

Republic of Nicaragua

Ex-Post Evaluation of Japanese Grant Aid Project

“Project for the Rehabilitation and Equipment of the Scholastic Centers in the North Region of Nicaragua”

External Evaluator: Hiromi Suzuki S., IC Net Limited

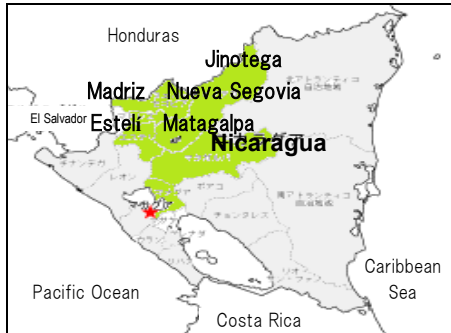
0. Summary

This project aimed to contribute to the improvement of enrollment rates and quality of education by upgrading the educational environment of primary and secondary schools through the development of school facilities and educational furniture in the five Departments of the Northern Region of Nicaragua.

The project is in line with Nicaragua’s development policies, development needs as well as Japan’s assistance policies both at the time of planning and ex-post evaluation, therefore its relevance is high. Project cost was as planned, however, project period exceeded the plan because it took time to deal with the geological conditions of the land and subsoil that were found once construction works had started, and therefore efficiency is fair. Operation and effect indicators almost met their targets: especially, the number of students that can study in a good learning environment even surpassed its target, and secondary school enrollment rates of all five Departments are improving. Although among the educational facilities that were developed, there were some quality-related problems such as the case where designs and plans of toilets and educational furniture (black boards) do not necessarily meet the needs of all users, on the whole, the expected effects and impacts have appeared, therefore its effectiveness and impact are high. On the other hand, in terms of operation and maintenance, although efforts are gradually being made to optimize internal procedures related to institutional organization and securing budget, there is still a budgetary deficit, and there is room for improvement in the technical aspect of maintenance as well. Judging from the maintenance status at the time of ex-post evaluation, in order to make sure that the project’s effects are realized in a sustainable way, it is desirable to further improve all institutional technical and financial aspects of operation and maintenance, therefore its sustainability is fair.

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

1. Project Description



Project Locations



El Bijagual School, Jinotega Department

1.1 Background¹

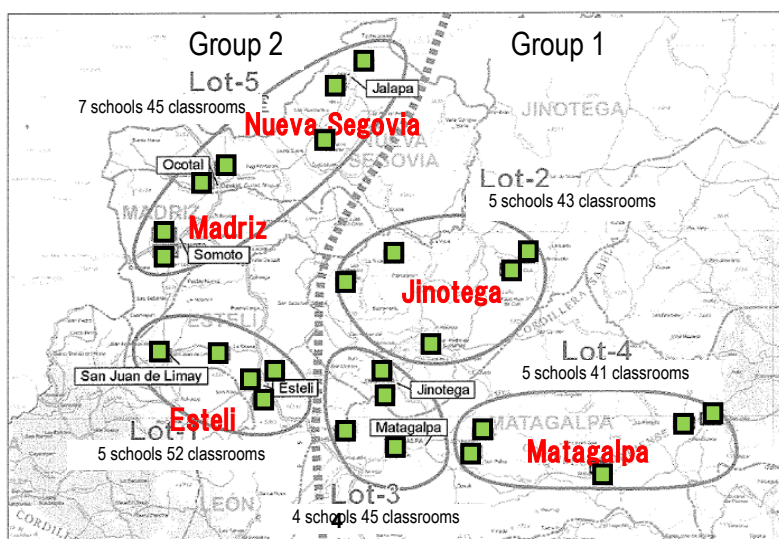
Since 1988 Nicaragua experienced an intense civil war that lasted about 10 years. In 2001, the Strengthened Growth and Poverty Reduction Strategy 2001-2005, SGPRS was formulated in order to rebuild the country socially and economically, and by accepting the World Bank and the International Monetary Fund's Structural Adjustment Program, the country was steadily working in the revitalization of the economy. By 2005, it formulated a national development plan which considered that education is the basis for socioeconomic development and that in order to improve the quality of education, it was important to both construct as well as repair educational facilities. It aimed to reach 90% in primary education's net enrollment rate by 2015, and developed 3,218 classrooms nationwide from 2004 to 2006. However, absolute lack of classrooms persisted, and on top of that, aging of existing classrooms were also a serious problem. In 2007, number of students per classroom was 58 in primary and secondary education, much higher than the 35 students per classroom officially set by the government of Nicaragua. Especially in the five Departments of the Northern Region (Matagalpa, Jinotega, Estelí, Madriz, Nueva Segovia), classes were conducted in shabby huts and houses; some schools even had to implement two or three shifts; and drop-out and repetition rates were also higher than the national average, all of which were obstacles to the improvement of the enrollment rate. It was under this situation¹ that the government of Nicaragua made a requested for Japan's Grant Aid for Community Empowerment² in order to improve 27 educational facilities located in the above mentioned five Departments that needed preferential countermeasures.

¹ Based on documents provided by JICA.

² The Grant Aid for Community Empowerment is a form of Japan's grant aid newly introduced in 2006. It aimed to significantly reduce costs and increase efficiency compared to the General Grant Aid by increasing competition in the procurement process through an active utilization of local companies in the elaboration of Detailed Designs, construction management, and civil construction.

1.2 Project Outline

The objective of this project is to contribute to the improvement of primary and secondary education enrollment rates and quality of education through the improvement of learning environments by developing school facilities and educational furniture in the five Departments (Matagalpa, Jinotega, Estelí, Madriz, and Nueva Segovia) that are located in the Northern Region of Nicaragua.



Source: Document provided by JICA.

Figure 1 Distribution of Educational Facilities of the Project

Grant Limit / Actual Grant Amount		1,016 million yen / 1,016 million yen
Exchange of Notes Date		August, 2008
Implementing Agency		Ministry of Education (Ministerio de Educación: MINED)
Project Completion Date		April, 2011
Companies engaged	Main Contractor(s)	Outline Design: Mohri, Architect & Associates, Inc. Procurement Management Agency: Japan International Cooperation System
	Consultant(s)	Phase 1: Arquitectos Ingenieros Asociados Phase 2: LJM Consultores S.A.
Basic Design		March, 2008
Detailed Design		June, 2009
Related Projects		【Technical Cooperation】

	<ul style="list-style-type: none"> • Project for Improvement on the Quality of Mathematics Teaching in Primary Education (PROMECEM) Phase 1-Phase 2 (2006-2015) • Japan Overseas Cooperation Volunteers (Primary School Teacher, Science and Mathematics Teacher, etc.) <p>【Grant Aid】</p> <ul style="list-style-type: none"> • First and Second Primary School Construction Plan (1995-2003) • Project for Rehabilitation of Basic Education Facilities in Managua, Phase 1 to 3 (2003-2007) • Project for Improvement of Basic Education Facilities in the Department of Rivas, Boaco and Chontales (2005-2008) • Grant Aid for Grassroots Human Security (2004-2006) <p>【Projects of other institutions】</p> <ul style="list-style-type: none"> • Inter-American Development Bank, KfW Development Bank, Swiss Agency for Development and Cooperation: Emergency Social Investment Fund (1991-2010) • Danish International Development Agency, Canadian Council for International Co-operation: Education Sector Assistance Program (2007-2012) • European Union: Assistance for the Education Sector (2004-2007), Education Sector Support Project (2002-2006) • Inter-American Development Bank: Basic Education Program (2004-2008), Regional Social Investment Program (2006-2009) • World Bank: First Basic Education Project (1999-2005)
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2. Outline of the Evaluation Study

2.1 External Evaluator

Hiromi Suzuki S., IC Net Limited

2.2 Duration of Evaluation Study

The ex-post evaluation of the project was conducted over the following period.

Duration of the Study: November 2014 to October 2015

Duration of the Field Study: 11 to 26 of February 2015, 24 to 30 of May 2015

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

3.1 Relevance (Rating: ③⁴)

3.1.1 Relevance to the Development Plan of Nicaragua

The national development plan of Nicaragua at the time of project planning was the SGPRS formulated in 2001. The SGPRS had four pillars, and the second pillar, namely “investment in human capital and the poor” set three objectives of spreading basic education, improvement of the quality of education, and modernization of the education sector and promotion of decentralization of schools. It aimed to reach a primary education net enrollment rate of 90% and an illiteracy rate of 10% by 2015. In 2005, the National Development Plan 2005-2009 (Plan Nacional de Desarrollo, PND) was formulated in order to complement the first pillar of the SGPRS, namely “structural planning for a wide economic growth”, which placed education as an important factor to improve the country’s productivity and strengthen competitiveness. With regard to the education sector policy, the National Education Plan 2001-2005 (Plan Nacional de Educación, PNE) was formulated in 2001 which set five goals, such as to secure spreading of education and fairness; to secure quality of education and proper learning content; to improve quality and labor conditions of teachers, among others. In 2008, the Strategic Education Plan 2008-2011 (Plan Estratégico de Educación, PEE) was formulated which set a target of achieving a primary education net enrollment rate of 95% by 2011, and this project was considered as a part of the classrooms development plan which was to contribute to the achievement of such target.

The national development plan at the time of ex-post evaluation is the National Human Development Plan 2012-2016 (Plan Nacional de Desarrollo Humano, PNDH). It was formulated by the new regime inaugurated in 2007, and it is considered as a policy that substitutes the SGPRS and the PND. It places education as a basic human need, and aims to achieve universal basic education. It also aims to improve primary education enrollment and promotion rates of the poor and rural regions by implementing measures such as increasing the number of teachers and their quality, providing school meals, etc. Specifically, it sets a goal to achieve a primary education net enrollment rate of 97% by 2016, and to increase the proportion of teachers with official certification to 60% from the 10% recorded in 2009. In order for these goals to materialize, the Ministry of Education (hereinafter referred to as MINED) formulated the Strategic Education Plan 2011-2015 (Plan Estratégico de Educación PEE 2011-2015) which establishes the improvement of the quality of basic education together with the repair and expansion of basic school infrastructure as priority issues. Additionally, it points out that the increasing regional disparities between urban and rural areas are a problem, and mentions that one of the factors that inhibit the improvement of access to education is the lack of classrooms

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

⁴ ①: High, ②: Fair, ③: Low.

in rural areas as well as the big proportion of educational facilities that need to be rebuilt or repaired, and intends to continue working on the development of infrastructure for education.

