# LIGHTS TO LEARN PILOT PROGRAM

ACHIEVEMENTS AND CHALLENGES (2011-2016)

Prepared by the Energy without Borders Foundation for the Organization of the Ibero-American States for Education, Science, and Culture

Madrid, October 2016

energía sin fronteras

Luces para Aprender

Organização de Estados Ibero-americanos
Para a Educação, a Ciência e a Cultura

OEI

Organización de Estados Iberoamericanos
Para la Educación, la Ciencia y la Cultura

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ACRONYMS

TA   Technical Assistance

LMC   Local Management Committee

LSC   Local Supporting Committee

LtL   Lights to learn

MED   Ministry of Education (the same designation has been used for all countries in this document, MED, irrespectively of the specific denomination that exists in each country for the Ministry that manages education)

NO   National Office (of the OEI)

GS-OEI   General Secretariat of the Organization of Ibero-American States for Education, Science, and Culture

PVSS   Photovoltaic Solar System

ICT   Information and Communication Technologies

IRA   Isolated Rural Areas

Key aspects: the indicators selected to order systematically the most critical issues that determine the success of the project in each country.

Descriptive aspects: the indicators selected for analyzing and comparing the approach and results of the different parts of the project (energy, ICT, teacher training, community development, and sustainability), within and between the participating countries.

Monitoring aspects: the indicators selected for monitoring the degree of progress of the project in each country.

Local Management Committee: it is the set of people that supports the project during the operational phase. This committee may have different responsibilities such as maintaining the facilities or raising funds for their operation.

Design and Layout Phase: the project design extends from its inception (signature of the agreement at the national level or any other agreement) until the layout documents are approved and it is possible to launch the project.

Implementation Phase: the implementation of the project begins when it is carried out following the agreements in the formulation documents; this phase ends once the final report of the project is accepted.

Operational Phase: it begins with the implementation of all the components of the project at the country-level (the components of the LtL program are energy, connectivity, strengthening teaching, community strengthening, and sustainability), and it is maintained throughout the life of the project. The facilities of the system have an expected life of 20 years, thus it is expected that the objectives achieved with the implementation of the project will be maintained during this time.

Operational plan: document available at the school or at the final-owner level that considers and indicates all aspects to be examined after the completion of the implementation of the facilities, to ensure that the intervention is sustainable.

LtL Program: set of actions for the set of countries that define the intervention of the LtL as a whole.

LtL Pilot Program: set of actions for the set of countries carried out to launch a pilot experience in each one of the participating countries.

LtL Pilot Project: specific activities carried out in each one of the countries participating in the pilot program, to define in more detail the objectives proposed in the LtL Program. The Pilot Projects of the LtL aim to implement the objectives proposed by the LtL program in a number of schools as well as the implementation of other important aspects.

Note: Other specific definitions, as well as methodological considerations complementary to the points indicated above, are provided in the so-called document "Intervention Model," prepared by the Energy without Borders Foundation (EwB) for the GS-OEI.

EXECUTIVE SUMMARY

INTRODUCTION AND OBJECTIVES

This document summarizes the experience of the Lights to learn (LtL) Pilot Program in 16 Latin American countries.

The LtL initiative, promoted by the Organization of Ibero-American States for Education, Science, and Culture (OEI), was approved at the XXI Ibero-American Conference on Education (Paraguay, September 2011). The goal of the LtL is to improve the educational quality and equity in the rural schools of the region, within the framework of the *Educational Goals 2021*, and it is structured in five components:

- Energy

- Information and Communication Technologies (ICT)

- Teacher Training

- Community Strengthening

- Sustainability

Following the agreement in the implementation of the LtL, the public institutions of the different countries signed the respective collaboration agreements with the OEI and began to work on the implementation of a Pilot Project at the national level. As of July 2016, the progress situation of the program varies among the countries:

- Eleven countries have implemented the project: Argentina, Bolivia, Colombia, Guatemala, Honduras, Nicaragua, El Salvador, Paraguay, Peru, the Dominican Republic, and Uruguay.
- Two countries are currently implementing the project: Costa Rica and Panama.
- The project is under negotiation (the agreement with the corresponding national public institution has not been signed yet) in two countries: Brazil and Mexico.
- One country could not implement the project: Ecuador.

This document aims to help to compile and systematically order the acquired knowledge in the thirteen countries that have implemented or are currently implementing the project until July 2016. More specifically, we intend to:

- Report the **progress** of the Pilot Project in the eleven countries that have implemented it and in the two countries that are implementing it, as of July 2016.

- Provide **detailed and up-to-date information** on the approach and results obtained during the design, layout, and implementation of the Pilot Program in each one of the participating countries.
- Identify the **key aspects** that have characterized the Pilot Program in the different countries, analyze the importance and success of its implementation, and extract a series of useful conclusions for this program or for other programs.

STRUCTURE OF THE LTL

Consisting of the projects developed at the national level in the participating countries, the Pilot Program aimed to implement and to extract learned lessons that could be used as a reference to extend the pilot experience to other schools in each one of the countries.

The General Secretariat of the OEI (GS-OEI), with the collaboration of its Technical Assistance[1] (TA) in Energy and Sustainability, and the Energy without Borders Foundation (EwB), has provided the general guidelines, support, and follow-up to all countries for the implementation of the Pilot Program. The GS offers some recommendations such as providing reference information to facilitate the definition of all key aspects, identifying different scenarios that may occur for the different components of the program, and anticipating recommendations to define and execute the program with the greatest guarantees of success.

The OEI National Offices (NO) have led the coordination and implementation of the project in their respective countries. Given the diversity of national contexts and resources available in the participating countries, the NOs adapted the recommendations provided in these general guidelines, in different ways and scopes, to their specific idiosyncrasy. In addition, collaboration agreements have been established with the accompanying public institutions in the process, which were generally the Ministries of Education (MED), in each one of the countries.

METHODOLOGY FOR THE PREPARATION OF THIS DOCUMENT

The preparation of this document, which was unexpected since the beginning of the program, was carried out at the proposal of the EwB. A first document was drafted in October 2014 on the degree of progress, approaches, and results obtained in the Pilot Program in each one of the participating countries. In order to prepare it, we used the information previously obtained through different reports made by the NOs to the GS-OEI, as well as the results of a specific questionnaire addressed to each country, with open questions elaborated by the EwB.

This questionnaire examined the general structure of the Program (for example, the institutions involved or the number of schools), the social aspects, the aspects related with the different components of the Program (energy, ICT, teacher training, community strengthening, and sustainability), the economic aspects, and the country assessments, such as the difficulties, learned lessons, and identified recommendations.

In May 2016, all countries that had completed the Pilot Program and all countries that were in the implementation phase decided to update the 2014 draft with the final information available until July 2016. To this end, the NOs were requested to update the information of the questionnaire prepared in 2014. This questionnaire provided the necessary information to analyze the degree of progress of the program in each one of the countries and to identify the most important characteristics of the procedures.

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[1] In addition to the Energy without Borders Foundation (EwB), the GS-OEI also received support from Ondula and Luis Miguel Uriarte for the components of connectivity and teacher training.

The answers received by the questionnaire were very different on the aspects that were more qualifying and more dependent on the concrete circumstances of each country, such as the difficulties faced, the lessons learned, and the recommendations made; thus, it was very difficult to systematically order them, and draw conclusions for all the countries. Given this situation, the TA developed a new questionnaire in July 2016, to capture the perception of the NOs with respect to the evaluation of the importance of the key aspects as well as their implementation, in a systematic and quantitative way. This questionnaire considered the 19 key aspects in the form of 38 questions. These aspects consider the ownership of the project by the different agents involved in, other general and important aspects, and the components of energy, ICT, teaching and community strengthening, and sustainability.

DEGREE OF PROGRESS OF THE PILOT PROGRAM

The progress of the Pilot Program was calculated by monitoring 21 follow-up aspects. Almost all the countries that implemented the pilot project took into account most of these monitoring aspects; nevertheless, there were countries that, for different reasons, did not take into account all components of the program. For example, Bolivia ignored the energy component, since the LtL was integrated into other programs where this component had already been implemented; on the other hand, many countries provided the connectivity through other programs. However, the minimum relative implementation (relative to the total number of activities considered in a country) ranged from 67% in Argentina to 85% in Honduras, Peru, and the Dominican Republic.

In most of the countries, the aspects with the lowest degree of implementation were the ones related to the sustainability of the project. The "availability of the operational plan, including the economic and financial model" was considered only in Uruguay. The "availability of mechanisms for the support of the capabilities of the local maintainers over time" was considered also in a very partial way (only completely considered in Peru and Uruguay). Finally, the "availability of mechanisms for the regular updating of the teacher training" was fully considered only in Guatemala and Uruguay.

Only the activities related to the general and important aspects (such as the adequacy of the schools) have been fully considered in all countries.

DESCRIPTIVE ASPECTS OF THE PILOT PROGRAM

Overall, 36,078 schools have not been electrified in the countries that have implemented or that are currently implementing the Pilot Program. In addition, 19,408 schools are not electrified in the countries that are negotiating the program or that have not been able to implement it (11,448 in Brazil, 4,260 in Ecuador, and 3,700 in Mexico). The Pilot Program has been implemented in 540 schools in 11 countries; it will reach 556 schools with the participation of Costa Rica and Panama.

The number of beneficiary schools within countries was variable: while there was one in Guatemala, there were 189 intervened schools in Colombia. In general, all countries

have considered all components of the program, although some adjustments have been necessary, especially in relation to the connectivity in certain places where a technical solution was not found at a reasonable cost. The building of **partnerships** with different agents and the receipt of resources from other institutions (both public and private) have also affected the configuration of the pilot program over the countries.

In most of the countries, the **local counterpart** of the OEI has been the Ministry of Education; it has generally been involved in the implementation of the project, and it will be the final owner of the facilities and, therefore, the sponsor of its sustainability in most of the countries.

Except for one country, in all countries the design of the pilot program has considered other **uses of the facilities** provided by the LtL, beyond those merely educational for the student population, since schools are a reference center for the community. The supplementary activities encompass recreational activities, training, adult training, energy hub (a place where different energy services can be offered, such as battery or cell phone recharging), or computer hub (a place where different connectivity services are provided, such as internet access or use of computers) to provide computer and telecommunications services to the general population.

In many countries, the LtL **has been incorporated into other programs**, public, private, or both; on the one hand, these programs have helped to achieve the objectives set by the LtL and have enriched them and, on the other hand, they have complicated the description of the project. There have been synergies with other programs of energy, connectivity, computer science, community training, and improvement or provision of infrastructures.

The **electrification** of schools has been carried out through isolated renewable energy systems (photovoltaic solar energy), since the electricity distribution network does not reach most of the communities. Most countries designed the photovoltaic solar system (PVSS) in accordance with the general guidelines developed by the TA and provided by the GS-OEI. This solution considers the installation of energy kits that provide lighting and connection services for a variety of computer equipment. Nevertheless, some countries have adjusted this general proposal to provide a system adapted to the local conditions: needs of the schools (number of students and number of classrooms), weather conditions, existing technology, inclusion of other services, such as school gardens, as well as to meet the requirements indicated by the official organisms.

In addition to signing a contract for the supply and installation of the systems, most countries have considered two years of warranty, which includes preventive and corrective (short-term) **maintenance** of equipment and facilities in cases of failure. After this period, the final owners of the facilities will be responsible for carrying out the necessary long-term maintenance activities. This aspect has been accomplished only in two countries.

The **ICT component** has required more specific solutions for each country, since the viable technical alternatives to facilitate the **connectivity** are highly dependent on the local conditions. In fact, Argentina and Nicaragua decided to exclude the internet connection from the scope of the project, since the only viable solution was the satellite connection and its associated costs were too high. Panama also has only considered this component in some of the schools. Seven countries promoted the internet connection through other programs. Bolivia, Honduras (in 12 schools), and Panama (in two schools) implemented a project-based satellite connection over a specific time (from six months

to one year); on the other hand, El Salvador (in one school), Guatemala (in the only participating school), and Honduras (in four schools) provided DSL connection.

The **computer equipment** provided by the LtL complied with the general recommendations provided by the GS-OEI in nine countries, while four countries had to make specific adaptations. In ten countries, the computer equipment were purchased by the project, whereas in four countries computer equipment donations were received; however, these equipment were not installed in El Salvador. In general, the maintenance of the computer equipment is subject to the warranty of the equipment, which generally lasts one year, without any maintenance visits by the supplier.

The **strengthening of teaching skills** has been considered in the vast majority of countries. The duration of training for teachers has ranged from workshops of two to three hours in Colombia to 80-hour workshops in Panama and Peru. The training has been accompanied by the distribution of materials and assessment of knowledge. Six countries have extended this training to other teachers and pedagogical advisors. In most of the countries, there are basic procedures and regulations for pedagogical management and administration of the technological resources.

Different activities have been considered for the **community strengthening**. On the one hand, Local Management Committees have been created, either specific to the project, or by taking the responsibilities derived from the LtL in other existing Community Committees. These Committees are usually composed of representatives of schoolteachers and community members, and their main objective is to ensure the proper use, operation, and maintenance of the first level of the facilities. To this end, committee members are trained as local supporters. The duration of these trainings has varied. The communities, in general, have been also acknowledged of the benefits of the project.

The LtL has put special emphasis on the different aspects that determine its **sustainability,** through different recommendations or documents: the Organizational Model that defines the different stakeholders and their responsibilities, the design and implementation of the technical facilities emphasizing the aspects that condition the sustainability, including the creation of the required committees so that the facilities can be properly managed during their in-service time, and the need to maintain the capacities generated by the project in the teaching staff and members of the communities, especially the local maintainers. The MED usually provides the regular update of the teacher training. The **Operational Plan** of the installation by the community has not been drafted in any case, although two countries have developed manuals for the use and maintenance of the systems, and another country plans to do so. Only one country has analyzed operating costs for the sustainability. No country has developed the financial model for the operational phase. Although in most countries the final owner of the facilities is responsible for paying the **costs for ensuring sustainability**, it is expected in four countries that the communities will be able to make economic contributions for the services they receive.

The **total investment costs** of the project in each country are between USD 300,000 and USD 1,500,000 in nine countries, less than USD 300,000 in two countries, and more than USD 1,500,000 in two other countries. The **investment per school** has been less than USD 25,000 in seven countries; it is in the range of USD 25,000 to USD 50,000 in other four countries, and it is superior to USD 50,000 in another country. The **OEI contributions per school** have been less than USD 15,000 in most cases (seven

countries), between USD 15,000 and USD 30,000 in two countries, and over this limit in other three countries.

KEY ASPECTS OF THE PILOT PROGRAM

Figure 1 shows, in synoptic form, the assessments of the NOs on the importance and success of the implementation of the key aspects of the Pilot Project in all countries. The scale for performing the score varies from 1 to 4, with 1 being the minimum value and 4 being the maximum, and then all grades refer to a maximum score of 4.

All aspects are of great **importance** (overall average score of 3.5) for the accomplishment of the objectives of the project. Nevertheless, the assessment of the **success of its implementation** is lower than its importance, with an average score of 2.9. The average importance given by countries to indicators ranged from 2.9 (Bolivia) to 3.9 (El Salvador and Guatemala), while the assessment of the implementation ranged between two (Colombia) and 3.9 (Uruguay).

Figure 1 highlights the greater **importance** of appropriation aspects (assessment of 3.8 on ownership by the local communities and the teachers in schools), teacher training, strengthening community, and sustainability in contrast to more technical components such as energy and ICT. The parameter with the lowest importance was the connectivity operability (score of 2.7) followed by delays during execution (score of 2.9). These assessments were also highlighted by several countries in the difficulties encountered, lessons learned, and recommendations.

The evaluation of the **implementation** of the different aspects obtained the lowest scores in the aspects related to the technical solution of connectivity (score of 2.1) and sustainability (score of 2.5). The most positive implementation was obtained in the parameters related to the appropriation of the teachers (3.5) and of the local communities (3.5); the technical solution of PVSS and its operability also have obtained high scores (3.5).

Figure 1. Assessment of the importance and success of the implementation of the key aspects of the project
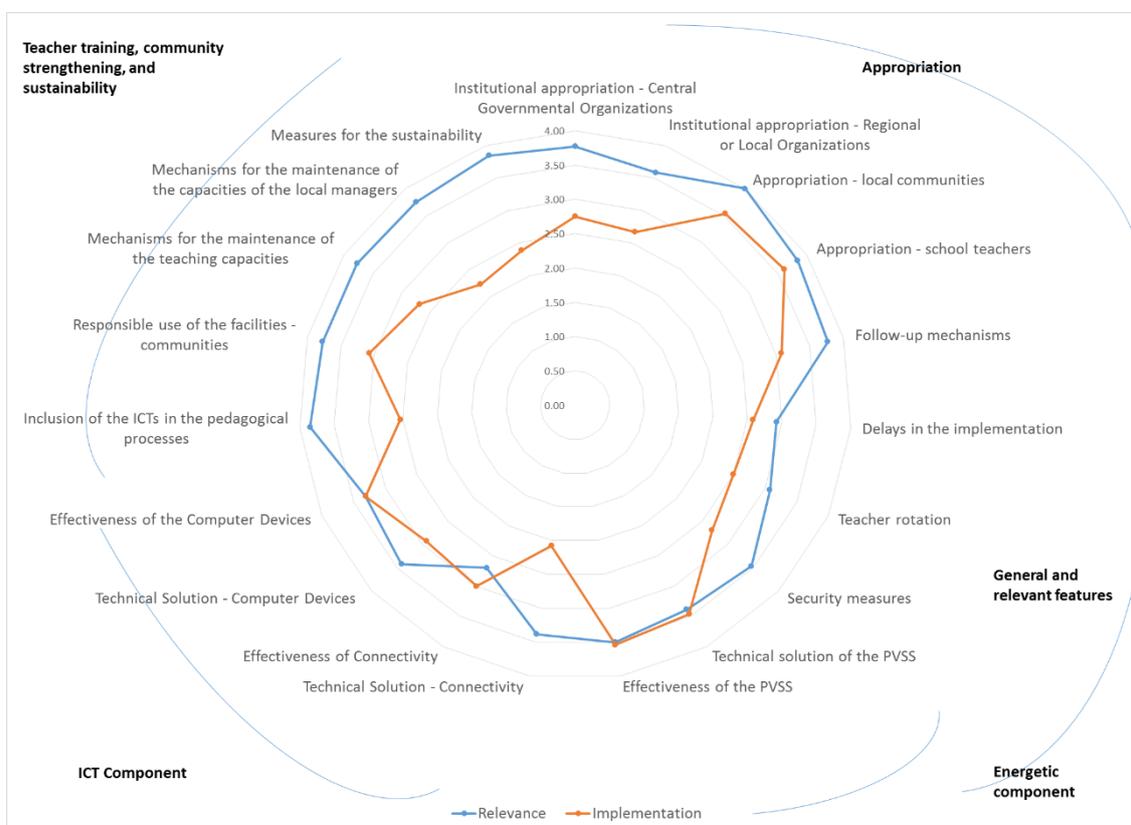
Note. Importance: measures the **importance** that the NOs give to each of the aspects. It has been measured from 1 (with little or no importance) to 4 (with great importance). The **evaluation** corresponds to the success of the implementation on a certain aspect, according to the evaluation of the NOs: 1 means that the operability of a certain aspect has been poor and/or negative for the project, while 4 indicates that the implementation of that aspect has been high and/or positive.

Overall, this analysis reveals that all countries have addressed, in some way, all the components proposed by the program and have adequately implemented the respective activities. Nevertheless, some aspects of the project present certain **weaknesses** that should be considered during the operational phase, such as the aspects related to the ownership by the central organizations, to the accessibility to the connectivity, and to the sustainability. In particular, the low score by 4 countries for the inclusion of ICTs in the pedagogical processes doubts the achievement of the ultimate goal of the LtL, which is to improve the educational quality and equity through these tools.

FINAL REMARKS

This document highlights the **diversity** of the local conditions, including the human, technical, and economic resources, as well as the different strategies used to adapt the overall vision of the program and its specific objective to the specific situations in each country. This generates a great number of situations, approaches, and solutions; it recognizes the need to respond appropriately to adapt a regional initiative at the national level. The GS-OEI has led and coordinated the follow-up to the NOs, providing general reference information and allowing the countries to adapt it to their circumstances, in the most convenient way.

The **implementation –of the project** has been successful, although some difficulties have arisen in the implementation of some components, especially in the connectivity. It is worth mentioning the effort in the creation of partnerships with other institutions or private organizations, as well as the establishment of synergies with other programs. The insertion or alignment of the LtL with other initiatives is regarded as a positive aspect of the project.

Most of the countries in which the pilot project has been completed have not implemented all the activities included in all its components, especially the **sustainability** measures. This does not mean *"per se"* that the project will not be sustainable once the facility warranty period has elapsed; however, the failure to set sustainability measures puts at risk the future implementation of the activities required to achieve the ultimate goal that the project be sustainable over time. The sustainability of the project will largely depend on the capabilities of the final owner of the facility and on the person responsible for its management to take over the responsibilities that entails the continuation of the project.

In many cases, there have been difficulties associated with the institutional **appropriation** of the program, which makes it difficult to guarantee the sustainability of the project. In this sense, it is necessary to work on the necessary actions to guarantee the appropriation of the project by the participating agents. It is key to establish an adequate **Organizational Model** that identifies all the agents who can participate in and the responsibilities that each of them can assume, to fulfill all the activities necessary to achieve the goals of the project.

To ensure an effective and efficient monitoring of the NOs, and the maximum generation of positive impacts, it is recommendable to improve the methodological aspects of the project. It would be advisable to continue to support the **monitoring** of the pilot experience and to carry out the appropriate (internal, or external, or both) evaluations in each one of the countries, to extend the lessons learned in this report.

The systematization of this experience is to be very **useful** to strengthen the strategies for the sustainability of the pilot program and its extension in each country, as well as for the promotion of comparable programs by other agents in the same region, or for the implementation of programs with similar objectives in other regions.

1. INTRODUCTION AND BACKGROUND

The "Luces para aprender" (Lights to learn, LtL) initiative, promoted by the Organization of Ibero-American States for Education, Science, and Culture (OEI), was approved at the XXI Ibero-American Conference on Education (Paraguay, September 2011).

It is part of the Education Goals 2021 and shares its ambitious goals of improving educational quality and equity. To meet the objective of the LtL Program, a pilot program has been launched with the aim of implementing the initiative in a number of schools in each participating country. The project is structured in five components:

- Energy
- Information and Communication Technologies (ICT)
- Teacher Training
- Community Strengthening
- Sustainability

As of July 2016, thirteen countries either have implemented the Pilot Program or are in the process of being implemented, as shown in Figure 2. There are currently 36,078 schools without energy in the participating countries, according to the classification shown in Figure 3. The Program is still under negotiation in Brazil and Mexico, whereas it has not been possible to implement it in Ecuador, despite the efforts made by the National Office (NO) to identify schools that could be electrified and to build partnerships. This report focuses on those countries that have implemented the program as of July 2016.

Figure 2. Status of the Pilot Program in the participating countries in July 2016

Implemented (in operation)	Under implementation	Under negotiation	Not implemented
• Argentina • Bolivia • Colombia • El Salvador • Guatemala • Honduras • Nicaragua • Paraguay • Peru • Dominican Republic • Uruguay	• Costa Rica • Panama	• Brazil • Mexico	• Ecuador

Figure 3. Schools without access to electricity in Latin American countries participating or interested in the project (left), and schools participating in the pilot (right).

Source: OEI General Secretariat

The implementation of the LtL Pilot Program in each country has followed the general guidelines provided by the GS-OEI (see Section 2), although it has also been echoed by many different characteristics of each country in terms of human, economic, and political resources, among others. Figure 4 shows the number of participating schools, the number of female and male students, and the number of teachers participating in the set of countries that have implemented or are in the implementation phase of the program. It is worth mentioning that, although the number of total pilot schools is 556, which would result in an average of 43 schools per country, the diversity in the number of participating schools has been very high: while in Guatemala the project has been implemented in only one school, there were 189 schools participating in the project in Colombia. These data reveal the diversity of contexts and circumstances that provided a rich experience across the participating countries.

Figure 4. Number of pilot schools, number of females and male students, and number of teachers participating in the Pilot Program.

Number of pilot schools	Number of female and male students	Number of teachers
• 556	• 25,934	• 1,197

The timing and pace of the adoption and implementation of the project has been different across countries, as shown in Figure 5. While most countries quickly adopted the program (between the first and second quarters of 2012), once the Program was agreed at the XXI Ibero-American Conference on Education in September 2011, there were many countries that did not move the program to a country level until 2015.

The time needed to define the program (phases of design and formulation) has also been variable across countries, as can be seen in Figure 5. There were countries where the design phase was relatively short, lasting several months, such as Argentina, Peru, or the Dominican Republic, whereas it lasted for several years in others such as El Salvador, Guatemala, Costa Rica, or Panama. The duration of the implementation has also varied, although in all cases it has been longer than one year. Some countries implemented the pilot in several phases such as Colombia or Paraguay. In these cases, the chronogram shows the different phases considering the greater number of schools intervened in each one of them.

Figure 5. Calendar of implementation of the LtL Pilot Project across different countries.

STATUS OF THE PROJECT	COUNTRY	2012				2013				2014				2015				2016			
		1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T
Pilot Program Implemented	Argentina																				
	Bolivia																				
	Colombia																				
	El Salvador																				
	Guatemala																				
	Honduras																				
	Nicaragua																				
	Paraguay*																				
	Peru																				
	The Dominican Republic																				
	Uruguay																				
Pilot Program under implementation	Costa Rica																				
	Panama																				

Legend:

- Design phase
- Implementation phase
- Operational phase

2. OBJECTIVES AND OUTLINE OF THE DOCUMENT

This document helps to gather the knowledge acquired until July 2016 with the implementation of the LtL Program in the 13 participating countries (that have implemented the pilot or that are implementing it). Thus, the experience gained in the LtL can change the sustainability of the Program as well as in other programs or regions.

The purpose of this document is to draw on the experience of the LtL pilot program and the national projects implemented (or under implementation). Our aim is to provide a complete and detailed description of the approach of the project in each one of the countries, bringing together the technical aspects of its different components, identifying the difficulties encountered, extracting the lessons learned by the NOs from each country, and anticipating a series of recommendations. In particular, this document intends to:

- To report on the **degree of progress** of the Pilot Project in the 13 countries committed to its implementation as of July 2016. To this end, there were defined 21 follow-up aspects to monitor the key aspects, which include general and important aspects and five components of the program (energy, ICT, teacher training, community strengthening, and sustainability) (See Section 3).

- Provide **detailed and up-to-date information** on the design, formulation, and implementation of the pilot project in each one of the participating countries. To this end, forty-five indicators were defined that summarize the most important aspects of the program; they include the general configuration of the program, the social aspects, the aspects related to the different components, and the economic aspects. These indicators provide key information on the different phases of the program (design, implementation, and operational), components (Energy, ICT, Teacher Training, Community Strengthening, and Sustainability), and other important aspects considered of special interest (configuration of monitoring, creation of partnerships, and institutional strengthening). Annex 1 provides the results of the indicators for all participating countries, and Annex 2 displays summaries of the details of each country.

- Assimilate the view of the NOs on the importance of different **key aspects** identified in the project as well as the evaluation on the degree of success of its implementation.

Section 3 summarizes how the Program has been designed from the organizational point of view. In addition, it describes the general recommendations provided by the GS-OEI on the different components of the Program.

Section 4 summarizes the methodology used to generate this report.

Section 5 summarizes the degree of progress of the project for each country, according to the most important parameters that define its development.

Section 6 describes key aspects of the project and summarizes the way in which the most important issues that define the LtL program have been addressed, for all countries.

In **section 7**, we gather the importance and the evaluation of the implementation of the key aspects of the project, according to the evaluations carried out by the NOs.

Finally, **Section 8** provides some final remarks on the implementation of the program.

Annex 1 provides a rigorous and detailed analysis of the project on the parameters that were selected to characterize the project.

Annex 2 displays the country records, i.e., a summary of the different parameters that have been analyzed for each one of the countries. Overall, the records are shown for 13 countries.

Annex 3 encompasses the systematized parameters that assess the importance that each NO gives each one of them and their degree of implementation.

