

Nicaragua

Ex-Post Evaluation of Japanese Grant Aid Project

“The Project for Improvement of Basic Education Facilities in the Department of Managua in the Republic of Nicaragua”

External Evaluator: Junko Noguchi, FASID

0. Summary

In Nicaragua, deficient and decrepit school and classroom conditions have hindered children’s enrollment, and the Ministry of Education (MOE) has implemented a program for improving school facilities. This Project’s relevancy is high since it aims to improve the learning environment in target areas by constructing facilities for basic education in Managua Department.

Although the Project cost and period were mostly as planned, bidding failure and unexpected price increase lead to slightly fewer classrooms being built than planned. Therefore the efficiency is fair. The learning environment is considered to have been improved based on the high appreciation expressed by school principals, teachers and students for improvements in the size of the classrooms, the use of daylight in the classrooms and the usage of desks and chairs. The effectiveness is high. Operation and management (O&M) of the facility largely depend on the success of a new needs prioritization system and on the financial capacity of the schools and parents. Therefore the sustainability is fair. In light of the above, this Project is evaluated to be satisfactory.

1. Project Description



Project Location



Two-story school building constructed by the Project (Alemania School, Managua City)

1.1 Background

In Nicaragua, public investments were not made in the education and social welfare sector including school construction during the civil conflicts, and school facilities were decrepit and damaged. The Nicaraguan Government established the Emergency Social

Investment Fund (FISE) in 1990 and started school construction mainly in rural areas where the poor resided. Further improvement in school facilities were needed due to the damages brought by Hurricane Mitch in 1998 and high rate of population growth. Also, as stated in “Strengthened Growth Poverty Reduction (SGPRS),” one of the priorities of the Government was an investment in human capital, and its targets by 2015 were set as follows: (i) net enrollment rate of primary education would increase to 90%; and (ii) illiteracy rate would decrease to 10%. Reform of secondary education was considered necessary to achieve the mid-term objective of increasing education years of 10 to 19 year-old children from 4.6 (in 1998) to 5 years by 2004. However, as the poverty level in Managua City and its neighboring areas was relatively low, priorities were not given to them by FISE or donors for construction and improvement of school facilities, even though there were many decrepit and damaged classrooms. Thus, classes were given in decrepit classrooms or neighbor’s houses or storehouses, and improvement in educational environment at those schools was considered urgent.

1.2 Project Outline

The objective of this Project is to improve the learning environment of primary and secondary (first cycle) schools in Managua City and Ciudad Sandino by constructing classrooms and other facilities and procuring teaching materials for 34 target schools.

Grant Limit / Actual Grant Amount	547 million yen / 471.2 million yen (Phase 1) 515 million yen / 509.6 million yen (Phase 2) 610 million yen / 604.6 million yen (Phase 3)
Exchange of Notes Date	July 2003 (Phase 1) June 2004 (Phase 1) June 2005(Phase 1)
Implementing Agency	Ministry of Education
Project Completion Date	May 2005 (Phase 1) March 2006 (Phase 1) March 2007 (Phase 1)
Main Contractor	Daiken Sekkei, Inc.
Main Consultant	Fujita Corporation
Basic Design	“Basic Design Study for the Project for Improvement of Basic Education Facilities in the Department of Managua in the Republic of Nicaragua” Daiken Sekki, Inc, March 2003
Related Projects (if any)	“Project for Improvement of Primary Education Facilities” (1995-1997), “Project for Improvement of Primary Education Facilities: Phase 2” (1999-2002)

2. Outline of the Evaluation Study

2.1 External Evaluator

Junko Noguchi, Foundation for Advanced Studies on International Development

2.2 Duration of the Evaluation Study

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

Duration of the Field Study: January 23, 2011 – February 6, 2011 (1st)

May 14, 2011 – May 20, 2011 (2nd)

2.3 Constraints during the Evaluation Study

There were the following three constraints in data collection and analysis. First, due to time constraints during the field visit, direct observation of the facilities and equipment and interviews with school teachers and parents were conducted at only 24 schools (equivalent to 75% of the total), out of the Project's originally targeted 34 schools (actually targeted 32 schools). Therefore this study may not have uncovered all effects and issues of the Project. Secondly, the accuracy level of students' enrollment data is not high. In Nicaragua, schools became autonomous in the mid-1990s, and under the system, school management subsidies were provided to each school by MOE according to the number of enrolled students. Apparently under the autonomous system many schools padded the number of students so that they would receive more subsidies¹ (Box 1). It is possible that schools registered more students than actually existed and therefore data cannot necessarily be accurately verified. Thirdly, because there were time constraints and the procured materials were only for primary education, interviews with principal beneficiaries and verification of some evaluation points were conducted mainly for the primary evaluation level.

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

3.1 Relevance (Rating: ③³)

3.1.1 Relevance to the Development Plan of Nicaragua

At the time of ex-ante evaluation, two of the ten objectives set in SGPRS (July 2001) were: "improvement of net enrollment rate of primary education" and "decrease of illiteracy rate." These are in accordance with this Project's objectives (in other words, direct and indirect effects): "increase of students' enrollment" and "provision of opportunities of social education activities." In 2005, SGPRS was revised to become the "National Development Plan." In this plan, the strategies in the education sector

¹ Interview with MOE staff.