The project is in line with the objectives of Nicaragua's government national development plans as well as education sector plans both at the time of project planning and the time of the ex-post evaluation. Especially, at the time of project planning, the project was considered as a part of the PEE 2008-2011 classroom development plan, thus consistency with the project is high.

3.1.2 Relevance to the Development Needs of Nicaragua

At the time of project planning, Nicaragua's primary education net enrollment rate was 86.4%, and the secondary education net enrollment rate was 43.7%, which were relatively high levels. However, the same rates of the five Departments in the Northern Region were 85.8% and 35.7% respectively, showing that the increase in enrollment rates was sluggish compared to the national averages and the development of proper educational facilities and educational environment where high quality education could be received was not enough. In order to achieve the target set in the SGPRS and the PND, namely "reach a primary education net enrollment rate of 90% by 2015" the government of Nicaragua developed 3,218 classrooms from 2004 to 2006. In addition, it moved forward the objective set in the PEE 2008-2011, namely to achieve a primary education net enrollment rate of 90% by 2015 to 2011, by planning the development of 4,938 classrooms from 2008 to 2010, thus the need for this project was high⁵.

According to the data available at the time of the ex-post evaluation, Nicaragua's primary education net enrollment rate in 2013 was 89.1%, and the secondary education net enrollment rate was 50.6%, improving slightly compared to the time of project planning. However, as of February 2015, the total number of educational facilities were 8,846 (29,833 total classrooms, 10% in urban areas, 90% in rural areas) from which 50% needed either to be reconstructed or needed significant repairs, and the proportion of schools with infrastructure such as water supply, sewerage and electricity etc., was only between 25% to 30%. With regard to educational furniture, there was a shortage of about 60,000 *pupitres* (tablet arm chairs) and 12,141 whiteboards. MINED aims to reconstruct, repair and maintain 8,846 schools (37,307 total

⁵ The selection criterion of the project's 26 schools was based on a request list prepared by the government of Nicaragua in which schools were listed by level of priority. Information on the detailed selection criteria was lost during Nicaragua's government regime change, as well as total reshuffle in the personnel of MINED, thus this information was difficult to obtain. However, based on documents provided by JICA, it can be assumed that the following five selection criteria were established: (1) to be an existing educational facility (i.e. it has to be either a repair, reconstruction or extension); (2) to be able to secure enough land based on the Outline Design and registration of land ownership has to be completed before the Exchange of Notes; (3) condition of the soil is more or less stable so that foundation work costs do not increase; (4) no other similar projects are conducted at the same time in the same region; (5) number of students per classroom surpasses by far the standard of 40 students per classroom set by MINED at that time.

classrooms) during the six years from 2015 to 2020, which indicates that in general terms, the need for development of educational facilities continues to be high⁶.

From the above, both at the time of project planning and ex-post evaluation the need for development of facilities related to primary and secondary education in Nicaragua is high, thus it can be recognized that the project is highly consistent with the development needs.

3.1.3 Relevance to Japan's ODA Policy⁷

The objectives of the Country Assistance Program for Nicaragua (formulated in 2002) were a "stable democracy" and "the promotion of a sustainable socioeconomic development", and it clearly stated that it would conduct grant aid and technical cooperation projects. It set six focus areas that included education and aimed to "conduct an assistance that contributes to the improvement of primary education enrollment rate as well as quality of education". The track record in assistance to the education sector includes the development of classrooms, toilets, teachers' offices and warehouses, provision of furniture, supplies and educational equipment, as well as the repair, reconstruction and expansion of classrooms with Grant Aid for Grassroots Human Security, thus the project is highly consistent with Japan's ODA Policy.

This project has been highly relevant to the country's development plans and development needs, as well as Japan's ODA policy. Therefore its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

The project outputs on the Japanese side were the development of educational facilities (classrooms, principal and vice-principal offices, teachers' offices, auxiliary units⁸ and toilets), as well as procurement of educational furniture. The outputs on Nicaragua's side were the acquisition of land, access roads, development of water supply, sewerage and electricity infrastructure.

The comparisons between the plan and the actual output, as well as the reason for the changes are indicated below.

⁶ It aims to complete the development of water supply in 4,257 schools and sewerage in 5,380 schools by 2017, as well as electrification of 5,010 schools by 2019. (Source: Ministry of Education "National Educational Facility Infrastructure Development Plan Draft, 2016-2021).

⁷ Based on Japan Ministry of Foreign Affairs "Country Data Book" (2008-2012) and JICA "Republic of Nicaragua: Study Report of the Outline Design of the Plan for the Rehabilitation and Equipment of the Scholastic Centers in the Northern Region of Nicaragua" Study Report, 2008.

⁸ An auxiliary unit is a multipurpose facility that can be used as a library or a warehouse according to the requirements of the school.

3.2.1.1 Japan's Outputs

Educational Facilities: In the 26 schools⁹ of the five Departments, renovations, repairs, and extensions were conducted according to the Detailed Design, that is, 211 school classrooms, 13 principal's offices, two vice-principal offices, 17 teachers' offices, three auxiliary units, 104 pit latrines and 66 flush toilets were developed (see Annex 1 for details). Total construction area was 17,934.4m² of educational and administrative facilities, and 945.4m² of toilets.

Educational furniture: As indicated in Table 1, with the exception of *pupitres* which were added because of their high demand, the rest were procured almost according to plan.

Table 1 Educational Furniture: Plan and Actual

	Plan (Detailed Design)	Actual	Actual compared to plan
• <i>Pupitres</i> (tablet arm chairs)	7,385 units	12,212 units	165%
• Desks and chairs for teachers	293 sets	As planned	100%
• Cabinets	226 units	254 units	112%
• Shelves	54 units	56 units	104%
• Blackboards*	No information	422 units	—

Source: Plan and actual values are based on documents provided by JICA; however, interviews to the Implementing Agency were also taken into consideration for the actual values.

*: Information on both the plan and actual number of blackboards was not available. However, in the schools where field visits were conducted, there were two blackboards installed in each classroom. Since MINED's Construction Standards indicate the same, the actual number was estimated by multiplying the total number of classrooms, that is 211, by two, which results in a total of 422 units.

In relation to the Japan's outputs, in terms of quantity, there were no big changes from the Detailed Design, and it was conducted almost as planned.

3.2.1.2 Nicaragua's Outputs

Land acquisition, ground leveling, temporary fencing of construction sites, construction of parking lots for construction vehicles, and development of communication infrastructure, as well as securing infrastructure needed during construction such as electricity, water and sewerage were conducted almost according to plan. In reference to the development of infrastructure for educational facilities, as indicated in Table 2, with the exception of access roads in three schools, electricity in one school, and water supply in one school, all the rest was conducted as planned.

⁹ The Ruben Dario School in the Department of Matagalpa was excluded from the project as the nationalization process of the land where the school was planned to be constructed did not proceed as expected. Therefore, the total number of schools developed in this project was 26.

Table 2 Nicaragua's Output: Plan and Actual

Plan (Detailed Design)	Actual
Development of access roads	With the exception of three schools in Jinotega (i.e. Catorce de Septiembre, La Rica and El Bijagual Schools) the rest was conducted as planned.
Electricity: Drawing of electricity into the electric board of the site from an existing electric facility	With the exception of Matagalpa's San Andres de Boboqué School, all the rest were developed.
Water Supply: Installation of water pipes, drawing of water into the site from an existing facility	With the exception of Jinotega's Catorce de Septiembre School, all the rest were developed.
Sewerage: Connection to public sewerage	Among the schools in which flush toilets were constructed, at Instituto Nacional de Madriz School in Madriz, and Jose Santos Celaya School as well as San Isidro School in Matagalpa, it was not possible to get a connection to the public sewerage, thus a septic tank and an infiltration basin were additionally installed with Japan bearing the construction expenses.

Source: Plan information is based on documents provided by JICA, actuals are based on information provided by MINED.

3.2.2 Project Inputs

3.2.2.1 Project Cost

Since the Nicaragua portion of the planned project cost was uncertain, the evaluation was conducted based only on the amount of the Japan portion. This project was conducted using the procurement agency method, thus the total E/N amount has been disbursed to Nicaragua and there were no reversal of funds to Japan at the moment of project completion. Due to this, both the planned and actual amount of the project cost are 1,016 million yen which is the same as the E/N amount¹⁰.

Table 3 Project Cost: Plan and Actual

	Item	Planned Value in the Detailed Design* (million yen)	Actual (million yen)
Japan's Portion	Detailed Design, Construction Management, Construction Cost of Facilities, Attorney Cost	862.55	862.55
	Procurement Management Agency Cost	153.45	153.45
	Total	1,016.00	1,016.00
Nicaragua's Portion	Drawing in of electricity and connection; drawing in of water supply and sewerage and connection; dismantling cost of existing buildings, embankment, and ground levelling cost; access roads development cost; landscaping cost, bank commission charges, etc.	No information	98.40 Only total amount was available

Source: Plan and actual amounts for the Japan portion are based on documents provided by JICA. Actual amount of Nicaragua's portion is based on documents provided by MINED.

*: Conditions used in the Detailed Design estimation were as follows: (1) Time of estimation: July 2009; (2) there are no details on the breakdown of costs of Detailed Design, construction management and construction cost of facilities.

¹⁰ Problems related to financial, contractual and civil construction during procurement and construction were considered as items that needed special attention at the time of project planning, however, there were no major problems and thus project cost was not affected.

3.2.2.2 Project Period

The Detailed Design of this project was completed in June 2009, and construction was planned to be completed 18 months after that. In actual terms, it took 23 months from the Detailed Design to project completion¹¹, which was 128% compared to plan.