3. THE STRUCTURE OF LIGHTS TO LEARN

Once the implementation of the LtL Program was approved in 2011, it was decided to carry out a pilot project in the participating countries, to put into practice and learn lessons that could serve as a reference for extending the pilot experience to all the schools without electricity in the countries. The pilot project, implemented in each one of the participating countries, has taken into account many components for which the GS-OEI has developed and shared reference guides, which could be adapted to the particular situation of each one of the countries. Figure 6 provides an overview of the LtL structure.

Figure 6. General Structure of the LtL Program
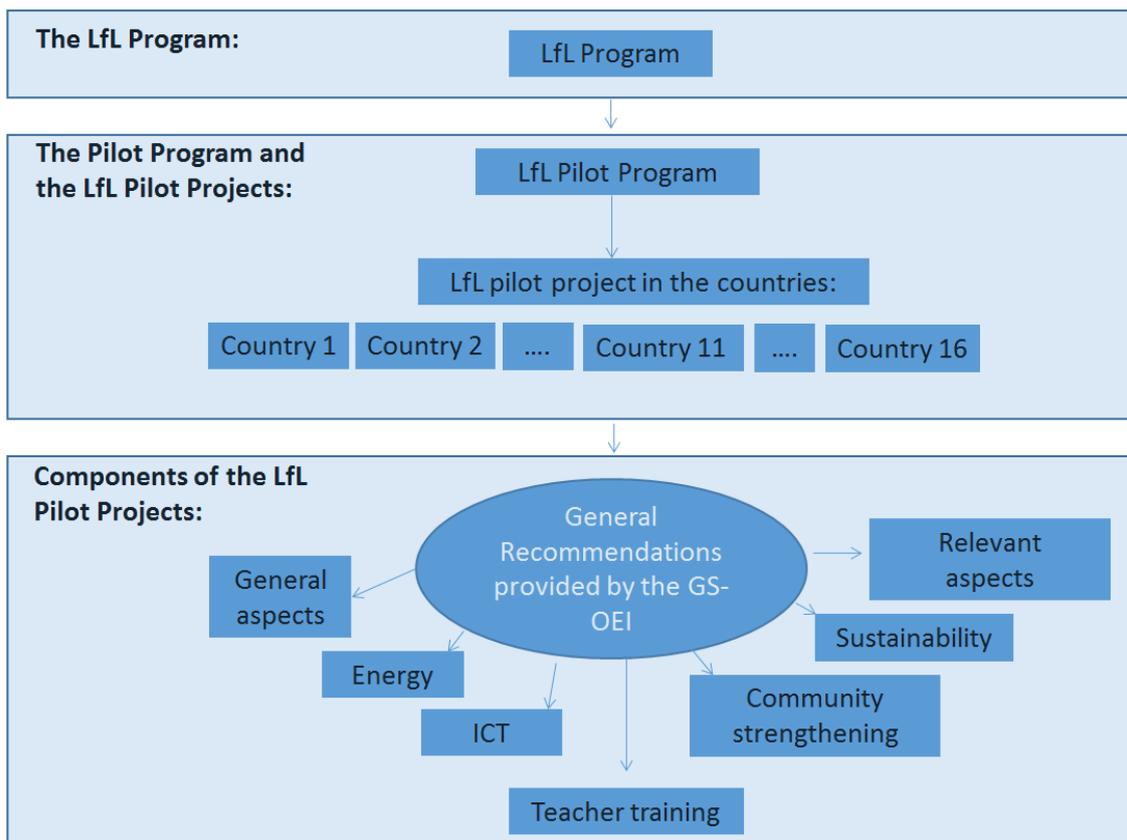
The entire LtL Program has been coordinated by the GS-OEI. Besides the OEI and the NO, there have been collaboration agreements (in accordance with the legal form that each country considered most adequate) with the accompanying public institutions in

the process in each country, which were generally the Ministries of Education[2,3]. These institutions are responsible for assuming the final ownership of the facilities in most of the cases, and therefore of being the insurers of the sustainability of the project. Table 1 indicates the participating public counterparts in the project together with a link to their websites.

Table 1: National Offices participating in the project and National Public Counterpart

Country	OEI National Office	Counterpart
Argentina	OEI Argentina	Ministry of Education, Culture, Science, and Technology of the Province of Chaco
Bolivia	OEI Bolivia	Ministry of Hydrocarbons and Energy
Colombia	OEI Colombia	Ministry of Energy (through the IPSE, Institute for Planning and Promotion of Energy Solutions in the Non Interconnected Zones) Ministry of National Education, Ministry of Information Technologies and Communications
Costa Rica	OEI Costa Rica (lack of a website)	Ministry of Public Education
El Salvador	OEI El Salvador	Ministry of Education
Guatemala	OEI Guatemala	Ministry of Education
Honduras	OEI Honduras	Secretariat for Education
Nicaragua	OEI Nicaragua	Ministry of Education
Panama	OEI Panama (under construction)	Ministry of Education
Paraguay	OEI Paraguay	Ministry of Education and Culture, (through the Department of Indigenous School Education)
Peru	OEI Peru	Ministry of Education
The Dominican Republic	OEI The Dominican Republic	Ministry of Education; Unit for Rural and Suburban Electrification
Uruguay	OEI Uruguay	Ministry of Education and Culture

The recommendations made by the GS-OEI, which are more comprehensively set forth in the Intervention Model[4], include providing reference information to facilitate the

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[2] The indicator 1.11 (Participating institutions) and the indicator 1.14 (Final owner of facilities) of Annex 1 provide detailed information on the participating public institutions in each country.
[3] This document uses the acronym "MED" to denote the Ministries of Education, regardless of the full name or the specific acronym used in each country.
[4] The Intervention Model is a supporting document prepared by Energy without Borders and the GS-OEI Technical Assistance for the LtL, for providing to the NOs an interactive guide that addresses and offers references to design, formulate, and execute the project, taking into account all

definition of all key aspects, identifying different scenarios that may occur for the different components of the program, and anticipating recommendations to define and execute the program with the greatest guarantees of success. In particular, the GS-OEI provided general recommendations on:

The general aspects of the projects. The GS-OEI provided the following reference documents to the countries:

- A Formulation Model specific for the LtL, including a generic planning matrix of the project, and its respective annexes on sustainability and risks.

- A Type Organization Model that includes the key stakeholders of the project and the different responsibilities that need to be defined to design, formulate, execute, and monitor the project, to minimize the risks and strengthen their execution with guarantees of success. This document is presented as a generic proposal that serves as a reference to identify agents and responsibilities; it should be updated as the program carries out.

- The prerequisites prior to the start of the program design. They include the legal conditions on which to be based, or the requirements on the location of the buildings of the schools necessary to carry out the installations.

Technology. This section refers to both the energy and ICT components.

- For the energy component, it has been provided the general design of solar photovoltaic systems, with its respective reference documentation (for example, the General Specifications of Commercial Technical Conditions).
- Regarding the ICT component, given the importance of local conditions in determining the optimum connectivity solution, the GS-OEI has provided a general follow-up and examples on how to address this component. The main connectivity systems may be: Rural ADSL, WiMAX, WiLD, satellite or mobile networks (3G or, occasionally, GPRS-GSM).

We summarize the key aspects to consider in the following chart:

GENERAL RECOMMENDATIONS MADE BY THE GS-OEI FOR THE ENERGY AND CONNECTIVITY COMPONENT

Design of the energy and ICT project

Common aspects of both components

- Characterize the selected schools by gathering critical information for the design and preparation of the specifications of economic technical conditions.
- Define the technical specifications of the equipment according to the local market, taking into account the availability of equipment and experts as well as their price to ensure the quality of the installation.

- Regardless of the type of agreement established with the supplier, installer, maintainer, or both, it is necessary to prepare the Specifications of Technical

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the key aspects. Analogously, this document offers recommendations to mitigate the inherent risks associated with the project.

Conditions, since it determines the quality conditions of the supply, installation, and maintenance.

- Include in the specifications of economic technical conditions the training to be provided by the Installer to the local Technical Assistance, if any, and to the local Technical Support Committee.

- Include in the specifications of economic technical conditions the warranty period of the installation and the desired warranty of each device in the short term (two years), in addition to a long-term professional maintenance proposal (once two years have elapsed).

Specific aspects of the energy component:

Standard installation of the LtL Photovoltaic Solar System (PVSS):

Electric device	Number of units	Power per unit (W)	Number of hours per day	Energy (Wh/day)
Computer[*]	1	60	8	480
Projector or TV	1	200	2	400
Interior lights	6	15	4	360
Exterior lights	2	20	6	240
Communications	1	70	8	560
Other consumption[**]	1	60	1	60
TOTAL ENERGY				2,100 Wh/day

[*] Battery recharging hours, we have assumed up to three recharges for one day.
[**] It includes the consumption of the installation equipment of the photovoltaic system in operation and the recharge of mobile phones, rechargeable batteries, or some other consumption.

Specific aspects of the ICT component:

- The most adequate technical solution to facilitate the connectivity (satellite connection, DSL, etc.) must be proposed by the system installer. It must take into account a technical-economic analysis that provides different solutions to the same country, depending on the local context.

Purchase and equip the energy system and ICT, including the warranty conditions

- Include the Specifications of Technical Conditions together with its annexes as part of the Contract or Agreement of supply, installation, and maintenance for the energy system, the computer equipment, and the connectivity system.

- In addition to the economic aspects (price), examine technical aspects (quality and warranties of the supply, installation, and maintenance) in the evaluation of offers; besides, consider other social aspects whether it is appropriate to do so.

- The Technical Assistance and the Installer should prepare together the

protocols of acceptance and rectification of supplies, and the act of acceptance of supply, prior to the signing of the contract.

- To optimize the logistics of transport and installation of the equipment as well as their associated costs, one can analyze the possibility of transporting PVSS and connectivity equipment in a single operation.

- It is recommendable to cover the internet fees during the first twenty-four (24) months, that is, two years since the launching of the project.

Writing the documentation for the operation and maintenance of the energy and ICT facilities

- Require in the Specifications of Technical Conditions that the Installer prepare the documentation for the operation and maintenance of the facilities.

- Foster the availability of photos and technical data sheets of the installed equipment in schools. This premise can be included in the Contract or Specifications of Technical Conditions.

- Prepare the documentation that accompanies the equipment and the facilities prior to their installation. Set the installations into motion.

- Based on the general documentation provided by the GS-OEI, adapt the existing manuals and procedures for the Local Management Committee and for the community to the specific characteristics of the project in the country (e.g., translate it into the local language).

- Give at least two copies of all documentation for each school.

Temporarily receiving the facilities

- Plan the installation of the ICTs system, subsequent to the signing of the Act of temporary acceptance of the PVSS.

- Prior to the signing of the contract, it is recommendable that the Installer, under the supervision of the Technical Assistance, prepare the acceptance and rectification protocols for the installation and the temporary acceptance of the installation.

- Simplify the protocols as long as they remain effective and address the critical issues for a proper installation.

Teaching training: There are no general recommendations on this component, since the participating countries face very different situations of the knowledge of teachers in ICT, of the official procedures currently available in each country, and of the involvement of the respective MED in the project. On the other hand, the OEI has experience in teacher training, thus the LtL project is an opportunity to place into value these institutional capacities of its own mission. In this component, the focus was on improving the minimum skills of teachers to allow them to incorporate the ICTs in the classroom,

where they can manage the facilities and the acquired skills do not depreciate over time.

Community strengthening: they play a key role in most of the countries during both the implementation and operational phases, although the communities are, in principle, indirect beneficiaries of the project. To this end, recommendations and reference material have been offered to raise the awareness of the communities. Besides, the training of local maintainers and the creation of Local Management Committees (LMCs) have been provided. The key aspects to consider are summarized in the following chart:

GENERAL RECOMMENDATIONS OFFERED BY THE GS-OEI FOR THE COMMUNITY STRENGTHENING

Raising the awareness of the communities:

- To stimulate the community ownership of the project, it is important to explain and involve the communities in the project from its very beginning.
- Raise the awareness of the communities about the facilities provided by the project and the uses they can make of them.
- In any event of awareness raising or of delivery of materials, a communication in accordance with the socio-economic context of the communities should be promoted, which can be easily understood by the communities.

Creation of Local Management Committees (LMC):

- It is recommendable to create a LMC in each community, with at least four members, and with the participation of the teachers and the community members.
- The main responsibilities of the LMC are the management of the facilities (operation, local maintenance, management of uses, and economic management, if the facilities generate small economic flows), the interaction with other agents of the project (the MED or departmental representatives, the NO, the OEI), etc.

Training of local maintainers (in addition to schoolteachers , it is recommendable to involve community members):

- The minimum duration of the training course, for the first level management and maintenance of the facilities, should be of 20 hours.
- The most appropriate time to carry out the training is during the installation of the equipment.
- Whenever possible, the training should be in the local language (where the majority language is not Spanish).
- Provide documentation and reference materials such as posters, training manuals, and operation and maintenance models, prepared according to the socioeconomic level of the communities.
- Promote a participatory approach and an assumption of equitable

responsibilities, facilitating the participation of women in the group of local maintainers.

- Conduct an evaluation of the knowledge acquired by the local managers.
- Establish mechanisms to provide support to these managers to solve the doubts that may arise during a professional maintenance service with greater professional skills (such as through professional managers, or existing technical maintenance structures that are already embedded in the organizational charts of the official institutions like Ministries or City Halls).
- Ensure that there are mechanisms to maintain the capabilities needed to perform local maintenance over time.

Sustainability: since the start of the program, this component has been of great importance. It considers measures to ensure that the services offered by the project endure during the operational phase, extending the scope of the LtL from a proper implementation of the facilities. The Intervention Model contains concrete recommendations on the technical, social, and economic aspects. This ensures that the positive impacts of the project last over time, as summarized in the following chart:

GENERAL RECOMMENDATIONS PROVIDED BY THE GS-OEI FOR THE SUSTAINABILITY

Define the final owner and manager of the facilities:

- It should be clear who will be the final owner and the manager of the facilities (if they are different agents), as this determines the responsibilities of each party. In general, the final owner of the facilities is the MED, and the managers are the schools themselves, although this varies from country to country.

Define the professional maintenance of the facilities:

- The general model suggests the realization of four preventive professional maintenance visits to the facilities, during the first two years of operation. These visits may be stated in the supply, installation, and maintenance contract.
- It is necessary to ensure the long-term professional maintenance, either by establishing maintenance centers, by contracting these services to specialist companies, or by providing these services through existing structures.

Ensure that the capacities of teachers are maintained over time:

- For each one of the countries, the MED should establish the specific systems to ensure that teachers maintain the skills necessary to use the facilities provided. This can be solved in different ways: by including this training in the curriculum development, by carrying out recall sessions, or by performing training meetings.

Ensure that the capacities of local maintainers are maintained over time:

- In the short term (two years since its installation), it can be done through recall sessions provided by professional maintainers when performing preventive maintenance.
- Different protocols can be established in the medium term, depending on the solution adopted to deal with the professional maintenance.

Financial economic model for the operation:

To help ensure that the impacts generated by the project last over time:

- It is recommendable to define the operating costs (operation, maintenance, and replacement of equipment as well as maintenance of teaching and community capacities).
- It is recommendable to establish which institution will pay these expenses and the available mechanisms to finance them.

Other **important aspects** of the project, such as the monitoring and the evaluation, are also integrated into the Intervention Model. A comprehensive solution has been proposed for the monitoring of the project during the implementation and operational phase, as well as a guide to carry out the final internal evaluation of the project.

The important aspects to be considered are summarized in the following chart:

GENERAL RECOMMENDATIONS PROVIDED BY THE GS-OEI ON OTHER IMPORTANT ASPECTS

Monitoring strategy during the implementation phase:

- It is necessary to define the responsibilities and the roles of each one of the parties that are part of the National Commission, according to the Organization Model.
- Establish control mechanisms in order that each party assumes its responsibilities and these responsibilities are coordinated with the rest of the parties.
- Write appropriate monitoring reports and a final project report.

Evaluation of the project:

- Performing a final evaluation of the project can help to identify strengths and weaknesses, allowing one to mitigate the risks while learning lessons for future actions.
- It is recommendable to carry out a final internal evaluation of the project in each one of the participating countries, once six months have elapsed since the beginning of the project.

Monitoring strategy during the operational phase:

- According to the Organizational Model, it is recommendable to define for the operational phase:

- Who will carry out the operation of the systems? Besides, how are they going to be implemented? Distinguish the responsibilities of teachers from the ones of the local communities when the community makes use of the facilities.

- Who will carry out the local maintenance? How will it be done? Define the responsibilities of local maintainers and the LMC.

- Who will manage the funds that the community collects for the use of the facilities? How will it be done?

- How are the failures of energy and ICT facilities going to be reported?

- Who will carry out the monitoring at the national level during the implementation and operational phase? How will it be done?

It is also advisable to capitalize the acquired knowledge, to promote the institutional strengthening, to build partnerships, as well as to disseminate the project.

4. METHODOLOGY

This synthesis document of the LtL Program is the result of the compilation and systematization of the information generated by the GS-OEI, the NOs of each participating country, and the Technical Assistance of the Project, the Energy Without Borders Foundation (EwB).

The preparation of this document was considered once the implementation of the pilot program took place, and it arose from the need to achieve a better understanding of the approach of the Program among the participating countries, in a comparative way. The EwB made a proposal for the preparation of this document in 2014.

In order to systematize the information of each country, the Technical Assistance developed a **specific questionnaire** with the dual purpose of monitoring the **degree of progress** of the project in each country, and of knowing the **approach and the results achieved**. The questions identified in this questionnaire were based on the analysis of the information provided by the NOs to the GS-OEI through different monitoring reports and specific documents. Other important aspects, especially those related to the sustainability of the program, were included in several specific supporting documents developed by the EwB (e.g., the Intervention Model or the General Sustainability Plan).

This questionnaire consisted of 57 open-ended questions that summarized the main aspects; this enables monitoring of the degree of progress (monitoring aspects) and knowing the approach and results of the program in each country (descriptive aspects)[5]. This questionnaire elaborated on aspects related to the general configuration of the project (such as the institutions involved in the project or the number of schools), social aspects, aspects related to the different components (energy, ICT, teacher training, community strengthening, and sustainability), the economic aspects, and difficulties, lessons learned, and recommendations identified in each country. Due to this effort, a document entitled "Three years of Lights to learn. Achievements and Challenges" was prepared in October 2014.

In May 2016, all countries that had completed the Pilot Program and all countries that were in the implementation phase decided to update the 2014 draft with the final information available until July 2016. To this end, the NOs were requested to update the information of the questionnaire prepared in 2014. After several rounds of interactions between the NOs, the GS-OEI, and the EwB, homogeneous information became available among the different countries. This allowed the comparison of the degree of progress of the program in each country and the most important descriptive aspects of the interventions, that is, how the different components and results achieved were addressed (for example, hours of training received by teachers or the type of connectivity system used).

The answers received by the questionnaire were very different on the aspects that were more qualifying and more dependent on the concrete circumstances of each country, such as the difficulties faced, the lessons learned, and the recommendations made;

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[5] Some of the questions presented in the questionnaire served the dual purpose of monitoring and knowing how implementation was being done.

thus, it was very difficult to systematically order them, and draw conclusions for all the countries.

Due to the difficulty of comparative analysis of these issues and the importance of their correct understanding for the GS-OEI and the EwB, a new questionnaire was developed in July 2016. It aims to capture the perception of the NOs with respect to the evaluation of the importance of the **key aspects**, as well as their implementation, in a systematic and quantitative way. This questionnaire considered the 19 key aspects in the form of 38 questions (it was requested to assess the importance and the degree of implementation of each one of the key aspects identified). These aspects consider the ownership of the project by the different agents involved in, other general and important aspects, and the components of energy, ICT, teaching and community strengthening, and sustainability.

The following figure summarizes the objectives, means, and results obtained until the generation of this report.

Figure 7. Main milestones in the collection, systematization, and elaboration of this report
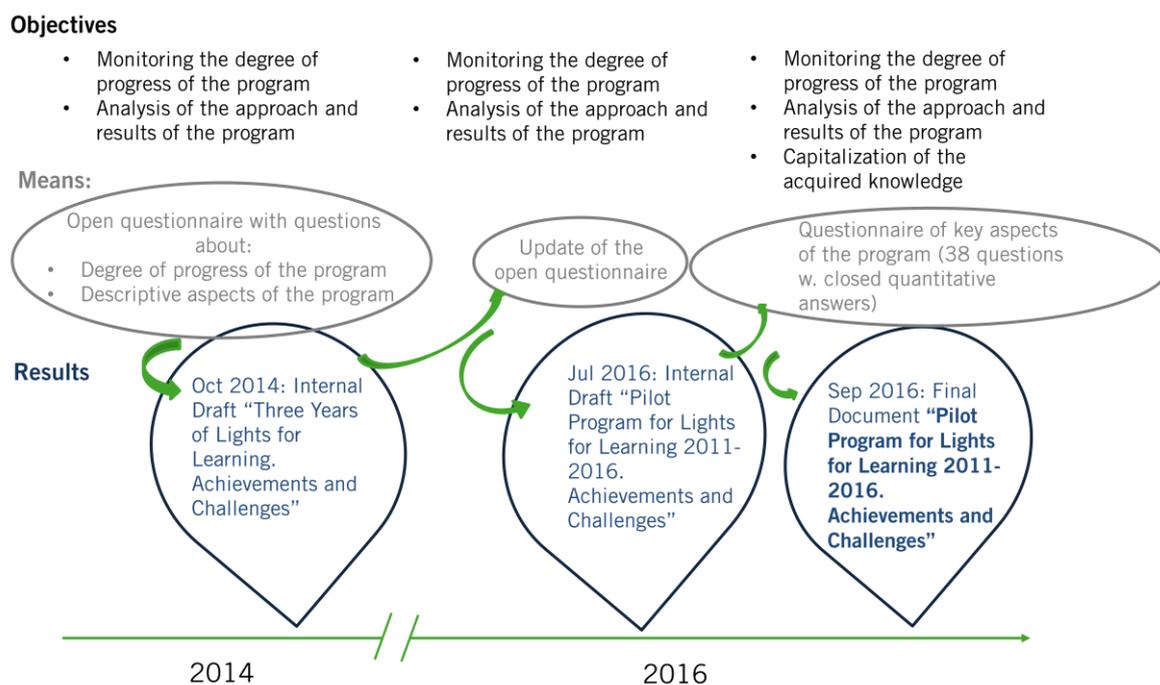
The gathering of the information has been a joint effort by the OEI National Offices, the OEI General Secretariat, and the Technical Assistance, the Energy without Borders Foundation

4.1. Degree of progress of the Program in each country - Monitoring aspects

The degree of progress of the Program in each participating country has been analyzed through monitoring 21 aspects related to the general and important aspects of the project, as well as to the different specific components. These indicators have taken into account issues related to the design, implementation, and operational phase. Three levels of progress were used in each one of the aspects. The progress of the Pilot Program was calculated based on a reference score of 21 points (each country could obtain a maximum score of 21 points, one per activity), according to the following classification:

- Not performed activity (score 0)
- Partially performed activity (score 0.5)
- Completely performed activity (score 1)

If an activity was not considered in the components to be developed in a given country (for example, Bolivia ignored the energy component), the relative progress was measured without taking into account that activity (the maximum score of Bolivia ignored the score that could be obtained for the energy component).

The monitoring of the program is also considered in this report, although the project has already finished in 11 countries, since it helps to understand how the program has been addressed in the different countries. Twenty-one monitoring indicators were considered, as shown in Table 22. Section 5 shows the results of the progress of the program in the participating countries.

Table 2. Monitoring aspects of the project by component

Components of the project	Monitoring aspects
General and Important Aspects	Identification of schools
	Conditioning of schools (if necessary)
	Formulation of the project
	Creation of partnerships
	Final owner of the facilities
	Monitoring of the project during implementation
	Institutional strengthening
Energy	Design realization
	Subscription of the contract or agreement for the supply, installation, and maintenance
	Commissioning of the facilities
ICT	Design realization

Components of the project	Monitoring aspects
	Subscription of the contract or agreement for the supply, installation, and maintenance
	Commissioning of the facilities
Teacher Training	ICT training for schoolteachers of the LtL
	Basic procedures and regulations for the pedagogical management and administration of the technological resources
Community Strengthening	Creation of the Management Committees
	Awareness-raising of communities
	Availability of procedures for the training of local maintainers
Sustainability	Availability of procedures for the periodic updating of the training of teachers
	Availability of procedures for the maintenance of the capabilities of the local maintainers over time
	Availability of the operational plan, including the economic and the financial model

4.2. Analysis of the approach and results of the Program - Descriptive aspects

The analysis of the approach and results of the program, in each participating country, has been made through the selection of 45 descriptive questions; they provide the most important information on the General and Important Aspects, on the five specific components of the program, and on the global economic aspects. This information helps to understand, under the same perspective, the different ways to approach and implement the pilot programs. The descriptive indicators used are those indicated in Table 3.

In the questionnaire prepared in 2014 (see Figure 7) and in the information update requested to the NOs through the same questionnaire in May 2016, open questions were included with respect to the difficulties, lessons learned, and recommendations that each country considered to be of major importance. Nevertheless, the answers obtained were disparate, which makes the comparative analysis extremely difficult. Thus, the answers to these questions have only been displayed on the Annex 2 of this report, which presents the question form of each one of the countries.

The results for the set of participating countries are presented in Section 6 of this document. Annex 1 provides comprehensive information for each one of the country-level aspects, whereas Annex 2 displays a detailed analysis for each country, describing in detail the content to which these indicators refer.

Table 3. Descriptive aspects of the project by component

Components of the Project	Descriptive aspects
General and Important Aspects	Total number of schools without access to light at the country level
	Number of beneficiary schools in the pilot phase
	Number of students per school
	Geographical dispersion of the schools
	Criteria for the selection of schools
	Uses of the schools
	Risk in the safety of the facilities
	Inclusion of the LtL into other governmental and non-governmental programs
	Social marketing campaign
	Evaluation of the project
	Institutions involved
	Influence of the political context
	Recruitment of Technical and/or Social Assistance
	Final owner of the facilities
	Manager of the facilities
	Institutional ownership
	Awareness-raising to local authorities and departmental representatives of the MED
	Teacher mobility
Energy	Photovoltaic Solar System (PVSS) Design
	Contract or agreement for the supply, installation, and maintenance under the warranty period of the PVSS
	Maintenance of the PVSS during the warranty period
	Long-term maintenance of PVSS
ICT	Type of connectivity system and costs of service fees
	Technical solution of the ICT system (computer and communications equipment)
	Contract or agreement for the provision, installation, and maintenance (during the warranty period) of the connectivity system (including computer equipment)
	Maintenance of the connectivity system, including computer equipment, during the warranty period
Teacher Training	ICT training for teachers in the schools of the LtL
	ICT training for other teachers and pedagogical advisors
	Basic procedures and regulations for pedagogical management and administration of technological resources
Community Strengthening	Participation of the local community
	Local Management Committees
	Awareness raising of the communities

Components of the Project	Descriptive aspects
	Local maintainers
	Training of the local maintainers
Sustainability	Periodic updating of the capabilities of the teachers
	Maintenance of the capabilities of the local maintainers over time
	Operational plan for the community
	Operating costs for the sustainability
	Financial Model
	Economic contributions of the community during the operational phase
Global Economic Aspects	Availability of economic data
	Total investment costs of the project
	Investment per school
	OEI contributions in relation to the total cost of the project
	OEI contributions per school

4.3. Capitalization of the knowledge acquired with the program - Key aspects

The assessment of the key aspects of the Project through a specific questionnaire requested to the NOs, prepared and distributed in July 2016, responded the need to eliminate the subjectivity biases, arising from the open answers provided by the NOs to the questions raised about the difficulties, lessons learned, and recommendations. Besides, this specific questionnaire gives an overall understanding of the view of the NOs about the program. Therefore, comparable data were obtained between countries, and it is possible to present a view of the LtL under the same perspective for all countries.

The selected questions addressed the key aspects of the project, considering the importance of the different aspects of the LtL in the country, and the way it was approached. We identified 19 key aspects, as shown in Table 4, for which the NOs were asked to rate:

- The importance of the aspect in the country.
- The success of the implementation of the aspect in the country.