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

³ ③: High, ②: Fair, ①: Low

include: quantitative expansion, educational reform and good governance. Regarding the quantitative expansion, improvement of and increase in the number of school facilities are regarded as factors for promoting educational services and student enrollment.

At the time of ex-post evaluation, in “Education Policies 2007-2011” one of the five pillars is “improvement of education” which includes improvement of school facilities. This document describes how school facilities are necessary for accommodating more students and improving the learning environment. To promote the government’s education policies, an important guideline is completing six years of primary education. Following this guideline suggests that there is a need to provide enough classrooms and school infrastructure (such as water supply, electricity and latrines).

3.1.2 Relevance to the Development Needs of Nicaragua

Public investments in the education sector were not made during the civil conflicts. School facilities were decrepit and damaged and in some schools classes were given in neighbor’s houses or garages. This situation was worsened by damage brought by Hurricane Mitch and population growth of school-age children⁴.

According to MOE estimates (2010), in addition to 500,000 drop-outs, 700,000 students were out of school at the pre-primary, primary and secondary level. Lack of adequate school facilities, like other factors, hinder student enrollment, and therefore another reason for low enrollment is the fact that schools could not provide all six grades in 18.3% of schools in urban areas and 47.0% in rural areas. Furthermore, many rural schools had no water supply and electricity⁵.

At the time of ex-post evaluation, the study conducted by MOE from September to October, 2010 revealed that 13,000 more classrooms are needed to accommodate all the school-age children who are currently out of school.

3.1.3 Relevance to Japan’s ODA Policy

The Country Assistance Program for the Republic of Nicaragua was prepared based on the results of policy consultations held after Hurricane Mitch in 1999. In this Program, the priority areas for poverty reduction and economic development were set as (i) agricultural and rural development, (ii) health, (iii) education, (iv) transportation infrastructure, (v) assistance for democratization and (vi) disaster prevention. Related to the education sector, “assistance for improvement of enrollment rate and quality at the primary level” was planned. In Japan’s ODA Charter, a high priority is placed on the education sector as assistance for poverty reduction through human development.

⁴ JICA and Daiken Sekkei, Inc. (2003) “Report of Basic Design Study on the Project for Improvement of Basic Education Facilities in the Department of Managua in the Republic of Nicaragua.”

⁵ Visser-Valfrey, M., Dan Wilde, E. J., and Escobar, M. (2010) "Mid-Term Evaluation of the EFA Fast Track Initiative: Country Case Study: Nicaragua."

Especially in the sub-sector of basic education, “assistance for improvement of quality of education” is set as a priority in “Basic Education for Growth Initiative” announced at Kananaskis Summit in 2002.

Thus, this Project has been highly relevant with the country’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

Planned Outputs in the Basic Design Study (BD) for the Japanese side include the construction of 372 classrooms for 34 schools. However, two schools and 97 classrooms were cut from the original plan, resulting in the actual construction of 275 classrooms for 32 schools (in other words, 73.9% of the plan was implemented) (Table 1). Other outputs were shown in Annex 1.

Table 1 Planned and Actual Outputs

	Planned	Actual
Beneficiary schools	34	32 (94.1%)
Classrooms	372	275 (73.9%)
Multipurpose room (also used as preprimary classroom)	13	9 (69.2%)

(Source) Project Completion Report.

One reason for the cuts from the plan in Phase 1 is that it took two months to process the instruction and approval of the rebid after the first bid ended in failure. As a result, insufficient time was secured to construct two-story buildings in the scheduled work period and therefore all the buildings needed to be redesigned as one-story buildings. The other reason is that some classrooms needed to be cut from schools where all planned classrooms could not be built due because of its small area. In Phases 2 and 3, the price survey found out that material and manpower cost rose drastically compared to the time of the BD. Especially, the international price of ironstone which is the main material for construction soared after 2003⁶, so design change was necessary before the bid. In some of the schools where classrooms were not constructed as planned, decrepit classrooms are still in use.

For the construction of buildings, seismic capacity was ensured with consideration to economic efficiency. The Government of Nicaragua had a seismic design standard but it was not necessarily strictly applied. Accepting Nicaragua’s seismic intensity, the buildings were designed for earthquake resistance with Japanese design techniques.

As for the Outputs by the Nicaraguan side, the plan included (i) removal of

⁶ Japan Center for International Finance (2004) “Committee on Current Status and Perspectives on the market for oil and materials which has impact over international economy.” Only a Japanese paper is available.

existing on site structures and trees; (ii) land preparation construction; (iii) construction of border fences and gates; (iv) application for construction licenses; and (v) lifeline connections (such as water and electricity). Except one school where electricity was not connected, outputs for the Nicaraguan side were produced as planned.

3.2.2 Project Inputs

3.2.2.1 Project Cost

In regards to the Project cost funded by the Japanese side, of the total planned cost of 1,672 million, the actual cost was 1,585.4 million yen or 95% of the planned amount (Table 2). Although there was an increase of material and manpower cost, after the design change (cutback of the outputs) the cost was held to within that planned.

