GH	21,785	46,193	112%
Busolwe GH	49,052	72,107	47%
Bugiri GH	58,636	61,636	6%
Masafu GH	34,950	52,929	51%

Note 1 : Figures show the change (%) from 2004 to 2010

Source : Documents provided by each hospitals

At Masafu GH, medical facilities (maternity ward, female ward, Childrens' ward) were newly constructed to accept more inpatients, since it had been promoted from an HC to a GH. As a result, by comparing the target number with actual at the time of the ex-post evaluation, number of inpatients increased almost four times (See table 6), therefore the implementation of the project improved the function of the hospital.

Table 6 Number of Inpatient at Masafu GH

Target : Increase	Target (2004)	Actual (2009/10)	Increase Rate (%) ^{Note 1}
Total	1,812	7,093	291%

Note 1 : Figures shows the change (%) from 2004 to 2010

Source : Document provided by Masafu GH

(2) Number of inspections (Number of X-ray inspections, ultrasound scans, and electrocardiogram scans)

Table 7 shows the target and the actual number of inspections using the X-rays, ultrasound units, and electrocardiograms (ECG) at the time of the ex-post evaluation. While the number of X-ray examinations increased in the half of the target hospitals⁸, the actual number fell slightly below the target in Tororo GH, Busolwe GH, and Bugiri GH. This is because the X-ray system was used only irregularly or was no longer in use due to the shortage of radiation technologist able to perform X-ray examinations, a shortage of funds for X-ray film, or the unstable voltage of the electricity supply.

As for ultrasound inspections, a significant increase in the number was observed at Mbale RRH, Tororo GH, and Masafu GH, while the equipment was not utilized in Bududa GH, Busolwe GH, and Bugiri GH due to a lack of trained doctors and technicians. Regarding the number of ECG examinations, the actual number of examinations shows an increase. However, this is only because there was no cardiography equipment at the time of the basic design. In other words, the increase is attributable only to the results of Masafu GH, and no examinations were conducted due to the lack of doctors able to use the equipment or to analyze the diagnoses.

⁸ Mbale RRH, Bududa GH, Masafu GH

Table 7 Number of Inspections at each Hospital

Target : Increase	Number of X-ray inspections		Number of ultrasound scans		Number of ECG scan	
	Target	Actual	Target	Actual	Target	Actual
Total	10,918	8,028	493	4,741	0	86
Mbale RRH	1,750	2,957	98	3,584	0	0
Bududa GH	0	565	0	0	0	0
Tororo GH	3,168	2,256*	395	735	0	0
Busolwe GH	3,600	0	0	0	0	0
Bugiri GH	2,400	2,212	0	0	0	0
Masafu GH	0	38	0	0	0	86

Note: The "Target" represents the number of inspections in 2004, and the "Actual" in 2009/10. However, the number indicated by * shows the number of inspections in 2008/09

Source : Documents provided by each hospital

As above, in terms of the number of inspections, the medical equipment was not sufficiently utilized due to the shortage of doctors and technicians, and accordingly, the efficiency of this project is not very high.

(3) Results of medical services (Normal delivery, Cesarean delivery, Major operations)

As shown in Table 8, in terms of medical services, the actual number of normal deliveries, cesarean operations, and major operations exceeded the target, and so the objective of this project was achieved. The reason that overall medical services became stagnant at Masafu GH was that the doctor in attendance who had worked there until 2005 left the hospital for university research and no one was assigned to replace him. However, in 2007, a new doctor was finally assigned, and since then the actual number of medical services has increased.