This questionnaire was quantitative, allowing responses from 1 to 4. The NOs could also comment or highlight any aspect they considered appropriate. Annex 3 provides more details of this questionnaire.

The aggregate results presented in this document (see Section 6) consider the responses provided by all countries that have implemented the project in August 2016.

We excluded the responses of Costa Rica and Panama for the elaboration of the aggregate results, because the implementation of the Pilot Program has not been completed in these countries and their responses are likely to change. The specific country forms provided in Annex 2 contain the specific assessments of each one of the countries.

Table 4. Key aspects of the Pilot Program by component

Component	Key aspects
Appropriation	Institutional appropriation - Central Government Institutions
	Institutional appropriation - Regional or Local Bodies
	Appropriation by the local communities
	Appropriation by schoolteachers
General and important aspects	Monitoring Mechanisms
	Delays in the implementation
	Turnover of teachers
	Security measures
Energy component	PVSS Technical Solution
	PVSS operability
ICT component and connectivity	Connectivity Technical Solution
	Connectivity Operability
	Computer Equipment Technical Solution
	Operability of the Computer Equipment
Teacher training, community strengthening, and sustainability	Inclusion of ICTs in the pedagogical processes
	Responsible use of the facilities - communities
	Mechanisms for the maintenance of the capacities of teachers
	Mechanisms for the maintenance of the capacities of the local maintainers
	Measures for the sustainability

5. DEGREE OFI MPLEMENTATION OF THE LTL PILOT PROGRAM

The Pilot Program considered five components for the improvement of education. Nevertheless, there were countries that, for different reasons, did not take into account all components of the program, as shown in Table 2. The average relative percentage of the implementation of activities was of 81%, ranging from 67% in Argentina to 85% in Honduras, Peru, and the Dominican Republic.

 It is worth mentioning that:

- Bolivia has not implemented the **energy** component, since it has integrated the LtL pilot project into other initiatives such as Eurosolar or GPOBA.
- Countries such as Argentina and Nicaragua have not advanced in the **connectivity** component since the technical solutions available to facilitate this service generally have very high operating costs. Seven countries have integrated the connectivity component through other programs. In other cases, such as in El Salvador, connectivity has been provided only in a small fraction of the schools belonging to the pilot project.
- As shown in Table 5, the **sustainability** component has been interpreted in different ways across the countries, and most of the activities that compose it **have not been implemented in any country**. This is especially true in relation to the "Exploitation Plan."

Costa Rica and Panama are implementing all the components of the pilot project, and the expected commissioning dates are December 2017 and April 2017, respectively.

The activities related to **teacher training and community strengthening** were considered in the vast majority of the participating countries, although they were not implemented yet in Costa Rica and Panama. It is worth mentioning that there will be no LMCs in Argentina, whereas they will be structured within existing local government structures in other countries (see section 5.2 of Annex 1).

Regarding the **sustainability**, the final owners of the facilities have been defined in all cases, which in most cases correspond to the MED or their local representatives. The plans for maintaining the capacities of the local maintainers and teachers have been partially defined in most countries. Only Uruguay has completely implemented it. No country other than Uruguay has considered the Operational Plan of the project, where the economic and financial models should be included.

Table 5 displays the status of the monitoring indicators as of July 2016, that is, the degree of implementation of the key aspects of the different components.

Table 5: Actions considered in the Pilot Project of each country (see the legend below)

Project components	Monitoring aspects	Pilot Program Implemented											rel. % of imp.	Pilot Program under implementation	
		AR	BO	CO	SV	GT	HN	NI	PY	PE	DO	UY		CR	PA
General and Important Aspects	Identification of schools	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100.0	✓	✓
	Conditioning of the schools	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100.0	x	x
	Formulation of the project	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100.0	✓	✓
	Creation of partnerships	✓	x	✓	✓	x	✓	x	✓	✓	✓	✓	72.7	x	x
	Definition of the final owner of the facilities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100.0	✓	x
	Definition of project monitoring during implementation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100.0	~	~
	Institutional strengthening activities	✓	✓	x	✓	✓	✓	✓	x	✓	✓	x	72.7	x	x
Energy	Design realization	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	90.9	~	x
	Subscription of the contract or agreement for the supply, installation, and maintenance	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	90.9	x	x
	Commissioning of the facilities	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	90.9	x	x
ICT	Design realization	~	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	95.5	~	x
	Subscription of the contract or agreement for the supply, installation, and maintenance	~	✓	✓	✓	x	✓	x	~	✓	~	~	63.6	x	x
	Commissioning of the facilities	~	✓	✓	✓	✓	✓	~	~	✓	✓	✓	86.4	x	x

Project components	Monitoring aspects	Pilot Program Implemented											rel. % of imp.	Pilot Program under implementation	
		AR	BO	CO	SV	GT	HN	NI	PY	PE	DO	UY		CR	PA
Teacher Training	ICT training for schoolteachers	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	90.9	1	x
	Availability of the basic procedures and regulations for the pedagogical management and administration of the technological resources	x	✓	✓	x	✓	x	✓	x	✓	✓	✓	63.6	1	x
Community Strengthening	Creation of the Management Committees	x	✓	~	~	✓	✓	✓	✓	✓	~	x	68.2	1	x
	Awareness-raising of the communities	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	90.9	1	x
	Availability of procedures for the training of local maintainers	✓	✓	✓	✓	x	✓	✓	✓	x	✓		72.7	1	x
Sustainability	Availability of procedures for the periodic updating of the training of teachers	~	~	x	~	✓	~	~	~	~	~	✓	54.5	1	~
	Availability of procedures for the maintenance of the capabilities of the local maintainers over time	x	~	x	~	x	~	~	~	✓	~	✓	45.5	1	~
	Availability of the operational plan, including the economic and the financial model	x	x	x	x	x	x	x	x	x	x	✓	9.1	1	x
Relative percentage of implementation		66.7	83.3	78.6	78.6	76.2	85.7	78.6	76.2	88.1	85.7	83.3	81.2		

Legend: AR: Argentina; BO: Bolivia; CO: Colombia; SV: El Salvador; GT: Guatemala; HN: Honduras; NI: Nicaragua; PY: Paraguay; PE: Peru; DO: The Dominican Republic; UY: Uruguay; CR: Costa Rica; PA: Panama

✓ Fully implemented action	~ Partially implemented action	x Not implemented action	Ignored action

6. DESCRIPTION OF THEAPPROACH AND RESULTS OF THE LTL PILOT PROGRAM

This section describes the implementation results, in each one of the countries, for the general aspects, the economic aspects, and the five components considered in the program.

6.1. General aspects of the LtL program

Most countries have more than 100 **schools without access to electricity**. More specifically, Peru has more than 14,000 schools without access to electricity, whereas there are less than 100 in Uruguay. The Pilot Program has been implemented or will be implemented in 556 schools, although the number of **schools involved in the LtL through the pilot project** in the different countries varies widely, from one school in Guatemala to 189 in Colombia. The number of students in these schools is also very variable, although there are **20 to 100 students** in most schools.

The schools may be **dispersed** throughout the country (in six countries: Bolivia, Colombia, Panama, Paraguay, Peru, and Uruguay), grouped into several regions (in three countries: Honduras, Nicaragua, and the Dominican Republic), or grouped into a single region (in three countries: Argentina, Costa Rica, and El Salvador). The **selection criteria of schools** for the pilot project are diverse, including aspects of geographical isolation of the schools (this variable has been considered in nine countries: Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Panama, Paraguay, Peru, and the Dominican Republic), situation of energy shortage in schools and its absence in the electrification plans in the short or medium term (in 10 countries: Colombia, Costa Rica, El Salvador, Honduras, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, and Uruguay), the social aspects (in eight countries: Colombia, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, and the Dominican Republic), the alignment with policies and/or programs (in three countries: Bolivia, Colombia, and Peru), the availability of internet connection coverage (in three countries: Colombia, Honduras, and Peru), different assessments of the school facilities (in four countries: Colombia, Guatemala, Nicaragua, and Paraguay), the institutional aspects (in five countries: Costa Rica, El Salvador, Guatemala, Honduras, and Argentina), and the technical sustainability (in one country: Honduras).

Except for Peru, the schools are open for **community use**, which include: the recreational activities (in seven countries: Argentina, Guatemala, Nicaragua, Panama, Paraguay, the Dominican Republic, and Uruguay), the possibility of providing training

and other community activities (in seven countries: Costa Rica, El Salvador, Honduras, Nicaragua, Panama, the Dominican Republic, and Uruguay), literacy and training of adults (in seven countries: Argentina, Guatemala, El Salvador, Honduras, Nicaragua, Panama, and Paraguay), as an energy hub to provide energy services to the community (in three countries: Bolivia, Guatemala, and Honduras), and as a computer hub to provide computer and telecommunications services (in four countries: Bolivia, Colombia, Guatemala, and Honduras). The most common community uses are: training, access to information and communication, meetings, and productive uses (recharge of mobile batteries and lamps, and cinema). Other community uses are: administrative management, voting, shelter, religious worship, and medical consultations.

The **risk of theft** in schools varies, in most cases, from medium to high (10 countries in total: Argentina, Bolivia, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Peru, and the Dominican Republic). A number of measures have been taken to improve the security of the facilities, including improvements in the facilities (in seven countries: Bolivia, El Salvador, Guatemala, Honduras, Nicaragua, Panama, and Uruguay), the creation of vigilance committees (in seven countries: Argentina, Bolivia, Colombia, Honduras, Panama, Peru, and the Dominican Republic), and raising community awareness (in five countries: Argentina, Colombia, Panama, Paraguay, and the Dominican Republic). As an exception, a security guard has been hired in one of the schools in Peru, and the surrounding houses of a school in the Dominican Republic have been electrified to monitor the facilities.

In general, the LtL has been **incorporated into other programs**, either public or private, including: teacher training programs (in six countries: Argentina, Honduras, the Dominican Republic, Paraguay, Peru, and Uruguay), community formation training (in four countries: Honduras, Paraguay, Peru, and Uruguay), connectivity programs (in five countries: Colombia, El Salvador, Panama, Paraguay, and Uruguay), ICT programs (in four countries: Honduras, Colombia, Paraguay, and Costa Rica), other energy programs (in three countries: Colombia, Panama, and the Dominican Republic), and other programs to improve the facilities (Honduras), the provision of ecological gardens (Uruguay and El Salvador), or water supply (Argentina and Panama). The LtL was not integrated into other programs in only two countries (Guatemala and Nicaragua).

Most countries (10 countries) has used the **social marketing campaign**, although it has been implemented in different ways: through the internet (in two countries: El Salvador and Nicaragua), at the national level (in three countries: Panama, the Dominican Republic, and Uruguay), at the national and at the local level (in three countries: Honduras, Paraguay, and Peru), and at the local level (in two countries: Bolivia and Colombia).

At the NOs level, in general, no **final external evaluation** of the project is expected, except for Nicaragua. It is planned to carry out an impact assessment in Peru, in charge of the MED, and in Panama, together with the participating private organizations. The NO of Colombia has elaborated an Instrument of Diagnosis and Evaluation that will be later shared with the other countries. In this context, the GS-OEI will conduct an external evaluation of the entire pilot experience in 2016-2017, accompanied by the IESME (the OEI Evaluation Institute).

The **public institutions involved** in the project vary: the MED (in 11 countries: Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, and Uruguay), local authorities of the MED (in three countries: Argentina, Nicaragua, and Peru), other Public Ministries (in three countries: Bolivia,

Colombia, and El Salvador), public collaborating institutions (in eight countries: Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Paraguay, the Dominican Republic, and Uruguay), Municipalities (in three countries: El Salvador, Guatemala, and Honduras), and other private collaborating partners (in 10 countries: Argentina, Colombia, El Salvador, Honduras, Nicaragua, Panama, Paraguay, Peru, and Uruguay).

The **political context** is important in most of the countries. It may involve a renegotiation of the project in eight countries (Bolivia, Colombia, El Salvador, Guatemala, Panama, Paraguay, Peru, and the Dominican Republic). The political context can also lead to solvable setbacks in two countries (Argentina and Guatemala), while it is not considered important in three countries (Honduras, Nicaragua, and Uruguay).

There were **assistance (technical or social to complement the technical capacities of the NOs)** grants provided through conventions (in four countries: El Salvador, Guatemala, Paraguay, and Uruguay). They were also hired for one component (in five countries: Argentina, Colombia, Costa Rica, Honduras, and the Dominican Republic), or for the entire project (in two countries: Panama and Peru). However, they were disregarded in two countries (Bolivia and Nicaragua).

The **final owner of the facilities** will be: the MED (in seven countries: Costa Rica, El Salvador, Honduras, Nicaragua, Panama, Paraguay, and Uruguay), the local representatives of the MED (in three countries: Colombia, Peru, and the Dominican Republic), the municipalities (in two countries: Bolivia and Colombia), and the communities (in three countries: Argentina, Bolivia, and Guatemala).

The **manager of the facilities** will be the school (in four countries: Bolivia, Colombia, Honduras, and Panama), or the community (in six countries: Argentina, Bolivia, Costa Rica, Guatemala, Nicaragua, and Panama). They could also be the local representatives of the MED (one country: Peru), the MED (in four countries: El Salvador, Paraguay, the Dominican Republic, and Uruguay), and other private organizations (in one country: Nicaragua) for a certain number of schools.

The **institutional appropriation** is high (in nine countries: Bolivia, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay, and Peru) and medium (in four countries: Argentina, Panama, the Dominican Republic, and Uruguay).

The **awareness raising for local authorities and for the representatives of the MED** has been performed or is expected to take place in nine countries (Argentina, Bolivia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Peru, and the Dominican Republic), while it has not been carried out in four countries (Colombia , Panama, Paraguay, and Uruguay).

The **mobility of teachers** is high in five countries (Argentina, Bolivia, Panama, Peru, and Uruguay), but low in other eight countries (Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay, and the Dominican Republic).

6.2. Energy

The **PVSS design**, provided by the GS, has been used in four cases (Guatemala, Honduras, Paraguay, and the Dominican Republic). However, there were adjustments on

the overall design in eight countries (Argentina, Colombia, Costa Rica, El Salvador, Nicaragua, Panama, Peru, and Uruguay). In all cases, the overall design has been adapted to the weather conditions of the region, taking into account the solar radiation and the local temperature. The design adjustments made by the countries are very diverse, including the adjustments by: number of students, number of classrooms, weather conditions, existing technology, inclusion of further consumption, and requirements of the Ministry of Education.

Regarding the **contract or agreement** for the supply, installation, and maintenance under the warranty period of the PVSS, it is worth noting that eight countries have followed the guidelines of the general model (Argentina, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, and Uruguay). However, one country (Colombia) has made adjustments of the general model, and two countries (El Salvador and the Dominican Republic) have signed a contract for the supply and an agreement for the installation and maintenance under warranty.

Regarding the **maintenance type** that will be provided during the first two years since the commissioning of the facility, eight countries (Argentina, Costa Rica, Guatemala, Honduras, Panama, Paraguay, Peru, and Uruguay) have adopted the maintenance system proposed by the GS. This maintenance system provides two years of warranty service by the installer, including four preventive maintenance visits and the visits required for corrective maintenance. On the other hand, four other countries (Colombia, El Salvador, Nicaragua, and the Dominican Republic) have made some adjustments in the maintenance system, mainly in the number of visits associated with the preventive maintenance. In only one country, preventive maintenance visits (Bolivia) have not been considered. The **long-term maintenance of the PVSS** is still to be defined in the majority of cases (10 countries: Argentina, Colombia, Costa Rica, Guatemala, Honduras, Nicaragua, Panama, Paraguay, the Dominican Republic, and Uruguay).

6.3. Information and Communication Technologies

The solutions adopted for the type of **connectivity system** and the fees for services varied across the countries:

- The connectivity is not included in the project in two countries (Argentina and Nicaragua). In Panama, it has only been included in two out of the eight schools; the other six schools offered an offline solution.

- In three countries (in Bolivia, in 12 schools in Honduras, and in two schools in Panama), a satellite solution was hired by the project, with monthly costs in the range of 80-709 USD/school. The project paid the fees during six months - one year.

- In three countries (in one school in El Salvador, in one school in Guatemala, and in four schools in Honduras), DSL connection was provided.

- The connection has been provided through other programs in seven countries (Colombia, Costa Rica, El Salvador, Paraguay, Peru, the Dominican Republic, and Uruguay).

The solution for the **computer and communication equipment** varied. Nine countries adopted the general solution proposed by the GS (Argentina, Bolivia, Colombia, Costa Rica, Guatemala, Honduras, Nicaragua, Panama, and Uruguay). However, four countries made different adjustments to this generic proposal (El Salvador, Paraguay, Peru, and the Dominican Republic).

As for the **contract or agreement for the provision, installation, and maintenance** (during the warranty period) of the connectivity system (including the computer equipment), the decisions have been diverse. Some countries have chosen mixed options, and then they are classified under many categories:

- In one of the countries, no computer device has been installed (El Salvador, except for one school).
- In four countries, the computer equipment have been donated (Argentina, Colombia, one school in El Salvador, and Honduras).
- The computer equipment have been purchased with the financial support from the project in 10 countries (Argentina, Bolivia, Costa Rica, Guatemala, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, and Uruguay).

The maintenance aspects of the connectivity system are not considered, except when the connectivity system is covered by an institution or program.

In general, the **warranty of the computer equipment** lasts one year and no maintenance visits are included, except for two countries (Peru and the Dominican Republic). Only Uruguay is planning to realize remote monitoring and the reception of telephone complaints. Besides, only Nicaragua has requested the extension of the warranties for another year.

6.4. Teacher training

The **ICT training for schoolteachers** has taken place in different ways:

- In five countries (Honduras, Nicaragua, Panama, Paraguay, and Peru), the training duration was over 20 hours.

- In seven countries (Argentina, Bolivia, Colombia, El Salvador, Guatemala, the Dominican Republic, and Uruguay), the training duration was less than 20 hours.

- It has not been carried out in a country (Costa Rica, but is expected to be implemented).

Specific material has been provided to teachers in most of the countries. The acquired knowledge has been evaluated (in eight countries: Argentina, Bolivia, Colombia, El Salvador - expected, Guatemala - to be realized, Honduras, Peru, and the Dominican Republic). However, it was not assessed in three countries (Nicaragua, Paraguay, and Uruguay).

Other teachers and pedagogical advisors have been trained in ICT in five countries (Nicaragua, Paraguay, Peru, the Dominican Republic, and Uruguay).

There are **basic procedures and norms** for the pedagogical management and administration of the technological resources in nine countries (Bolivia, Colombia, Costa Rica, Guatemala, Nicaragua, Panama, Peru, the Dominican Republic, and Uruguay). However, they are absent in four countries (Argentina, El Salvador, Honduras, and Paraguay).

6.5. Community strengthening

In all cases, the **participation of the local community** is high.

In all cases, except in two countries (Argentina and Uruguay), **Management Committees** have been established:

- Specific for the project in seven occasions (Bolivia, Guatemala, Honduras, Nicaragua, Panama, Paraguay, and Peru).
- Through different types of existing committees in four countries (Colombia, Costa Rica, El Salvador, and the Dominican Republic).

The **community awareness has raised** in 12 out of the 13 considered countries (Bolivia, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, and Uruguay).

Different agents have been selected to perform the **local maintenance**:

- School and community representatives with no defined responsibilities (five countries: Argentina, Costa Rica, Panama, the Dominican Republic, and Uruguay).
- School and community representatives with defined responsibilities (two countries: El Salvador and Peru).
- School representatives with no defined responsibilities (one country: Colombia).
- Community representatives with defined responsibilities (four countries: Honduras, Guatemala, Nicaragua, and Paraguay).

The **training of local maintainers** has been realized (or is to be realized) in all countries:

- This training took less than a day in eight countries (Argentina, Colombia, Costa Rica, Guatemala, Panama, Paraguay, Peru, and Uruguay).
- It has lasted more than one day in five countries (Bolivia, El Salvador, Honduras, Nicaragua, and the Dominican Republic).

6.6. Sustainability

The regular updating of teacher training:

- It is not planned in two countries (Argentina and Colombia).

- It will be financed by the MED in 10 countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, and Uruguay).
- It will be done online, through the OEI, in a country (Bolivia).

The **maintenance of the capacities of the local maintainers** over time has been planned in several ways:

- To be financed by the MED in the majority of cases (seven countries: Costa Rica, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, and Uruguay).
- To be carried out through the Municipalities (two countries: Bolivia and Guatemala) or the Universities (one country: El Salvador).
- Absent in three countries (Argentina, Colombia, and Honduras).

The **Operational Plan for the community** has not been drafted in any case. Two countries have prepared documentation that partially covers two books of operation, one technical and another of community development with different topics of interest to teachers, students, and communities in the case of Uruguay; a maintenance manual for the equipment was elaborated in Panama. Another country (Costa Rica) plans to develop it.

Only one country (El Salvador) has delved into the **operating costs for the sustainability**, which analyzed the costs of replacing equipment.

The **financial model for the operational phase** has not been elaborated in detail in any country. The NO expects the following institutions to bear the costs:

- The MED is the responsible for covering the operating costs (eight countries: Argentina, Colombia, Costa Rica, El Salvador, Panama, Paraguay, Peru, and Uruguay).

- The community is responsible for covering the operating costs (two countries: Guatemala and Honduras).

- The Municipality is responsible for covering the operating costs (two countries: Bolivia and Colombia).

- Not defined (in two countries: Nicaragua and the Dominican Republic).

In one country, the operating costs are shared between the MED and the Municipality (Colombia).

Regarding the **economic contributions of the community during the operational phase**, the community is expected to make economic contributions in four countries (El Salvador, Guatemala, Honduras, and Nicaragua), while this is not possible in nine countries (Argentina, Bolivia, Colombia, Costa Rica, Paraguay, Panama, Peru, the Dominican Republic, and Uruguay).

6.7. Global economic aspects of the project

The majority of countries have **detailed budgets for project formulation** (12 countries: all except for Colombia).

In most cases (nine countries: Argentina, Bolivia, El Salvador, Honduras, Nicaragua, Panama, Paraguay, Peru, and the Dominican Republic), the **total investment costs** range from USD 300,000 to USD 1,500,000. The investment is lower than this range in two countries (Costa Rica and Guatemala), but it exceeds this range in another two countries (Colombia and Uruguay).

The **investment per school** has been analyzed in each country. Nevertheless, this parameter is provided only at the indicative level; this indicator is barely representative for the average of the countries due to the difference in the scope of the program, the number of schools considered, and the context of each country. The investment per school is lower than USD 25,000 in seven countries (Bolivia, Colombia, El Salvador, Guatemala, Paraguay, the Dominican Republic, and Uruguay); it lies in the range of USD 25,000 to USD 50,000 in another four countries (Argentina, Honduras, Nicaragua, and Panama), whereas it is higher than USD 50,000 in another country (Peru). The data for Costa Rica are unknown.

The **contribution of the OEI** with respect to the **total cost of the project** has varied. It has been lower than 50% in five countries (Bolivia, Colombia, Nicaragua, Paraguay, and Uruguay); it has lied in the range of 50 to 75% in three countries (Guatemala, Honduras, and Peru), and it has been higher than 75% in four other countries (Argentina, El Salvador, Panama, and the Dominican Republic). The data for Costa Rica are unknown.

The **OEI contributions per school** have been lower than USD 15,000 in most cases (seven countries: Bolivia, Colombia, El Salvador, Guatemala, Paraguay, the Dominican Republic, and Uruguay), between USD 15,000 and USD 30,000 in two countries (Honduras and Nicaragua), and higher than USD 30,000 in three other countries (Argentina, Panama, and Peru).

7. KEY ASPECTS OF THE PROGRAM

The LtL Pilot Program has a lot of experience in 15 countries. Mexico and Brazil are still in negotiation; Costa Rica and Panama are in implementation, while Argentina, Bolivia, Colombia, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay, Peru, the Dominican Republic, and Uruguay have completed the implementation of the pilot in July 2016.

The previous sections have shown the variety of approaches, contexts, and resources, both human and economic, that the program has used across the different countries. This chapter analyzes the evaluation of the importance of the most relevant aspects of the project. It also examines the success of the implementation of the program in each country, through a series of key aspects defined for this purpose (see Section 4.3). Both the importance and the success of the implementation were measured on a scale from 1 to 4; a score of 1 denotes a low importance or implementation, whereas a score of 4 indicates a high importance or implementation (see Annex 3).

As shown in Table 6, Key aspects of the Pilot Program by component, all aspects are very important (with a global mean score of 3.5 on a scale of 4) for the achievement of the project goals. Nevertheless, the evaluation of the success of its implementation is lower than its importance, with an average score of 2.9 (on a scale of 4).

The least important parameter was the connectivity operability (with a score of 2.7 out of 4), followed by delays during the implementation (with a score of 2.9 out of 4). The highest importance scores were obtained by the parameters related to the appropriation (with a score of 3.8 out of 4, in the appropriation by the local communities and schoolteachers) and sustainability.

The implementation of the different aspects obtained the lowest scores in the aspects related to the technical solution of connectivity (with a score of 2.1 out of 4) and in the aspects related to the sustainability. The most positive implementation was obtained in the parameters related to the appropriation of teachers (with a score of 3.5 out of 4) and local communities (3.5 out of 4). The PVSS technical solution and its operability also obtained high scores (3.5 out of 4).

Table 6: Key aspects of the Pilot Program by component

Component	Key aspects	Importance	Implementation
Appropriation	Institutional appropriation - Central Government Institutions	3.8	2.8
	Institutional appropriation - Regional or Local Bodies	3.6	2.7
	Appropriation by the local communities	3.8	3.5
	Appropriation by schoolteachers	3.8	3.6
General and	Monitoring Mechanisms	3.8	3.1

Component	Key aspects	Importance	Implementation
important aspects	Delays in the implementation	2.9	2.6
	Turnover of teachers	3.1	2.5
	Security measures	3.5	2.7
Energy component	PVSS Technical Solution	3.4	3.5
	PVSS operability	3.5	3.5
ICT component and connectivity	Connectivity Technical Solution	3.4	2.1
	Connectivity Operability	2.7	3.0
	Computer Equipment Technical Solution	3.4	2.9
	Operability of the Computer Equipment	3.3	3.3
Teacher training, community strengthening, and sustainability	Inclusion of ICTs in the pedagogical processes	3.8	2.5
	Responsible use of the facilities - communities	3.8	3.1
	Mechanisms for the maintenance of the capacities of teachers	3.8	2.7
	Mechanisms for the maintenance of the capacities of the local maintainers	3.8	2.2
	Measures for the sustainability	3.8	2.4
Average		**3.5**	**2.9**

Table 7 shows the results of each country. The average importance given by the countries to the key aspects ranged from 2.9 (Bolivia) to 3.9 (El Salvador and Guatemala), while the assessment lied between 2.0 (Colombia) and 3.9 (Uruguay).

This analysis highlights the importance of all the aspects related to all components of the Program.

However, some of the aspects of the project, such as those related to the appropriation by central government institutions, aspects related to the connectivity access, and to the sustainability may present some weaknesses that should be considered during the operational phase.

As a complement to these data, it is recommendable to read the analyses that each country makes on the difficulties, lessons learned, evaluations, and recommendations of the program that have not been systematized for the reasons explained above.