Table 2 Planned and Actual Cost by Japanese Side

	Planned	Actual (Grant Amount)
Phase 1	547 million yen	471.2 million yen
Phase 2	515 million yen	509.6 million yen
Phase 3	610 million yen	604.6 million yen
Total	1,672 million yen	1,585.4 million yen

(Source) Project Completion Report.

The budget by the Nicaraguan side was planned as 20 million yen (at the time of ex-ante evaluation), but the actual expenditure amounted US\$717,448 (84 million yen)⁷, which drastically surpassed the estimated cost by 420%. Although a strict comparison between the original plan and the extra outputs was not possible, according to MOE, the following outputs caused the excess.



Many schools want to have high walls for security reasons as this (Fernando Gordillo Cervantes School in Managua City).

- The border fences built around the school area were more extensive than planned.
- In the plan, the border fence was to be built with small stone blocks. However, in view of benefits and crime-prevention, it was built with rubble which was used for the groundwork.
- Sidewalks, playgrounds, pavements with tiles and water fountains were constructed, and light bulbs were procured.

⁷ Converted with the rate at the time of the project completion, US\$1=118 Japanese yen.

The Nicaraguan side's Project cost could not accurately be calculated. The Japanese side's costs, on the other hand, were lower than planned (95% of the planned).

3.2.2.2 Project Period

The work period was estimated at 58 months including the detailed design. Actually, it took 60.5 months in total from the exchange of notes in Phase 1 (July 2003) to the work completion in Phase 3 (March 2007). This was slightly longer than planned (104% of the planned). The work period of Phase 1 was extended by 4.5 months because it took 2 months to go through the procedure of the rebid after the first bid ended in failure, as mentioned earlier. In Phase 2, another price survey was implemented so it took one more month than planned to conduct the detailed design, bid and contract, but the total period was within the plan including construction and procurement works.

Summarizing the above, although the project cost was within the plan, the project period was slightly exceeded. Also the decrease of the outputs (less than 80% of those planned) was caused by the unexpected price increase of the construction materials. Thus, efficiency of the Project is fair.

3.3 Effectiveness⁸ (Rating: ③)

3.3.1 Quantitative Effects

The direct effects specified in the BD are the “expansion of the capacity of accommodating students” and the “decrease of students accommodated in one classroom.” Data for these indicators at the ex-ante evaluation in 2002 and after the completion of the Project in 2007 are shown in Table 3.

The proportion of sound classrooms to total classrooms was 83.2%, as some classrooms were cut from the plan as explained in 3.2.1. With regard to the operation of the facility, all classrooms are in use in all of the 24 schools visited during the field survey.

With regard to the indicators for the “number of the enrolled students” and for the “number of students accommodated in one sound classroom” in Table 3, numerically the former did not achieve the target but the latter did. However, as described in 2.3 and the last paragraph of this section, the available data is questionable, so it is difficult to accurately verify the level of achievement. One reason is that the necessary number of classrooms was estimated assuming an increase in the number of enrolled students but the population of school-age children did not increase as estimated. Another reason is that the data obtained was not very accurate as described in 2.3 and Box 1 and also the

⁸ Effectiveness is scored also in the light of factors regarding Impact.

number of enrolled students may have been padded especially until 2007. It was not possible, therefore, to verify and judge the Project effects using the indicator of enrolled students.

As a point of reference, the number of enrolled students in 2007 was equivalent to 83.8% of the target. It also can be said that there was no big influence of the cut of the classrooms, as construction of classrooms was 73.9% of the planned total.

Table 3 Number of Constructed Classrooms and Enrolled Students before and after the Project

Indicator	Before	Target	Actual			
	2002	2007	2007	2008	2009	2010
Proportion of sound classrooms to total classrooms in beneficiary schools	208/436 (47.7%)	580/580 (100%)	483/580 (83.2%)	483/580 (83.2%)	483/580 (83.2%)	483/580 (83.2%)
Enrolled students at beneficiary schools (primary and secondary)	39,800	48,100	40,353	36,513	39,071	37,628
(Primary)	n.a.	n.a.	22,814	21,730	22,944	22,403
(Secondary)	n.a.	n.a.	17,539	14,783	16,129	15,225
Average number of students accommodated in one sound classroom at beneficiary schools	191	83	69.5	62.9	67.3	64.8
Average number of students accommodated in one sound classroom at beneficiary schools in the morning shift	102	45	39.6	37.3	39.3	39.1

(Source) Managua Department Office of MOE.

(Note) 580 = 208 usable classrooms which existed at the time of BD + 372 classrooms planned for construction; 483 = 208 usable classrooms which existed at the time of BD + 275 classrooms actually constructed.

Table 4 Enrolled Students in Managua Department and the Whole County

	2007	2008	2009	2010
Enrolled students at primary and secondary levels in Managua Department				
Primary	192,766	191,434	191,423	193,223
Secondary	130,709	125,762	123,646	126,004
Enrolled students at primary and secondary levels in the country				
Primary	952,964	944,341	926,969	923,745
Secondary	451,083	446,868	443,644	458,321

(Source) Managua Department Office of MOE.