Table 8 Number of Medical Services at each Hospital

Target : Increase	Number of normal delivery		Number of caesarean delivery		Number of major operations	
	Target	Actual	Target	Actual	Target	Actual
Total	9,602	14,615	1,356	2,203	2,824	4,980
Mbale RRH	3,855	6,838	592	1,396	1,802	2,627
Bududa GH	887	915	88	82	95	177
Tororo GH	1,788	2,750	128	138	309	481
Busolwe GH	857	1,303	166	196	109	383
Bugiri GH	1,045	1,902	289	354	388	1,255
Masafu GH	1,170	968	102	37	121	57

Note: The "Target" represents the number in 2004, and the "Actual" in 2009/10. However, the number indicated by * shows the number of inspections in 2008/09

Source : Documents provided from each hospital

As explained above, the number of treatments (outpatient treatment) increased 55% and number of medical services (normal delivery, cesarean delivery, major operations) increased 60% of target amount. The increase in the rates of the number of treatments and medical services exceeds the population growth rates and therefore the effect of this project is considered to be more than that

planned. However, regarding the number of inspections, the shortage of trained doctors and technicians led to non-use of the medical equipment, and the effect of this project on the target number of inspections is considered to be limited so far.

3.3.2 Qualitative Effects

(1) Improvement of health and medical services in the HCs

Of the 28 HCs targeted in this project, 13 HCs were chosen for a field survey. As a result, 11 HCs answered that the health and medical services had improved. The main reasons are as follows.

- Safety improvements in delivery services at night thanks to the installation of solar panels to provide lighting
- Amelioration of security around the HCs and the neighborhood thanks to the setting up of lights
- Improvement of the sense of safety of delivery felt by pregnant women thanks to the procurement of sets of delivery instruments

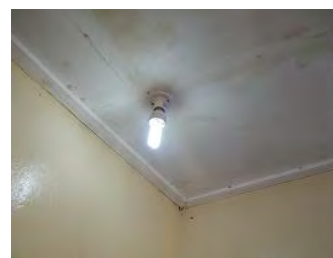


Photo: Light provided by the Project at Mbeheni HC in Busia District

In addition, as a result of the above, the fact that the number of deliveries in each HC demonstrated an upward trend was confirmed by the HCs. For example, the number of deliveries per month increased from 3 to 20~30 at Buhehe HC-III Busia District, which was provided with operating tables, sets of delivery instruments, and solar systems to provide lighting.

(2) Improvement of the means of transporting emergency patients

According to interview surveys⁹ at each hospital, some respondents answered that they had used trucks, which are of course not suitable for transporting emergency patients, in place of ambulances before this project or that they became able to transfer emergency patients safely thanks to ambulances provided by this project. 80% of the respondents in the beneficiary survey answered that the means of transporting emergency patients was “Very much Improved” or “Improved”. On the other hand, respondents who chose “No Change” or “Not Improved” explained that the reason was that they lacked funds to cover fuel bills or that the number of ambulances was still not enough.

(3) Reinforcement of referral systems in the target areas

According to interviews held at the HCs, the number of emergency patients transported from HCs to GHs did not increase much due to the shortage of fuel or the poor road conditions. On the other hand, according to the beneficiary survey conducted at each GH, 70% of the respondents answered that the number of patients transferred from the GHs to the RRH had increased.

At Mbale RRH, the actual number of patients who were transferred from each GH to the RRH showed an increase after the implementation of this project, as shown in Table 9. Accordingly, the procurement of ambulances and medical equipment in this project contributed to the improvement of

⁹ A beneficiary survey, conducted among hospital directors, doctors, and nurses totaling 120 (20 from each hospital) at RRHs and GHs in Mbale RRH by means of interview surveys.

the sense of safety with respect to hospitals and assurance of a means of transport, as well as promoting the maintenance of the systems of the RRH, which has led to implementation of the referral system in the RRHs in eastern areas.

Table 9 Number of Patients Transferred to Mbale RRH

	Before project	After project		
	2006	2008	2009	2010
Number of patient	64	143	228	350

Source : Documents provided by Mbale RRH

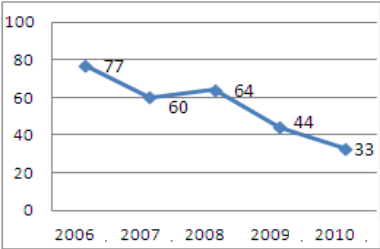
As outlined above, this project has somewhat achieved its objectives, therefore its effectiveness is fair.