Table 7: Key aspects of the program by country

Component	Key aspects of the project		Countries with the Pilot Program Implemented											Countries with the Pilot Program under implementation	
			AR	BO	CO	SV	GT	HN	NI	PY	PE	DO	UY	CR	PA
Appropriation	Institutional appropriation - Central Government Institutions	Importance	4	3	4	4	4	4	3	4	4	4	4	4	3
		Assessment	2	4	2	3	2	3	2	2	3	3	4	2	3
	Institutional appropriation - Regional or Local Bodies	Importance	4	3	4	4	3	4		3	4	4	4	3	3
		Assessment	3	4	2	3	2	2		2	3	3	4	2	2
	Appropriation by the local communities	Importance	4	3	4	4	4	4	4	4	4	3	4	4	3
		Assessment	3	4	3	4	4	3	3	3	4	4	4	4	3
	Appropriation by schoolteachers	Importance	3	3	4	4	4	4	4	4	4	4	4	4	
		Assessment	3	4	3	3	4	4	3	3	4	4	4	4	4
General and important aspects	Monitoring Mechanisms	Importance	3	3	4	4	4	4	4	4	4	4	4	4	4
		Assessment	3	3	3	4	2	4	3	3	3	3	4	2	4
	Delays in the implementation	Importance	3	3	4	4	3	2	3	3	3	3	1	3	3
		Assessment	2	2	3	2	1	2	1	4	4	3	4	1	1
	Turnover of teachers	Importance	3	3	3	2	4	2	3	3	4	4	2	4	3
		Assessment	3	2	1	2	4	2	2	4	1	1	3	4	3
	Security measures	Importance	4	3	3	4	4	3	4	4	4	4	2	4	2
		Assessment	3	3	2	2	3	3	2	2	3	3	3	3	3
Energy	PVSS Technical Solution	Importance	3	3	4	4	4	4	3	4	4	2	2	4	3
		Assessment	3	3	4	4	3	4	4	2	4	3	4	3	4
	PVSS operability	Importance	2	3	4	4	4	3	3.5	4	3	4	4	4	2
		Assessment	4	3	1	4	4	4	4	4	3	3	4	4	4
Connectivity	Connectivity Technical Solution	Importance	3	3	3	4	4	4	1	3	4	4	4	4	3
		Assessment	1	1	2	1	2	4	1	2	1	4	4	2	3
	Connectivity Operability	Importance	1	3	3	4	4	2	1	3	3	2	4	4	1
		Assessment		2	1	4	4	3		2	3	2	4	4	2
	Computer Equipment Technical Solution	Importance	4	2		4	4	2	3	4	4	3	4	4	3
		Assessment	3	2	3	3	3	3	3	3	4	3	4	3	3

Component	Key aspects of the project		AR	BO	CO	SV	GT	HN	NI	PY	PE	DO	UY	CR	PA
			Countries with the Pilot Program Implemented											Countries with the Pilot Program under implementation	
	Operability of the Computer Equipment	Importance	3	2	3	4	4	3	3	3	4	4	4	4	2
		Assessment	4	1	1	4	4	4	3	3	3	4	4	4	4
Teacher training, community strengthening, and sustainability	Inclusion of ICTs in the pedagogical processes	Importance	4	3	4	4	4	4	4	3	4	4	4	4	3
		Assessment	3	3	1	3	3	3	3	2	1	2	4	3	2
	Responsible use of the facilities - communities														
	Mechanisms for the maintenance of the capacities of teachers	Assessment	3	2	1	3	4	2	3	2	2	2	4	4	3
	Mechanisms for the maintenance of the capacities of the local maintainers	Importance	4	3	4	4	4	4	3	4		4	4	4	3
		Assessment	1	2	1	3	1	2	3	2	4	2	4	1	3
	Measures for the sustainability	Importance	3	3	4	4	4	4	4	4	4	4	4	4	3
		Assessment	2	1	2	3	2	3	3	2	3	2	4	2	3
Importance			3.3	2.9	3.7	3.9	3.9	3.4	3.2	3.6	3.7	3.6	3.5	3.9	2.9
Assessment			2.7	2.5	2.0	3.1	2.9	3.1	2.9	2.6	2.8	2.8	3.9	2.9	2.9

4	Essential importance; Assessment: the implementation has been carried out with guarantees of success	3	Very high importance; Assessment: the implementation has been carried out with certain guarantees of success	2	Low importance; Assessment: the implementation has been carried out with few guarantees of success	
1	No importance; Assessment: implementation has been carried out with minimal guarantees of success		Aspect not considered in the country			

The Annex 3 provides detailed information on the categorization of the score for each indicator.

8. FINAL REMARKS

The LtL Pilot Program was completed in 11 countries and implemented in two additional countries. It highlights the richness of local contexts in the various aspects that make up the project, and the variety of capabilities in relation to the human, technical, and economic resources, as well as the different strategies applied to adapt the general view of the program, and its specific objective, to the specific situations of each country.

This document highlights this **diversity** of local contexts and strategies to adapt the view and objective of the LtL. This generates a variety of situations, approaches, and solutions; this emphasizes the need to act appropriately to adapt a regional initiative at the country level. The GS-OEI has led and coordinated the monitoring to the NOs, providing general reference information and allowing countries to adapt this information in the most appropriate way to their circumstances.

The **implementation of the project** has been successful, although some difficulties have been observed in the implementation of some components, especially in the connectivity and the sustainability. It is worth mentioning the effort in the creation of partnerships with other institutions or private organizations, as well as the generation of synergies with other programs. The insertion or alignment of the LtL with other initiatives is assessed as a very positive aspect of the project.

Most of the countries in which the pilot project has been completed have not implemented all activities included in all its components, particularly the **sustainability** measures. This does not mean "*per se*" that the project will not be sustainable once the facilities warranty period has elapsed. However, the lack of specific sustainability measures puts at risk that the activities necessary to fulfill the ultimate goal, of making the project sustainable over time, are realized in the future. Therefore, the sustainability of the project will depend on the capabilities of the final owner of the facilities and on the person responsible for its management to assume the required responsibilities, to continue the operation of the project over time.

In many cases, difficulties have been found in the institutional **appropriation** of the program, which makes it hard to guarantee the sustainability of the project. In this sense, it is necessary to work on the necessary actions to guarantee the appropriation of the project by the participating agents. Thus, it is key to establish an appropriate **Organizational Model** that identifies all the agents that can participate and the responsibilities that can be assumed to fulfill all the activities necessary to achieve the objectives of the project.

To ensure an effective and efficient monitoring to the NOs and the maximum generation of positive impacts, it is recommendable to reinforce the methodological aspects of the project. It would be advisable to continue supporting the **monitoring** of the pilot experience and to carry out appropriate evaluations (internal, or external, or both) in each country, to corroborate the information provided in this report.

The systematization of this experience is considered to be of great **utility** to reinforce the strategies for the sustainability of the pilot program and its extension in each country, as well as for the promotion of comparable programs by other agents in the same region, or for the implementation of programs with similar objectives in other regions.

ANNEX 1. DESCRIPTIVE ASPECTS OF THE PILOT PROGRAM

This annex systematizes the information collected through an online survey that was distributed to the NOs; it shows the progress situation as of July 2016. The following aspects are covered:

1. **General aspects**

    1.1.   Total number of schools without access to light
    1.2.   Number of beneficiary schools in the pilot phase
    1.3.   Number of students per school
    1.4.   Geographical dispersion of schools
    1.5.   Criteria for the selection of schools
    1.6.   Uses of schools
    1.7.   Risk in the safety of the facilities
    1.8.   Incorporation of the LtL into other programs
    1.9.   Social Marketing Campaign
    1.10.   Evaluation of the project
    1.11.   Institutions involved
    1.12.   Political context
    1.13.   Recruitment of Technical and/or Social Assistance
    1.14.   Final owner of the facilities
    1.15.   Manager of the facilities
    1.16.   Institutional appropriation
    1.17.   Awareness-raising to local authorities and departmental representatives of the MED
    1.18.   Teacher mobility

2. **Technical and Energy aspects**

    2.1.   Photovoltaic Solar System Design
    2.2.   Contract or agreement for supply, installation, and maintenance under the warranty period of the Photovoltaic Solar System
    2.3.   Maintenance of the Photovoltaic System during the warranty period
    2.4.   Long-term Maintenance of the Photovoltaic System

3. **Technical aspects - Connectivity**

    3.1.   Connectivity system type and costs of the service fees
    3.2.   Technical solution of the ICT system (computer and communications equipment)
    3.3.   Contract or agreement for the provision, installation, and maintenance (during the warranty period) of the connectivity system (including the computer equipment)
    3.4.   Maintenance of the connectivity system, including computer equipment, during the warranty period

4. Teacher training

4.1.   ICT training for teachers in the LtL schools
4.2.   ICT training for other teachers and pedagogical advisors
4.3.   Basic procedures and regulations for the pedagogical management and administration of technological resources

5. Community strengthening

5.1.   Participation of the local community
5.2.   Management Committees
5.3.   Awareness raising of the communities
5.4.   Responsibilities of the local maintainers
5.5.   Training of local maintainers

6. Sustainability

6.1.   Periodic updating of teacher training
6.2.   Maintenance of the capabilities of local maintainers over time
6.3.   Operational plan for the community
6.4.   Operating costs for the sustainability
6.5.   Financial model
6.6.   Economic contributions of the community during the operational phase

7. Global economic aspects

7.1.   Availability of economic data
7.2.   Total investment costs of the project
7.3.   Investment per school
7.4.   OEI contributions in relation to the total cost of the project
7.5.   OEI contributions per school

Note:

This annex provides the particular data for each indicator, without discussing its assessment. The main body of the report presents a more comprehensive discussion of the results of the indicators.

The most subjective aspects related to the difficulties encountered by NOs, the lessons learned, the project appraisal, and the recommendations are taken over verbatim, that is, according to the information provided by the NOs in the Annex 2 and summarized in the main body of the project.

The specific results of the indicators take into account all the countries that as of July 2016 had implemented the pilot. The data of Costa Rica and Panama, which as of July 2016 are implementing their pilot project, have only been considered in those cases where the information was available.

1. General and important aspects

1.1. Total number of schools without access to light at the country level

This indicator shows the total number of schools, at the country level, without access to electrical services.

Less than 100 (1 country)	From 100 to 1000 (7 countries)	More than 1000 (5 countries)
• Uruguay	• Argentina • Bolivia • Costa Rica • El Salvador • Panama • Paraguay • The Dominican Republic	• Colombia • Guatemala • Honduras • Nicaragua • Peru

1.2 . Number of beneficiary schools in the pilot phase

The number of schools benefiting from the pilot project indicates the number of schools included in the pilot project in each country, regardless of whether all or only one of the components has been considered.

Less than 10 (5 countries)	From 10 to 100 (6 countries)	More than 100 (2 countries)
• Argentina • Costa Rica • Guatemala • Panama • Peru	• El Salvador • Honduras • Nicaragua • Paraguay • The Dominican Republic • Uruguay	• Bolivia • Colombia

1.3. Number of students per school

This indicator displays the average number of students per school benefited in the pilot project. This indicator attempts to provide an overview of the number of students at the country level as a metric to understand the approximate size of the schools. Some countries are repeated in the different established categories, since they have schools of several categories. The countries that have a certain number of schools in this category are shown in parentheses, although they are a minority.

Less than 20 (6 countries)	From 20 to 100 (11 countries)	More than 100 (5 countries)
• Argentina • Bolivia • Costa Rica • (Panama) • (Peru) • Uruguay	• (Bolivia) • Colombia • (Costa Rica) • El Salvador • Honduras • Nicaragua • Panama • Paraguay • Peru • The Dominican Republic • (Uruguay)	• (Colombia) • Guatemala • (Nicaragua) • (Peru) • (The Dominican Republic)

1.4. Geographical dispersion of the schools

The geographical dispersion of the schools indicates whether the schools selected in the pilot program are located in the same region of the country (schools grouped in one region) or if they are spread in several regions (dispersed schools). As the pilot project has been implemented in only one school in Guatemala, this country is not considered in the table below.

The dispersion of the schools can indicate the geographic representativeness within the different regions of a country. This indicator may be important in case the pilot program is monitored, to obtain lessons for possible extensions.

Dispersed (6 countries)	Grouped in several regions (3 countries)	Grouped in a region (3 countries)
• Bolivia • Colombia • Panama • Paraguay • Peru • Uruguay	• Honduras • Nicaragua • The Dominican Republic	• Argentina • Costa Rica (different cantons) • El Salvador

1.5. Criteria for the selection of schools

Many different criteria have been considered across the different countries to select the schools participating in the pilot program. This indicator tries to reflect the considerations taken into account in each country. It is possible to notice that there may be several criteria.

Criteria (Number of countries)	Comments
Geographic (nine countries)	Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Panama, and the Dominican Republic considered schools located in isolated rural areas. Guatemala also took into account the accessibility. Peru took into account the geographical representativeness of the different zones of the country (jungle and mountain). Only Honduras considered the grouping of schools within a given radius, while Paraguay used as a criterion the ease of monitoring.
Energy situation of the schools and forecasts in the short and medium term (10 countries)	The lack of electricity was specifically taken into account in the case of Colombia, Costa Rica, El Salvador, Honduras, Panama, Peru, the Dominican Republic, and Uruguay. In addition, Colombia, Honduras, Nicaragua, Panama, Paraguay, Peru, and the Dominican Republic considered that schools were not included in short and medium-term extension plans for network electrification.
Social (eight countries)	El Salvador took into account that the beneficiary populations had low resources. The motivation of the population was considered in Nicaragua and Honduras. Regarding the number of students, Guatemala and Peru opted for the largest possible number, and Colombia demanded a minimum number (the exact number is not known). Honduras requested that the community be willing to assume certain responsibilities. Panama prioritized the areas with native and rural populations. The Dominican Republic implemented the project in schools belonging to communities that lack

	electricity, which are characterized by isolation, high levels of poverty, vulnerability, and exclusion.
Alignment with policies and/or programs (three countries)	Peru uses as a criterion that the schools to be selected are not considered in other programs, while some countries seek the alignment (or complementarity) of the LtL with other programs, such as Bolivia. Colombia requested that schools be aligned with public education policies. In particular, it was requested that they be Educational Sites that require computers according to the needs of Computers for Education and Ministry of National Education 2012-2014.
Connectivity and ICTs (three countries)	Only Colombia and Honduras have considered the availability of connectivity when selecting schools. Peru took into account that the students had owned computer equipment.
School facilities (four countries)	In this issue, the assessments are different depending on the countries: while Colombia considered that schools were not to be demolished or relocated, and that they had storage space and equipment protection, Guatemala and Nicaragua focused on ensuring that the structures of the buildings were in good condition. Aspects related to the security of the facilities were taken into account by Guatemala, Colombia, and Paraguay.
Institutional (five countries)	The participation of municipalities or local governments has been taken into account in Guatemala, Honduras, and Argentina. Costa Rica and El Salvador required that they be single-teacher schools.
Technical sustainability (one country)	Only Honduras considered the existence of companies participating in the project that can support it.

1.6. Uses of schools

In many cases, schools can also play an important role in community life, in addition to having an intrinsic educational purpose. This indicator reflects which uses for the benefit of the community, besides the educational, can be enhanced with the implementation of the LtL program.

Except in Peru, the schools are open to the community for the following uses:

Recreational activities (7 countries)	Training and other community activities (7 countries)	Adult training and literacy (7 countries)	Energy hub (3 countries)	Computer hub (4 countries)
• Argentina • Guatemala • Nicaragua • Panama • Paraguay • The Dominican Republic • Uruguay	• Costa Rica • El Salvador • Honduras • Nicaragua • Panama • The Dominican Republic • Uruguay	• Argentina • Guatemala • El Salvador • Honduras • Nicaragua • Panama • Paraguay	• Bolivia • Guatemala • Honduras	• Bolivia • Colombia • Guatemala • Honduras

1.7. Risk in the safety of the facilities

There may be a high risk of theft of the facilities in many of the communities where schools are located. As this factor can be decisive for the success of the program, the risk in the safety of the facilities defines if there is a risk of theft of the facilities and the solutions adopted to minimize these risks in case it is considered a determining factor.

Medium (7 countries)	High (3 countries)	Low (3 countries)
• Argentina • Bolivia • Costa Rica • El Salvador • Guatemala • Nicaragua • Peru	• Colombia • Honduras • The Dominican Republic	• Panama • Paraguay • Uruguay

The following table shows the different solutions adopted across the countries. In addition to these solutions, it is worth mentioning that a school in Peru has hired a security guard. Also in the Dominican Republic, the Ministry hired guards in each one of the schools.

Improvement of the infrastructure (7 countries)	Monitoring committees (8 countries)	Awareness raising (5 countries)
• Bolivia • El Salvador • Guatemala • Honduras • Nicaragua • Panama • Uruguay	• Argentina • Bolivia • Colombia • Costa Rica • Honduras • Panama • Peru • The Dominican Republic	• Argentina • Colombia • Panama • Paraguay • The Dominican Republic

1.8. Incorporation of the LtL into other governmental and non-governmental programs

Different programs are being developed in many participating countries (other government programs in one or more of the components addressed by the LtL, programs promoted by private agents, etc.). These programs can promote synergies with the objectives set out in the LtL, and then this indicator analyzes how the LtL has been imbedded with other initiatives.

The LtL has not been incorporated into other programs in the case of Nicaragua (although the LtL objectives are indirectly also reflected in the Strategic Education Plan 2011-2015) and Guatemala. For the other countries, synergies have been established:

Component	Countries
Teacher training (six countries)	Argentina, Honduras, the Dominican Republic, Paraguay, Peru, and Uruguay
Community training (four countries)	Honduras, Paraguay, Peru, and Uruguay
Connectivity (five countries)	Colombia, El Salvador, Panama, Paraguay, and Uruguay
Energy component (three countries)	Colombia, Panama, and the Dominican Republic
ICT component (four countries)	Honduras, Colombia, Paraguay, and Costa Rica
Other (infrastructure improvement) (one country)	Honduras
Other (ecological gardens) (two countries)	Uruguay and El Salvador
Other (water supply) (two countries)	Argentina and Panama

1.9. Social marketing campaign

The dissemination of the LtL program at the regional and national levels, within the various countries, is considered an important activity. It can generate different impacts for the program, such as forming partnerships or the awareness raising of the communities.

Except for three countries, the rest of the participants have considered this activity, although their approach has varied.

Social marketing campaign	Countries
Only through internet (two countries)	El Salvador and Nicaragua
At the national level (three countries)	Panama, the Dominican Republic, and Uruguay
At national and local level (three countries)	Honduras, Paraguay, and Peru
At the local level (two countries)	Bolivia and Colombia
No campaign (three countries)	Argentina, Costa Rica, and Guatemala

In Argentina, a movie inspired by the LtL program ("*Bienvenidos*") will be broadcast. In Panama, a video showing the local project experience will be developed and disseminated.

1.10. Evaluation of the project

Through an internal and external evaluation of the project, National Offices can collect, systematize, and provide important information to extract lessons learned and applicable recommendations, in the same implementing country as well as in other participating countries. This knowledge can also be of great value for possible extensions of the program.

In this regard, it should be noted that the NO in Colombia has developed a "Diagnostic and Evaluation Instrument for the Lights to learn Program," which aims to be implemented in this country and later on to be shared with the rest of the offices. Indeed, the GS has decided to carry out an external evaluation of the entire pilot experience in 2016-2017, accompanied by the IESME (the OEI Evaluation Institute).

In general, a final external evaluation of the project has not been carried out with the exception of Nicaragua. Panama is commissioning an impact assessment, in collaboration with the private organizations involved in the project. The Dominican Republic and Uruguay have subjectively assessed the impact of the project (through the NO assessments), and Peru commissioned an impact assessment carried out by the Ministry.

1.11. Institutions involved

The national adoption of the LtL program was done by signing an agreement between the OEI and the important public bodies. Generally, this agreement was signed with a

single institution, although in some cases several institutions were involved. This indicator shows the public and private organizations that formally participate in the program, such as Ministries, Technical Assistance, Social Assistance, and/or Local Support Committee.

Institutions	Countries
Ministry of Education (11 countries)	Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, and Uruguay
Local instances of the Ministry of Education (three countries)	Argentina, Nicaragua, and Peru
Other Public Ministries (three countries)	Bolivia, Colombia, and El Salvador
Public Collaborating Organizations (eight countries)	Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Paraguay, the Dominican Republic, and Uruguay,
Municipality (three countries)	El Salvador, Guatemala, and Honduras
Private Collaborating Organizations (ten countries)	Argentina, Colombia, El Salvador, Honduras, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, and Uruguay

1.12. Political context

In some countries, the changing political context may have significant implications for the design, implementation, and operation of the project. This indicator tries to assess the implications that could change authorities in the project.

May involve project renegotiation (8 countries)	May involve solvable setbacks (2 countries)	No effect (3 countries)
• Bolivia • Colombia • El Salvador • Guatemala • Panama • Paraguay • Peru • The Dominican Republic	• Argentina • Guatemala	• Honduras • Nicaragua • Uruguay

1.13. Recruitment of Technical and/or Social Assistance

The OEI National Offices, in collaboration with the correspondent organizations, have been responsible for promoting and implementing the program in the participating countries. The degree of involvement of the different agents and the availability of their own specialized human resources has determined the need to hire technical and/or social assistance at the national level, for the implementation of the program, depending on the specific needs of each country. When contracting this assistance, it was requested that its composition be indicated: public or private organizations (or institutions) involved and their responsibilities.

Provided through agreements (4 countries)	Hired for one component (5 countries)	Hired for the whole project (2 countries)	No (2 countries)
• El Salvador (energy) • Guatemala (energy) • Paraguay (integral) • Uruguay (energy)	• Argentina (energy and teacher training) • Colombia (energy) • Costa Rica (energy training) • Honduras (ICT) • The Dominican Republic (energy)	• Panama • Peru	• Bolivia • Nicaragua

1.14. Final owner of the facilities

In general, the final owner of the facilities is determined in the collaboration agreement, signed between the OEI and the corresponding national organization. This indicator identifies which agent will be ultimately responsible for the facilities. The final owner of the facilities, in principle, is responsible for ensuring its sustainability. Assigning the final owner of the facilities, indicating his responsibilities, and verifying that he possess the (human and economic) capabilities to assume this task is very important to ensure that the benefits provided by the project can be maintained over time.

Two entities are the final owners in the cases of Bolivia and Colombia. In the case of Colombia, the roles of both entities have been specified and there are no discrepancies.

MED (7 countries)	Representatives of the MED (3 countries)	Municipalities (2 countries)	Communities (3 countries)
• Costa Rica • El Salvador • Honduras • Nicaragua • Panama • Paraguay • Uruguay	• Colombia • Peru • The Dominican Republic	• Bolivia • Colombia	• Argentina • Bolivia • Guatemala

1.15. Manager of the facilities

The Manager of the Facilities indicates the agent who will be in charge of managing the energy and connectivity facilities provided by the project.

The case of Nicaragua is very particular, since the management of the facilities executed in the first schools, under an agreement with the MED, will be carried out by the community. In the case of schools conducted in line with other private organizations (NGOs), these organizations will manage the facilities.

Schools (4 countries)	Community (6 countries)	Local Representatives of the MED (1 country)	MED (4 countries)	Other Private Organizations (NGO) (1 country)
• Bolivia • Colombia • Honduras • Panama	• Argentina • Bolivia • Costa Rica (Education Boards) • Guatemala • Nicaragua • Panama	• Peru	• El Salvador • Paraguay • The Dominican Republic • Uruguay	• Nicaragua

1.16. Institutional appropriation

In this indicator, the NOs were requested to indicate the degree of appropriation of the project by the institutions participating in the project (in the case of countries where there are several institutions, the degree for each one is indicated).

This is a relatively subjective indicator, since it has been left to the appreciation of the NOs.

High (8 countries)	Medium (5 countries)
• Bolivia (although it depends on the institution) • Colombia • Costa Rica • El Salvador (although it depends on the institution) • Guatemala • Honduras • Nicaragua • Peru	• Argentina (low and high, depending on the institution) • Panama • Paraguay • The Dominican Republic • Uruguay

1.17. Awareness raising of local authorities and departmental representatives of the MED

This indicator provides information on the consideration and implementation of awareness raising sessions with the local authorities.

There was an increase in the awareness of local authorities and departmental representatives of the MED (9 countries)	There was no change in the awareness of local authorities and departmental representatives of the MED (4 countries)
• Argentina • Bolivia • Costa Rica (expected) • El Salvador • Guatemala • Honduras • Nicaragua • Peru • The Dominican Republic	• Colombia • Panama • Paraguay (the MED is centralized) • Uruguay

1.18. Teacher mobility

A high degree of teacher mobility can make it difficult to implement the LtL program and its sustainability, since it is often difficult to transfer all tasks between teachers. Therefore, this indicator evaluated the degree of teacher mobility according to the criteria of the NOs.

2. Technical and Energy aspects

2. 1. Photovoltaic Solar System Design

This indicator shows whether the technical solution proposed by the GS has been used (which may include slight variations in consumption) or if there are significant technical modifications to the project.

It is worth mentioning that Bolivia did not implement the PVSS component.

High teacher mobility (5 countries)	Low teacher mobility (8 countries)
• Argentina • Bolivia • Panama (the direction of the educational centers stays longer) • Peru • Uruguay	• Colombia • Costa Rica • El Salvador • Guatemala • Honduras • Nicaragua • Paraguay • The Dominican Republic
Used the general design provided by the GS (4 countries)	Adapted the general design provided by the GS (8 countries)
• Guatemala • Honduras • Paraguay • The Dominican Republic	• Argentina • Colombia • Costa Rica • El Salvador • Nicaragua • Panama • Peru • Uruguay

2.2. Contract or agreement for the supply, installation, and maintenance under the warranty period of the PVSS

This indicator reflects the subscription of a contract, or an agreement, or if a donation has been received, differently for the supply, installation, and maintenance (during the warranty period) of the PVSS. Three categories have been established, encompassing the diversity of circumstances that may occur:

- Supply, installation, and maintenance contract under warranty, according to the general model proposed by the GS-OEI.
- Supply, installation, and maintenance contract under warranty, adapted from the general model proposed by the GS-OEI.
- Supply, installation, and maintenance contract under warranty, when there are institutions that sign agreements for the installation of the purchased equipment and its maintenance during the warranty.

The contracts are signed when professional companies are hired and there is remuneration for the materials supplied or for the services provided. The agreements are accords signed between the parties without, in general, economic remuneration.

Costa Rica has not signed the contract yet. It does not apply to Bolivia.

Supply, installation, and maintenance contract under warranty, according to the general model (8 countries)	Supply, installation, and maintenance contract under warranty, adapted from the general model (1 country)	Supply contract, with installation and maintenance agreements, under warranty (2 countries)
• Argentina • Guatemala • Honduras • Nicaragua • Panama • Paraguay • Peru • Uruguay	• Colombia (did not considered professional maintenance)	• El Salvador • The Dominican Republic

2.3. Maintenance of the PVSS during the warranty period

This indicator shows the number of maintenance visits stipulated in the Specifications of Economic Technical Conditions, during the warranty period, established in two years according to the General Model. Four preventive maintenance visits are stipulated to take place during this period.

It does not apply to Bolivia.

Maintenance proposed by the General Secretariat (8 countries)	Modifications of the maintenance proposed by the General Secretariat (4 countries)
• Argentina • Costa Rica • Guatemala • Honduras • Panama • Paraguay • Peru • Uruguay	• Colombia-> corrective maintenance only • El Salvador-> 4 visits/year for 5 years • Nicaragua-> 3 visits, in the 2 years following the installation • The Dominican Republic-> The corrective is in charge of the supplier, and the preventive is the responsibility of the MINERD

2.4. Long-term maintenance of the PVSS

The Long-term maintenance of the PVSS indicates whether a professional long-term maintenance was stipulated, once the warranty period has elapsed, i.e. after two years since the commissioning of the facilities (according to the general model).

In Honduras, the maintenance is carried out by the community (which is not the final owner). In Nicaragua, two private entities will be in charge of the long-term maintenance, in those schools under their influence. The definition of long-term maintenance is pending in Guatemala. It does not apply to Bolivia.

Maintenance done by the final owner, but not yet defined (10 countries)	Maintenance done by the final owner (2 countries)
• Argentina • Colombia • Costa Rica • Guatemala • Honduras (with contributions from the community) • Nicaragua • Panama • Paraguay • The Dominican Republic • Uruguay	• El Salvador • Peru

3. Technical aspects - Connectivity

3.1. Type of connectivity system and costs of service fees

The type of the connectivity system refers to the type of internet connection proposed and the associated cost of the service. In the case of Panama, the connectivity was included in two schools in the Phase I of the Pilot Project.