For reference related to the data of average students in one classroom, as the Project could not cover all necessary classrooms as explained earlier, beneficiary schools have sound classrooms and those which need to be improved. When collecting data for Table 3, it was not possible to extract only the number of students accommodated at “sound” classrooms, and therefore the data after 2007 includes the students accommodated at “not sound classrooms because it was not covered by the

Project (in other words, classrooms still needed to be improved).” As long as it is shown in data, the target was achieved so the overpopulation in the classroom was alleviated supposedly. However, in the visited 24 schools, more than 40 students (recommended by MOE) were in one classroom at 180 classrooms out of 236, which demonstrates that the issue of overcrowded classrooms is still needed to be tackled.

Box 1 Autonomous School System

In Nicaragua, the education sector was decentralized after the early 1990’s with the purpose of efficiency of school management and improvement of education quality. Under this system, each school as an autonomous body received a subsidy and collected a fee and the School Management Committee independently managed school issues including hiring of teachers and janitors and small-scale repairs of the facility. However, some schools padded the number of the enrolled students to get more subsidies, so financial management became opaque. Therefore, the current administration established in January 2007 abolished this system based on the principles of free basic education.

Currently, teachers and janitors are employed by MOE and it is prohibited for schools to collect fees from the parents. The School Management Committee was formally dismissed but each school has a parents’ association. In most schools, parent representatives are selected from each class or grade, and these representatives organize a parents’ association, which usually has a president, vice-president, treasurer, public relations, etc.

(Source) Interview with the Vice Minister of MOE and other staff.

3.3.2 Qualitative Effects

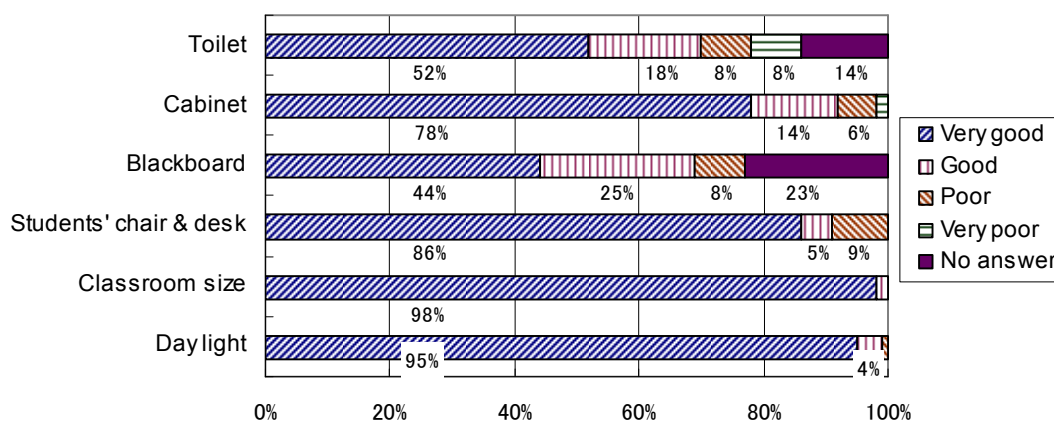
In general, with regard to the usage of the facilities, school principals, teachers and students evaluate it highly (Table 5 and Figure 1).

Table 5 Students’ Evaluation of Facility Usage

	Very good	Good	Poor	Very poor	No answer
Usage of the classroom	83%	16%	1%	0%	0%

(Source) Interview with 215 students of Grades 5 and 6 at 24 schools.

Figure 1 School Principals and Teachers’ Evaluation of the Facility Usage



(Source) 126 school principals and teachers of 24 out of 32 beneficiary schools. 119 teachers evaluated the usage of the toilets.

As for the blackboards, in more than half of the visited schools they are not used at all and so 14% did not answer. Most of the teachers who did not use the blackboard answered that chalk dust was unhealthy, and now they use the acrylic white board instead of the blackboard⁹. In five of the 24 visited schools, all or some of the toilets were not in use. Reasons cited include: the waste level in the tank rose and it is dangerous, and the drain does not function properly.

In light of the above, although the accommodation capacity of the facilities is lower than planned (80% of the planned) due to the outputs decrease, usage of the facility itself is highly appreciated. This Project has largely achieved its objectives; therefore its effectiveness is high.

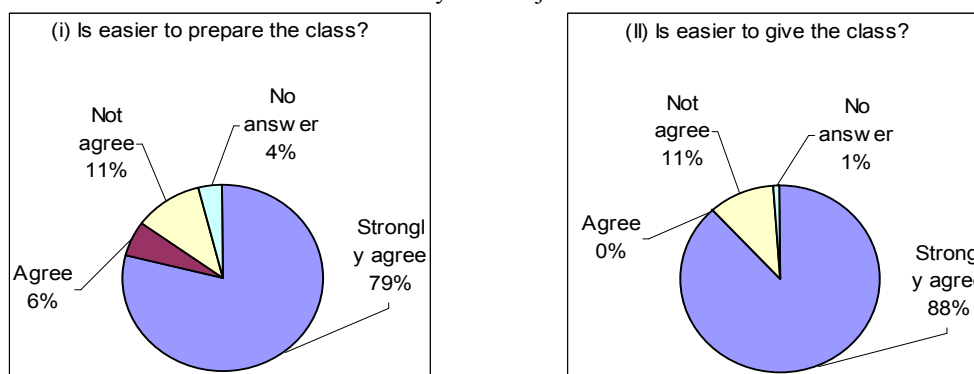
3.4 Impact

3.4.1 Intended Impacts

(1) Conduct and Contents of the Classes with Use of the Procured Equipment

The change from the pre-project period (observed by the school principals and teachers themselves) is as follows (Figure 2). Using the teaching aid materials procured by the Project, most (80%) answered that preparation and conduct of the classes was easier than before. In addition, in more than half of the schools the textbooks are lacking and the teachers in these schools commented that the procured materials were also able to be utilized as complementary materials to the textbooks.