3.4 Impact

3.4.1 Intended Impacts

(1) Improvement of healthcare indicators in four eastern districts

At the time of the basic design for this project, an improvement in healthcare indicators, especially the decline in maternal mortality ratio, was expected in the four eastern districts due to functional improvements including the provision of a means of transporting patients. The data on maternal mortality ratio in the target areas was obtained through field surveys, but accurate numbers were not available due to the dispatch of data. Thus, as a substitute, data regarding the number of maternal mortalities per year in Mbale RRH was obtained. The data shows that the number of maternal mortality is on a declining trend even though the population in this area is increasing.



Source : Provided by Mbale RRH

Figure 1 Number of Maternal Mortality in Mbale RRH per Year

In addition, more than 80% of the respondents of a beneficiary survey answered that the construction of the facilities and the procurement of medical equipment contributed to the improvement of health and medical services and to a decline in the maternal mortality ratio in the target areas.

(2) Increase in the proportion of pregnant women who give birth in medical facilities

In rural areas in Uganda, there is a tendency for pregnant women to give birth at home. In delivering a baby at home, the situation can become life-threatening in an emergency due to the poor infrastructure. As in Table 10, the proportion of pregnant women who gave birth in a medical facility increased in the target areas of this project. Thanks to the solar system for lighting provided in this project, safe delivery at night became possible and the construction of a maternity ward in the GHs also permitted safe delivery. It is considered that these factors indirectly contributed to the improvement in the above indicators.

Table10 Percentage of Women Giving Birth at Home

District	Before the project (2003/04)	After the project (2009/10)
Mbale	26%	39%
Tororo	23%	29%
Bugiri	14%	16%
Busia	21%	29%

Source : MOH, "Annual Health Sector Performance Report"

(3) Improvement in quality of hospital services (results of a beneficiary survey)

In a beneficiary survey, 90% of the respondents answered that the quality of health and medical services in rural areas had improved. As the basis for their answers, some correspondents pointed out "the efficiency of services by shortening the waiting time" thanks to the enhancement of medical equipment. For example, at Tororo GH, the time required for a blood examination was reduced to 25 minutes from 40-45 minutes after this project. As a result, this made it possible to examine and treat more patients.

3.4.2 Other Impacts

(1) Impact on the natural environment, land acquisition and resettlement

As a result of interviews with personnel in the implementing agency and each hospital, the treatment of medical waste has been conducted properly and so this project has had little negative impact on the environment. The new health facilities were constructed within the property of existing hospitals, and therefore no issues arose in connection with land acquisition or the resettlement of residents.

(2) Other indirect impacts

As for other impacts, the linkage with Japan Overseas Cooperation Volunteer (JOCV) and its synergistic effects have been observed. Among the six target hospitals, JOCV specialized in healthcare assisted in the promotion of the 5Ss (Sort, Set, Shine, Standardize, and Sustain) in Mbale RHH, Tororo GH, Busolwe GH, and Masafu GH. In addition, JOVC volunteers were assigned to Mbale RRH who assisted in the maintenance of medical equipment. The instructions provided by these JOCVs instilled in the hospital workers the basic principles regarding the maintenance of medical equipment as in the 5Ss, and eventually contributed to the proper maintenance of medical equipment. In Uganda, it is often the case that a lack of basic maintenance of medical equipment and the handling of equipment with care or ensuring that they are clean has resulted in breakdowns. Instructions related to the 5Ss and the maintenance of medical equipment are absolutely fundamental to the management of health facilities and medical equipment, and

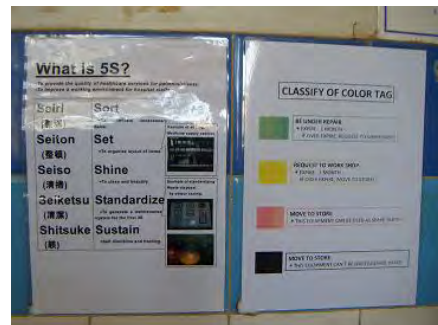


Photo: Poster of the five S posted and prepared by JOCVs

therefore these activities have been closely linked to the impact of this project. As above, activities by the JOCVs contributed to the adoption of these principles regarding the treatment of medical equipment and generated a synergistic effect.