Table 4 Project Period: Plan and Actual

Process	Plan at the time of the Detailed Design	Actual
Exchange of Notes	June 2008	August 2008
Contract with Procurement Management Agency	July 2008	September 2008
Phase 1 (Lots 2,3 and 4, total of 15 sites)		
Selection of Consultant	July to September 2008 3 months	September to December 2008 4 months
Site Survey and Detailed Design	October 2008 – January 2009 4 months	December 2008 to June 2009 7 months
Bidding of Contactor	February to April 2009 3 months	June to August 2009 3 months
Civil Construction, Construction Supervision 1 st Batch	May 2009 to January 2010 9 months	October 2009 to April 2011 19 months*
Civil Construction, Construction Supervision 2 nd Batch	August 2009 to April 2010 9 months	
Phase 2 (Lots 1 and 5, total of 12 sites)		
Selection of Consultant	October to December 2008 3 months	September to December 2008 4 months
Site Survey and Detailed Design	January to April 2009 4 months	December 2008 to June 2009 7 months
Bidding of Contactor	May to July 2009 3 months	September to November 2009 3 months
Civil Construction, Construction Supervision 1 st Batch	August 2009 to April 2010 9 months	December 2009 to April 2011 17 months*
Civil Construction, Construction Supervision 2 nd Batch	November 2009 to July 2010 9 months	

Source: Both plan and actuals are based on documents provided by JICA.

*: Civil construction and construction supervision was conducted in two batches in both Phase 1 and 2. However, since the exact periods for each batch were not clear, the actual periods are the periods of both batches put together.

The details of the delay and their main reasons are as follows:

- a. Site survey and preparation of Detailed Design: There were delays of three months compared to plan in both Phase 1 and 2. The main reasons being that after site surveys were conducted, the following four changes had to be made from the Outline Design. (1) Changes in planned sites; (2) change in prototypes (because they would not fit into the premises, and/or there were steep slopes in the land); (3) toilets were added or cancelled, and/or specifications were changed (e.g. as connection to public sewage was impossible, septic tanks and infiltration

¹¹ April 29, 2011 is the completion date of the last lot.

basins were added, their arrangements were changed, etc.); (4) although it was planned to procure students' chairs and desks separately, it was found that these would not fit into the classroom space, thus in all schools, these were changed to *pupitres* (tablet arm chairs).

- b. Civil construction and construction supervision Phase 1: Although it was planned to be finished in June 2010, it was actually finished 11 months later, in April 2011 (duration of this process itself was delayed only by one month). The main reason for the construction period extension was that in some sites, measures had to be taken in order to deal with geological features that were found at the time of construction, which resulted in the following five changes from the Detailed Design. (1) Change in the level of the ground; (2) as it was found that the ground was soft, it was necessary to change the content of the foundation works (i.e. those sections with low soil quality had to be removed, compacted, replaced and filled it back with good quality soil); (3) expansive soil was found, thus the soil under the bottom base surface had to be replaced; (4) location and construction level of buildings and toilets had to be changed; (5) the structure of the concrete lid of the septic tank had to be strengthen and infiltration basins had to be added. These changes have also occurred in Phase 2, but there was only one month delay in Phase 2 compared to the planned completion date which was March 2011 (duration of this process itself was shortened by one month).

In this project, project period exceeded the planned period due to replacement of soil and changes in prototypes that were necessary in order to deal with the geological features that were found at the time of construction in some of the sites. However, with respect to land ownership rights and land registration, which were considered as factors that needed special attention at the time of project planning, procedures were completed in all the schools with the exception of Ruben Dario School in Matagalpa Department which had to be excluded from the project as it was decided that land expropriation would be impossible. There were no delays due to financial problems during procurement and construction periods as well.

Although the project cost was as planned, however, the project period exceeded the plan. Therefore, efficiency of the project is fair.

3.3 Effectiveness¹² (Rating: ③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

The project effects that were established at the time of project planning were “Increase in the number of students that can study in a proper environment¹³”, “number of students that are

¹² Sub-rating for Effectiveness is to be put with consideration of Impact.

¹³ “Proper environment” was defined as follows based on the information of the Outline Design: (1) School buildings: fulfill the Standard Construction Norms set by MINED; (2) toilets: to be able to use either fixed pit

taking classes in two shifts in rural are schools become zero”, and “number of secondary school students that are studying on weekends using the installations of a primary school becomes zero”. The results were as follows.

Table 5 Effect Indicators

Indicator	Plan		Actual (Achievement rate of target value)			
	Base Value 2007	Target value at the moment of project completion	2011 Project Completi on Year	2012	2013	2014
a. Increase in the number of students that can study in a proper environment in the 27 planned schools (number of students)	9,485 ¹	21,140 ²	24,037 (114%)	23,280 (110%)	22,931 (108%)	21,414 (101%)
b. Number of students that are taking classes in two shifts in the 11 schools that are classified as rural schools ³ from the planned schools (number of students)	2,566	0	4,332 (Not Achieved)	4,077 (Not Achieved)	4,029 (Not Achieved)	3,774 (Not Achieved)
c. Number of secondary school students from the planned schools that are taking classes on weekends using the installations of a primary school (number of students)	295	0	0 (100%)	0 (100%)	0 (100%)	0 (100%)

Source: Planned values are based on documents provided by JICA. Actual values are based on documents provided by MINED.

¹: Calculated based on the shift system that was in place at the moment of the project planning.

²: Calculated as two shifts in urban areas and one shift in rural areas.

³: Based on MINED's classification. In this project, 11 schools were classified as belonging to “rural areas”.

a. “Increase in the number of students that can study in a proper environment in the 27 planned schools”: the target of this indicator to be achieved at the moment of project completion was 21,140 students. As of 2011, the actual number was 114% compared to the plan, thus achieving the target and even continuing to be over 100% after project completion. This is due to the fact that, after project completion, the number of students that go to these schools have increased. However, among the five Departments of the project, the population in Esteli is on a downward trend, and even in the other four Departments, population growth rate is decreasing every year since 2011, and due to this, the target achievement rate is also on a downward trend. All the educational facilities developed are being used almost completely, and the target number of students studying in improved schools has been met.

latrines or flush toilets; and (3) educational furniture: fulfill the Standard Specification set by MINED.



Classroom before improvement:

Walls are made of wood boards, roofs of tin, there is no electricity and there is only one window



Classroom developed by the project

However, from the point of view of the “quality” of a “proper learning environment”, as well as “a proper reflection of users’ needs”, the following two factors are affecting the realization of the project effects the most¹⁴.

(1) Pit latrines: In this project, 110 pit latrines were developed as part of the educational facilities. During the field study, it was found that the needs of children in lower grades of primary school were not reflected in the design of these latrines when the Detailed Design was prepared. All the pit latrines have a seat height of 52cm, and children lower grades of primary school need teachers’ assistance in order to secure their safety as they cannot use the latrines by themselves¹⁵. In addition, although the Outline Design indicated that wood was the material to be used for the pit latrine booth doors, the doors that were actually installed are of heavy steel which it is even difficult for adults to open and close. One accident in which the door was detached from its frame injuring a child

¹⁴ Other than these, low durability of classroom windows as well as their handles to open and close is another problem that is common to all schools. However, the windows that were used in this project are widely used in Nicaragua and it is not limited only to schools. In addition, there are no standards for windows in the Construction Norms of MINED, and taking into account the cost reduction, the use of these glass windows can be considered as an average measure.

¹⁵ When primary school lower grade students use them, because they cannot manage to sit in them alone, teachers have to interrupt the class in order to help them, or in some cases, children have to relieve themselves behind the school buildings. According to interviews conducted to principals and teachers during the field visits, the usage rate of pit latrines by primary school lower grade students is low. The problem regarding pit latrines could have been avoided at the moment of the Detailed Design by introducing a different modality, or by including a component in the project to make sure that the method of use would be widely known. Through interviews conducted during the field study to MINED, the Procurement Management Agency, local consultant companies, JICA and the beneficiaries, it was found that the common opinion was that each one of the entities, -that is, the local consultant companies that prepared the Detailed Design, the Procurement Management Agency who was giving guidance and checked the blueprints, and MINED who approved the blueprints- all of them in the respective process could have taken necessary measures to improve the latrines so they would be closed to the needs of the users. In addition, regarding the fact that maintenance was not being conducted thoroughly at the time of ex-post evaluation, it is necessary that each school put into practice the correct maintenance methods once all of them are familiarized with them thoughtfully (See footnote 17).

has been confirmed, thus it is difficult to say that users' safety and privacy are secured. However, because students in higher grades of primary school and students in secondary schools can use the latrines even with this height, out of the 110 booths constructed, 46 booths (42%) are being used, 30 booths (27%) are broken and cannot be used, and in relation to 34 booths (31%), as of June 2015, they were being replaced by flush toilets¹⁶.



External view of pit latrines (six booths. Doors have come off in three of them and cannot be used)



Pit latrines¹⁷

(2) In relation to blackboards, there are two in each classroom, and according to MINED's installation standards introduced in 2008, one has to be installed 60cm above the floor for primary school lower grade students, and the other one has to be installed 90cm above the floor for the rest of the students. However, installation height of all the blackboards of this project was set at 92cm above the floor at the time of the Detailed Design. But, after interviews to MINED, blackboards were being replaced with whiteboards even since before



Blackboards provided by the project and newly introduced whiteboards

¹⁶ At the time of ex-post evaluation, MINED was making efforts to replace pit latrines with flush toilets in those schools where sewerage has been developed. As of June 2015, 31% of the pit latrines of the project were being replaced by flush toilets.