Figure 2 Change in Preparation and Conduct of Classes with the Teaching Materials Procured by the Project



(Source) Interviews with 24 principals and teachers of 24 schools.

Interviewed teachers listed maps, terrestrial globes and instruction panels for natural science as materials used frequently. They explained the change in the class with uses of the materials as follows:

- They can now explain the theme more precisely and concretely (10 schools).

⁹ MOE says that future school construction programs may be flexible in equipment purchasing such that schools can choose either blackboards or acrylic boards, considering teachers' needs and the ongoing financial feasibility of the school to purchase supplies.

- The classes are more dynamic, having group exercises, etc. (6 schools).
- The classes are more practical (3 schools).
- Students participate in the class more actively (2 schools).

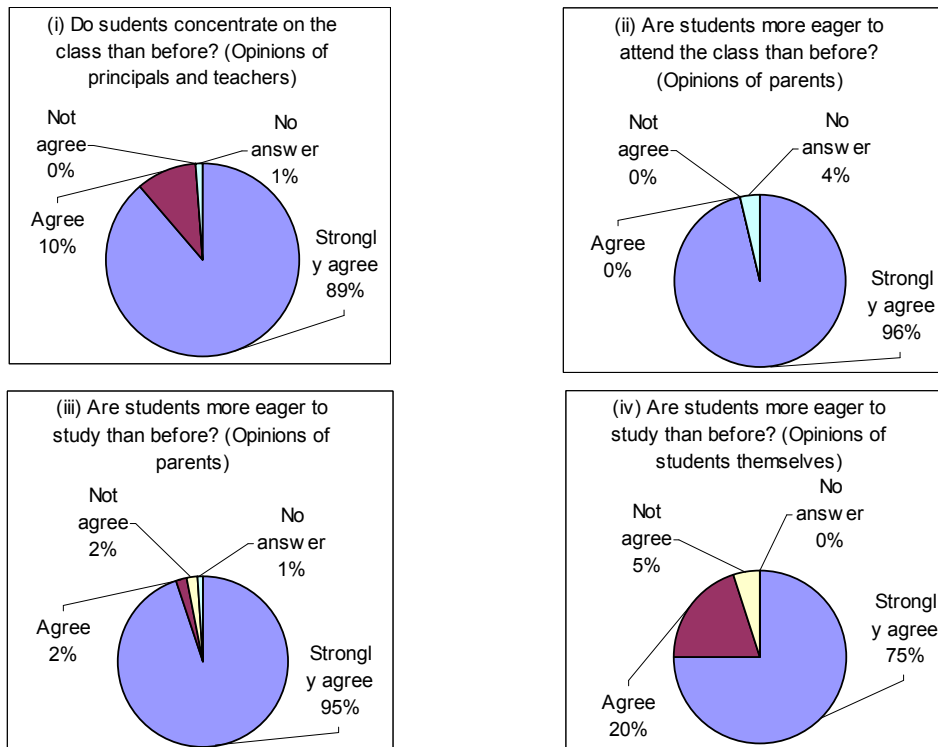


Students are working in group in the wide classroom (Frey Jesús de Pamplona School in Ciudad Sandino).

(2) Students' Eagerness in Attending School and Studying

School principals, teachers, parents and students themselves realize the change in students as shown in Figure 3. Most answered that there were positive changes in the students' willingness to learn and their attitudes during the class.

Figure 3 Change in Students' Attendance and Studying



(Source) Interviews with 91 principals and teachers of 24 schools, 118 parents and 215 students of Grades 5 and 6.

Although it is difficult to strictly verify the Project effects (Figure 1 and Table 6), it can be assumed that the classroom size was increased which was highly appreciated by most teachers and students, and this made it easier to conduct classes with group exercises, which in turn motivated the students to attend the school and actively

participate in the class.

Table 6 Change in the Students after the Project and Students' Evaluation of Facilities.

Change in students observed by teachers	<ul style="list-style-type: none"> - Students participate in the class more actively (4 schools). - Students now work together with other students in wider space (4 schools). - There is less absence (7 schools). - Students became more punctual (5 schools). - Students now pay more attention to cleaning and maintenance of the facility (5 schools).
Students' evaluation on the facility	<ul style="list-style-type: none"> - There is more space for studying and playing (7 schools). - Desks and chairs are cozy and sufficient in number (6 schools). - Dust doesn't come in the classroom. It's ventilated (5 schools). - There is a floor, walls and roof. It's comfortable (4 schools). - The school is clean (3 schools).

(Source) Interviews with 91 principals and teachers of 24 schools and 215 students of Grades 5 and 6.