Connectivity not included in the project (3 countries)	Satellite connection (3 countries)	DSL connection (3 countries)	Connection provided by other programs (7 countries)
• Argentina • Nicaragua • Panama (in 6 of the 8 schools)	• Bolivia (400 USD/month/school for 6 months) • Honduras (80 USD/ month/school for 1 year) in 12 of the 16 schools. • Panama (in 2 of the 8 schools: 1418 USD/month)	• El Salvador (only in 1 school) • Guatemala • Honduras (in 4 of the 16 schools)	• Colombia (satellite connection) • Costa Rica • El Salvador (all other schools) • Paraguay • Peru (350 USD/ month/school) • The Dominican Republic • Uruguay

3.2. Technical solution of the ICT system (computer and communications equipment)

This indicator shows whether the technical solution proposed by the GS for computer and communications equipment has been used or whether there are significant technical modifications to the project.

Design proposed by the General Secretariat adapted to the particularities of the country (9 countries)	Design proposed by the General Secretariat (4 countries)
• Argentina • Bolivia • Colombia • Costa Rica • Guatemala • Honduras • Nicaragua • Panama • Uruguay (FIT server, PC, and router)	• El Salvador (Multisit system) • Paraguay (TV and Windows operating system) • Peru (TV and 3 laptops) • The Dominican Republic

3.3. Contract or agreement for the provision, installation, and maintenance (during the warranty period) of the connectivity system (including the computer equipment)

This indicator reflects the subscription of a contract, or an agreement, or if a donation has been received, differently for the supply, installation, and maintenance (during the warranty period) of the connectivity system (including the computer equipment). The computer equipment were installed only in a single school in the case of El Salvador.

No computer devices installed (1 country)	Donated computer devices (4 countries)	Computer devices purchased by the project (10 countries)
• El Salvador (all other schools)	• Argentina • Colombia • (El Salvador - one school) • Honduras	• Argentina • Bolivia • Costa Rica • Guatemala • Nicaragua • Panama • Paraguay • Peru • The Dominican Republic • Uruguay

3.4. Maintenance of the connectivity system, including the computer equipment, during the warranty period

This indicator shows the number of maintenance visits stipulated in the Specifications of Economic Technical Conditions, during the warranty period.

In general, the warranty period of the equipment is one year, and no warranty visits have been considered, except in Peru and the Dominican Republic. In Peru, two visits will be made during the first two years. In the Dominican Republic, visits will also be made to monitor the system operability. In Nicaragua, a one-year extension of the usual two-year warranty for the computer equipment has been requested.

In Uruguay, remote monitoring is carried out and telephone complaints are received through the Ceibal Program. Once the problem is detected, it is sent to a technician to solve it in his technical area.

4. Teacher training

4.1. ICT training for teachers in the schools of the LtL

The ICT training for schoolteachers indicates whether training sessions for teachers have been provided or are planned. If so, it is requested to indicate the number of hours of training and the organization responsible for carrying it out.

Duration of ICT training over 20 hours (5 countries)	Duration of ICT training less than 20 hours (7 countries)	Not done (1 country)
• Honduras (60 hours with provision of materials) • Nicaragua (3 days) • Panama (in 6 schools it will last 80 hours, and in 2 schools it will last 40 hours) • Paraguay (2 meetings of 2 days, with provision of materials) • Peru (80 hours, with provision of materials)	• Argentina (3 days, with provision of material) • Boliva (including online training and provision of materials) • Colombia (2-3 hours with provision of materials) • El Salvador (8-hour days, which was not continued because the MED conditioned the training to the installation of the devices in advance) • Guatemala (3 workshops, 4 hours each, with provision of materials) • The Dominican Republic (8 hours with provision of materials) • Uruguay (The materials have been prepared; the training has been conducted in approximately 75% of schools)	• Costa Rica (A training session will be conducted per school. Its duration is still not defined)

Assessment of knowledge (8 countries)	No assessment of knowledge (3 countries)
• Argentina • Bolivia • Colombia • (El Salvador: stipulated, but pending) • Guatemala • Honduras • Peru (more than 60% of teachers achieved the goals) • The Dominican Republic	• Nicaragua • Paraguay • Uruguay

There is no information about the two countries that are in the implementation phase of the pilot project, Costa Rica and Panama.

4.2. ICT training for other teachers and pedagogical advisors

In general, there was no ICT training for other teachers and pedagogical advisors. Nevertheless, training is provided to other teachers and pedagogical advisors in Nicaragua, Paraguay, Peru, the Dominican Republic, and Uruguay. The provision of ICT training for directors of educational centers, Educational Boards, and regional advisers is stipulated in Costa Rica.

Other teachers and pedagogical advisors have been trained (6 countries)	Other teachers and pedagogical advisors have not been trained (7 countries)
• Costa Rica (expected) • Nicaragua • Paraguay • Peru • The Dominican Republic • Uruguay	• Argentina • Bolivia • Colombia • El Salvador • Guatemala • Honduras • Panama

4.3. Basic procedures and regulations for pedagogical management and administration of technological resources

This indicator shows whether there are basic procedures and regulations for pedagogical management and administration of technological resources.

Yes, there are (9 countries)	No, they do not exist (4 countries)
• Bolivia, under the MED • Colombia • Costa Rica • Guatemala • Nicaragua • Panama • Peru • The Dominican Republic • Uruguay	• Argentina • El Salvador • Honduras • Paraguay

5. Community strengthening

5.1. Participation of the local community

This indicator reflects the importance of the community involvement in the project. It was requested that this information be categorized as high, medium, or low.

In all cases, the participation of the local community has been high.

5.2. Local Management Committees

Local Management Committees can be key players in the management of the facilities, as they can play an important role in the first level operation and maintenance of the facilities. Therefore, this indicator informs about the creation or incorporation of the responsibilities that the communities (and the schools) have in the project in some type of committee or the creation of a specific committee.

Creation of Specific Local Management Committees (7 countries)	Integration of the responsibilities of Local Management Committees through existing structures (4 countries)	No Local Management Committees were created (2 countries)
• Bolivia • Guatemala • Honduras • Nicaragua • Panama • Paraguay • Peru	• Colombia, under the community council or the indigenous council • Costa Rica, designed through the Boards of Education • El Salvador, through the School Boards and the Community Development Associations • The Dominican Republic, through the Association of Fathers and Mothers	• Argentina • Uruguay

5.3. Awareness raising of the communities

To involve the communities in the project in a satisfactory way, it is key to carry out awareness-raising activities that enable the communities to know the project, its objectives, the benefits that can be obtained from it, and the possible activities in

which they may be involved. To this end, this indicator collects the expectation and realization of awareness raising sessions with the communities. As far as possible, this indicator also reflects the number of hours of the awareness raising sessions and when materials have been provided.

Done (12 countries)	Not done (1 country)
• Bolivia (1-2 hours, with provision of materials) • Colombia (2-3 hours, with the provision of documentation) • Costa Rica (expected) • El Salvador (12 hours, with the provision of documentation) • Guatemala (6 hours, without provision of materials) • Honduras (without provision of materials) • Nicaragua • Panama • Paraguay (1 or 2 days, with provision of materials) • Peru (3 workshops of 1 day each in each school) • The Dominican Republic (2 hours per week) • Uruguay (with provision of materials)	• Argentina

5.4. Local maintainers

This indicator gathers the type of the agents involved in the local maintenance of the equipment, if any, distinguishing between the representatives of the schools and the community. It also indicates the extent to which the responsibilities for each type of agent were defined.

In Bolivia, the community appointed a person responsible for the call center, who is remunerated for his services, and a municipal maintainer. In the rest of countries, the local maintainers are not remunerated.

School and community representatives, with no defined responsibilities (5 countries)	School and community representatives, with defined responsibilities (2 countries)	School representatives, with no defined responsibilities (1 country)	Representatives of the community, with defined responsibilities (4 countries)
• Argentina • Costa Rica • Panama • The Dominican Republic • Uruguay	• El Salvador • Peru	• Colombia	• Honduras • Guatemala • Nicaragua • Paraguay

5. 5. Training of the local maintainers

The training of the local maintainers reflects the expectation and realization of training sessions to the local maintainers for a period shorter or longer than one day.

The knowledge obtained was evaluated after training only in El Salvador and Paraguay. The knowledge of the local maintainers are strengthened at each maintenance visit in Guatemala, Honduras, Paraguay, and Uruguay.

Yes, for less than one day (8 countries)	Yes, for more than one day (5 countries)
• Argentina (3 people per community, with provision of materials) • Colombia (with provision of materials) • Costa Rica (expected) • Guatemala • Panama (5 people with provision of a manual and materials) • Paraguay (with provision of documentation and evaluation) • Peru • Uruguay (minimum of 3 people per community)	• Bolivia (with provision of documentation) • El Salvador (with provision of documentation and evaluation) • Honduras (42 people in 6 schools, with provision of materials) • Nicaragua (with provision of documentation) • The Dominican Republic (31 people with provision of documentation) • El Salvador (with provision of documentation and evaluation)

6. Sustainability

6.1. Periodic updating of the capabilities of the teachers

This indicator shows the expectation of periodic training for teachers. Besides, it displays the institution responsible for conducting periodic training.

Not expected (2 countries)	In charge of the MED (10 countries)	In charge of the OEI (1 country)
• Argentina • Colombia	• Costa Rica (expected) • El Salvador • Guatemala • Honduras • Nicaragua • Panama (expected) • Paraguay • Peru • The Dominican Republic • Uruguay (including online training)	• Bolivia (through the online platform)

6.2. Maintenance of the capabilities of the local maintainers over time

This indicator shows the procedures stipulated to ensure that the capacities of local operators and maintainers endure over time.

In charge of the MED (7 countries)	In charge of the Municipalities (2 countries)	Through Universities (1 country)	Not expected (3 countries)
• Costa Rica • Nicaragua • Panama • Paraguay • Peru • The Dominican Republic • Uruguay	• Bolivia • Guatemala	• El Salvador	• Argentina • Colombia • Honduras

6.3. Operational plan for the community

This indicator reports whether an operational plan has been prepared, including instruction books for the community and the school, and communication mechanisms with the professional maintainers and the national commission, especially in the event of failure.

The operational plan for the community has not been prepared in any of the participating countries, with the sole exception of Uruguay. Two operational books are being prepared in Uruguay, partially covering the aspects that should be considered in an operational plan. The first book is a technical one, including all the documentation necessary to manage the new solution optimally; the other book deals with community development with different topics of interest to teachers, students, and communities. Panama has provided manuals of the basic programs such as the maintenance of panels and computer equipment.

Costa Rica intends to develop an operational plan that would be in charge of the company selected in the bidding process.

6.4. Operating costs for the sustainability

This indicator shows whether a detailed analysis of the operating costs has been done. This analysis includes the costs of operation, maintenance, and replacement of equipment. Besides, the analysis should consider recurring costs of internet access services, costs of the plan of continuing training of teachers, and the costs of the Community Strengthening Plan, for the entire life of the system (20 years).

Only one country (El Salvador) has delved into the operating costs for the sustainability, which analyzed the costs of replacing equipment.

6.5. Financial model

This indicator describes the person responsible for bearing the operating costs of the project. In case there are several parties, the NOs were requested to indicate the responsibilities for each of them.

The financial model for the operational phase has not been elaborated in detail in any country. According to the expectations of the NOs:

The MED is responsible for bearing the operating costs (8 countries)	The community is responsible for bearing the operating costs (2 countries)	The Municipality is responsible for bearing the operating costs (2 countries)	Not defined (2 countries)
• Argentina • Colombia • Costa Rica (expected) • El Salvador • Panama • Paraguay • Peru (through educational institutions) • Uruguay	• Guatemala • Honduras	• Bolivia • Colombia	• Nicaragua • Dominican Republic

6.6. Economic contributions of the community during the operational phase

This indicator reflects the community's ability to pay. It also displays the existing expectations for the communities to make economic contributions that contribute to the sustainability of the project. In Argentina the activities are supported, but without economic contribution.

The community will make economic contributions to the project during the operational stage (4 countries)	The community is not going to make economic contributions to the project during the operational stage (9 countries)
• El Salvador (through events) • Guatemala (through various activities) • Honduras • Nicaragua (through mobile phone recharging and sheet printing)	• Argentina • Bolivia • Colombia • Costa Rica (not expected) • Paraguay • Panama • Peru • The Dominican Republic • Uruguay

7. Global economic aspects

7.1. Availability of economic data

This indicator reflects whether a detailed budget is available, for each one of the components.

Except for Colombia, all countries have detailed economic data.

7.2. Total investment costs of the project

In this section, we report the total investment in the pilot project, including cash and non-cash contributions.

< USD 300,000 (2 countries)	USD 300,000 - USD 1,500,000 (9 countries)	> USD 1,500,000 (2 countries)
• Costa Rica (expected) • Guatemala	• Argentina • Bolivia • El Salvador • Honduras • Nicaragua • Panama • Paraguay • Peru • The Dominican Republic	• Colombia • Uruguay

7.3. Investment per school

This indicator shows the total investment per school (total cost of the pilot project/number of schools) in three different categories. Most countries have invested less than USD 25,000 per school. This value is not yet available for Costa Rica, as it is still implementing the project.

< USD 25,000 (7 countries)	USD 25,000 - USD 50,000 (4 countries)	> USD 50,000 (1 country)
• Bolivia • Colombia • El Salvador • Guatemala • Paraguay • The Dominican Republic • Uruguay	• Argentina • Honduras • Nicaragua • Panama	• Peru

7.4. OEI contributions in relation to the total cost of the project

In this section, we compare (in percentage) the amount provided by the OEI to the project with the total amount invested (including cash and non-cash contributions), in a given country. This value is not yet available for Costa Rica.

OEI contributions < 50% (5 countries)	OEI contributions 50-75% (3 countries)	OEI Contributions > 75% (4 countries)
•Bolivia •Colombia •Nicaragua •Paraguay •Uruguay	•Guatemala •Honduras •Peru	•Argentina •El Salvador •Panama •The Dominican Republic

7.5. OEI contributions per school

This indicator shows the OEI contribution per school (OEI contribution in USD/number of schools of the pilot project) in three categories.

< USD 15,000 (7 countries)	USD 15,000 - USD 30,000 (2 countries)	> USD 30,000 (3 countries)
• Bolivia • Colombia • El Salvador • Guatemala • Paraguay • The Dominican Republic • Uruguay	• Honduras • Nicaragua	• Argentina • Panama • Peru

ANNEX 2. STATUS BY COUNTRY

This Annex provides a form by country according to the most outstanding parameters of the project. The variables analyzed are described in the following table:

List of parameters analyzed in each one of the countries	
GENERAL ASPECTS: SCHOOLS	**GENERAL ASPECTS: PROJECT**
Total number of schools: indicate the total number of schools without access to light and connectivity (including the schools in the pilot phase). **Number of pilot schools:** it is the total number of schools of the country in the pilot phase. If there are several sub-phases are within the pilot phase, the information is provided for each sub-phase. **Number of schools in operation:** number of schools in which all the components of the project have been implemented, or one of the components has been commissioned. **Number of students per school:** it is the average number of students per school (pilot phase). **Criteria for the selection of schools**: criteria used for the selection of schools that will be part of the pilot project. **Geographical dispersion of the schools:** geographical location of the schools of the pilot project, i.e. whether the schools are in the same geographic area or are located in several areas of the country. **Uses of the schools:** gathers the different uses, in addition to the educational one, that can be	**Incorporation of the LtL into other programs:** other public or private programs with which synergies can be provided (rural electrification programs, online teacher training, access to ICTs, etc.), a brief description of its objectives and how it will be integrated with the LtL. **Social marketing campaign:** refers to the planning of a public media marketing campaign. **Monitoring strategy during the implementation and operational phase of the project, at the country level**: collects the procedure for monitoring the project used by the NOs during the implementation and operational phase of the project (drafting of reports, meetings, etc...). **External evaluation of the project:** indicates the expectation of an external final evaluation of the project. **Impact evaluation of the project:** indicates the expectation of carrying out an impact assessment of the project.

legally made of schools. **Security of the schools:** collects the risk of theft of the facilities and possible measures that have been taken to minimize such risk.	
ENERGY ASPECTS: **PVSS Technical Solution:** defines the type of technical energy solution adopted (the general one proposed by the GS or significant technical modifications). **Uses of the PVSS:** indicates the different school uses or for the community that can be provided by the adopted technical solution, if it differs from the generic solution of the project. **Contract or agreement for the supply, installation, and maintenance under the warranty period of the PVSS:** reflects the subscription of a contract, or an agreement, or if a donation has been received, differently for the supply, installation, and maintenance (during the warranty period) of the PVSS. **Maintenance of the PVSS during the warranty period:** specifies the number of maintenance visits stipulated in the Specifications of Economic Technical Conditions, during the warranty period (two years). **Long-term maintenance of PVSS:** indicates whether a professional long-term maintenance was stipulated, once the warranty period has elapsed.	**INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) ASPECTS:** **Type of connectivity system and costs of service fees:** refers to the type of internet connection proposed and the associated cost of the service. **Technical solution of the ICT system (computer and communications equipment):** shows whether the technical solution proposed by the GS for computer and communications equipment has been used or whether there are significant technical modifications to the project. **Uses of the ICT system (including computer and communications equipment):** describes the different educational and community uses that can be provided by the adopted technical solution. **Contract or agreement for the provision, installation, and maintenance (during the warranty period) of the connectivity system (including computer equipment):** reflects the subscription of a contract, or an agreement, or if a donation has been received, differently for the supply, installation, and maintenance (during the warranty period) of the connectivity system (including the computer equipment). **Maintenance of the connectivity system, including computer equipment, during the warranty period:** indicates the number of maintenance visits stipulated in the Specifications of Economic Technical Conditions, during the warranty period. **Long-term maintenance of the connectivity system, including computer equipment:** indicates whether a professional long-term maintenance was planned, once the warranty period has elapsed.
TEACHER TRAINING **ICT training for teachers in the schools of the LtL:** indicates whether training sessions for teachers have been provided or	**COMMUNITY STRENGTHENING** **Participation of the local community:** describes the involvement of the community in the project. **Local Management Committees:** informs about the creation or incorporation of the responsibilities that

are planned. It also describes the operational details of the training sessions.

ICT training for other teachers and pedagogical advisors: indicates whether training sessions for other teachers and pedagogical advisors have been provided or are planned. It also describes the operational details of the training sessions.

Basic procedures and regulations for pedagogical management and administration of technological resources: shows whether there are basic procedures and regulations for pedagogical management and administration of technological resources.

the communities (and the schools) have in the project in some type of committee or the creation of a specific committee.

Awareness raising of the communities: indicates whether awareness-raising sessions with the communities have been provided or are planned.

Responsibilities of the local maintainers: collects the number of people designated in each community for local maintenance, by differentiating between community members and teachers, if it is a rotating post, and if they receive remuneration for their services.

Training of the local maintainers: indicates whether training sessions for the local maintainers have been provided or are planned. It also describes the operational details of the training sessions.

SOCIAL ASPECTS:

Institutions involved in the program: shows the public and private organizations that formally participate in the program

Political context: indicates whether the change of authorities may force new negotiations on the commitments made in the cooperation agreements.

Final owner of the facilities: appoints the institution to which the NO-OEI will transfer the final ownership of the facilities.

Manager of the facilities: indicates the facility manager, in case it is different from the final owner.

Institutional appropriation: indicates the degree of appropriation of the project by the institutions participating in it (if there were several institutions, indicate the degree for each of them). It differentiates the degree of appropriation between

SUSTAINABILITY:

Guarantors of compliance of the sustainability: is the organization responsible for meeting the conditions of sustainability.

Periodic updating of the capabilities of the teachers: shows the expectation of periodic training for teachers.

Maintenance of the capabilities of the local maintainers over time: shows the procedures stipulated to ensure that the operation and maintenance capacities endure over time.

Operational plan for the community: reports whether an operational plan has been prepared, including instruction books for the community and the school, and communication mechanisms with the professional maintainers and the national commission, especially in the event of failure.

Operating costs for the sustainability: shows whether a detailed analysis of the operating costs has been done. This analysis includes the costs of operation, maintenance, and replacement of equipment. Besides, the analysis should consider recurring costs of internet access services, costs of the plan of continuing training of teachers, and the costs of the Community Strengthening Plan, for the entire life of the system (20 years).

very low, low, medium, or high.

Awareness raising of the community: indicates whether awareness-raising sessions with the local authorities have been provided or are planned. If so, it indicates the content and responsible organization.

Teacher mobility: indicates whether there is high mobility (or turnover) of teachers.

Financial Model: describes the person responsible for bearing the operating costs of the project. Besides, it indicates how to carry out the economic management during the operation. In case there are several parties, it should assign the responsibilities for each of them.

Fees for services and community's ability to pay: indicates the community's ability to pay. Besides, it shows whether fees have been established for any service.

FUNDERS: List of organizations that provided cash contributions to the project	**OEI CONTRIBUTION** (ON THE TOTAL COST OF THE PROJECT): Percentage of the contribution of the OEI to the total cost of the project	**TOTAL INVESTMENT/SCHOOL:** Total cost per school (USD)	**OEI CONTRIBUTION/SCHOOL:** Cost of the OEI contribution per school.

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED

LESSONS LEARNED

PROJECT APPRAISAL

RECOMMENDATIONS

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions		
Institutional appropriation - Regional or Local Bodies		
Appropriation by the local communities		
Appropriation by schoolteachers		
Monitoring Mechanisms		
Delays in the implementation		
Turnover of teachers		
Security measures		
PVSS Technical Solution		
PVSS operability		
Connectivity Technical Solution		
Connectivity operability		
Computer Equipment Technical Solution		

Operability of the Computer Equipment		
Inclusion of ICTs in the pedagogical processes		
Responsible use of the facilities - communities		
Mechanisms for the maintenance of the capacities of teachers		
Mechanisms for the maintenance of the capacities of the local maintainers		
Measures for the sustainability		

1. ARGENTINA

GENERAL ASPECTS: SCHOOLS

Total number of schools: 300

Number of pilot schools: 9. A water purification system has been installed in a school.

Number of schools in operation: 9 (energy component)

Number of students per school: 10-20

Criteria for the selection of schools: selected by the provincial governments

Geographical dispersion of the schools: All of them are in the Province of Chaco, isolated from each other.

Uses of the schools: educational and community (meeting centers)

Security of the schools: average, the community capacities were strengthened to prevent theft

GENERAL ASPECTS: PROJECT

Incorporation of the LtL into other programs: with the National Teacher Training Program, and with the water provision, through an agreement with the Essen Foundation ("*Programa Aguas*").

No social marketing campaign has been conducted.

The national monitoring strategy during the implementation and operational phase of the project is based on the reports prepared by the installation company and the information reported by the regional tutors. Both will elaborate reports during the first two years after the commissioning of the facilities.

No external or impact evaluation of the project is expected.

ENERGY ASPECTS:

PVSS Technical Solution adapted from the general solution.

The uses of the PVSS include, in addition to those contemplated for educational purposes, other community uses.

A contract has been signed for the supply, installation, and maintenance (for two years) of the PVSS with the installation company.

PVSS maintenance during the warranty period, hired for two years.

Long-term maintenance of

CONNECTIVITY ASPECTS:

Internet connection in schools has been ruled out, since the only viable system is the satellite connection, with unbearable costs.

The computer equipment comply with the generic solution proposed by the GS-OEI. Only the projectors have been replaced by LED TVs.

The computer equipment will support teaching through the digital educational material. It is also intended to offer films to the community.

The OEI directly acquired the computer equipment. They have one-year warranty and local trainers will follow up.

PVSS: the Provincial Ministry is in charge of the long-term maintenance. It is pending to define the possibility of collaboration with existing cooperatives on the subject.	
TEACHER TRAINING The ICT training for teachers (and principals) of the schools was carried out through a general meeting with all teachers and two specific visits to each school. ICT training for other teachers and pedagogical advisors has not been considered. There are procedures and regulations for the pedagogical management and administration of the technological resources, which was used for training by the ICT expert of the NO-OEI.	**COMMUNITY STRENGTHENING** The participation of the community was low, although they welcomed the project and sought their participation in everything possible, especially where the project was accompanied by water provision. No LMCs have been established. It is expected that at least three local maintenance managers will be appointed, including older students. The installation company of the PVSS carried out the training of the local maintainers. Manuals and posters of operation and maintenance were delivered.
SOCIAL ASPECTS: Institutions Involved: Ministry of Education of the Province of Chaco, Banco Santander (sponsorship of a school), Samsung Argentina (donation of televisions and digital cameras), and Essen Foundation. It is sensitive to the political context, as it could delay the implementation of the project. Technical Assistance has been hired for the development of the energy component (Foundation for Research and Development of Renewable Energies - Energize). Local trainers have also been contracted for the Teacher Training in ICT. The final property was handed over to the schools because it	**SUSTAINABILITY:** The MED is responsible for ensuring the sustainability of the project, through the rural area. Teachers, according to the provincial plan, must carry out mandatory training during the year. The trainings were carried out by the local trainers until December 2014. No new visits are planned. In case of need, all schools have the contact of the maintainer and the OEI will evaluate in due time the necessary measures. The operational plan for the community has not been prepared. Besides, the operating costs for the sustainability have not been estimated, nor has the financial model been elaborated. The MED, who should be responsible for this activity, has not moved forward on this issue. The communities do not pay any service fees. Some parents collaborate but not with monetary aid.

was not possible to reach a strong commitment on the part of the Ministry of Education of the Province of Chaco.

The manager of the facility is the community.

Institutional appropriation: average (MED)

The awareness of both the community and the local authorities has raised.

The mobility of teachers is high.

FUNDERS:	OEI CONTRIBUTION (ON THE TOTAL COST OF THE PROJECT):	TOTAL INVESTMENT/SCHOOL:	OEI CONTRIBUTION/SCHOOL:
Banco Santander Río Samsung Argentina Essen Foundation	>75 %	USD 25,000 – USD 50,000 (except for the one that includes a health post)	> USD 30,000 (except in the school sponsored by Santander Río)

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED:

1. There was an issue with the incoming of batteries due to problems related to imports. It took a few months for the entry of the batteries, which delayed the beginning of the installation;

2. Climatic factors, during rainy season, made it difficult to enter the schools, all located in areas of difficult access, which conditioned the installations and training. Besides, they also could not coincide with the holiday recess time;

3. The lack of collaboration of the local authorities after the installations, to ensure the sustainability of the project;

4. The turnover of teachers makes it very difficult to monitor the progress and uses of the equipment, which in turn implies that school enrollment changes considerably during the course of the year.

5. The political factor is also dominant, since the support of the provincial government depends on the campaigns and the partisan line of the municipality in each case. They are very needy communities that rely heavily on subsidies and political aid.

LESSONS LEARNED:

1. Lack of appropriation of the project by public bodies and local authorities (Ministry of Education and Municipality).

2. Lack of a full socio-environmental study since the community had other needs (e.g.

access to water) rather than access to light. There was no criterion for the selection of schools. The pilot plan was made in the only place that the provincial government allowed us to participate and with the schools that they indicated us.

3. Difficulty in finding reliable local maintainers.

4. Difficulties in establishing the system to ensure local capacities are maintained.

5. Lack of resources for the establishment of agreements or contracts with national authorities.

6. The management should be carried out more linked to the community without relying on the government for the decision-making.

PROJECT APPRAISAL:

The result has been positive. Several sectors of the organization have participated, collaborating with the project, from the area of acquisitions as well as the area of cooperation, with the professionals that we counted on. As it was the pilot plan, we learned a lot, and several partnerships were built that can be helpful if continued at a later phase.

The general assessment of the project is positive. We believe that we have reached our main objective, since the last maintenance visit and the feedbacks sent by the teachers indicate that they have used the material provided (which inevitably required the use of the equipment), where they inform us that it has been useful. However, the negative part is the maintenance of what has been done, which we are looking at how we can strengthen it.

RECOMMENDATIONS:

1. We should work hard with the national and provincial governments before beginning the tasks, to reinforce the follow-up and maintenance details of the project once the participation of the OEI is over.

2. A detailed socio-environmental preliminary study should be conducted to prioritize the needs of the community faced with the possibility of implementing technological facilities planned in the project.

3. The institutional participation should be stronger.

4. The relationship with local contacts should be greatly strengthened without having to rely on the approval of the Provincial Governments that show no particular interest, at least in this project.