¹⁷ There are two latrines per booth which should be alternated in their use: i.e. while one is being used, the other one has to be covered, and when the one that is being used is full, it has to be covered and the other one is used (Source: "Ex-Post Evaluation Report of the Project for Improvement of Basic Education Facilities in the Department of Rivas, Boaco and Chontales"). At the time of the ex-post evaluation, it was found that MINED as well as all the schools did not know about the correct methods of use and maintenance. According to the interviews, the Procurement Management Agency explained this verbally to each school's principal when the facilities were delivered, but since there were no documents such as manuals, and the information was not transmitted when there were personnel changes, in none of the schools there were teachers who understood the method of use. From now on, it is necessary to conduct repairs and provide guidance on the proper methods of use and maintenance.

project execution in order to prevent teacher’s respiratory problems, and this replacement policy was conducted full-fledged since 2011. However, in this project, after internal reconsiderations within MINED, it was found that the proportion of students for whom it was hard to see the letters written in the whiteboards due to the reflection of light was high, becoming an obstacle to the progress of the class. Thus based on a request from MINED, blackboards were installed instead of whiteboards¹⁸. Due to this, almost all the blackboards installed by the project are not being used as such, but as bulletin boards, or as boards to display student’s works.

b. “Number of students that are taking classes in two shifts in the 11 schools that are classified as rural schools”: In the project’s schools of the Departments of Jinotega, Matagalpa and Nueva Segovia, even at the time of the ex-post evaluation, there were schools that conduct two shifts and offer classes on Saturdays and Sundays, thus the target was not achieved. However, this fact is not necessarily negative, as it is the result of a concentration of students that desire to study in these newly-developed schools. Thus these schools made the decision to continue offering two shifts, which at the end has resulted in the improvement of enrollment rates. It is worth mentioning that in Nicaragua there are many students that have to work during the day to help the family, so elimination of the two-shift system is not necessarily good. Because of this, it is thought that there was a problem in setting this as an indicator, so it was decided not to give a negative evaluation even though the target was not achieved.

c. “Number of secondary school students from the planned schools that are taking classes on weekends using the installations of a primary school”: This is a partial indicator specific to Matagalpa Department’s Jairo Jose Suarez Secondary School. Before the project, this secondary school was offering classes on Saturdays and Sundays by using the installations of a primary school. After project execution, students are now able to take classes in the newly-built classrooms. It was found that these students either work on weekdays, or live very far so they can only come to school on weekends. Therefore, even in the newly-built classrooms, they continue taking classes on Saturdays or Sundays. However, on weekdays this school functions as standard secondary school, thus the newly-build classrooms are being used more effectively than expected.



Newly-built Jairo Jose Suarez
Secondary School

¹⁸ Based on the Outline Design Survey Report.

3.3.2 Qualitative Effects (Other Effects)

In this ex-post evaluation, interviews to teachers and students during the field study as well as a beneficiary survey were conducted to a total of 100 persons including students, teachers and parents in order to assess the qualitative effects of the project (see Annex 2 for details). The main findings were that the satisfaction level of students with respect to classrooms, educational furniture and toilets were all high, which served as evidence that there were changes in students' easiness to learn, and that it has significantly affected their attitude towards learning and everyday life¹⁹. Teachers and parents satisfaction levels were also high in general terms, however, when compared to the satisfaction levels of classroom buildings and school furniture, satisfaction levels of toilets and development status of infrastructure were slightly low. Especially parents stated that "children are now much eager to go to school", "although during weekdays children have to do farm work, they look forward to the weekend to go to school", which are comments that recognize the fact that there were actual changes in the children's attitude towards learning and everyday life.

Infrastructure that was to be developed in the project's schools under the responsibility of Nicaragua (i.e. access roads to schools, supply of electricity to some schools, development of public sewerage in all rural area schools etc.) was decided and agreed in the Minutes of Discussion signed between the two countries. The actual development status of such infrastructure as well as the realization of their effects is as follows.

- a. Access roads to schools: in some rural schools access roads to schools are still not developed, but the reality is that nevertheless students go to school. Based on the interviews conducted during the field study, number of students that spend from one to two hours one way to go to school were by no means negligible. Among the teachers, there were cases that spend two hours one way between walking and travelling by bus. Although the fact that access roads are unpaved is not an obstacle to the realization of the project effects, paving these roads would shorten commuting time, ensure safety during commuting (e.g. problem of muddy rural roads during rainy season would be solved etc.), which would further promote students to go to schools. In addition, students will be able to use more time to study which would further increase project effectiveness, thus it is desirable to continue paving the roads.
- b. Electricity and water supply: As mentioned above, although development of infrastructure is advancing, there are a lot of power outages and water supply cut-offs, thus stable supply is

¹⁹ Especially when taking into consideration the poor environment in which students had to study until now, their joy of being able to study in the schools developed by the project seemed to be very strong. Even during the field study, in schools where there are still old classroom buildings next to the new buildings, the students who study in the new buildings developed by the project, mentioned that they feel "proud" to be able to study in these buildings.

not secured. With respect to water supply cut-offs, this limits the effectiveness of flush toilets' convenience and improvement of hyenic conditions, and electricity outages especially limit the project effect to the students who take classes in the afternoon shift in schools with two shift systems.

- c. Sewerage: Each local government is making efforts to urgently develop this infrastructure, and at the time of the field study, in two schools where pit latrines were constructed, these were being rebuilt into flush toilets as public sewerage was developed, making effective use of the existing infrastructure. By this measure, the latrines that were not used are expected to reborn as 34 new flush toilets, which increase the expectations of the realization of the effects of the project even more.

As can be seen, although there are some quality-related problems, it was confirmed that the aim of this project which was to improve the learning environment was achieved both quantitatively and qualitatively, thus the effectiveness of the project is high.

3.4 Impacts

3.4.1 Intended Impacts

The expected impact of the project was “to contribute to the improvement of the target region’s enrollment rate”. Data available was for the years 2011 to 2013, and it was found that according to them, primary education net enrollment ratio²⁰ is decreasing in all the Departments after project completion compared to 2009, as shown in Table 6, however, the rates are improving for secondary education in all Departments. One factor that has to be considered is that in Nicaragua, when calculating the net enrollment ratio, the “number of children in official age-group for a given level of education” is available as each school collects the actual number, however, accurate data on the “population in the corresponding age-group” does not exist. Instead, population estimations based on the 2005 population census are used. According to the said census, the “population in the corresponding age-group”, especially for primary education (children from 6 to 11 years old) is expected to show almost “no increase” from 2011 to 2015²¹, but the actual population in the age-group for primary education is rather decreasing year by year. As a result, both average primary education enrollment ratios at the national and departmental levels are on a downward trend. Since population estimates based on the 2005 population census have not been revised thus far, although doubts remain in using these

²⁰ Net enrollment ratio is calculated as the number of children enrolled in a certain level of education who belong to the age group that officially corresponds to that level of education divided by the total population of the same age group, multiplied by 100.

²¹ According to the 2005 population census, the national average population growth rate was estimated to be 1.3% in 2011 and 1.2% in 2014. The population growth rate estimates for the five Departments show a tendency that is almost the same as the national average.

estimates in the calculation of the enrollment ratio, since these are the official data that the government of Nicaragua has made public, it was decided to use these data for this ex-post evaluation²².

Table 6 Net Enrollment Ratios for Primary and Secondary Education in the Target Departments

		2009 (Before Project Completion)	2011 (Project Completion Year)	2012	2013
Primary Education	National Average	84.1%	93.6%	90.8%	89.1%
	Esteli	99.8%	97.5%	94.6%	93.0%
	Jinotega	82.5%	82.9%	77.0%	77.6%
	Matagalpa	88.6%	88.4%	84.4%	81.1%
	Nueva Segovia	88.7%	88.1%	83.7%	80.1%
	Madriz	87.9%	85.6%	81.2%	83.4%
Secondary Education	National Average	46.9%	46.4%	47.9%	50.6%
	Esteli	48.0%	58.3%	62.3%	68.0%
	Jinotega	22.6%	28.6%	28.8%	29.6%
	Matagalpa	31.3%	40.6%	43.3%	45.2%
	Nueva Segovia	31.5%	38.8%	40.4%	40.8%
	Madriz	35.8%	42.9%	44.2%	46.5%

Source: Based on documents provided by MINED.

Net intake rates²³ were also obtained as auxiliary indicators²⁴. As shown in Table 7, compared to the situation before project execution, the net intake rates are improving due to the fact that the schools are more prepared to accept students in official age-group for a given level of education. However, just the same as the net enrollment ratio, the net intake rates for

²² According to MINED's Statistical Division, as well as interviews to representative offices of the Ministry in each Department, the "number of students enrolled in a certain level of education who belong to the age group that officially corresponds to that level of education" is based on the health statistics kept by the Ministry of Health at the village level. Based on this information, teachers identify the households with children that belong to primary and secondary education age groups; visit these households if necessary in order to check whether children are enrolled or not; and convince the parents to send their children to school in the latter case. As can be seen, teachers are doing efforts to increase the number of children enrolled, therefore, it is possible to say that, although "number of students enrolled in a certain level of education who belong to the age group that officially corresponds to that level of education" is not absolutely equal to the "real number of population in a certain level of education who belong to the age group that officially corresponds to that level of education", at least it is more accurate compared to the estimate of the 2005 population census. And their opinion was that if population data based on the Ministry of Health would be allowed to be used in the enrollment ratio calculations, the result would be that the enrollment ratios would rather show a smooth upward trend.

²³ Net Intake Ratio is calculated as the number of students entering the first grade of a certain level of education, who belong to the age group that officially corresponds to that first level of education, divided by the total population of that age group, multiplied by 100.

²⁴ In this ex-post evaluation, an attempt was made to obtain data on indicators such as advancement rates, dropout rates, repetition rates etc., with the aim to assess the "quality of education" besides the "access to education". However, since there were no uniform data for the entire target Departments, impact evaluation was conducted based solely on the project's expected impact, which is the "improvement of enrollment rates".

primary education use the population estimates of the 2005 population census for the “population in the age-group for first grade”, thus the rates are either stagnant or on a downward trend. In this project, 20 primary schools and 17 secondary schools were developed, and the net intake ratio for secondary education, just as in the case of net enrollment ratio, is also improving in all the departments compared to the situation previous to the project, from which it can be concluded that in terms of secondary education’s “access to education”, certain impact is possible to recognize²⁵.