(iii) Use of the Classrooms for Community Activities

In most schools, school facilities such as classrooms are used for purposes other than primary or secondary classes. It was assumed in the BD that the facility would be utilized for adult education, literacy classes, and community activities through parents' meetings (school management committee). In addition, schools are also used for voting, health activities (such as vaccination and blood donation), religious activities, etc.

Box 2 Situations of Non-beneficiary Schools

(1) Jose de la Cruz Mena School (Managua City)

390 enrolled in the morning shift and 135 enrolled in the afternoon shift. Among the students of Grade 1 in the morning and those of Grades 1 and 2 in the afternoon shift, 20 students dropped out or transferred to other schools during the year 2010. According to MOE, many students transfer to other schools during the school year due to their parents' work in some schools.

Table Students Enrollment (2010)

	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Classes
Morning	95	64	59	88	42	42	14
Afternoon	37		42		56		3

The classrooms were constructed in 1971, 1980 and 2009. In old classrooms, the blackboards are left broken and the teachers have difficulty in giving classes. The classrooms are dusty because there are no doors and window panes, and so students cannot concentrate on the classes. Some light bulbs are gone or broken, which is dangerous.

(2) Ruben Dario #3 School (Managua City)

It has only a morning shift and 534 enrolled students in 2010. There was no student transfer during the year.

Table Students Enrollment (2010)

	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Classes
Morning	114	91	94	95	72	68	8

Classrooms are insufficient for the number of students. Some classrooms possibly

accommodated more than 90 students. Teachers commented that they and the students cannot move freely and the classrooms are ill-ventilated. Students use the toilets frequently and they are in bad condition. Desks and chairs for students are lacking, so old ones are used after getting repaired or some students have to buy their own.

(Source) Interview with teachers of Jose de la Cruz School and Ruben Dario #3 School.

3.4.2 Other Impacts

There is no positive or negative unexpected impact in particular. Land acquisition and registration was done almost as planned, and there was no necessity of resettlement.

Summarizing the above, although it is difficult to strictly verify the Project impacts, compared to the pre-project period, teachers prepare and give the class more easily and students' attitude is more positive. The school facility is also utilized actively for purposes other than usual classes. No particular negative impact has been caused.

3.5 Sustainability (Rating: ②)

3.5.1 Structural Aspects of Operation and Maintenance

(1) Roles for the Facility Maintenance

Basically, cleaning and small-scale repair are done at each school, and large-scale repair such as repair or construction of fences and walls is conducted by MOE. Cleaning utensils, including brooms, are distributed by MOE every year. MOE assigns a technician to each of its Department Offices and this person also responds to repair issues that the schools cannot technically work out by themselves.

Each school tries to conduct O&M as far as it is financially and technically possible. For example, small-scale repairs such as repainting should be done by the school. However, as collecting fees from parents is officially prohibited, how the school acquires painting materials depends on each school. Disparities in O&M among schools are a small concern. In most schools, when a problem arises, the school principal consults parents, and deciding who to consult next depends on the principal's connections; some go to the Department Office or Municipal Office of MOE, and others reach out to the Municipal Government or FISE. Officers of the Municipal Offices of both Managua City and Ciudad Sandino answered that they sufficiently understand situations of the education sector (Box 3). Regarding problems of electricity or water, some schools directly contact the electric power company or water company.

Box 3 Assistance towards the School Facility by Municipal Governments

(i) Municipal Government of Managua City

Regarding the issues and needs for school construction and repair, the Municipal Government receives information from its officers in charge of areas or the Municipal Office of MOE. The Municipal Government "adequately understands the local situations" but all the

needs are not attended to due to budget constraints. In FY 2011, 10-20% of the budget for investment and O&M is allocated to the educational facilities. They understand that MOE constructs school buildings and the Municipality is in charge of their surroundings (pavement, fence, etc.)

(ii) Municipal Government of Ciudad Sandino

Officers in charge of cadastre investigate situations of the school facilities in the city, they “understand the situations enough”. And, the Municipality organized meetings with the Municipal Office of MOE or with schools by area to collect further information. In FY 2011, 1,175 thousand cordobas¹⁰ are earmarked for the education sector, and part of which will be used for construction of classrooms and toilets.

(Source) Interviews with the Municipal Government of Managua City (Director of Programs Department) and the Municipal Government of Ciudad Sandino (Staff of the Public Sector).

(2) School Management

According to MOE, a committee for school support was established at each level of the school, municipality, department and country¹¹, with the purpose of supporting students inside and outside the classroom so that they can complete primary education.

The committee at each level is convened twice a month to share issues and discuss solutions. For example, as needs in facility repair are identified at the school level, the municipal committee shares information and assigns priorities to them. In addition, the department committee examines and assigns priority to the needs identified from the several different municipal committees, and then reports to the national committee. Also, the national committee assigns priorities to competing budget items.

3.5.2 Technical Aspects of Operation and Maintenance

MOE started the Program for Identification of Needs on Infrastructure and Repair of Schools (Programa de Identificación de Necesidades de Infraestructura y Reparaciones de Escuelas: PINRE) and has provided training to teachers and parents. In Managua Department, among the 20 schools visited, parents from six schools have received PINRE training, and most of them said that “the training was useful.” Three schools have a PINRE manual. According to MOE, it has not expanded the program due to budget constraints. It is likely that more teachers and parents have received training, but that some of the teachers moved to another school or the parents’ children graduated from the school, and therefore the number of the responses might be lower than the actual number.