As explained above, this project is considered to have had a positive impact, such as a decrease in the number of maternal mortality, an increase in the rate of deliveries in hospitals, and the efficiency of medical services, followed by improvements in health and medical services. In addition, the linkage with JOCVs and its synergistic effect was also confirmed.

3.5 Sustainability (Rating: ②)

3.5.1 Structural Aspects of Operation and Maintenance

In Uganda, the Health Services Department in the MOH is the regulatory authority for the management and maintenance of hospital facilities and medical equipment. In practice, the person in charge in each hospital takes care of minor problems, and in case this cannot be handled, the Mbale regional workshop (WS) in Mbale RRH is responsible for fixing defects¹⁰. The Mbale WS used to be run by contributions collected from each GH and district health offices, and they used it for fixing broken equipment. However, some hospitals were not able to afford to pay their contributions, and consequently the WS sometimes suffered from funding shortfalls and the system did not always worked effectively. In response to this situation, from fiscal year 2009/10¹¹ a budget has been allocated directly by the MOH, and the management system has been improving since then.

On the other hand, a shortage of staff including doctors has had a negative impact on hospital practice and management/maintenance activities. This is a problem common to all rural hospitals in Uganda and is not only applicable to the target hospitals in the project. Despite the efforts of each district health office to recruit doctors and technicians, they generally do not prefer to provide services in rural hospitals and every hospital has been struggling to secure a stable complement of human resources. Some hospitals are considering giving incentives, such as a housing allowance and an increase in salary, but it seems hard to find a quick solution due to budget constraints.

3.5.2 Technical Aspects of Operation and Maintenance

In this project, manuals were distributed with the aim of ensuring proper maintenance of the medical equipment at the time of the provision of the equipment. According to questionnaires distributed to each hospital, the manuals have been used effectively. However, when asking doctors and nurses the same question on the field study, 80% of the answers were “Not used enough”. The main reasons included the “Explanation is not clear.” or “Unable to understand.” Accordingly, the extent of use of the manuals varies according to the hospital or individual medical staff.

This project stipulated that “no medical equipment will be procured that doctors in Uganda have

¹⁰ regional WS are deployed in eight locations in Uganda and are responsible for the maintenance of medical equipment in hospitals within their jurisdiction. The Target GHs in this project are in the jurisdiction of the Mbale regional WS.

¹¹ Fiscal year starts from June and end June of next year in Uganda.

never used” and “no equipment will be provided to the hospitals that no doctors are able to use”. Due to these stipulations, workshops or training were not initially planned. However, after the implementation of the project, workshops on the utilization and maintenance of the equipment were held in the context of the actual situation on the ground, and technicians from the MOH, doctors, nurses, and technicians from each hospital participated in the workshops. Although the workshops in themselves were effective, they were implemented within a limited time frame for a limited number of people and no follow-up sessions were held. In addition, some of the participants left their position without ensuring a handover, and consequently ultrasound units and ECGs, which require advanced technical skills, were not always sufficiently utilized.

In the ex-post evaluation, interview surveys were conducted in the health facilities that provide training for medical equipment and the medical equipment agencies¹² that implement the procurement of medical devices regarding the necessity of training and workshops on the operation of new medical equipment. According to the interview survey results, there are few doctors who have clinical experience with advanced medical equipment, such as ultrasound units and ECGs and therefore training sessions are necessary for the doctors who have no such experience. It is hard to give a general estimation of the training period required, since it depends on each doctor’s (technician’s) experience, but for reference, two weeks of training (including weekends) for an ECG and four to six weeks of training (including weekends) for ultrasound units enables the participants to gain the skills required for the utilization of the equipment, the techniques for the analysis of diagnoses, and other basic skills, and finally to use the equipment properly.