Table 7 Primary and Secondary Education Net Intake Ratios in the Target Departments

		2010 (Before Project Completion)	2011 (Project Completion Year)	2012	2013	2014
Primary Education	National Average	66.9%	73.4%	71.3%	73.5%	72.9%
	Esteli	80.7%	84.0%	85.3%	79.2%	78.8%
	Jinotega	54.3%	61.2%	54.8%	59.2%	59.4%
	Matagalpa	62.8%	69.0%	64.8%	67.9%	NA
	Nueva Segovia	65.7%	69.0%	64.4%	64.2%	NA
	Madriz	64.4%	70.0%	66.6%	77.9%	NA
Secondary Education	National Average	22.9%	24.7%	29.0%	30.5%	30.8%
	Esteli	34.5%	39.9%	46.6%	47.8%	49.4%
	Jinotega	11.5%	13.8%	15.2%	15.3%	14.9%
	Matagalpa	18.5%	21.0%	26.5%	25.6%	NA
	Nueva Segovia	20.2%	22.1%	28.3%	24.9%	NA
	Madriz	21.3%	21.2%	27.3%	31.5%	NA

Source: Based on documents provided by MINED.

From the above, the expected impact of the project, namely “to contribute to the improvement of enrollment ratio in the target region”, was not possible to quantitatively assess it for primary education due to the fact that the population data used to calculate the enrollment ratio significantly differs from the real population. However, for secondary education, it was possible to recognize that the enrollment rates are improving in all the Departments. In addition, based on the interviews to the principals and teachers of the target schools conducted during the field work, as well as from the free comments section of the beneficiary study, opinions such as “parents that were hesitant in sending their children to aged and deteriorated schools decided to send their children after school buildings were improved by the project”; or that “children

²⁵ Esteli’s indicators for both primary and secondary education were above the national average since before project execution. In the said department tourism has been a major industry, and in recent years, the tobacco industry is also growing, making it the Department with the highest economic growth among the five Departments. Along with that, resident’s living standards have improved which have resulted in a higher awareness regarding the importance of education (Based on interviews to MINED’s Statistical Division).

started to feel like going to school by themselves” were heard the most. Although it was not possible to accurately determine the causal relationship, it was possible to see that the project did contribute to improve the enrollment ratios to a certain extent.

3.4.2 Other Impacts

- a. **Impacts on the Natural Environment:** With respect to impacts on the natural environment, since the project consisted in rebuilding or extending existing schools in existing premises, or building new school facilities in additional premises, there were no big-scale ground preparations, and almost no trees were needed to be cut, thus there were no negative impacts to the natural environment.
- b. **Land Acquisition and Resettlement:** Since this project consisted in rebuilding or extending of existing schools, there were no resettlements caused by land acquisition. Even in Jairo Jose Suarez Secondary School which was the only newly-built school, a land that was not being used in any activity was utilized, thus there were no resettlements.
- c. **Unintended Positive/Negative Impacts**
 - **Gender considerations:** As a result of the interviews, in Nicaragua, especially in lower grades of primary school, almost no distinctions are made between male and female when using the toilets, so it is not necessary to separate toilets by gender, however, for higher grades of primary school as well as secondary school, it is necessary to give appropriate consideration in separating toilets according to gender. Since, toilets did not exist before the execution of the project, privacy especially for girl students was not secured. All the toilets developed by the project were separated for boys and girls, thus improvements were made from the hygienic and privacy point of views. However, regarding pit latrines, since all the students have to use the ones for which doors have not fallen, only these ones were able to be separated by gender.
 - **Role as shelters in case of natural disasters:** At the time of planning, the educational facilities that were developed by the project were expected to be used as shelters for local residents in case of natural disasters. At the time of ex-post evaluation, not only the schools of the project, but all schools were assigned to be used as shelters in case of natural disasters. Since no natural disasters that require residents to take shelter have occurred since the project completion up to the time of the ex-post evaluation, none of these schools have been used as shelters, and there are no specific precedents. All the schools of the project were constructed in line with the National Construction Norms that the Government of Nicaragua formulated in 2007, earthquake resistance has improved, and thus compared to the situation previous to the project an impact can be

recognized. However, with respect to Monseñor Jose del Carmen Suazo School²⁶, located in Madriz Department, where it was found that a fault passes through its premises after the project had started, urgent measures by the government of Nicaragua including improvement of earthquake resistance are desired.

- Coordination with other JICA projects: indirect effects were expected from JICA's technical cooperation project, namely the "Project for Improvement on the Quality of Mathematics Teaching in Primary Education" (1995-2003) and through coordination with Japan Overseas Cooperation Volunteers (in the field of primary education). Such effects were recognized in only one school (Monseñor Oscar Arnulfo Romero School in Esteli Department) out of 26 schools, thus coordination with other JICA projects was limited.
- Other positive impacts: Through the development of educational facilities by this project, adults that did not have an opportunity to receive education can now attend classes on Saturdays and Sundays. During the field study, especially in rural schools, cases of adults in their 50's and 60 who were taking classes on Saturdays and Sundays were seen. Through interviews to the principals of these schools, it was found that these cases are good influences to the young people, and their classmates tend to study harder.

This project has largely achieved its objectives. Therefore effectiveness and impact of the project are high.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

The operation and maintenance of the schools are as follows:

- a. Organization of MINED: The General Direction of School Infrastructure, which is directly under the Office of the Minister of Education, is in charge of the operation and maintenance of the infrastructure of educational facilities. They assess new infrastructure demands as well as repair and renovation needs in the infrastructure of educational facilities, and establishes construction norms and quality control. In March 2015, there was a major organizational

²⁶ In Monseñor Jose del Carmen Suazo School in the Department of Madriz, there is a fault passing through its premises, and as a result of the geological survey conducted by Nicaragua's National System for the Prevention, Mitigation and Attention to Disasters (Sistema Nacional para la Prevención, Mitigación y Atención de Desastres, SINAPRED), the entire zone was designated as a "high risk area" since 2011, so it is doubtful to think whether this school can serve as a shelter. The "Republic of Nicaragua: Study Report of the Outline Design of the Plan for the Rehabilitation and Equipment of the Scholastic Centers in the Northern Region of Nicaragua" (JICA, 2008) states that "in Nicaragua there are no construction regulations related to active faults when it comes to the construction of school facilities, and since active fault surveys were not required to be conducted, it was decided that there is no need to conduct a detailed active fault survey". At the time of project planning, it was judged that there would be no problems since the government of Nicaragua classified the area in question as a "moderate risk region" in the first place.

restructuring and under the General Direction of School Infrastructure, four Directions were established, namely, Direction of Educational Facilities and Equipment Norms, Direction of Operations, Direction of Pre-investments and Direction of Maintenance. At the time of ex-post evaluation, total number of personnel was 85; instruction and decision making procedures were clearly established, and information sharing between the central and departmental governments was improving.

- b. Organization of the Ministry of Education at the Department level: Just like at the time of project planning, MINED has “Departmental General Representative Offices” and “Municipal Educational Representative Offices”. A change that is worth mentioning is that, under the above-mentioned new structure, an “Infrastructure Department” was created within each Department’s General Representative Offices, and main coordinators have been assigned. With this measure, it has become possible to thoroughly assess the educational infrastructure needs as well as furniture and equipment and their respective maintenance needs at the Departmental and Municipality levels, and a system through which this information is directly communicated to the central government has been created.

Table 8 Organization of Operation and Maintenance at the Department and Municipality Levels

<p>Departmental General Representative Offices</p>	<ul style="list-style-type: none"> • Dispatches technical officials to Municipality Representative Offices and schools, where they follow-up projects and curriculums and distribute educational material to these offices. • Conducts administrative procedures on personnel reassignment, as well as trainings to school principals and teachers. <p style="text-align: center;">Infrastructure Department</p> <ul style="list-style-type: none"> • Assesses and records the infrastructure needs for furniture and equipment and their respective maintenance needs at the educational facilities in each department and municipality, and provide this information to the central government.
<p>Municipality Educational Representative Offices</p>	<ul style="list-style-type: none"> • Distributes educational material to schools. • Participates in the selection of school principals, and members of the association for school operation. • Sends information necessary for the operation and management of schools to MINED.

Source: Based on documents provided by JICA, the Implementing Agency and interviews.

- c. Operation and Maintenance of Schools:

- Operational Organization: The majority of primary schools are managed by the school principal, a vice-principal, teachers and an Assistance Association for Schools (composed by teachers and Parents Association), in secondary schools, the structure is the same, but the Students Association is added. Especially in base schools or large-scale secondary

schools in urban areas, there are also secretaries, librarians, janitors, counselors, security guards, and inspectors. The Human Resources Direction which is directly under the Minister of Education is in charge of securing teachers. Currently in Nicaragua the rule is that the maximum number of students per teacher is 35. Among the 26 schools of the project, 15 schools met this rule, and only in six schools there were in average 40 students per teacher, which was slightly above the norm. As can be seen, number of teachers has been secured in most of the schools.

- Maintenance Organization: School maintenance is mainly divided into two. (1) Replenishment of consumables and small-scale repairs are conducted based on the principle of “shared responsibility”. The said principle states that “a schools is a property of the local community, thus teachers, students, parents and the whole community should cooperate in order to properly maintain it”. For example, replacement of fluorescent lights, blind



A scene of a Parent’s Association meeting in the beginning of the school year

glasses, toilet door locks and repainting are discussed between the school and the Parents Association, in a meeting which is held once a month, and the cost is covered either with the budget of the Parents Association, or parents provide the labor to do the repair, and in most of the cases, simple maintenance is conducted mainly by this means. Mainly students, teachers and parents do the cleaning of the school. (2) In mid or large scale maintenance cases, where specialized repair services are required, each school sends a request to MINED through its municipal and departmental representative offices. The contents of rehabilitation, repair and improvement requests collected from all over the country are checked and considered at MINED, and if deemed necessary, the Direction of Educational Facilities and Equipment Norms conducts an actual site survey to assess the maintenance needs, rank them by level of urgency and include it in the following year’s budget. The companies that will conduct the rehabilitation, repair and improvement works, are selected by MINED through public tender, and the companies go around the schools conducting the required rehabilitation, repair and improvement.