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	4	2
Institutional appropriation - Regional or Local Bodies	4	3

Appropriation by the local communities	4	3
Appropriation by schoolteachers	3	3
Monitoring Mechanisms	3	3
Delays in the implementation	3	2
Turnover of teachers	3	3
Security measures	4	3
PVSS Technical Solution	3	3
PVSS operability	2	4
Connectivity Technical Solution	3	1
Connectivity operability	1	**Do not apply**
Computer Equipment Technical Solution	4	3
Operability of the Computer Equipment	3	4
Inclusion of ICTs in the pedagogical processes	4	3
Responsible use of the facilities - communities	4	3
Mechanisms for the maintenance of the capacities of teachers	4	3
Mechanisms for the maintenance of the capacities of the local maintainers	4	1
Measures for the sustainability	3	2

2. BOLIVIA

GENERAL ASPECTS: SCHOOLS

Total number of schools: 1,000

Number of pilot schools: 116 schools (59 schools in the phase 1 with Eurosolar, which have been provided connectivity; 57 schools in the phase 2, through the GPOBA program, benefiting from computers and training)

Number of schools in operation: 116

Number of students per school: 80 schools with less than 10 students/school; 36 schools with 10-50 students/school

Criteria for the selection of schools: schools that were electrified in the Eurosolar Program, "*Vivir con dignidad,*" and GPOBA

The geographical dispersion of the schools is high since they are located in six regions of the country.

Uses of the schools: educational

GENERAL ASPECTS: PROJECT

The LtL was incorporated in the programs Eurosolar, "*Vivir con dignidad,*" and GPOBA

A local marketing campaign was done to disseminate the project in municipalities and beneficiary communities

The national monitoring strategy was defined during the implementation and operational phase of the project, through meetings and reports

The external and impact assessment of the project were not considered.

and community There are risks of theft: security measures have been increased and people have been appointed to safeguard the facilities. The municipality also has people who visit the tele centers to watch over the equipment.	
ENERGY ASPECTS: The PVSS technical solution has been provided by Eurosolar and GPOBA The uses of PVSS include the educational and community aspects No contract has been made for the supply, installation, and maintenance (during the warranty period) of the PVSS, as it was provided by the programs mentioned above. At the end of the LtL Project, the Ministry of Hydrocarbons and Energy took charge to continue with the monitoring of the tele centers. The Municipalities also have a budget for the maintenance of the telecentres.	**CONNECTIVITY ASPECTS:** The connectivity was provided to schools in phase 1 via satellite internet at a cost of 400 USD/month/school. In the second phase, it is likely to reduce these costs through the satellite connection provided by the state company ENTEL, due to its new service of the Tupac Katari satellite. The computers were only provided to schools in the second phase, and they complied with the GS-OEI recommendations. The uses of the ICT system (including the computer equipment) were those proposed by the GS-OEI. The contract for the supply, installation, and maintenance (during the warranty period of the connectivity system and the computer equipment) was undertaken with professional companies. The maintenance of the connectivity system, including the long-term computer equipment, is handled by the municipalities and communities. As for the satellite connection, the Ministry of Hydrocarbons and Energy will manage for tele centers to have access to satellite connectivity.
TEACHER TRAINING The ICT training for the schoolteachers has been in-person, and through the online courses carried out by the Bolivian Catholic University "*San Pablo.*" Several courses were offered, in addition to digital literacy (compulsory) ICT training for other teachers and pedagogical advisors has not been considered. The basic procedures and regulations for pedagogical management and administration of technological resources are	**COMMUNITY STRENGTHENING** The participation of the local community was high The LMCs were formed, and in many cases with the participation of teachers The awareness of the communities has raised, with the provision of material. There is a person responsible for each telecentre (teacher), who does not receive any remuneration for her work. The training of the local maintainers has been conducted through in-person and online courses, lasting one or two days at most, with provision of materials prepared jointly with the company that provided the computers.

those established by the MED.	
SOCIAL ASPECTS: The institutions involved are the Ministry of Hydrocarbons and Energy and the Municipalities. It is sensitive to the political context. The owners and final managers of the facilities are the beneficiary communities and the respective Municipalities No technical assistance was hired. The institutional appropriation was variable, as the Ministry had a medium level while the communities and municipalities had a very high level of appropriation. The awareness raising of the community was made prior to installation and after the implementation of the facilities. The mobility of teachers is high.	**SUSTAINABILITY:** The Municipalities are the guarantors of sustainability compliance since they are the owners of the telecentres. The OEI, through the Virtual Platform, is responsible for the periodic updating of the teacher training. The maintenance of the capacities of the local maintainers over time is in charge of the Municipalities, which rely on their own local staff for this purpose. The operational plan for the community has not been developed. The financial model is the responsibility of the Municipalities. The operating costs for the sustainability have not been calculated, but the municipalities are responsible for bearing the operating costs. The communities do not make economic contributions because they are located in the poorest areas of the country.

FUNDERS: OEI, Ministry of Hydrocarbons and Energy, and the Municipalities.	OEI CONTRIBUTION (ON THE TOTAL COST OF THE PROJECT): < 50 %	TOTAL INVESTMENT/SCHOOL: < USD 25,000	OEI CONTRIBUTION/SCHOOL: < USD 15,000

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED:

1. There were delays because the 59 satellite terminals were inserted in the Satellite HUB of the Military Communication System - SICOMI.

2. In the second phase of the project, there was a delay in the acquisition of the 114 computers, due to the administrative processes of customs clearance.

3. The weather factor also caused some mishaps in the delivery of computers. This is the case of the municipality of Monteagudo, whose roads were impassable due to the landslides caused by the rains.

LESSONS LEARNED:

1. Manage funds for the purchase or repair of equipment that deteriorate or burn due to weather or age.

2. Manage funds to continue with the training of students and teachers. This will help them to adapt themselves to the new technology that has been adopted.

3. Help the communities to manage external funds, to enable them to continue with the projects that are implemented at their municipality.

PROJECT APPRAISAL:

In the framework of the agreement signed between the Ministry of Hydrocarbons and Energy and the Organization of Ibero-American States, it is established that, through the project Lights to learn, children and teachers of the peasant rural schools selected in the management of the Internet will be trained (Phase 1). Besides, rural schools in Bolivia should be provided with computers and alternative energy sources (Phase 2).

As regards culture, it was sought "to open a world of information" with the incursion of the new technologies of information and communication.

This objective was fulfilled perfectly, although we do not have specific numeric indicators. Regarding technological equipment for the fulfillment of the general objective, the tele centers were equipped with computers. The Ministry of Hydrocarbons and Energy provided electricity to all schools benefiting from the project, since electricity is a key factor to make possible the use of information and communication technologies.

RECOMMENDATIONS:

1. Make the necessary arrangements before the implementation of the project.

2. Carry out marketing and awareness-raising campaigns of the project prior to its implementation.

3. Inform the communities and municipal governments about the benefits of the project.

4. Create partnerships with public and private companies in order to benefit more communities.

5. Make arrangements and/or rapprochements with the Ministry of Education, to support the sustainability of the project.

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	3	4
Institutional appropriation - Regional or Local Bodies	3	4
Appropriation by the local communities	3	4
Appropriation by schoolteachers	3	4
Monitoring Mechanisms	3	3
Delays in the implementation	3	2

Turnover of teachers	3	2
Security measures	3	3
PVSS Technical Solution	3	3
PVSS operability	3	3
Connectivity Technical Solution	3	1
Connectivity operability	3	2
Computer Equipment Technical Solution	2	2
Operability of the Computer Equipment	2	1
Inclusion of ICTs in the pedagogical processes	3	3
Responsible use of the facilities - communities	4	2
Mechanisms for the maintenance of the capacities of teachers	3	2
Mechanisms for the maintenance of the capacities of the local maintainers	3	2
Measures for the sustainability	3	1

3. COLOMBIA

GENERAL ASPECTS: SCHOOLS

Total number of schools: 4,453

Number of pilot schools: 189

Number of schools in operation: 136 venues with a solar power system in operation, but with the connectivity component under development (27 schools already have the "*Kiosco Vive Digital*" connectivity solution of the Ministry of Information Technology and Communications).

Number of students per school: variable.

The criteria for the selection of schools are: lack of energy and not considered in short and medium term electrification plans; lack of computers; public, rural, or isolated school that is not to be demolished or relocated and has enough space for storage and equipment protection; schools where the internet connection is feasible; minimum number of registered students.

There is a high geographical dispersion of the schools as they are located in 28 municipalities across seven regions.

Uses of the schools include educational purposes, although the possibility of opening the school to the community for a total of 20 hours per week is being analyzed.

The safety of schools is low, however all steps have been taken to mitigate potential risks. Both the community and the Territorial Entity have committed themselves to care and guard the systems through official acts, for which they are responsible for maintaining the systems and

GENERAL ASPECTS: PROJECT

The LtL has been incorporated into several programs: the studies on the PVSS made by the Ministry of Energy through the IPSE (Institute for Planning and Promotion of Energy Solutions for Non-Interconnected Areas); Computers to Educate, promoted by the MEN, provides infrastructure and computer machines; The Ministry of Information Technology and Communications with its "*Kiosko Vive Digital*" program brings the connectivity of the systems. There are also other specific agreements with several private foundations.

A social marketing campaign has been carried out at the local level.

During the implementation phase, companies have been subcontracted. During the operational phase, the OEI will follow up the project through the communities and Territorial Entities.

An impact assessment of the project will be carried out. However, no external evaluation of the project is planned.

replacing the equipment in case of damage or loss.	
ENERGY ASPECTS: The PVSS technical solution has contemplated adjustments to the particular context There is a unified contract for the supply, installation, and maintenance (during the warranty period) of the PVSS PVSS maintenance during the warranty period has been subscribed for an average of two years. The long-term maintenance of the PVSS is in charge of the final owner. In three regions, it has been defined through acts of cooperation, custody, and care of the equipment.	**CONNECTIVITY ASPECTS:** Through the "*Kiosco Vive Digital*" program (operated by MINTIC), connectivity has been provided in 27 educational venues, and it is planned to be offered in 29 more locations. Besides, the National High-Speed Connectivity Program (PNCAV) will provide connectivity to the schools of the El Choco province. The Ministry of Education and Telecommunications has provided the equipment to the schools. Facilitating access for the community to the Internet is planned. The Ministries are in charge of the maintenance of the connectivity system, including the computer equipment, during the warranty period. The final owner is the responsible for the maintenance of the connectivity system, including the computer equipment in the long-term.
TEACHER TRAINING The suppliers of the connectivity system have provided the ICT training to the schoolteachers, with an average duration of two-three hours per school. ICT training for other teachers and pedagogical advisors is not planned. The basic procedures and regulations for pedagogical management and administration of technological resources are those provided by the Ministry of Education and Telecommunications.	**COMMUNITY STRENGTHENING** High involvement of the local community. No specific LMCs have been created. These responsibilities have been integrated into those of the Community Council or the Indigenous Council. The awareness-raising session for the communities takes about two or three hours. There are two designated people to perform the local maintenance, the rector (appointed by the Territorial Entity who administers a group of educational establishments), and the main teacher. They receive no remuneration for their duties. The training of the local maintainers lasts for an hour and materials were provided. In June 2016, training was provided on the preventive and corrective maintenance of PVSS to the personnel delegated by the Secretariats of Education benefited by the program, with the participation of teachers and members of the communities. This training lasted approximately three to four hours in each of the municipalities visited. There was a partnership with the East Technological School cooperated for this training.
SOCIAL ASPECTS:	**SUSTAINABILITY:**

The institutions involved are the Ministry of Energy (through IPSE), Ministry of Education, Ministry of Information Technology and Communications, and other private organizations of varied nature.	The community is the guarantor of the sustainability compliance, requiring it to the final owners and maintainers.
It is sensitive to the political context.	The maintenance of the capacities of the local maintainers over time is not planned, although the community should consult the final owner in case of necessity.
The Technical Assistance has been contracted, but no Social Assistance has been hired.	There is no defined operational plan for the community or operating costs for the sustainability. The final owners of the systems should determine both of them.
The final owners of the facilities are the local mayors and departmental and municipal secretaries of education. The private entities and communities will be the managers.	The communities do not pay fees for services because their ability to pay is very low.
High institutional appropriation.	
The awareness of the community was raised.	
The mobility of teachers is very low.	
High decentralization by the municipalities and the Secretariats of Education.	

FUNDERS: OEI, Private Institutions	OEI CONTRIBUTION(ON THE TOTAL COST OF THE PROJECT): < 50 %	TOTAL INVESTMENT/SCHOOL: < USD 25,000	OEI CONTRIBUTION/SCHOOL: < USD 15,000

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED (four major difficulties and four lessons learned):

1. Because of the remoteness and difficulty of accessing some communities, the contact with them has been lost. Thus, there is decentralization on this issue between the Secretariats of Education and the communities.

2. The current state of most of the Solar Systems delivered in the first phase of the LtL is unknown.

3. In some communities, it has been shown that they are unaware of the LtL Program, although they benefit from the electric energy resources and the use of the audiovisual tools.

4. Decentralization among Municipalities, beneficiary Education Secretariats, and communities.

LESSONS LEARNED:

1. The fundamental component of the program is the social component, on which least work has been done. Therefore, we must try to place a greater emphasis on social work prior to the provision of the PVSS.

2. It has been noted that a large number of beneficiary educational centers have shut down completely due to lack of maintenance and misuse of the PVSS. Thus, more work must be done on the efficient use of energy and on the generation of alternatives that facilitate the technical support (remote communication and greater emphasis on training in preventive and corrective maintenance). In the last survey of information that was made only in the beneficiary Educational Centers of the Chocó department (carried out in mid-2015), it was found that, of the 114 beneficiaries, thirty-seven do not work, twenty-nine have unknown status, and 48 work properly. We do not consider the Educational Centers of other departments, as it was not possible to communicate with them.

3. Promote the participation of communities, Secretariats of Education, Municipalities, and other Territorial Entities in the activities related to the program, to improve the communication and the sense of ownership by them with respect to the program.

4. Regarding the management of the program, there should be greater control and follow-up on the commitments undertaken by the parties. Besides, all parties should participate in the meetings, and the communication must be improved, to take an organized control over the contribution of each partner.

PROJECT APPRAISAL:

Since the current state of operation of most of the PVSS installed during the first phase of the program is unknown, it is difficult to evaluate the project, although the provision of the PVSS has been successful. The most complex issue is to ensure the sustainability of the systems.

RECOMMENDATIONS (the four most important ones):

1. Carry out socialization and awareness-raising workshops that generate greater impact and recall of the Program.

2. Promote training workshops for the communities on the issues of the efficient energy use, the care of the systems, and the importance of education in improving the quality of life.

3. Strengthen and establish, jointly with the Territorial Entities, maintenance and sustainability control plans of the PVSS.

4. Promote agreements and activities that involve all beneficiaries, both communities and territorial entities, promoting the communication between them and generating a greater sense of ownership of the donated assets.

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government	4	2

Institutions		
Institutional appropriation - Regional or Local Bodies	4	2
Appropriation by the local communities	4	3
Appropriation by schoolteachers	4	3
Monitoring Mechanisms	4	3
Delays in the implementation	4	3
Turnover of teachers	3	1
Security measures	3	2
PVSS Technical Solution	4	4
PVSS operability	4	1
Connectivity Technical Solution	3	2
Connectivity operability	3	1
Computer Equipment Technical Solution		3
Operability of the Computer Equipment	3	1
Inclusion of ICTs in the pedagogical processes	4	1
Responsible use of the facilities - communities	4	2
Mechanisms for the maintenance of the capacities of teachers	4	1
Mechanisms for the maintenance of the capacities of the local maintainers	4	1
Measures for the sustainability	4	2

4. EL SALVADOR

GENERAL ASPECTS: SCHOOLS

Total number of schools: 300

Number of pilot schools: 25

Number of schools in operation: all schools have connectivity, the PVSS was installed in 23 schools, and there are computer equipment in eight schools.

Number of students per school: 60

The criteria for the selection of schools include the deprivation of access to basic services, the difficulty of access, and the socio-economic situation.

The schools are located in three neighboring departments, with a maximum distance of 83 km.

Schools are used for both educational and community use.

The safety of the schools is medium; the facilities have been adapted to protect them.

GENERAL ASPECTS: PROJECT

The LtL schools have been included in the "*Fomilenio*" program (funded by the US) to bring connectivity to these schools in coastal areas. In addition, a school has integrated the LtL into a government initiative of sustainable ecological schools, providing biodigesters and school gardens.

The social marketing campaign is limited to the use of Facebook.

The national monitoring strategy will be coordinated by the OEI.

No external or impact evaluation of the project is planned.

ENERGY ASPECTS:

The technical solution of the PVSS has been based on the general proposal of the GS, with minor adjustments (for example, type of battery).

The uses of PVSS include educational and community purposes (recharge of mobile phones, social communication, recreational purposes, or access to light).

The contract for the supply of the PVSS was made with a private company; an agreement has been signed for the installation and maintenance (during the warranty period and during the operation) of the PVSS with the University of El Salvador. The MED will also participate in

CONNECTIVITY ASPECTS:

One school has a 3G connection. The other schools will participate in the "*Fomilenio*" initiative.

Computer equipment have been installed in eight schools. The computer equipment are Multisit, in line with other ministerial initiatives.

The ICT systems (including the computer equipment) are used for educational and community purposes (communication, recreational use, and alternative use of other learning experiences).

The warranty period of the system installed in the school with computer equipment is of two years.

Long-term maintenance of the connectivity system, including the computer equipment: the MINED, through the Vice-Ministry of Science and Technology, has made the necessary arrangements for the maintenance and sustainability of connectivity in most state educational centers.

preventive and corrective maintenance during the warranty period. During the operational phase, the MED was responsible for the specialized maintenance of all equipment of the PVSS. The University of El Salvador cooperates in the preventive maintenance of energy equipment.	
TEACHER TRAINING No training has been performed due to the lack of equipment and the condition of the MED for conducting training once the computer equipment were acquired. Besides, there was no training in basic computer maintenance. There were only informational meetings and awareness-raising events. ICT training for other teachers and pedagogical advisors is not planned. Four manuals were prepared for teaching ICTs in the classroom, including tools of the platform "Learning in Partner" of Microsoft. These manuals were designed under the supervision of the OEI and Microsoft, and they were later approved by the MED.	**COMMUNITY STRENGTHENING** Efforts have been undertaken to obtain the maximum involvement of the local community, which has generally been very high. The project was inserted into the local structures, since the municipalities gave all their support to its implementation, both in the economic, labor, and providing the social fabric with which they count in the intervention areas. We have worked with the social organizations of the area (Adescos-Communal Development Association), where parents are usually involved; they are the ones who manage any support directly with the municipality. These associations have obtained support from the Ministry and the municipalities, in case of need to replace the equipment. The responsibilities of the Management Committee have been integrated through the School Boards and Associations of Community Development. The awareness of the communities was raised through two meetings prior to the installation of the project and four or five visits once the facilities were commissioned (with a duration of about 12 hours in total). The responsibilities of local maintainers are defined and focused on teachers. The training of the local PVSS maintainers was conducted by the University of El Salvador for one day. The materials have been provided.
SOCIAL ASPECTS: The institutions involved were the Ministry of Education, the University of El Salvador, the Ministry of Economy, and other private organizations.	**SUSTAINABILITY:** The guarantors of the sustainability compliance are the MED, the University of El Salvador, the Municipalities, and the OEI The periodic updating of teacher training is provided by the MED.

It is not overly sensitive to the political context at the municipal level.	The maintenance of the capacities of the local maintainers over time is to be conducted through the University of El Salvador and the maintenance area of the MED.
It is not planned to hire Social Assistance since the Ministry and the University of El Salvador cover these tasks. A technician was hired for the installation of PVSS.	There is no defined operational plan for the community or operating costs for the sustainability (although the replacement costs of the equipment are available).
The final owner and manager of the facilities is the Ministry of Education	Operating expenses are borne by the MED.
Institutional appropriation is high, except in the case of the Ministry of Economy.	It is prohibited by law to request fees in the schools. Funds are being collected through events.
The awareness the local authorities was raised.	
Very low teacher mobility	

FUNDERS: OEI, Municipalities, Private companies	**OEI CONTRIBUTION** (ON THE TOTAL COST OF THE PROJECT): >75 %	**TOTAL INVESTMENT/SCHOOL:** < USD 25,000	**OEI CONTRIBUTION/SCHOOL:** < USD 15,000

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED:

1. Changes in the purchase system were necessary to accelerate the process (simultaneous purchase of several devices).

2. The budget cut affected the fulfillment of the objectives. Relocations were attempted in collaboration with the financial area. Two positions (administrative support and resources management) were relocated to other projects to ensure continuous support for the project.

3. Through the cooperation with the private company, it emerged that most of the budget for social protection was already assigned to other areas than those included in the project.

4. In some schools, due to the change of directors, it was necessary to establish new mechanisms of coordination between those in charge of the maintenance of the equipment.

5. There was an overabundance of PVSS because the initial number of pilot schools was 30, but some schools were already able to access the network. Then, some equipment were sold to the OEI Honduras office, and the resources were used to purchase other equipment.

6. A budgetary adjustment reduced 46% of the initial budget, leaving activities

uncovered and others eliminated.

LESSONS LEARNED:

A positive result was achieved by cooperating with the local governments. Besides, the inclusion of the municipalities was positive, as they added more projects in the zones where both adults and young people benefited from the program. Institutional support from the MED was helpful.

PROJECT APPRAISAL:

The greatest possible flexibility when relying on the OEI to optimize resources (by allowing certain margin of negotiation of supports and adaptation to individual circumstances of each school). It refers to allowing some processes to be relaxed since it was not always possible to apply the established procedures, given the conditions of the contexts where the project was implemented.

Good coordination with the Purchase Department to purchase equipment and materials.

Efficient, transparent, and fast management of funds.

Although the support of the municipalities was very good, it is difficult to have responsibilities continuously since they change every three years.

The pilot project has been very important for the country because it has made it possible to experiment with a model to ensure connectivity in rural education centers, and thus ensure equality of conditions to promote the learning of children that live in conditions of vulnerability.

RECOMMENDATIONS:

If it were possible, have a faster execution response to be able to maximize possible external supports.

It refers to solving more quickly some situations that are consulted.

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	4	3
Institutional appropriation - Regional or Local Bodies	4	3
Appropriation by the local communities	4	4
Appropriation by schoolteachers	4	3
Monitoring Mechanisms	4	4
Delays in the implementation	4	2
Turnover of teachers	2	2
Security measures	4	2
PVSS Technical Solution	4	4
PVSS operability	4	4
Connectivity Technical Solution	4	1
Connectivity operability	4	4

Computer Equipment Technical Solution	4	3
Operability of the Computer Equipment	4	4
Inclusion of ICTs in the pedagogical processes	4	3
Responsible use of the facilities - communities	4	3
Mechanisms for the maintenance of the capacities of teachers	4	3
Mechanisms for the maintenance of the capacities of the local maintainers	4	3
Measures for the sustainability	4	3

5. GUATEMALA

GENERAL ASPECTS: SCHOOLS

Total number of schools: 1,224

Number of pilot schools: 1

Number of schools in operation: 1

Number of students per school: > 100

The crowdfunding campaign selected the only school in the pilot project. Accessibility and size (large school) were also considered as basic security infrastructure and general conditions.

Uses of the schools: educational, promotional, and cultural development (cell phone recharge, adult training, and film screening).

The school has been reformed to ensure the safety of the facilities.

GENERAL ASPECTS: PROJECT

The LtL has not been incorporated into other programs.

No social marketing campaign is planned.

The NO-OEI monitors the project, although it is intended to incorporate the Municipality to support the monitoring.

No external or impact evaluation of the project is planned (although the impacts are intended to be monitored through the Municipality).

ENERGY ASPECTS:

The PVSS technical solution is the general solution of the project.

The uses of PVSS include educational and community purposes.

A contract was signed for the supply, installation, and maintenance of PVSS, with a two-year warranty.

The PVSS maintenance during the warranty period will be carried out by the installation company in four visits (at six, 12, 18, and 24 months). Long-term maintenance is handled by the LMC, but no details have been set.

CONNECTIVITY ASPECTS:

The connectivity system is via a modem, with monthly costs of USD 26 (paid by the project for three months).

For the technical solution of the ICT system (communication), the GS proposals were followed. The computer equipment include computer, UPS, TV, printer, and cell phones.

The uses of the ICT system include the use of educational materials, communications with the MED, and access to different materials for the formation and cultural development of the community.

The computer equipment are acquired by direct purchase, with a one-year warranty for computer equipment and two years for television.

The maintenance of the connectivity system has not been considered necessary. The teaching staff is in charge of the maintenance of computer equipment during the warranty period and in the long term.

TEACHER TRAINING	COMMUNITY STRENGTHENING
The ICT training for the schoolteachers was in charge of the OEI technician (a full-day workshop). ICT training for other teachers and pedagogical advisors was not considered. The basic procedures and regulations for pedagogical management and administration of technological resources were coordinated with the Technical Administrative Coordinators of the MED.	The participation of the local community was high. A LMC has been set up, in which there are representatives of the community and teachers. Two community raising-awareness sessions have been held. The responsibilities of local maintainers (in principle the management committee) were not defined and their work is voluntary. The training of the local maintainers has been conducted by the installation company.
SOCIAL ASPECTS:	SUSTAINABILITY:
Apart from the OEI, the Ministry of Education, the municipality (also the COCODES), and the "*Voces*" Foundation are involved. It is sensitive to the political context. The Municipality will conduct the Technical and Social Assistance. Instructors were hired for basic computer training and for the preparation of installation and community organization. The final owner of the facilities will be the Community Development Council, whereas the Municipality will be the manager. The institutional appropriation of the municipality is high. The awareness of the local authorities was raised. The mobility of teachers is low.	The committee and the Municipality are the guarantors of the sustainability compliance. The periodic updating of teacher training will be conducted via an agreement with the Administrative Technical Coordinators (in charge of the MED) during the life of the project. Regarding the long-term maintenance, the agreement has not been extended. For the Operational Plan, the sustainability plan is being followed. Operating costs for sustainability have not been calculated. The financial model is planned to be in charge of the community. It is expected to charge the community for the various services provided by the project.

FUNDERS:	OEI CONTRIBUTION (ON THE TOTAL COST OF THE PROJECT):	TOTAL INVESTMENT/SCHOOL:	OEI CONTRIBUTION/SCHOOL:
OEI Crowdfunding Campaign "*Voces*"		< USD 15,000	< USD 15,000 (50-75%)

Foundation	<75 %		

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED (five major difficulties and five lessons learned)

The major difficulty was the lack of infrastructure and political support. The educational and municipal authorities did not want to commit themselves to the permanent support for the internet payment or for the maintenance and renovation of the purchased equipment. Besides, the community did not offer good conditions to ensure a good connection, operation of solar panels, and the use of internet as an educational resource.

Another difficulty at the beginning of the project was the lack of trust at the local level due to the time it took to execute it.

LESSONS LEARNED:

1. The importance to the educational community of the development of new technologies, for the use in the classroom and in other spaces at the local level.

2. The involvement of the educational community throughout the development of the project, through an organized committee.

3. The awareness raising and training of the local committee is important to achieve better results.

4. The integration of the committee, both of teachers and of parents, achieves a good complementary work.

5. The implementation of this type of projects is necessary in several schools, to achieve a greater impact.

PROJECT APPRAISAL:

The project was developed with the support and coordination of different agents at community level and the municipality, as well as the Ministry of Education at the local level.

The OEI technical team and the local technical assistance team were able to develop the activities.

In general, the project was positively evaluated, as soon as it started, according to the reports of the workshops. The trained teachers appreciated very positively the possibility of being able to use the new technologies in the classrooms.

There was much interest and willingness of the community to manage the project. However, the conditions of implementation (few resources, absence of a permanent local technician, lack of support, and closure of the project) caused the processes to be carried out with weaknesses, especially in sustainability. And guarantee the pedagogical use.

RECOMMENDATIONS:

1. Carry out a consensus process with the Ministry of Education, the Ministry of Energy and Mines, the Municipality, and other public and private entities for the development of projects of this nature and guarantee their sustainability.

2. Via MINEDUC, watch over the use of the system for the benefit of the community and educational quality.

3. Get feedback from teachers.

4. Make complementary efforts for the provision of energy, equipment, materials, and the process of training teachers and community groups.