As in this project, which involved the implementation of both the construction of facilities and the procurement of medical equipment, the equipment is provided after the construction of the facilities, therefore it is sometimes difficult to take soft components into account in the schedule in a timely manner due to the limited project period. By making efforts to arrange a more flexible schedule, this will make it possible to utilize the soft components in relation to the timing of the introduction of new equipment.

3.5.3 Financial Aspects of Operation and Maintenance

The proportion of the health sector provide for in the total government budget has fluctuated around 9% and no major change has been observed for the sector as a whole (See Table 11). On the other hand, there was a great improvement in the budget allocated to the maintenance of medical equipment. As described in the “Structural Aspects of Operation and Maintenance”, the WS, which used to be dependent on contributions from each hospital within their jurisdictions, have been allocated a budget amounting to total a billion of million Uganda Shillings (UGX), equivalent to 36 million yen¹³. The allocation of this budget is expected to contribute to the improvement of medical

¹² In this ex-post evaluation, interviews were conducted by visiting Ernst Cook Ultrasound Research and Education Institute (ECURED), which offers training for medical equipment to doctors and nurses in East Africa, and Simed International, a medical equipment agency that conducts the procurement of medical devices and their subsequent maintenance.

¹³ The rate was applied from the foreign currency conversion rate table as of October, 2011 provided by JICA.(1UGS=¥0.036)

equipment. As for the method of the allocation of this budget, in fiscal year 2009/10, each WS was equally allocated 125 million UGX, equivalent to 4.5 million yen. In the fiscal year 2010/11, the budget will be allocated in proportion to the number of health facilities (hospitals and HCs VI) within its jurisdiction, and as a result the allocation to Mbale WS will be increased to up to 230 million UGX, equivalent to 8.28 million yen (See Table 12).

Table 11 Proportion of the Health Sector provided for in the Total Government Budget

Percentage of health sector in total government budget	FY 2007/08	FY 2008/09	FY 2009/10
	9.6%	9.0%	9.6%

Source: MOH, "Health Sector Strategic and Investment Plan 2010/11-2014/15"

Table 12 Budget Allocation to Mbale WS

(unit: millions of UGX)

Budget allocation to Mbale WS	before FY 2008/09	FY 2009/10	FY 2010/11
	-	125.0	230.0

Source : MOH "Ministerial Policy Statement Financial Year 2010/11"

However, according to an interview with the person in charge in Mbale WS, the budget allocated to WS is not still enough to implement the proper maintenance management of medical equipment. However, a change in the budget allocation to maintenance management, which had been overlooked in Uganda, is a great first step towards improvements.

3.5.4 Current Status of Operation and Maintenance

The health facilities constructed in this project were kept clean and utilized properly at least at the time of the field survey. On the other hand, 10% of medical equipment had not been used for a certain period of time on average. Among this equipment, it was confirmed that 50% of the equipment was broken, with 30% to 40% was not utilized due to a shortage of doctors and technicians and 10% left broken due to a lack of the necessary components (spare parts) to fix equipments. As for the broken equipment, it is often the case that a lack of understanding of the proper handing/usage or the extremely unstable voltage has led to mechanical failure. By improving this situation, 60% of the problems are expected to be resolved.

Currently, maintenance activities mostly target broken equipment, and so prevention measures, such as maintenance management, is not sufficient at all. Although data regarding medical equipment was collected and operational status was categorized at the technical cooperation project, "Improvement of Health Infrastructure Management in Uganda" conducted from June 2006 to May 2009, the data has not been updated after the end of this project. Accordingly, the location of the some equipment is not known or some equipment was kept in storage and not utilized at all. For example, at the Busolwe GH, two traction beds¹⁴ purchased as part of the project were missing. Not only in

http://www.jica.go.jp/announce/consul/info060407_01.html

¹⁴ Treatment of resets for dislocation and fractures, and the pulling of body parts for the purpose of a complete reset, immobilization, and pain relief.

Busolwe GH, but also in other hospitals, there are no inventory lists or updated inventory lists, and staffs other than person in charge do not know where the medical equipment is kept. Consequently, it is difficult to conduct the uniform management of medical equipment and to make the responsibilities clear. For the future, the preparation and updating of inventory lists is required for the proper maintenance of medical equipments.