As shown above, with respect to the institutional aspect of the operation and maintenance, organization and line of command are clear. Especially, a fact that can be evaluated positively is the improvement that was made compared to the time of project plan, which was that an Infrastructure Department was established in each Department’s Representative Office of

MINED. With this change, the maintenance needs of the educational infrastructure and facilities can now be assessed in detail, and be reflected in MINED’s rehabilitation, repair and improvement plan. In terms of securing teachers, there are no major problems in the number of teachers and their attendance rate in all the schools of the project. However, due to the fact that the “shared responsibility” principle was introduced, replenishment of consumables, and operation and maintenance is now done more and more based on each community’s cooperative framework, instead of only depending on MINED. With this, a certain level of ownership has been created in each community which has resulted in a higher sustainability. But the level of ownership differs among communities as each community’s situation (especially the economic situation) differs, which could probably result in a gap among schools in the future.

3.5.2 Technical Aspects of Operation and Maintenance

- a. **Technical Aspect of School Operation:** With the principal at the head of each school, the vice-principal and teachers operate the school. The technical level was evaluated based on the number of certificate holders and training systems. The certificates that are necessary as a teacher are as follows. For primary education, it is necessary to obtain the Certificate for Primary Education Teacher (MEP) after having finished five years at the Teacher’s Training School after concluding primary education, or three years after concluding three years of secondary education, or two years after concluding five years of secondary education. For secondary education, it is necessary to either obtain the Certificate for Secondary Education Teacher (PEM) after having finished three years at a university’s faculty of education, or to obtain the Bachelor’s Degree after five years of university education. In case the degree is from another faculty other than education, it is necessary to take the Teacher’s Education Program. If a teacher without certification wants to obtain it, MINED is offering intensive courses on Saturdays and Sundays as well as long holidays. With respect to the school of this project, it was confirmed that all teachers hold a certificate and there were no teachers without it.

Table 9 Technical Level of Teachers at the Project Schools

	University Graduates	MEP Holders	PEM Holders
Principal	16 schools	7 schools	3 schools
Vice-Principal	1 school	19 schools	6 schools
Teachers	Bachelor’s Degree and MEP: 5 schools Bachelor’s Degree and PEM: 8 schools	11 schools	2 schools

Source: Based on documents provided by MINED.

With respect to Teacher’s Training, some are offered, but the four indicated below are the ones regarded as the most important ones. All the teachers of the 26 schools of the project have participated in the Workshop for the Evaluation, Programming and Training of Education (Taller de Evaluación, Programación y Capacitación Educativa, TEPCE) but beside TEPCE, only few teachers have participated in other trainings. TEPCE is conducted the first Friday of every month, and because all teachers are obliged to participate, school is off on those days. In the future, it is necessary to work out and improve the contents of teacher’s training and their participation.

Table 10 Teachers Training: Contents and Frequency

Name of Training Course	Entity who provides the training	Frequency	Number of teachers who participated from the project schools in 2014
TEPCE	MINED	Once a month	All
Research on Theory of Education	MINED	One week during the first semester	17 teachers
Instruction of Phonetics, General Learning Methods, Analytic Methods	MINED	One week during the first semester	17 teachers
Workshop on Theory of Education	MINED	Once a month	30 teachers

Source: Based on documents provided by MINED.

- b. Technical Aspect of Maintenance: As mentioned earlier, cleaning and small repairs of educational furniture and facilities that do not require specialized services, are conducted by teachers, students, parents and the local community’s cooperation, but repairs done by parents are not necessarily technically sufficient. Therefore there are no specialized personnel in charge of maintenance in any of the schools. As for electrical works, water supply and sewerage related jobs, repairs of machinery such as computers, and large-scale repairs of buildings are conducted by specialized companies that are selected through competitive bidding conducted by MINED. Thus, in this respect, there are no major technical problems, but all the maintenance is corrective and hardly any preventive maintenance is done. MINED prepared the “Manual for the Preventive Maintenance of Schools” in 2008 which has been distributed to all local governments and schools. The Manual is directed not only to teachers, but to students, parents and local communities as well, and it defines what is maintenance, the objective of preventive maintenance, its methods, tools and frequency (daily, weekly, monthly, annually) of each school facility (classrooms, toilets, teacher’s offices, green spaces) as well as maintenance of each kind of school furniture, waste management, management of pit latrines²⁷, and disaster prevention

²⁷ See footnote 17 with respect to pit latrines.

management. However, after conducting a survey, it was found that there are a lot of schools that have not received the manual, or that have the manual but not everyone has been thoroughly informed about its contents. Although classrooms are relatively clean in general terms, it is necessary to improve the basic awareness of keep things tidy and in order²⁸. In addition, as mentioned below, constant lack of spare parts and tools to do the repairs is a common problem to all the schools of the project. The biggest problem is that maintenance is not done on a timely manner, and these problems are left out without being solved for a long time.

As can be seen, with respect to operation, it can be positively evaluated that all the teachers of the project's schools hold certificates. However, with respect to teachers training, it is desirable that trainings with more sustainable and complete contents are offered to far more teachers. As for the maintenance of facilities, a certain technical level has been secured for those school infrastructures that need specialized services because these are outsourced to external specialized companies. However, small scale repairs have to be conducted by each school teachers, parents and local communities, who cannot be said to have proper and sufficient knowledge regarding repairs, thus technical level is not necessarily secured. In addition, tools and spare parts are lacking. Also, although a maintenance manual does exist, it is not widely known to everyone and there are no maintenance records either. In the 15 schools where site visits were conducted, the main method of maintenance is corrective instead of preventive, and there is a need to change the way to approach maintenance from "fixing things because they are broken" to "maintain and used things carefully so that they do not get broken". On the whole, there is a need to continue improving the technical aspects of the project's operation and maintenance.

3.5.3 Financial Aspects of Operation and Maintenance

There is no fixed annual budget for the operation and maintenance assigned by school, rather, after assessing the needs of each school, an annual budget plan is made per maintenance item. Materials necessary for operation and maintenance are distributed in kind and corrective maintenance such as repairs are done by specialized companies selected through competitive bidding by MINED. These companies go from school to school conducting necessary repairs. Therefore schools do not receive any cash for their expenses. In addition, it is also prohibited for schools to collect cash for operation and maintenance expenses from students²⁹. For daily

²⁸ For example, everyday cleaning of classrooms are done in turns by students. According to the Manual for the Preventive Maintenance of Schools, cleaning should be done after class hours, but many cases that need to be improved were seen: there were cases where classes were interrupted by arbitrary decision of teachers to clean the classroom, or cases where during lunch time, some children were cleaning right beside students that were eating.

²⁹ In Nicaragua, decentralization and autonomy of local governments was promoted until 2006, under which budget

maintenance expenses, each school discusses with the Parents Association, and spare parts etc. are bought using the Parents Association's budget, and labor necessary for repairs is also provided by the parents. However, in some regions, parents' income is low or the sense of ownership of the community differs between communities, thus there is a limit to depending on the Parent's Association budget. As for maintenance issues related to facility infrastructure, educational furniture and equipment it was confirmed through interviews to both MINED and each school that "shortage of spare parts and tools necessary to do the repairs due to lack of budget" is a common problem to all schools, and the real situation is that there is a constant budgetary deficit compared to the nation-wide maintenance needs.

In Nicaragua, the budget for the next fiscal year is established based on the previous year's actual expenditure. According to MINED, the reason why there was a decrease in the budget for MINED as a percentage of the national budget from 2010 to 2013 is that against the requested budget, the actual expenditure was low, thus the following year's budget was cut. However, from 2015, a new policy will take effect and the budget is expected to increase.

Table 11 Ministry of Education Budget

(Unit: Million Cordoba, %)

Item	2010	2011	2012	2013	2014	2015
National Budget	25,262.76	29,941.94	37,611.12	45,288.44	52,081.47	55,309.41
MINED Budget	5,241.41	5,553.25	6,532.93	7,374.85	9,047.86	10,419.17
% of National Budget	(21%)	(19%)	(17%)	(16%)	(17%)	(19%)
1. Investment in Educational Infrastructure	365.46	205.20	193.32	422.21	760.03	708.46
% of MINED Budget	(7%)	(4%)	(3%)	(6%)	(8%)	(7%)
2. Maintenance Expenses	14.44	130.77	154.65	143.75	151.91	163.12
% of MINED Budget	(0.3%)	(2%)	(2%)	(2%)	(2%)	(2%)
3. Personnel Expenses (Staff and teachers)	3,600.80	4,001.57	4,593.33	5,070.32	6,167.59	7,080.45
% of MINED Budget	(69%)	(72%)	(70%)	(69%)	(68%)	(68%)

Source: Based on documents provided by MINED.

In the interviews conducted during the field survey, it was confirmed that there is a lack of budget to buy spare parts and conduct maintenance. Although the budget of the Parent's Association is covering part of it, the real situation is that the budget for operation and maintenance cannot catch up with the needs, and an improvement is desired. On the other hand,

for operation and maintenance of schools was directly distributed from MINED to each school, in proportion to each school's number of students. However, illegal dealings such as uncertainty in budget execution and inflating the number of students etc. were discovered, and the government of Nicaragua introduced the principle of free basic education in 2007, centralizing all budget management (based on PEE 2011-2015, p48). With this, schools were prohibited to directly receive donations from parents, and when repairs or fixing of school installations are needed, everything is done after discussions and consultations with the Parents Association.

separately from MINED’s budget, budget for mid-to-large scale infrastructure development has been secured by the government of each Department, based on Law No. 550. In addition, Law No. 850 (which came into effect on December 13, 2013), municipal governments have to assign at least 5% of their annual budget to development and maintenance of educational infrastructure. The fact that different budgets are now secured for the maintenance of educational facilities besides the central government budget, can be evaluated positively.

3.5.4 Current Status of Operation and Maintenance

Common issues that were seen in all schools regarding the status of operation and maintenance as well as those that have to be particularly improved in specific schools are indicated in Table 12.