Aspect	Relevance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	4	2
Institutional appropriation - Regional or Local Bodies	3	2
Appropriation by the local communities	4	4
Appropriation by schoolteachers	4	4
Monitoring Mechanisms	4	2
Delays in the implementation	3	1
Turnover of teachers	4	4
Security measures	4	3
PVSS Technical Solution	4	3
PVSS operability	4	4
Connectivity Technical Solution	4	2
Connectivity operability	4	4
Computer Equipment Technical Solution	4	3
Operability of the Computer Equipment	4	4
Inclusion of ICTs in the pedagogical processes	4	3
Responsible use of the facilities - communities	4	4
Mechanisms for the maintenance of the capacities of teachers	4	4
Mechanisms for the maintenance of the capacities of the local maintainers	4	1
Measures for the sustainability	4	2

6. HONDURAS

GENERAL ASPECTS: SCHOOLS

Total number of schools: 6,877

Number of pilot schools: 18

Number of schools in operation: 18

Number of students per school: < 100

The selection criteria for schools include IRA, schools without access to energy and not considered in the rural electrification plans (within five years), proximity between schools, with cell phone coverage, presence of companies that can support the project, community's interest in the project and willingness to assume the ownership, and involvement of the municipal governments.

The uses of the schools include adult literacy programs, other learning experiences (computer science), recreational activities, community meetings, and polling place.

Schools are dispersed in four different areas of the country. In each area, there are at least three schools relatively close to each other.

The risk in the safety of schools is high. Thus, measures have been taken to protect the photovoltaic facilities (fences and booths).

GENERAL ASPECTS: PROJECT

The LtL project was incorporated into several programs: "*Educatrachos*" (aimed at preventing school failure, which has donated computers and strengthened the capacities of teachers), *"Escuelas de Corazón,"* which runs the Foundation "*El Azúcar es Vida*" (aimed to improve the infrastructure of the schools), a partnership with the Gyeonggi Do Provincal Institute for Life-Long Learning of South Korea (training of 30 community members and five staff in self-management and community development), and an educational program of the office of the Vice-presidency of the Republic (provision of 686 mini-laptops distributed in the 18 schools).

There is an annual communication program at national and local level.

Periodic monitoring was carried out until the final Acceptance of Facilities Act was signed.

No external evaluation or impact assessment was considered.

ENERGY ASPECTS:

The PVSS technical solution is the general solution of the project, including the consumer equipment.

The uses of PVSS correspond to those originally pre-established.

CONNECTIVITY ASPECTS:

Satellite connection (costs 80 USD/month). Four schools have Wi-Fi via modem, and the other 14 were connected via satellite. The NO bears the connection fees during the first 12 months, and subsequently the communities must assume them.

The ICT system is the one proposed by the GS. Mini-

A single supply, installation, and maintenance contract has been signed, with a two-year warranty (maintenance visits every six months). The community must undertake the long-term maintenance of the PVSS.	laptops were provided; besides, in six schools, data-shows (projectors) were donated. In addition to its own educational uses, the community may also use the facilities to watch movies and for community training (including evening literacy classes for adults). The contract for the supply, installation, and maintenance during the warranty period of the connectivity system was made with the installation companies (TIGO via wifi for four schools and Econsulting through satellite connection for 14 schools) for 12 months. In the short term (one year), the maintenance coordinator proposed in the Project Board will be responsible for the preventive maintenance. The incidents will be communicated to the technicians of the Ministry of Education. The community is in charge of the long-term maintenance.
TEACHER TRAINING: Teachers have received a 60-hour training in ICT and IT. The "*Educatrachos*" Program provided the ICT training. Three IT manuals were provided, at least, in each educational center. In-person and online recall sessions are planned. Other teachers have been trained through the different courses taught by the technicians of the Ministry of Education. The basic procedures and regulations for pedagogical management were not established.	**COMMUNITY STRENGTHENING** The involvement of the community is high. The Management Committees were created according to the general proposal of the LtL. They included teachers, and an operating regulation was created. GILL trained communities in self-management and community development. Besides, the OEI and "*Funazucar*" trained 221 community leaders in the development of entrepreneurial skills for long-term resource generation. In total, the training provided is equivalent to more than 10 days, since project coordinators also reinforced their knowledge of sustainability.
SOCIAL ASPECTS: In addition to OEI-Honduras, there are several institutions involved: "*Funazucar*," the MED, the National Autonomous University of Honduras, and the local municipalities. It is not affected by the political context.	**SUSTAINABILITY:** The OEI and the private company are the guarantors of the fulfillment of the sustainability in the short and medium term. Quarterly reports will be prepared. The Ministry of Education (MED) is responsible for conducting the periodic training of teachers. The professional maintainers are expected to strengthen the capacities of local maintainers during

The OEI hired a project coordinating team, including a telecommunications specialist who conducted the connectivity study.	preventive maintenance visits (every six months) but a long-term training system for local maintainers is not planned.
The final owner of the facilities will be the Ministry of Education of Honduras, although the schools will be the managers.	An operational plan for the community has not been developed, although the community is being trained to develop plans for generating resources and fundraising has begun.
Institutional appropriation is high.	The operating costs have not been defined. The communities must bear the fees of connection to Internet, after 12 months since the commissioning of the project, and the costs of operation and maintenance associated to the energy system. The 18 local committees are carrying out a regular activity plan that generates income, to cover fixed costs of the systems.
The awareness of both the authorities of the MED and the Departmental or District Directors of Education was raised.	
The mobility of teachers is practically non-existent.	

FUNDERS: OEI (GS and NO) and other private funders	OEI CONTRIBUTION (ON THE TOTAL COST OF THE PROJECT): 50-75 %	TOTAL INVESTMENT/SCHOOL: USD 25,000 – USD 50,000	OEI CONTRIBUTION/SCHOOL: USD 15,000 - USD 30,000

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED:

The main difficulty was the delay in the supply of PVSS due to customs delays (the equipment had to be imported).

LESSONS LEARNED:

1. It is important to provide the comprehensive development of the schools.

2. Improve educational quality.

3. Make teachers apply and transmit their new knowledge to students (or parents).

PROJECT APPRAISAL:

The presence of a financial and strategic partner (private company) has been highly valued.

A coordination team (OEI and Secretary of Education), a technical team (OEI, University, and Secretariat of Education), and 18 local support teams in the communities were formed, according to the recommendation of the OEI. Thus, the implementation and management of the project have been considered.

The project was very much appreciated by the population, local authorities, and the whole community. There was a lot of participation of the population.

RECOMMENDATIONS:

1. Clearly define roles and responsibilities of project partners.

2. Before defining beneficiary schools, a telephone company should assess the feasibility of the connectivity.

3. For all the activities, the support of the local educational and community authorities must be sought.

4. To improve the bidding process, it is recommendable to get the support of the Secretariat of the OEI.

Looking forward:

5. Continue with the actions taken, it is advisable to maintain the relationship between the OEI and the Ministry of Education, to keep the active participation and liaison of municipal authorities, to identify other possible agents to engage them and grow in a sustainable way, and to continue with the management of technical resources and materials.

6. Try to involve district and departmental directors in all trainings. Allocate funds to coordinate actions to develop a follow-up plan up to two years after the project ends.

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	4	3
Institutional appropriation - Regional or Local Bodies	4	2
Appropriation by the local communities	4	3
Appropriation by schoolteachers	4	4
Monitoring Mechanisms	4	4
Delays in the implementation	2	2
Turnover of teachers	2	2
Security measures	3	3
PVSS Technical Solution	4	4
PVSS operability	3	4
Connectivity Technical Solution	4	4
Connectivity operability	2	3
Computer Equipment Technical Solution	2	3
Operability of the Computer Equipment	3	4
Inclusion of ICTs in the pedagogical processes	4	3
Responsible use of the facilities - communities	4	4
Mechanisms for the maintenance of the capacities of teachers	4	2
Mechanisms for the maintenance of the capacities of the local maintainers	4	2
Measures for the sustainability	4	3

7. NICARAGUA

GENERAL ASPECTS: SCHOOLS

Total number of schools: 6,614

Number of pilot schools: 42 (fourteen had electricity through connection with the electricity grid)

Number of schools in operation: 42 schools with access to light (twenty-eight PVSS and 14 with access to the electricity grid), all have ICT equipment (laptop/computer/TV/DVD), none with operating connectivity (two have ADSL connection but in poor condition or not available).

Number of students per school: 33 schools < 100 students; nine schools: > 100 students

The selection criteria for schools include single-teacher schools; in good state; away from the network (> two km); interest of the school and community

In addition to the use of the LtL, the uses of the schools consider adult education and community training.

The schools are located in the central area of the country in two noncontiguous departments (in total in six municipalities).

The safety of the schools is medium. Anti-theft systems were installed and community committees for the surveillance of the equipment were established in many communities.

GENERAL ASPECTS: PROJECT

The LtL is integrated into other OEI educational programs (e.g., trainings in the use of ICTs for educators from other communities). The objectives are complemented with the Strategic Plan of Education 2011-2015.

There is no social marketing campaign, as it is informed through the web.

The follow-up includes periodic meetings between the OEI and the MED.

An external evaluation of the project was made, including an impact assessment.

ENERGY ASPECTS:

Small adjustments have been made in the consumption with respect to the general technical solution of the PVSS.

In addition to the educational

CONNECTIVITY ASPECTS:

Because connectivity can be incorporated only through satellite systems, this component has not been incorporated (two schools have an ADSL connection but in poor condition or unavailable). The cost of this connection is about 40 USD/month.

use, the uses of the PVSS include the creation of an energy hub.

A single supply, installation, and maintenance contract has been subscribed with the system supplier, with a short-term warranty (two years). The co-executing agencies ANF and Food for the Poor are in charge of the maintenance and guarantee, under the supervision of the OEI.

The NGOs are in charge of the maintenance in the schools they manage. The MED is responsible for the long-term maintenance, through the respective care agreement with the community.

The ICT system is the one recommended by the project, with two years of warranty for most of the equipment. In the long term, the equipment will become the property of the MED.

The ICT equipment can be used by the school, by the teachers, and by the community.

TEACHER TRAINING:

The project provided three phases of training, basic computer skills, integration of the ICTs, and "ICT Reinforcement."

Eighty-four teachers from single-teacher schools and bases, seven municipal pedagogical advisors, two departmental pedagogical advisors, six ICT teachers, and four community educators have been trained.

The basic procedures and regulations for the administration of the pedagogical resources used by the MED are employed.

COMMUNITY STRENGHTENING:

The participation of the local community is high.

The Management Committees consist of the Committees of parents and teachers. They have been trained in the management for the operation and sustainability of the project.

Two or three people have been assigned the responsibility for maintenance (maintenance of the panels, review of the operation, change of minor parts such as fuses or light bulbs, etc.) for the administrative tasks. These people have been trained for one day in the project implementation period. Manuals for users and technical maintenance manuals have been provided. These people do not receive remuneration for their activities.

SOCIAL ASPECTS:

The institutions involved are the MED, other development organizations (American Nicaraguan Foundation, Food for The Poor), and the La Salle Technological University.

It is not sensitive to the political context.

SUSTAINABILITY:

The guarantors of the sustainability are the OEI and the MED.

The MED will be responsible for the updating of the training of the teachers until the end of the project.

The maintenance of the capacities of the local maintainers will be guaranteed primarily by the OEI and subsequently by the MED, which will establish a commission made up of the directors of educational

No experts have been recruited working in the community component because the number of schools was expanded but the budget was kept at the same level.

The final owner of the facilities is the MED. The community is the manager in those cases where the NGOs are not established (the NGOs are established in 19 schools).

The institutional appropriation is high.

Awareness-raising activities were carried out at the central and departmental levels.

The mobility of teachers is low.

technology and IT to follow up the project during the life of the pilot project.

There is no operational plan for the community and no operating costs have been determined. There is no defined financial model.

No fees can be charged to the community because public education is free. So funds are being raised for charges of mobile recharge and sheet printing.

FUNDERS: The GS-OEI and the NO, the MED, and NGOs	**OEI CONTRIBUTION** (ON THE TOTAL COST OF THE PROJECT): < 50%	**TOTAL INVESTMENT/SCHOOL:** USD 25,000 – USD 50,000	**OEI CONTRIBUTION/SCHOOL:** USD 15,000 - USD 30,000

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED:

The project has faced some institutional difficulties, such as the limited use of ICT tools, in some cases, trained teachers, and the level of school management. The situation was overcome with the participation of the management of the NERs (Rural Education Center). There were also social, economic, and cultural difficulties of the target population of the project. Although the focus was homogeneous, it can be said that the existence of a key indicator, such as the lack of audio equipment, video equipment, computer equipment, and access to energy, is a fact. Based on this "indicator," one could conclude that the project has had a very adequate focus.

More specifically, the target population face economic difficulties, resulting from poor quality education that leads to low-tech, low-productivity, and low-income jobs; this results in a cycle of social difficulties that is about to break up in the next generation, with an education of better quality that generates more knowledge and jobs of greater complexity and better income.

LESSONS LEARNED:

1. Dispose of an exit strategy (financing alternatives). It refers to an alternative source of financing for the alternative sustainability to the general budget of the Republic with whom the MINED works.

2. Define the technological solution. Define a single technology solution to be applied in the project with technical specifications, because two types of technologies were used

(computing in schools with electricity and laptops in schools with photovoltaic systems).

3. Create capabilities. Create IT support capabilities in the field, because the MINED only has one person for an entire department, which implies that the support could not be provided in a timely manner once the project is completed and the technical support that OEI Provides.

4. Do not allow computer administrator accounts (faults occur due to lack of computer knowledge such as viruses). This is a computer strategy that in some cases was considered, but it was ignored in other cases because the end user could install other applications on the PCs and forget to block them.

5. The constant monitoring of the municipal technicians to the teachers of ICTs granted incentives for a wide participation.

6. The young teachers are more interested in the ICTs.

PROJECT APPRAISAL:

The management structure for the implementation of the project was considered adequate. However, it presented limitations of operational coordination in the implementation of activities, communication, and decision making (mainly the Mined response time to the OEI requests to operate the tasks, for which most of the requests go through a hierarchy to authorize some intervention activities in the territories), although it did not prevent the results from being achieved. This was verified by the evaluation team judging by the implementation of the activities and the use of the human, technical, and financial resources for the accomplishment of the results.

The identified success factors were the strong leadership of the MINED and the OEI as implementing institutions, the institutional support from the ANF and the FPP, and the elaborated management and participation model (promotion of the participation of teachers and students, with the commitment of community leadership).

Both the initial level of knowledge and organization of the beneficiary communities and the time devoted to accompanying and strengthening them have been insufficient to achieve the desired level of appropriation, with moderate levels of the use of computers (and audiovisual equipment).

The performance of the project implementation was satisfactory.

The project has helped to increase the inclusion of isolated schools, by geographic and technological conditions, to energy services that support the use of ICT media and methods in the learning processes, thus contributing to the digital inclusion.

A certain incorporation of the ICT into the educational processes in the schools is observed. There is not yet a general consideration of the incorporation of ICT tools as resources, which could improve the pedagogical processes of the MINED.

The project has created new expectations in the educational communities: 1) the digital literacy of students in their schools; 2) the reduction of the digital divide; and 3) the incorporation of technologies that made it possible to improve the academic performance of the students.

The project and the MINED have promoted the development of new skills in teachers to strengthen competencies that focus on the learning process. In addition, the provision of computer equipment opens the possibility for schools to have connectivity points.

RECOMMENDATIONS:

1. Ex-post evaluation: follow-up and monitoring. There is a marked bias in favor of a

qualitative evaluation detrimental to the use of quantifiable management indicators common to all schools; this leads to the need for an ex-post evaluation in which the generated learning is discussed.

2. Systematization/validation of experience. Determine achievements.

3. Selection of schools (criteria and application bases should be established since the design of the project).

4. Selection of teachers to be trained: select teachers for use of ICT that do not regard the ICTs as an additional tool, but consider them as a means of changing the bases of learning processes.

5. Ensure assimilation of training over time (training sessions were occasional and not sufficient to develop sufficient skills).

6. Follow up and monitor the teachers.

7. Ensure access to connectivity.

8. Ensure maintenance services.

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	3	2
Institutional appropriation - Regional or Local Bodies		
Appropriation by the local communities	4	3
Appropriation by schoolteachers	4	3
Monitoring Mechanisms	4	3
Delays in the implementation	3	1
Turnover of teachers	3	2
Security measures	4	2
PVSS Technical Solution	3	4
PVSS operability	3.5	4
Connectivity Technical Solution	1	1
Connectivity operability	1	
Computer Equipment Technical Solution	3	3
Operability of the Computer Equipment	3	3
Inclusion of ICTs in the pedagogical processes	4	3
Responsible use of the facilities - communities	4	3
Mechanisms for the maintenance of the capacities of teachers	3	3
Mechanisms for the maintenance of the capacities of the local maintainers	3	3
Measures for the sustainability	4	3

8. PARAGUAY

GENERAL ASPECTS: SCHOOLS

Total number of schools: 162

Number of pilot schools: 37 (electrified with PVSS and ADSL internet connection was provided in five of them).

Number of schools in operation: 37

Number of students per school: 51, although it varies between 15 and 160.

The school selection criteria include infrastructure conditions, the accessibility for monitoring, and that no medium or long-term electrification is planned.

The schools are dispersed in five departments of the country.

In addition to the educational use, the uses of schools include adult literacy and recreational activities

The safety of schools is relatively low. There were thefts in two of them.

GENERAL ASPECTS: PROJECT

The LtL was incorporated into other programs: internet provision to rural schools by the National Telecommunications Council (CONATEL), MED Youth and Adult Literacy Programs (called MEC in Paraguay), strengthening skills of MEC trainers in those schools close to places where the "TIGO in your community" initiative is implemented (provision of connectivity through mobile phones). TIGO also provides connectivity.

An annual social marketing campaign was carried out through different networks.

The national monitoring strategy during the implementation and operational phase of the project includes visits to the field and the use of in-person and/or virtual monitoring cards, which measure the level of use/development of the components (process evaluation), school attendance rate, and school performance (final evaluation). The follow-up is irregular, depending on the availability of the MEC.

There was no external or impact assessment for the pilot program.

ENERGY ASPECTS:

The general PVSS technical solution proposed by the GS-OEI was used with a change in the consumption.

The uses of the PVSS are properly educational and others for the community, including adult literacy. Ventilation and interior lighting services were also included.

A contract for the supply, installation, and maintenance (during the warranty period) of the PVSS was signed, with a two-year warranty.

The PVSS maintenance during

CONNECTIVITY ASPECTS:

In five schools, ADSL connectivity was provided by TIGO (for two years for some schools). It was not possible to provide connectivity in the rest of schools.

The technical solution of the ICT system (computer and communication equipment) was adapted (a projector was replaced by a TV type screen). It is using an educational software (free software) in schools that have internet.

The uses of the ICT system (including computer equipment) are for educational purposes as well as for other uses by the community (watch movies, read the news, or use virtual encyclopedia of the MEC).

The agreement for the supply, installation, and maintenance (during the warranty period) of the connectivity system is for two years.

the warranty period is for two years. The MEC is in charge of the long-term maintenance of the PVSS, but the MEC has still not defined how to do so.	The maintenance of the connectivity system, including computer equipment, during the warranty period is being stipulated with the MEC. The maintenance is performed by the company TIGO, during the period of the agreement.

The long-term maintenance of the connectivity system, including the computer equipment, will be coordinated with the MEC. |
| **TEACHER TRAINING**

The ICT training for teachers in schools was conducted by the OEI-MEC for 16 hours in total, including basic computer management, its components, digital literacy, and pedagogical use of ICTs in the classroom. Handbooks on the use and maintenance of PVSS and ICT tools were provided. Pedagogical and technical experts from each department involved participated in these trainings.

The MEC is performing irregularly the monitoring of the uses of the ICT, according to availability of resources. | **COMMUNITY STRENGTHENING**

The participation of the local community is high.

Management Committees were created in each community. The community leader is also the leader of the Management Committees.

Participatory diagnoses were made with the community. The duration of awareness-raising sessions has ranged from one to two days.

The responsibilities of the local maintainers focus on the basic maintenance of the equipment.

The training of the local maintainers ranges from two to three hours and includes presentation, manuals, and videos. |
| **SOCIAL ASPECTS:**

The Institutions involved are the MEC, TIGO, "*Juntos por la Educación*," "*Talismán SA*," which donated school texts, and the Embassy of China/Taiwan (which made economic contributions to the MEC).

It is sensitive to the political context.

Specific technical and social assistance was not hired.

The final owner and manager of the facilities is the MEC.

The institutional appropriation is weak at both the local and central levels.

Awareness-raising sessions has been conducted to the authorities at the centralized | **SUSTAINABILITY:**

The MEC is the guarantor of the sustainability compliance.

The MEC is in charge of the periodical updating of the training of the teacher.

The maintenance of the capacities of the local maintainers over time is done continuously by the MEC. Local maintainers have a direct line to call.

The operational plan for the community was not elaborated nor were the operating costs for the sustainability defined.

The Financial Model is in charge of the MEC.

The ability to pay by the community is null. |

level (with the MEC).

A participatory diagnosis was made, with a duration ranging from one to two days, depending on the community. Awareness-raising activities were carried out at the local level (with an average duration of one hour), at the central level (with an average duration of two hours), and at the monitoring visits (average of one hour). Manuals were provided.

The mobility of teachers is low.

FUNDERS: The Government of the Republic of China (Taiwan)	OEI CONTRIBUTION (ON THE TOTAL COST OF THE PROJECT): 0	TOTAL INVESTMENT/SCHOOL: < USD 25,000	OEI CONTRIBUTION/SCHOOL: < USD 15,000

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED:

1. Between the years of 2012 and 2013, the country had three changes of government and four changes of Ministers of Education. There were internal restructurings and change of counterparts in each change, which implies a restart of the dialogue to continue the program. In this sense, the program suffered delays in the implementation of the second phase. However, there were no significant delays in the execution of the works.

2. The indigenous culture is a peculiar culture in which the times of dedication are more extensive due to the idiosyncrasy of the indigenous peoples. Besides, the communities are far from the capital of Paraguay. While community decisions fall on their leader, they take into account the opinions of the members of their community. Therefore, the participatory diagnoses prior to the implementation of the program and during the monitoring could take several days of work for a single community. This involved more visits to the communities than the planned ones, but it also means a greater commitment of the community members.

3. These villages are located in isolated areas of the interior of the country, which implies difficulties of accessing most of these villages in terms of road infrastructure and climatic conditions. Special attention was given to scheduling the field visit, monitoring, and training agendas, taking into account this factor.

4. The lack of connectivity service in isolated rural areas implied that the ICT component could not be implemented with the desired success.

LESSONS LEARNED:

Because of frequent changes of government, it is advisable to establish a dialogue with the government for a long-term policy and not to rely on changes, to prevent other

programs from being affected in their implementation process.

Now an inter-institutional MEC-OEI working team is coordinated and intends to leave the installed capacity in each institution. This makes it possible to reach indigenous communities with a more solid endowment and ensure that the program is also sustainable.

PROJECT APPRAISAL:

The inclusion of alternative energy together with ICT tools, in support of the education in indigenous schools, opens up possibilities for greater and better education opportunities, with innovative tools that promote a better opportunity for a quality education that in turn contributes to an improvement in the quality of life of the direct and indirect beneficiaries.

The program could facilitate the creation of online learning communities by using the communication between schools and educational centers, if the connectivity worked properly in all of them.

The LtL is a technical model of cooperation that is becoming a contribution to the international cooperation for improving the educational quality of rural schools, especially indigenous communities.

RECOMMENDATIONS:

1. The program should include other core components that beneficiary schools must have, in addition to infrastructure, to ensure the sustainability. For example, the program should take into account the rights of the child. It should work together with public institutions that can ensure citizenship rights, such as the processing of the identity card of the children (as a guarantee of their rights). In health issues, it should count on the up-to-date vaccination of children. Finally, it should consider socialization, integration, and extracurricular activities with members of the community.

2. On the other hand, although the training in basic and pedagogical use of ICTs was given, it would be good to sustain a continuous and deeper training on its application in the classroom, to exploit further its uses and to offer different and attractive activities that increase the motivation of teachers and students.

3. Further training on the responsible use for the community is required. This would imply greater investment in the socialization and technical assistance component.

4. The monitoring and follow-up of the program are very important (at least three years, after the commissioning).

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	4	2
Institutional appropriation - Regional or Local Bodies	3	2
Appropriation by the local communities	4	3
Appropriation by schoolteachers	4	3

Monitoring Mechanisms	4	3
Delays in the implementation	3	4
Turnover of teachers	3	4
Security measures	4	2
PVSS Technical Solution	4	2
PVSS operability	4	4
Connectivity Technical Solution	3	2
Connectivity operability	3	2
Computer Equipment Technical Solution	4	3
Operability of the Computer Equipment	3	3
Inclusion of ICTs in the pedagogical processes	3	2
Responsible use of the facilities - communities	4	3
Mechanisms for the maintenance of the capacities of teachers	3	2
Mechanisms for the maintenance of the capacities of the local maintainers	4	2
Measures for the sustainability	4	2

9. PERU

GENERAL ASPECTS: SCHOOLS

Total number of schools: 14,012

Number of pilot schools: 9

Number of schools in operation: 9

Number of students per school: variable (two schools > 120 students, seven schools < 100 students)

The school selection criteria take into account geographical aspects, the energy situation of schools, short-term electrification plans, alignment with other policies and/or programs, connectivity, ICTs, and size.

The schools are for the educational use only.

The schools are distributed throughout the geography of the country in three distinct areas.

The level of safety in schools is medium and surveillance rounds have been established.

GENERAL ASPECTS: PROJECT

The LtL was incorporated into the Web Peru Educa Program. It is understood as a pilot intervention within the project "Improvement of Learning Opportunities with ICT for Rural Areas" - ODA-ICT.

A social marketing campaign was done through national media, including written and radial press.

The monitoring strategy included the writing of reports by each participating partner, periodic meetings, field visits, and ex/ante and ex/post evaluation (by the Ministry of Education). At the end of the intervention, the Technical Assistance systematized the experience and evaluated it.

An impact assessment has been conducted by the MED.

ENERGY ASPECTS:

The PVSS technical solution has been adapted to local uses.

The uses of PVSS included the development of learning, recharges, and administrative management for the community.

A single contract of supply, installation, and maintenance was made, with a two-year warranty (four visits).

Long-term maintenance is the responsibility of UGEL and MED.

The UGEL and the MED are responsible for the long-term maintenance.

CONNECTIVITY ASPECTS:

A satellite system was installed, with a cost of approximately 350 USD/school that was borne entirely by the MED, since the connection was provided through the satellite hub of the MED itself. Three laptops/school were included.

The computer equipment are used for the preparation of classroom materials by teachers, learning sessions with students, homework by students, printing of documents for communal arrangements, communication, and obtaining information from national entities for communal management.

A contract has been signed for the connectivity component with the supplier company, including maintenance and an independent contract for the ICT equipment (without maintenance visits).

For the maintenance of the connectivity system, two

	visits have been considered during the two-year warranty. The UGEL and the MED are responsible for the long-term maintenance.
TEACHER TRAINING The MED conducted the IC training of the schoolteachers and other executives, with a duration of approximately 80 hours. There are basic procedures and regulations for pedagogical management and administration of technological resources, distributed by the installation companies.	**COMMUNITY STRENGTHENING** The participation of the local community is high. The Management Committees are responsible for the maintenance and safety of the facilities. Three awareness-raising workshops were held in each Educational Institution, in charge of the MED and Practical Solutions. Local maintainers were trained in two sessions of three hours each.
SOCIAL ASPECTS: The institutions involved are the Ministry of Education, Regional Directorates of Education, Local Management Units, and private funding agencies. It is sensitive to the political context. A private entity, Practical Solutions, was hired for providing Technical and Social Assistance to the project. The Local Management Units are the owners and final managers of the facilities. The institutional appropriation is high. Awareness-raising activities were carried out. There is a high mobility of teachers.	**SUSTAINABILITY:** The OEI is in charge of the sustainability compliance. The MED is in charge of the periodic training of the teachers and local maintainers. The operational plan for the community was not elaborated nor were the operating costs calculated. The MED bears directly the costs of connectivity. The management committee will assess the status of maintenance to find the best way to address it. No fees for the community service have been charged, since the facilities are only available for school uses.