According to the Vice President, MOE plans to distribute an O&M kit to each school for small-scale repairs, benefitting 30% to 40% of the schools in 2011. At the

¹⁰ Approximately 4,240,000 yen, converted with the rate in January 2010, 1 cordoba = 3.62 Japanese yen.

¹¹ The committee (Comité de la Batalla por el Sexto Grado) is organized at the school (community), municipality, department, national levels, where related stakeholders participate and discuss improvement of learning environment and helping students complete primary education. The committee discusses issues and reports the prioritized needs to the upper level committee. For example, at the school level, participants are the school principal, teachers, parent representatives, a member of the president’s party (Sandinista) in charge of education, members of the students’ council of the secondary school, young members of Sandinista, community leaders, etc.

schools visited, nobody was informed of the kit. Even without the kit, parents and teachers do O&M using their own repair tools.

3.5.3 Financial Aspects of Operation and Maintenance

(1) Budget of the Ministry of Education

The budget and expenditure of MOE and its Infrastructure Department are shown in Table 7. In FY 2011, the budget of the Infrastructure Department decreased dramatically from the previous year. Moreover, 135.7 million cordobas earmarked for O&M for school facilities under the “National Plan for Dignified Schools (Plan de Dignificación de Escuelas a Nivel Nacional),” exceed the actual sum for FY 2010. Furthermore, according to the Department, it is planned that 10% of the subsidy from the Central Government to the municipalities (155.7 million cordobas) can be allocated to O&M for school facilities. However, MOE estimates that the budget is insufficient to cover all the identified needs in the country.

Table 7 Budget and Expenditure of MOE (million cordobas)

	2007	2008	2009	2010	2011
Budget in total	3,851	4,683	5,267	5,196	n.a.
Budget of the Infrastructure Department	n.a.	n.a.	n.a.	n.a.	205
Expenditure in total	3,593	4,519	4,283	4,873	n.a.
Expenditure of the Infrastructure Department	534	401	454	315	n.a.

(Source) MOE.

The Department and Municipal Offices of MOE do not have funds for school repair but only report (though the committee system mentioned in 3.5.1 (2)) to MOE about the prioritized needs.

(2) Current O&M at the School Levels

After the system of Autonomous Schools was abolished, the schools do not manage budgets. Each time they need facility repairs, they ask for donations or apply to MOE or the Municipal Government. (MOE does not support the removal of waste from toilets). At some schools, the parents’ association asks parents for donation for repair (200-400 cordobas per year) or collects fees in the name of donation, and at other schools money (including donations) is not collected at the teachers’ discretion; as such, O&M depends on each school. Also at some schools, parents provide manpower and materials such as keys and paint instead of paying in cash.

At the time of ex-ante evaluation, it was supposed that MOE would be responsible for repainting walls, fittings and blackboards and removing waste from the toilet tank and these costs would be born without problems as it was a small portion of the total budget. The fact is that, unbeknownst to the schools, the MOE pays only for the

construction of school buildings and fences and does not pay for repairs. However, the situations depends on school; there are some schools which asked MOE for purchase of paints and actually received them, and others didn't.

3.5.4 Current Status of Operation and Maintenance

(1) Current Status of the Facility

At the 24 schools visited, there are no problems which seriously hinder the class. Small problems common in more than 10 schools include: (i) light bulbs, (ii) broken light switches, (iii) locks (doors and cabinets), (iv) unstable chairs, and (v) loss of teaching materials. Compared to schools in the rural area, more



The fluorescent was gone and it is replaced by a bulb because it is cheaper (Diriangén School). This is observed at other many schools.

problems were reported, including stones and trash on the roof, theft of lamps, window panes, and switches, and poor drainage in the lavatory. In Managua Department, materials are stolen for resale, while in rural schools food for school snacks or lunch is stolen.

As for the toilets, part or all was not in use, but used as garage at six schools. Regarding the use of the toilet, only one of the two basins was supposed to be used at one time while the other was covered and not used. When one tank was full of waste, the other could be used. In addition, waste needed to be dry for removal. However, the schools did not know the appropriate methods for use and removal.

With regard to the procured teaching materials, with the exception of one school, materials are stored at places where all teachers can freely access them. However, at half of the schools, small pieces of the materials are lost.

(2) Current Status of Operation and Management

The BD recommendations in regards to the constructed facilities were that the inside walls should be repainted every 10 years, the fittings should be repainted every five years, the blackboards should be repainted every two years, and the waste should be removed from the toilet tanks and cleaned every three years. The actual status is as follows (Table 8).

Table 8 Current Status of Facility Maintenance

	Conducted	Not yet conducted	Planned
Repaint outside walls (No regulation)	15 schools	5 schools	7 schools
Repaint inside walls (Once per 10 years)	16 schools	4 schools	7 schools
Repaint fittings (Once per 5 years)	0 schools	20 schools	1 schools
Repaint blackboards (Every two years)	5 schools	15 schools	1 schools
Remove waste in the toilet (Once per three years)	0 schools	3 schools	0 schools

(Source) Interview with principals and teachers of 24 schools.