It was reported that the usage of facilities and equipment had improved thanks to the encourages on the government of Uganda and the implementing agency from the JICA office and promotion activities by the JOCV. For the future, it is necessary to establish and implement maintenance management for the prevention and proper usage of equipment in order to prevent the equipment from breakdown , with the assistance of training provided by “Project on Improvement of Health Service through Health Infrastructure Management”, technical cooperation project planned from August 2011 to December 2014.

As outlined above, some problems have been observed in terms of maintenance management system, skills, and funding, therefore sustainability of the project is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project emphasizes the development of health facilities and medical equipment, and is therefore relevant to the needs and development plans of Uganda, which considers the enhancement of medical services in rural areas as a top priority as also do the ODA policies of Japan / JICA. Accordingly, the relevance of the project is considered to be high. The efficiency of the project is also high as the project costs and project period was mostly as planned. In addition, through the construction of facilities and the provision of medical equipment, the numbers of outpatients, deliveries and operations in the target hospitals have been increased significantly, and the functions of the hospitals have been improved. A wide range of effects has been observed, including the improvement of delivery services in healthcare centres due to the provision of solar systems for lighting and the improvement of referral systems in the target areas due to the provision of ambulances and medical equipment. However, their effectiveness is considered fair since, in part, the number of medical inspections using advanced medical equipments increased only at a sluggish pace. In terms of the sustainability, the management condition of medical equipments is still a concern, which is the result of shortages of medical staff, deficiencies in their skills to handle and maintain those equipments; the same problem that the whole country is confronted with. In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) Improvement of systems for preventive maintenance management

As of now, maintenance management in each hospital is mainly confined to fixing broken equipment. In this process, malfunctions can be prevented by periodic checks or regular maintenance. In addition, the costs of maintenance and checks are generally held down compared to those for fixing broken equipment, so it is preferable to improve the system of preventive maintenance management. In implementing the above, the preparation and updating of the equipment list is considered effective in unifying the management and also in clarifying who is responsible for the management. Eventually it will be useful for monitoring the status of the implementation of checks, the updating of equipment, and inventory control of spare parts.

(2) Implementation of cooperation between hospitals

In the target hospitals, there was equipment that had not been in use for a certain period. One of the reasons was the lack of doctors who have the skills to utilize advanced medical equipment. A shortage of doctors is a shared problem among rural hospitals in Uganda, and it is difficult to solve it immediately. In response to this problem, it is considered effective for the four eastern districts to cooperate with each other with regard to follow-up operations by holding continual and voluntary training or learning sessions, inviting skilled doctors as instructors. It is preferable that the MOH or district health offices take the initiative and promote such activities.

4.3 Lessons Learned

(1) Utilization of the soft components (training)

With regard to any project that conducts the procurement of medical equipment, it is imperative, at the time of the basic design, to take into consideration requests from doctors and technicians who will actually use them and to implement the soft components of the appropriate contents/period depending on each equipment and the experience and knowledge of the users. Thus, it is necessary to offer training that matches to user's needs rather than providing group training. For example, in the case of training intended for doctors with a certain amount of experience, two weeks of training (including weekends) for an ECG and four to six weeks of training (including weekends) training for ultrasound units will be appropriate. In addition, it is necessary to give instructions regarding the basic handling of equipment together with the usage and skills for maintenance management, in accordance with the circumstances of each country. Furthermore, it is often the case that doctors go back to their university for research or transfer to other hospitals. In this case, it is preferable that two or more doctors take the training for advanced medical equipments in order to avoid a situation in which equipment is longer used due to a turnover of the doctors who were trained.

(2) Clarification of the procurement strategy for spare parts

In many hospitals, some equipment was no longer in use due to the lack of spare parts although the equipment itself was not yet broken. For example, operating room lights were utilized while missing some bulbs since they could not be purchased locally. In order to avoid such situations, it is necessary for the provision of medical equipment to clarify the procurement strategy for spare parts and choose medical equipment that can be utilized locally over the long term.