Table 12 Maintenance Status of Educational Facilities and Furniture at the Time of Ex-Post Evaluation³⁰

Class room buildings
<p><u>Walls and floors:</u> There were small cracks in all the schools. However, with the exception of (1) below, the cracks in the rest of the sites are cracks that appear with normal use just as was indicated at the time of the defect inspection. (1) At Monseñor Carmen del Suazo School located in Madriz Department, where it was confirmed that there is a fault in its premises, big cracks which might possibly be caused by the fault, reappeared even after repairs were made post defect inspection, and urgent measures are necessary³¹. (2) In El Bijagual School located in Matagalpa Department, inundations above floor level occur in one of the buildings during rainy season (May to November), and at least once a week, the classrooms are inundated. Teachers and parents are taking measures such as sweeping out the water with mops and wipe with floor cloths. (3) At Ruben Dario School in Esteli Department, after the defect inspection, a recommendation was made to install a pump in order to lower the ground water level. The third classroom building is suffering from inundation above floor levels due to flow of ground water, as well as flows from a nearby river. Following the recommendations from the defect inspection, it is urgent that a pump is installed³².</p>
<p><u>Ceilings:</u> There were several leaks from the ceiling. Especially in Jose Dolores Estrada School and Catorce de Septiembre School, both in Jinotega Department, the problem is serious and urgent measures are needed.</p>
<p><u>Doors and windows:</u> There are almost no major problems with respect to doors, but with windows (glass blind windows) in all the schools the window frame clamps are loose, and either cannot be</p>

³⁰ The status of operation and maintenance at the time of ex-post evaluation was based on the check items and contents of the Defect Inspection Report.

³¹ According to interviews to the principal, after the fault was found, MINED considered the following three scenarios: (1) move the school; (2) close the school and distribute the students to nearby schools; and (3) strengthen the current infrastructure. It was concluded that for the first and second scenarios, there were budget limitations and problems to secure land, thus the third scenario was chosen. The construction of this project was conducted based on MINED’s decision, but it could have been possible for the government of Nicaragua to ask Japan for recommendations on possible methods to strengthen the structure’s earthquake resistance, under the assumption that the current facilities would continue to be used.

³² In regard to the two schools that are suffering from inundations above floor level, considering the characteristics of the land where they are located, i.e. they are either near a river or the level of underground water is high, it would have been best if the local consultants that made the Detailed Design had promptly advised on the possibility of an inundation and measures to be taken. As for the Grant Aid for Community Empowerment scheme, currently, Japanese consultants verify these matters at the time of the Detailed Design; therefore the accuracy of the Detailed Design has been improving.

<p>closed well enough or are broken altogether. Glass sheets have also either come off or have been broken due to strong winds causing a lot of damages. It is urgent that MINED takes measures such as to establish standards for windows that are safer and with less maintenance costs.</p>
<p><u>Corridors:</u> There are small cracks in the walls and floors of the corridors, and rain water leaks were also seen. Urgent measures are desired.</p>
<p>Toilets</p>
<p>Although flush toilets are being used, there are schools where pit latrines are not being used. During the field survey, it was found that in many cases, the booth doors are warped and have problems with the mounting, and locks, metal fixtures, door handles are damaged or lost. At Jairo Jose Suarez School in Matagalpa Department, ground water level rises during rainy season making latrines impossible to use.</p>
<p>Educational Furniture</p>
<p><u>Doors:</u> Almost all the locks of the cabinet doors are broken. Although valuables cannot be kept, the cabinets are in use.</p>
<p><u>Pupitres (tablet arm chairs):</u> At the moment of the defect inspection, there were already many with the surface laminate torn off and with graffiti, and even since then; the reason was that there are problems in how these were used. At the time of ex-post evaluation, <i>pupitres</i> in these conditions were especially seen in secondary schools. According to MINED, the useful life of <i>pupitres</i> is between five to seven years, and an improvement in students' awareness is needed.</p>
<p><u>Blackboards:</u> As MINED is introducing whiteboards, in almost all the schools the blackboards were not used as such. In the schools where they are being used as blackboards, there are problems with the quality of the coating which has already come off. In addition, since there are no teacher's platforms in which to stand on, when students in lower grades of primary school have to solve problems in front of the class using the blackboards, they either have to stand on <i>pupitres</i> or simple platforms, which represent problems for the students' convenience and safety.</p>
<p>Others</p>
<p><u>Electricity, Water Supply and Sewerage:</u> In some rural schools, electricity, water supply and sewerage have not been developed, or exterior construction of the outer fence has not been completed. However, local governments are gradually working on it. In schools without water supply, teachers and parents fetch and keep water in PET bottles so it can be used for hand washing. There is an urgent need to develop water supply and sewerage in order to improve the hygienic conditions.</p>
<p><u>Cleaning and Safety:</u> It is necessary to conduct thorough cleaning as in many cases garbage was seen scattered in the school premises (outside classrooms). In addition, there are other problems such as damages to the wire mesh of the fences, and in schools with basketball courts, outsiders have intruded into school premises and use the courts without permission. It is necessary to strengthen the security system in order to secure the safety of students.</p>

In conclusion, as a result of the field study, classrooms and furniture can be said to be providing a “proper environment for students to study” up to a certain point. However, in overall terms, it is necessary to continue improving maintenance of school facilities as a whole as well as to make sure that students' and community's awareness towards maintenance continues to improve. Thus in terms of status of operation and maintenance, there is room for improvement.

Some minor problems have been observed in terms of the project's institutional, technical, financial and current status aspects. Therefore sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project aimed to contribute to the improvement of enrollment rates and quality of education by upgrading the educational environment of primary and secondary schools through the development of school facilities and educational furniture in the five Departments of the Northern Region of Nicaragua.

The project is in line with Nicaragua's development policies, development needs as well as Japan's assistance policies both at the time of project planning and ex-post evaluation, therefore its relevance is high. Project cost was as planned, however, project period exceeded the plan because it took time to deal with the geological conditions of the land and subsoil that were found once construction works had started, and therefore efficiency is fair. Operation and effect indicators almost met their targets: especially, the number of students that can study in a good learning environment even surpassed its target, and secondary school enrollment rates of all five Departments are improving. Although among the educational facilities that were developed, there were some quality-related problems such as the case where designs and plans of toilets and educational furniture (black boards) do not necessarily meet the needs of all users, on the whole, the expected effects and impacts have appeared, therefore its effectiveness and impact are high. On the other hand, in terms of operation and maintenance, although efforts are gradually being made to optimize internal procedures related to institutional organization and securing budget, there is still a budgetary deficit, and there is room for improvement in the technical aspect of maintenance as well. Judging from the maintenance status at the time of ex-post evaluation, in order to make sure that the project's effects are realized in a sustainable way, it is desirable to further improve all institutional, technical, financial and current status aspects of operation and maintenance, therefore its sustainability is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

- MINED (at the central, departmental and municipal levels) who is the Implementing Agency is recommended to distribute the Preventive Maintenance Manual for Schools elaborated in 2008 to all the schools of the project, and make sure that its contents are thoroughly known and put into practice. It is also necessary to clearly define maintenance responsibilities of MINED and each community under the "shared responsibility" principle, and based on that, it is desired to strengthen the maintenance of all educational facilities and furniture developed and provided by the project from now on. At the time of the ex-post evaluation, there was no clear delineation, and there were even cases where teachers

themselves had to spend their own money to buy necessary educational material. This situation can be an obstacle for the sustainable realization of the project effects, thus it is desired that the respective areas of responsibility are made clear.

- It is requested that proper measures are taken to solve the problems mentioned in “3.5.4 Operation and Maintenance Status” that have been appearing in each of the classroom buildings, toilet buildings and classroom furniture (e.g. wall cracks, rainwater leakage from the ceiling, damage of metal fixtures and lack of locks of the cabinet doors, flaking of the *pupitre* laminated material etc.). Especially the following two problems need urgent measures:
 - a. With respect to pit latrines, if the method of use is thoroughly and widely known to all the users, their effect will be realized. It is urgent that measure such as preparing manuals on how to use and maintain these pit latrines, as well as conducting trainings in the communities, be taken. In the schools where sewerage infrastructure is being developed, there are some cases where pit latrines have already been converted into flush toilets. It is desired also that these cases which are potential improvement methods are considered and widely disseminated. With respect to the doors which are very heavy and difficult to open and close, it is urgent that measures are taken as even accidents have occurred. Thus, under the “Shared Responsibility” principle, it is necessary that schools discuss with parents and community members the replacement of these doors with ones made with materials that are more convenient to use and secure the safety of the users.
 - b. In the region where Monseñor Carmen del Suazo School is located in Madriz Department, a fault was found, and has been classified by SEDAPAL as a “high risk” region regarding the possibility of a major earthquake occurrence. In order to secure the safety of children, students, staff and teachers, it is urgently needed to consider specific measures that will be taken from now on, including specific measures such as strengthening and reinforcement of the school structure to say the least.

4.2.2 Recommendations to JICA

At the moment of the ex-post evaluation, the next phase of this project has started in the departments of Nueva Segovia and Madriz. Especially on the topic of pit latrines and school furniture, it is desired to act upon the Implementing Agency as well as consultants so that MINED’s construction standards are observed and people’s needs are reflected for sure in the designs.

4.3 Lessons Learned

Checking the needs of the users at the time of project planning

In this project, especially at the time of the Detailed Design, the height of the pit latrine seats did not reflect the needs of the children in lower grades of primary schools, which has limited the effect of the project to these children. In addition, although the “Number of students that are taking classes in two shifts in 11 of the schools of the project that are classified as rural schools” was set as an effectiveness indicator, in Nicaragua there are needs for two-shift schools in the rural areas, thus the said indicator cannot necessarily be said to have been a proper indicator. At the moment of project planning and design, while following the construction norms of the central government, it is desired to directly assess the user’s needs as much as possible through interviews with local office staff, teachers and parents of the project schools, as well as by conducting field studies in order to reflect these in the designs and setting of proper indicators at the time of project planning.