(Note) The sum of “conducted,” “not yet conducted” and “planned” doesn’t equal 24 because some schools already conducted maintenance but have plans to do more maintenance, and others have not conducted maintenance and do not yet have plans to do so.

At the time of the field survey in February 2011, which was four to five years after the Project completion, it was expected that schools had repainted the blackboards and removed waste from the toilet, however, only five schools have repainted blackboards and no schools have removed waste from the toilet. As blackboards are not used in many schools, this can be one factor for not being repainted. Some schools wish to repaint the walls and blackboards in the future. No schools were aware of the maintenance schedule suggested by the BD.

At the school level, cleaning of the facilities and surrounding area is conducted as part of O&M. The frequency of cleaning and the assigning of roles for cleaning are decided at each school and all schools regularly (almost everyday) clean the school. Students are now more conscious of O&M after the facilities were constructed (Table 6). Among the 24 visited schools, janitors are employed by MOE at 20 schools. In small suburban schools janitors are not assigned. Janitors clean the facility but do not repair it.

Also, schools which suffer damages from theft have constructed high fences or arrange a security guard at night.

Summarizing the above, some problems have been observed in regards to structural and financial aspects but there are no problems which seriously hinder the class; therefore sustainability of the Project effect is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

In Nicaragua, deficient and decrepit school and classroom conditions have hindered children’s enrollment, and MOE has implemented a program for improving school facilities. This Project’s relevancy is high since it aims to improve the learning environment in target areas by constructing facilities for basic education in Managua Department.

Although the Project cost and period were mostly as planned, bidding failure and

unexpected price increase lead to slightly fewer classrooms being built than planned. Therefore the efficiency is fair. The learning environment is considered to have been improved based on the high appreciation expressed by school principals, teachers and students for improvements in the size of the classrooms, the use of daylight in the classrooms and the usage of desks and chairs. The effectiveness is high. O&M of the facility largely depend on the success of a new needs prioritization system and on the financial capacity of the schools and parents. Therefore the sustainability is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency'

- Among the current existing problems, those which can be dealt with by small-scale repair should be resolved immediately. It is recommended to give instructions to those schools on appropriate repair methods. In particular, it is necessary to disseminate information explaining the proper use of the vault toilets (latrines). When constructing and repairing the facility, it is necessary to set budget priorities in light of each school's needs in the learning environment, hygienic environment, security, etc.
- It is necessary to take measures to resolve property loss, for example by hiring security guards during the night if financially possible. If it is not possible, schools should have higher and/or sturdier fences or walls.
- It is very important to alleviate information and financial disparities among the schools and communities regarding facility repair and its application method.
- So as to maximize the effects of the Project, it is recommended to improve the learning environment (distribution of textbooks, adequate number of students in one classroom, etc.) in addition to addressing infrastructure factors such as facilities and equipment.

4.3 Lessons Learned

- It is indispensable to accurately estimate the number of the enrolled students and forecast any increases or decreases, in order to set Output targets (number of necessary classrooms, etc.). It is necessary to request accurate data from the MOE of the partner country, and at the same time make sure that the reported number of enrolled students is accurate by sampling several schools if necessary.
- Regarding construction of vault toilets (latrines), the project does not necessarily construct the same toilets for all schools. Considering and discussing the site size and financial feasibility for O&M with the implementing agency or the partner county, the project should decide whether toilets should be fixed-type as provided in this Project or mobile-type which is the standard in the partner country.

- Regarding O&M of the facility and equipment, Japanese contractors or consultants should prepare manuals which precisely include the frequency, role, method and material procurement for O&M, and share them with the implementing agency and beneficiary schools. The contractors or consultants should make sure that the school teachers, parents and staff in charge in the implementing agency are informed about O&M methods when they hand over the facilities and equipment.

Annex 1

Planned and Actual Outputs

	Plan				Actual			
	Total	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3
1. Outputs								
(1) Facility Construction								
Beneficiary school	34	14	10	10	32	14	8	10
Classroom	372	113	129	130	275	90	85	100
Multi-purpse room	13	4	3	6	9	2	1	6
Library	1	0	0	1	0	0	0	0
Principals' room / Teachers' room / Storage	36	12	11	13	19	11	2	6
Toilet (sewage)	24	7	7	10	28	8	8	12
Toilet (individual sewage)	7	1	3	3	0	0	0	0
Toilet (letrine)	4	3	1	0	4	3	1	0
(2) Equipment Procurement								
Desk and chair for pupils	14,880	4,520	5,160	5,200	11,140	3,600	3,440	4,100
Desk and chair for teachers	516	161	173	182	353	134	94	125
Cabinet (without door)	144	48	44	52	76	44	8	24
Cabinet (with door)	408	125	140	143	296	101	88	107
(3) Material Procurement								
Teaching materials	43	14	15	14	37	14	11	12
2. Period								
Work period (month)	58.0	19.0	19.5	19.5	60.5	21.5	19.5	19.5
3. Costs								
Amount in foreign currency	0				313,355	68,293	119,378	125,684
Amount in local currency	0				1,272,167	402,944	390,280	478,943
Total (million yen)	1,672	547	515	610	1,586	471	510	605