End

Annex 1 Output Content: Detailed Design and Actual

No	Department	Municipality	Name of School	No. of floors	No. of class rooms	Principal Office	Vice-Principal Office	Teacher's Room	Auxiliary Unit	Pit Latrines	Flush Toilets	Actual	
1	Estelí	Estelí	Monseñor Oscar Arnulfo Romero (P)	2	17	1	0	1	0	0	0	According to Detailed Design	
2R			Ruben Dario (PS)	1	11	1	0	1	0	10	0		
3		San Juan de Limay	Felicita Ponce de Rodriguez (P)	1	10	1	0	1	0	10	0		
4		Estelí	Reino de Suecia (S)	2	7	1	0	1	0	0	6		
5			Maria Llanes Rodriguez (P)	1	7	1	1	0	0	6			
6R		Jinotega	Jinotega	Jose Dolores Estrada (PS)	2	11	0	0	1	0	10		0
7		Jinotega	El Cua	Ricardo Morales Aviles (P)	2	13	1	0	1	0	14		0
8R				Catorce de Septiembre (P)	2	7	0	0	0	1	6		0
9			Jinotega	Benjamin Zelendon (P)	2	10	0	0	0	0	0		10
10				Jose Dolores Rivera (PS)	1	9	0	0	0	0	0		10
11R			San Sebastian de Yalí	La Rica (Now Neli Beatriz Castillo, S)	1	8	1	0	1	0	10		0
12R				El Bijagual (Now Filemon Rivera, PS)	1	4	0	0	1	0	6		0
13	Matagalpa	Matagalpa	Ruben Dario	Excluded from the project due to difficulties in nationalization of the construction site land									
14	Matagalpa	Matiguás	Jose Santos Celaya (PS)	1	6	1	0	1	0	0	6*	According to Detailed Design	
15R		San Isidro	San Isidro (P)	1	5	0	0	0	0	6	6*		
16		San Ramon	La Corona (PS)	2	7	0	0	1	0	6	0		
17R		Matagalpa	Quebrada Honda (PS)	1	6	0	0	1	0	6	0		
18R			Lesbia Lopez (PS)	1	10	1	0	1	0	0	0		
19R		Rio Blanco	San Andrés de Boboqué (PS)	1	9	1	0	1	0	10	0		
20R			Jairo Jose Suarez (PS)	1	9	1	1	1	0	10	0		
21		Jalapa		Efrain Salcedo (P)	1	6	0	0	0	1	0		0
22	Ruben Dario (P)			1	6	1	0	1	0	6	0		
23	Nueva Segovia	Ocotal	Santa Ana (Now Nora Astorga, P)	1	5	1	0	0	0	6	0	Toilet Plan: Flush toilet Actual: Pit latrine	
24R			Nacional de Segovia (S)	2	7	0	0	0	1	0	0		
25	Jalapa		Adilia Ilias (PS)	1	5	0	0	1	0	6	0	According to Detailed Design	
26	Madriz	Somoto	Monseñor José del Carmen Suazo (P)	1	4	0	0	0	0	0	0		
27			Instituto Nacional de Madriz (S)	2	12	0	0	0	0	0	10*		
TOTAL					211	13	2	17	3	110	60		

Source: Information regarding the Plan is based on documents provided by JICA. Actuals are based on information provided by the Implementing Agency.

R: Rural area (11 schools) / Shaded boxes: schools visited during the first field study (15 schools) / P: Primary School / S: Secondary School.

*: Although they are flush toilets, a septic tank and an infiltration basin were added because there was no connection to public sewerage.

Annex 2 Results of the Beneficiary Study

Survey period	February 16 and 17, 2015 (testing of questionnaire) , March 1 to 14, 2015
Area and number of samples	Somoto, Madriz Department; Ocotal, Nueva Segovia Department; Estelí, Estelí Department; El Bijagual, Jinotega Department; San Ramón La Corona, Matagalpa Department. Total schools: five (100 samples). Students: 10 students per Department (five Departments) =50 students; 5 teachers per Department=25 teachers; 5 parents per Department= 25 parents.
Sampling method	The following six factors were taken into consideration when selecting the five schools for the beneficiary study: (1) construction area; (2) project cost; (3) balance between urban and rural area; (4) balance between shifts (one, two, and weekends); (5) balance between one and two floor schools; (6) balance between type of toilets (pit latrines or flush toilets).
Characteristics of respondents	<ul style="list-style-type: none"> • Students: (1) Male-female ratio: 50%; (2) age distribution: 13 to 17 (68%), 18 to 22 (20%), 23 to 29 (12%); (3) morning shift: 60%, afternoon shift: 10%, weekends: 18%; (4) means of transportation: walking (76%), walking and bus (24%). Commuting time was one hour and a half maximum. 68% of students are taking classes in groups of “35 students per class” as established by MINED. 18% of students take classes in groups of 36 to 45 students per class, and 14% of students do so in groups of more than 46 students. • Teachers: (1) Male-female ratio: males 16%, females 84%. Average number of teaching years: 1 to 10 years (20%), 11 to 20 years (52%), more than 21 years (28%). All teachers hold certificates. Average number of students per teacher: less than 70 students (16%), 70 to 250 students (48%), more than 251 students (32%), no answer (4%). Means of transportation: walking (56%), bus and/or motorcycle (44%). • Parents: (1) Male-female ratio: male 36%, female 64%; (2) occupation: 6 males were agricultural workers (others: carpenter, accountant, teacher, one person each); 11 of the females were full time housewives (agricultural workers: 2 persons, others: 3 persons); (3) average household income: 14,000 to 35,000 cordobas (28%); 36,000 to 120,000 cordobas (48%), no answer (24%).
Survey results	
1. Satisfaction of school buildings	<ul style="list-style-type: none"> • Lighting: 97% of beneficiaries answered “Very good” or “Good”, 3% answered “Bad”, indicating that most of the beneficiaries are satisfied. • Interior illumination (electricity): 60% of beneficiaries answered “Very good” or “Good”, 40% answered “Bad” indicating that compared to lighting the satisfaction level is lower. Main reasons being that “although fluorescent lamps go out, they are not replaced” or “even when switches are turned on, some or even all fluorescent lamps do not function”, these are due to maintenance problems. Problems related to electricity do affect the students that study in the afternoon shift at two-shift system schools. • Ventilation and humidity: Satisfaction level was high as 88% answered “Very good” or ”Good” and 12% answered “Bad”. The beneficiaries who answered “Bad” consider the main reason to be that “the glass of the ventilation blinds are broken and rain comes in”, “the handles of the blinds are broken so often and it cannot be opened or closed”. This situation was found in all the classrooms of all 15 schools where field surveys were conducted. At least some glasses are broken or the handles were broken. This is due mainly to the problem in the quality (durability) of the blinds and because maintenance is not enough. • Status of the floors and walls: Opinions were split into two: 55% said “Very good”, while 45% said “Bad”. In the latter case, the main reasons stated were “floors and walls have cracks” and “they are not flat”. With respect to walls, in the schools where defect inspections were conducted, these defects were repaired. However, they were not fundamental solutions, instead they were simple repairs where cracks were filled in with concrete, thus at the moment of the field survey, cracks in the same places had appeared. • General safety of the buildings (question made only to parents): Satisfaction levels with respect to safety were high, as 96% said “Very good” or “Good”, while only 4% said “Bad”. Those parents who answered “Bad” were limited to those whose children go to two-story schools, and they mentioned that “students climb up to the fences of the second floor which is dangerous”, which is more a problem related to the school’s safety management and students’ awareness.
2. Satisfaction of educational furniture	<ul style="list-style-type: none"> • <i>Pupitres</i> (tablet arm chairs): Students’ satisfaction levels with respect to size and convenience was high. 94% answered “Very good” or “Good”. With respect to stability of the chair 78% said that there are “No problems” or “Almost no problems”, while with respect to the stability of the tablet, 82% said that there are “No problems” or “Almost no problems”, showing that satisfaction in terms of overall stability was high. When asked if they are “always clean and well maintained”, 72% said “Very good” or “Good”, while 28% said “Bad”. The main reason for a relatively low satisfaction level compared to other aspects was that there are graffiti or the plates are torn off. Although these <i>pupitres</i> are useful and have almost no problems safety-wise when students used them to study, it was proven there are problems in the way these are used and maintained. The satisfaction level of <i>pupitres</i>’ maintenance status from the parents and teachers point of view was rather low, as 52% of parents and 36% of teachers answered “Bad”. • Desks and chairs for teachers (question made only to teachers and parents): 84% of teachers responded that they are “Very convenient” or “Convenient” while 92% of parents said the same and the satisfaction levels were high. With respect to safety, 72% of teachers answered “Very good” or “Good”, while 88% of parents did the same, which was relatively low. The main reason stated by the teachers was that they are not able to lock the drawers (whether because the lock is broken or keys were lost) thus valuables cannot be kept in them. • Blackboards: Teachers that responded “they are convenient for teachers” were 36%, while parents who did so were 48%. Teachers that responded that “they are convenient for students” were 36%, and 44% in the parent’s case, showing that satisfaction levels were lower compared to other educational furniture. The main reasons being that, in the first place, there are only few schools where blackboards are being used as such, and in those schools where blackboards are used as blackboards, the problem is that the height in which they were installed is too high for students of lower grades of primary school to use.

<p>3. Satisfaction of toilets and latrines</p> <ul style="list-style-type: none"> With respect to overall satisfaction of toilets and latrines (safety and hygiene), 58% of students responded that they are “Bad”. The main reasons being “doors are too heavy and are often detached”, “doors have no lock and cannot be closed, so there is no privacy”, “they smell” and “cannot be flushed because water supply is cut off”. With respect to the height of the toilet seat, due to the fact that the beneficiaries that were interviewed were secondary school students, 92% responded that they are “Very good” or “Good”, showing a high satisfaction level. However, the satisfaction level of teachers and parents who do know about the needs of all students was rather low, as 48% and 40% respectively answered “Bad”. The main reason being that students from lower grades of primary school cannot use them. With respect to hygiene, 80% of teachers and 74% of parents responded that it is “Very good” or “Good”, showing a high level of satisfaction. But, there were many parents who mentioned that “toilets need to be cleaned more often”.
<p>4. Satisfaction of basic infrastructure (electricity, water supply and sewerage)</p> <ul style="list-style-type: none"> In reference to electricity and sewerage, 48% of teachers and 44% of parents responded that they are “not satisfied”, and 36% of both teachers and parents gave the same answer for water supply. Although all schools have electricity and water supply, there are a lot of outages and cut-offs. The fact that a stable supply of these services are not secured was the main reason for the rather low level of satisfaction. With respect to sewerage, currently, the local governments are continuing to develop this infrastructure, thus improvements can be expected.

Source: Summary elaborated by the evaluator based on the results of the beneficiary study.