FUNDERS: OEI, other private funders, economic contributions	**OEI CONTRIBUTION** (ON THE TOTAL COST OF THE PROJECT): 50-75%	**TOTAL INVESTMENT/SCHOOL:** > USD 50,000	**OEI CONTRIBUTION/SCHOOL:** > USD 30,000

of the MED			

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED:

Low availability of specialists from UGEL to meet technical demands and monitor the teachers. The high turnover of teachers undermines the sustainability of the intervention.

LESSONS LEARNED:

Involve the local authorities and the entities from the first moment of the intervention to ensure the sustainability. Teacher training should be strengthened to ensure that learning is assimilated. The intervention must last at least 15 months, and include training for teachers in two consecutive years at the beginning of the school year.

PROJECT APPRAISAL:

The evaluation of the organization and management of the pilot project has been good. Having a locally based expert organization on the subject helped to resolve promptly all the contingencies that were presented.

In general, it is a good experience; we obtained good results in the performance of teachers and students. However, the time of the intervention of one year does not guarantee sustainable changes.

RECOMMENDATIONS:

Consider intervention models with offline connection that can reach the objectives of the project at a lower cost, enabling a more affordable technology.

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	4	3
Institutional appropriation - Regional or Local Bodies	4	3
Appropriation by the local communities	4	4
Appropriation by schoolteachers	4	4
Monitoring Mechanisms	4	3
Delays in the implementation	3	4
Turnover of teachers	4	1
Security measures	4	3
PVSS Technical Solution	4	4
PVSS operability	3	3
Connectivity Technical Solution	4	1
Connectivity operability	3	3
Computer Equipment Technical Solution	4	4
Operability of the Computer Equipment	4	3
Inclusion of ICTs in the pedagogical processes	4	1
Responsible use of the facilities - communities	1	1

Mechanisms for the maintenance of the capacities of teachers	4	2
Mechanisms for the maintenance of the capacities of the local maintainers		4
Measures for the sustainability	4	3

10. THE DOMINICAN REPUBLIC

GENERAL ASPECTS: SCHOOLS

Total number of schools: 500

Number of pilot schools: 24

Number of schools in operation: 24 schools with access to light and connected via broadband

Number of students per school: 40 (17 schools of 4-70, two schools of 106 students)

School selection criteria included rural and isolated communities without electricity.

The schools belong to two different provinces of the country (Monte Plata and El Seybo).

Uses of the schools for educational and community activities.

School safety is variable. Measures have been taken to reduce the risk of burglary, including the lighting of neighboring houses and the establishment of surveillance committees. The Ministry has appointed security guards in some schools.

GENERAL ASPECTS: PROJECT

The LtL was incorporated into the state rural electrification program. The INFOTEP is responsible for the PVSS training for young people, and the MED is in charge of the training and workshops of the teachers for accessing ICTs.

A marketing campaign was carried out to raise public awareness.

The national monitoring strategy during the implementation and operational phase of the project is made through the School Maintenance Unit and the NO. Preliminary periodic reports will be prepared.

There was no external or impact assessment for the project (although some indicators are internally monitored).

ENERGY ASPECTS:

The general technical solution for the PVSS proposed by the GS-OEI has been used.

In addition to the educational use, the uses of the PVSS include the lighting of surrounding houses to make it easier for neighbors to monitor the facilities, and ventilation of the classrooms.

Contract for the supply, installation, and maintenance (during the warranty period) of the PVSS.

The MED is in charge of the

CONNECTIVITY ASPECTS:

The connectivity will be via broadband and the costs of fees for services are borne by the MED.

The technical solution of the ICT system (computer and communications equipment) is based on the general solution proposed by the GS-OEI.

The uses of the ICT system (including computer equipment) for students, teachers, and community.

The Ministry has contracted internet services for 24 pilot schools for an indefinite period. The computer equipment have a one-year manufacturing warranty. The schools receive funding from the Ministry for the long-term maintenance of the facilities.

maintenance of the PVSS during the warranty period and in the long term.

TEACHER TRAINING:

The educators (teachers and directors of 24 pilot schools) were trained in three workshops, with a duration of approximately eight hours. The manual for the ICTs was prepared and delivered provisionally. The final edition was subsequently provided.

The knowledge acquired by the teachers was evaluated and a reinforcement workshop of another eight hours was carried out for the 18 teachers who had not fulfilled the objectives of the first workshop.

The basic procedures and regulations for pedagogical management and administration of technological resources were carried out with the support of the MED. A manual on the use of the internet and other manuals on the use, installation, and maintenance of PVSS were prepared.

COMMUNITY STRENGTHENING:

The participation and interest of the local community were high.

People from the community were assigned for basic custody and maintenance, which has been channeled through the Association of Parents and Friends of the School (APMAES, a body formed in all schools).

Two sessions were held to stimulate the strengthening of the monitoring and preservation of facilities in a general sense, with an average duration of two hours. The awareness of the communities were also raised during the visits of the OEI technicians to the communities (on social responsibility, initiative assessment, prevention of risks in use and maintenance).

Two members of the community and one teacher are the designated local maintainers. These people do not receive remuneration for their services.

The training of local maintainers was carried out in two 70-hour in-person courses on installation and maintenance of the PVSS. A manual developed by the OEI was used. The goal was also that trained and certified people could have access to professional activities through this training.

SOCIAL ASPECTS:

The institutions involved are the Rural Electrification Unit (UERS) (at the beginning of the project), the Ministry of Education, the Technical Vocational Training Institute (INFOTEP), and the educational districts.

It is sensitive to the political context.

A technical assistance has been hired for the identification and planning of the LtL project, for obtaining co-financing of companies, and for establishing

SUSTAINABILITY:

The Educational Districts are the guarantors of the sustainability compliance.

The MED is responsible for the periodic updating of teacher training.

The Educational District is in charge of the maintenance of the capacities of the local maintainers over time.

The operational for the community has not been elaborated, the operating costs for the sustainability have not been calculated, nor has the Financial Model been elaborated.

As the ability to pay of the community is very low, there are no service fees.

partnerships. However, the participation of private companies in the project was not secured. The final owner of the facilities will be the corresponding school district, through the MED. The manager of the facilities will also be the MED. The institutional appropriation is medium in all cases. The awareness of the local authorities and departmental representatives of the MED have been raised. The mobility of teachers is low.			
FUNDERS: OEI, Educational Districts	**OEI CONTRIBUTION**(ON THE TOTAL COST OF THE PROJECT): >75 %	**TOTAL INVESTMENT/SCHOOL:** < USD 25,000	**OEI CONTRIBUTION/SCHOOL:** < USD 15,000

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED:

1. The security guards began to work late because of delays in the appointment by the Ministry of Education. As a result, some schools were broken into. Then, it has been difficult to get quick answers from the Ministry of Education, to replenish the stolen equipment.

2. The broadband internet is very slow because the internet company has a limited reach in the area.

LESSONS LEARNED:

1. The fulfillment of commitments in a timely manner improves the efficiency and avoid delays in the execution of activities.

2. Raise the awareness of the communities to involve them in the project and motivate the social responsibility and valorization of the initiative.

3. Monitor the directors and teachers in the use of technological equipment and ICTs.

4. Continue the socialization meetings with the MINERD for decision-making and project management.

5. Organize the training courses for young people in photovoltaic systems since the beginning of the project to involve these young people in the electrifications and installation of the systems in the beneficiary schools.

PROJECT APPRAISAL:

Greater dialogue with the teams of the Ministry of Education is needed to meet the

commitments of the agreement.

To guarantee an effective implementation of the project, joint actions were developed with the Ministry of Education, with the participation of the Regional District of Higuey, the Educational Districts of Seybo, Sabana Grande de Boyá, Bayaguana and Peralvillo, and with the Technical Training Institute Professional (INFOTEP).

The articulation of the commitments established for the implementation of the Lights to learn program has continued with the Ministry of Education and its dependencies, for which they provide human resources and technical support.

The Technical Vocational Training Institute (INFOTEP) has been in charge of the implementation of the Technical Training component of the Lights to learn (LtL) Project.

The technical coordination of this project was carried out by the OEI National Office in the Dominican Republic, responsible for the management and implementation of the project.

The decentralization and transfer of funds to educational districts and schools has allowed them to bear the expenses.

RECOMMENDATIONS:

1. Promote the formation of center meetings to create and maintain an effective relationship between community and school (it should be promoted between the MED and the community).

2. Monitor teachers in the use of ICTs in the teaching-learning process.

3. Provide contextualized digital educational materials.

4. Evaluate the capacities of teachers on ICTs.

5. Conduct workshops on social responsibility and collaborative initiative (from LtL).

6. Develop initiative with other governmental strategies.

7. Incorporate a greater number of students in PVSS installation and maintenance training.

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	4	3
Institutional appropriation - Regional or Local Bodies	4	3
Appropriation by the local communities	3	4
Appropriation by schoolteachers	4	4
Monitoring Mechanisms	4	3
Delays in the implementation	3	3
Turnover of teachers	4	1
Security measures	4	3
PVSS Technical Solution	2	3

PVSS operability	4	3
Connectivity Technical Solution	4	4
Connectivity operability	2	2
Computer Equipment Technical Solution	3	3
Operability of the Computer Equipment	4	4
Inclusion of ICTs in the pedagogical processes	4	2
Responsible use of the facilities - communities	4	3
Mechanisms for the maintenance of the capacities of teachers	4	2
Mechanisms for the maintenance of the capacities of the local maintainers	4	2
Measures for the sustainability	4	2

11. URUGUAY

GENERAL ASPECTS: SCHOOLS

Total number of schools: 79

Number of pilot schools: 79 (72 were electrified using PVSS and seven were electrified by network extension)

Number of schools in operation: 72 (with electricity and connectivity)

Number of students per school: Less than 20 (less than 10 in 65 of the schools)

All the schools of the country without access to light have been included.

The geographical dispersion of schools is high.

The uses of the schools are educational and community (including the provision of gardens).

The safety of the schools is high and measures have been taken to reduce the risks (installation of screwed and compressed roof panels).

GENERAL ASPECTS: PROJECT

The LtL was incorporated into different programs: the Plan Ceibal (internet connection) and the CREA Platform (virtual tool for teachers to operate, manage, and find activities to do with students).

Community development and teacher training were conducted through training and social development workshops together with the Department of Rural Schools of the Council of Initial and Primary Education to form digital inclusion workshops.

A social marketing campaign was carried out at the national level.

The national monitoring strategy, during the implementation and operational phase of the project, is carried out through bimonthly reports and field visits by volunteers of the OEI.

No external evaluation of the project is planned; the impact assessment of the project was made through a meeting with the donors and government areas.

ENERGY ASPECTS:

The PVSS technical solution is the general solution of the project, but particular specifications have been made.

The uses of the PVSS include educational and community purposes.

An agreement has been signed for the supply, installation, and maintenance (during the warranty period) of the PVSS with the Elecnor Foundation.

The Elecnor Foundation is going to be in charge of the maintenance of the PVSS during the warranty period (four visits in

CONNECTIVITY ASPECTS:

The Ceibal Plan provides the connectivity to all schools free of charge (costs covered by the MED) through EDGE or 3G connection.

The technical solution of the ICT system (computer and communications equipment) is provided by the Ceibal Plan.

The uses of the ICT system include the use of platforms created by the Ceibal Plan with contents and resources for Teaching and Learning. CREA is a virtual classroom of planning, creation of work units, and exchange of materials between teachers and students. It also has specific material for parents, rural producers, teachers, and the community in general.

The Ceibal Plan is in charge of the supply, installation, and maintenance of the connectivity

two years). The MED is the responsible for the long-term maintenance of the PVSS.	system, during the warranty period and in the long-term. The Ceibal Plan includes remote monitoring and reception of telephone calls.
TEACHER TRAINING: The staff recruited by the OEI and the MED provided ICT training to 75% of teachers in the schools. The Ceibal Plan prepared two manuals (material for working with the family and "Workbook" for the digital inclusion). Other ICT teachers and advisors will be trained in ICT at the request of the Ceibal Plan. The basic procedures and regulations for pedagogical management and administration of technological resources are in charge of the Ceibal Plan. To this end, the information provided by the Ibero-American Institute of ICT and education was added.	**COMMUNITY STRENGTHENING:** The involvement and commitment of the local community is high. No Local Management Committees were created. The articulation between the OEI and areas of government, together with the donor institutions, works. The awareness raising of the communities together with the teacher training team consisted in providing manuals to all schools of the project. The volunteers of the OEI promoted the responsible use of the equipment. Besides, the technicians of Montelecnor (the Elecnor Foundation) trained the teachers, the support staff, and the community on the use of the panels. For each educational center, the local maintainers will be the Departmental Inspector, the teacher of each school, and a referent of the community. Montelecnor was in charge of the training of the local maintainers. The training was aimed to a minimum of three people per community, lasting four hours for each community.
SOCIAL ASPECTS: The institutions involved are the OEI, the MED, the Ceibal Plan, and the Elecnor Foundation (Montelecnor). It is not sensitive to the political context. A technical and social assistance was not contracted specifically for the project. The final owner of the facilities is the MED. The management of the facilities is carried out by the MED and the Ceibal Plan. The institutional appropriation is high, although somewhat variable. Awareness raising sessions for local authorities and departmental representatives of	**SUSTAINABILITY:** The guarantors of the sustainability compliance are the MED and the UES, for the photovoltaic system, and the Ceibal Plan for the ICT component. The MED and the Ceibal Plan are responsible for the periodical updating of the training of the teachers. The MED is responsible for maintaining the capabilities of local maintainers over time. Regarding the operational plan for the community, two operating books were prepared: one technical (including the necessary documentation to manage the system) and another one of community development. The operating costs for the sustainability and the financial model are not specified. It is not planned to establish fees for services to the community.

the MED are not planned. The mobility of teachers is high, but the support staff members remain longer.			
FUNDERS: OEI, the Ceibal Plan (MED), and the Elecnor Foundation.	**OEI CONTRIBUTION**(ON THE TOTAL COST OF THE PROJECT): < 50 %	**TOTAL INVESTMENT/SCHOOL:** < USD 25,000	**OEI CONTRIBUTION/SCHOOL:** < USD 15,000

DIFFICULTIES ENCOUNTERED DURING DESIGN AND IMPLEMENTATION, AND SOLUTIONS ADOPTED:

1. The main difficulty was to carry out certain activities due to lack of resources.

2. Another difficulty was logistical due to the large distances between schools with poor access roads.

3. The communication of the schools was insufficient, hampering the fluid contact with them. Besides, the frequent turnover of teachers was a problem (three to four times during project implementation).

LESSONS LEARNED:

1. The cooperation between public bodies and private organizations was attained.

2. The commitment of teachers and leadership in each school and community were very important. The flow of information is as important as learning from the experience.

PROJECT APPRAISAL:

A work of synchronicity and fellowship between organizations is reported.

The contributions from the Elecnor Foundation and the OEI were diminished.

Montelecnor has leftover materials due to the electrification of the seven schools by the UTE. It is intended to take these materials to other nearby communities without electricity (a specific timetable has not been agreed yet).

Overall, the project was very positive.

RECOMMENDATIONS:

1. Continue the interinstitutional work to ensure the sustainability of the project (technical training and maintenance of the equipment as a guarantee of rights).

2. Support the development, promotion of values, and equal opportunities in rural schools (school as a center of interest, cultural development, and space for community integration).

3. Conduct cultural, educational, and social inclusion activities, integrating the facilities.

4. Continue to expand access to and ownership of ICTs.

5. Enable a web space for the communication and updating of all the schools involved that commits each teacher or responsible to participate, assess, and evaluate the

impact of the project and transmit the information to its successor.		
Aspect	**Importance** (from 1 to 4, being 1 less important and 4 more important)	**Assessment** (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	4	4
Institutional appropriation - Regional or Local Bodies	4	4
Appropriation by the local communities	4	4
Appropriation by schoolteachers	4	4
Monitoring Mechanisms	4	4
Delays in the implementation	1	4
Turnover of teachers	2	3
Security measures	2	3
PVSS Technical Solution	2	4
PVSS operability	4	4
Connectivity Technical Solution	4	4
Connectivity operability	4	4
Computer Equipment Technical Solution	4	4
Operability of the Computer Equipment	4	4
Inclusion of ICTs in the pedagogical processes	4	4
Responsible use of the facilities - communities	4	4
Mechanisms for the maintenance of the capacities of teachers	4	4
Mechanisms for the maintenance of the capacities of the local maintainers	4	4
Measures for the sustainability	4	4

12. COSTA RICA

GENERAL ASPECTS: SCHOOLS

Total number of schools: 218

Number of pilot schools: 8

Number of schools in operation: zero (the pilot being implemented during the second half of 2016).

Number of students per school: five schools with one to nine students, two schools with 10 to 20 students, and one school with 50 students.

The selection criteria for schools are several: single-teacher schools, communities without access to light, and difficult-to-access communities.

The schools are located in the same planning region (Brunca Region) but in four different cantons.

The main use of the schools is educational, although community meetings will be allowed in the schools.

To ensure the safety of schools, the Boards of Education must sign a letter of commitment by which they are made responsible for the care of the equipment.

GENERAL ASPECTS: PROJECT

The LtL has been incorporated into the program that will "adopt" the educational centers once installed the technological components (National Program of Mobile Technologies Tecno@prender, whose objective is to contribute to the development of Costa Rican education, through the inclusion of mobile digital technologies in the teaching and learning processes, as a support to the national curriculum)

No social marketing campaign is planned.

The follow-up will be done through coordination meetings.

An external project evaluation has been planned, but no project impact assessment has been planned.

ENERGY ASPECTS:

For the PVSS technical solution, the ICE developed the plans for the electrical distribution.

The uses of the PVSS are those defined for the project: electrification and connectivity.

As of August 2016, the contract for the supply, installation, and maintenance (during the warranty period) of the PVSS is in the process of being formalized.

CONNECTIVITY ASPECTS:

The type of connectivity system is the one proposed by the Tecno@prender program. The computer equipment consist of 32 computers distributed among schools, depending on the number of students.

The OEI has provided equipment to schools, while the ICE facilitates connectivity.

The contract or agreement for the supply, installation, and maintenance (during the warranty period) of the connectivity system (including computer equipment) will be in charge of the company that provides the technological equipment. The contract will be signed once the company has

The awarded company of the public tender will be responsible for the maintenance of the PVSS during the warranty period. The long-term maintenance of the PVSS is made by the ICE due to the agreement signed between this institution and the MEP.	been selected. The maintenance of the connectivity system will be in charge of the ICE. The maintenance of the computer equipment during the warranty period (for two years) will be in charge of the selected company. The long-term maintenance of the connectivity system, including the computer equipment, is the responsibility of the MEP, the Directorate of Technology Resources in Education (DRTE), and the Directorate of Infrastructure and Educational Equipment (DIEE).
TEACHER TRAINING There will be eight trainings, coordinated by the MEP and implemented by a technical assistance. This training in ICT will include teachers, directors of schools, boards of education, and regional advisors. The basic procedures and regulations for pedagogical management and administration of technological resources are provided by the DRTE, which has a variety of protocols for pedagogic management and administration of technological resources.	**COMMUNITY STRENGTHENING** The involvement of the local community is high. The management and care of the good use of the equipment will be in charge of the Boards of Education together with the directors of the centers. The awareness raising of the communities will take place within the training. The seven members of the Boards remain in their positions for three years, to carry out the local maintenance. There will be eight trainings, coordinated by the MEP and implemented by a technical assistance.
SOCIAL ASPECTS: The institutions involved are the Ministry of Public Education (MEP) and the Costa Rican Institute of Electricity that provides connectivity. It is sensitive to the political context. Technical assistance will be contracted for training on the use of technology, maintenance of installed technology and opportunities, and opportunities for the use of clean technologies (knowledge, use, management, and empowerment by the community of installed	**SUSTAINABILITY:** The MEP and the ICE are the guarantors of the sustainability compliance. The Tecno@prende program will provide training and support to teachers, principals, and Boards of Education. The ICE is in charge of the maintenance of the capacities of the local maintainers over time. It is planned to define the operational plan for the community. It is not planned to calculate operating costs for the sustainability. The MEP is in charge of developing the financial model. Each school has a budget to cover the costs of public services. This is assigned according to the student population of each center.

technology).
The MEP will manage the PVSS facilities for two years and then donate the facilities to the ICE, which will be the final owner.
The institutional appropriation is high.
Awareness raising of the community is planned.
The mobility of teachers is low.

FUNDERS: OEI	OEI CONTRIBUTION (ON THE TOTAL COST OF THE PROJECT): USD 250,000	TOTAL INVESTMENT/SCHOOL: Not yet defined	OEI CONTRIBUTION/SCHOOL: Not yet defined

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	4	2
Institutional appropriation - Regional or Local Bodies	3	2
Appropriation by the local communities	4	4
Appropriation by schoolteachers	4	4
Monitoring Mechanisms	4	2
Delays in the implementation	3	1
Turnover of teachers	4	4
Security measures	4	3
PVSS Technical Solution	4	3
PVSS operability	4	4
Connectivity Technical Solution	4	2
Connectivity operability	4	4
Computer Equipment Technical Solution	4	3
Operability of the Computer Equipment	4	4
Inclusion of ICTs in the pedagogical processes	4	3
Responsible use of the facilities - communities	4	4
Mechanisms for the maintenance of the capacities of teachers	4	4
Mechanisms for the maintenance of the capacities of the local maintainers	4	1
Measures for the sustainability	4	2

13. PANAMA

GENERAL ASPECTS: SCHOOLS

Total number of schools: 921

Number of pilot schools: eight

Number of schools in operation: eight

Number of students per school: the average number of students per school (in the pilot phase) is 33 ranging from 14 to 73.

Criteria for the selection of schools: multi-grade schools that were not contemplated in any 15-year electrification plans. Priority was given to areas with indigenous and rural populations.

Geographical dispersion of the schools: the schools are geographically dispersed in three regions of the country of difficult access (Colón, Coclé, and Veraguas).

Uses of the schools: both educational and community development uses.

Safety of the schools: the safety of the schools is high. Besides, the awareness on the importance of the security of the schools has been enhanced.

GENERAL ASPECTS: PROJECT

The LtL has been integrated into "*Prendo y Aprendo al Máximo,*" a program of the Ministry of Education that aims to provide drinking water to the school centers and to reach other schools without access to energy or to any component of connectivity.

In addition to broadcasting the film inspired by the LtL program ("*Bienvenidos*"), a video showing the local project experience is going to be produced and spread.

The responsibilities have been delineated and differentiated in charge of the MED and the OEI. The MED is responsible for the sustainability of the project.

No external evaluation of the project is planned, but an impact assessment will be carried out in cooperation with Samsung and Glasswing.

ENERGY ASPECTS:

Substantial changes of the PVSS general model have been made to adapt it to the uses of the schools (energy was provided for more uses than originally planned in six schools, such as lighting for all classrooms, dining rooms, and teaching rooms, among others), the specifications of the equipment, and the

INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) ASPECTS:

Satellite connection was provided to the first two schools, borne by the project for eleven months (at a cost of USD 1,418 per month). In the long term, the MED will be responsible for providing connectivity to the remaining schools. Meanwhile, it was decided to equip these schools with offline systems through the agreement signed between the OEI-Samsung and Glasswing International.

Given the high costs of the internet connection,

available suppliers.

The uses of the PVSS include the classes in the adapted classrooms Samsung smart school, adult literacy classrooms, workshops, and community meetings for development.

Two contracts were signed for the supply, installation, and maintenance during the PVSS warranty period, which was established in two years (one visit/semester). The first contract is for the facilities built in the first two schools, while the second one is for the facilities of the six remaining schools.

The MED is in charge of the long-term maintenance of the PVSS.

Panama is committed to offline ICT solutions and is already implementing them with local leverage.

Technical modifications of the ICT system were made. In the first two school centers, eleven tablets were added, in addition to the equipment suggested in the generic model (one computer and a TV). In the remaining schools, the generic model will be installed.

The ICT system will be used for performing school tasks, strengthening curriculum skills, and training adults in office software and in general culture.

The connectivity was provided through a supplier company that provided maintenance activities up to four times a year, according to the requirements of the OEI.

The computer equipment have the warranty offered by the home provider, and the OEI is responsible for monitoring in both the short and long term.

TEACHER TRAINING

In the first two schools, there was a four-hour training on computer equipment and its main programs. To allow the teachers to impart their curricular contents through offline resources, a teacher training will be conducted under a "full" model in two schools (with 80 hours of training distributed in four months); in the other six schools, there will be training sessions for a total of 40 hours of training. Both the school board, teachers, as well as community leaders have received manuals and coaching sessions.

Training in ICT for other teachers and pedagogical advisors is not planned.

The Ministry of Education has the basic procedures and norms for pedagogical

COMMUNITY STRENGTHENING

Participation of the local community: it includes parents and community leaders willing and committed to the consolidation of extracurricular activities as community ones.

Local Management Committees: a committee has been formed in each community. They were trained on the maintenance and use of panels, technological equipment, and technological systems. Additionally, the social cohesion awareness component was raised, and an educational community was established in line with the general community. These committees are subdivided into thematic groups: literacy, computer science, and extracurricular spaces.

Awareness-raising sessions for the communities were held at the OEI.

Responsibilities of the local maintainers: they are groups of no more than six people as a committee, where the teacher and the maintainer are involved, have rotating positions, and receive no remuneration.

Training of local maintainers: yes, there have been training sessions.

management and administration of technological resources, coordinated by the Directorate of Educational Planning, the Directorate of Educational Informatics, and the National Directorate of General Basic Education. These procedures and norms provide guarantees for the continuing education for teachers. Besides, they establish the budget for maintenance of the panels and equipment, such as provision and repair of equipment (like plans to purchase equipment and software, to expand student coverage). Finally, they aim at providing sustainability to connectivity in both the medium and long term.	
SOCIAL ASPECTS: Institutions involved: the MED, local communities, Samsung, and Glasswing. The political context is important. The final owner of the facilities will be the MED. The managers of the facilities will be the schools and communities. The institutional appropriation of the project by the participants (the MED, Samsung, and Glasswing) was medium. Awareness raising sessions have been held with the local authorities on the management and maintenance of the panels. Teachers generally rotate annually, while the school director tends to stay. The	**SUSTAINABILITY:** Guarantors of the sustainability compliance: the guarantor is the Ministry, coordinated by the Directorates of Educational Planning, National Directorate of Educational Informatics, and the National Directorate of General Basic Education. Periodic updating of teacher training: the Directorate for Improvement Teachers and the Directorate of Basic Education, coordinated by the MED, will provide training sessions throughout their three school breaks per year. Maintenance of the capacities of local maintainers over time: the Regional Directorate, the local community Boards, and the Campus Management ensure the maintenance of the capacities of local maintainers over time. Operational plan for the community: The IT Directorate has provided basic program manuals such as panel maintenance and equipment care. The management of the campus reports to the Directorate of Informatics and the Directorate of Basic Education. Operating costs for the sustainability: by this time, the need for this detailed analysis by MEDUCA is a priority, and it is in the will and disposition of the

MED was advised of the importance of providing stability to teaching staff in the school centers.	Directorate of Educational Planning and Educational Informatics. Financial model: the Ministry of Education is responsible for bearing the operation by allocating annual budget lines. Fees for services and community's ability to pay: no fees have been established.

FUNDERS:	OEI CONTRIBUTION (ON THE TOTAL COST OF THE PROJECT):	TOTAL INVESTMENT/SCHOOL:	OEI CONTRIBUTION/SCHOOL:
Glasswing USD 15,527.44 Samsung USD 9,900	>75%	USD 25,000 – USD 50,000	> USD 30,000 (>30%)

Aspect	Importance (from 1 to 4, being 1 less important and 4 more important)	Assessment (from 1 to 4, being 1 less important and 4 more important)
Institutional appropriation - Central Government Institutions	3	3
Institutional appropriation - Regional or Local Bodies	3	2
Appropriation by the local communities	4	3
Appropriation by schoolteachers	4	4
Monitoring Mechanisms	3	3
Delays in the implementation	3	3
Turnover of teachers	3	3
Security measures	2	3
PVSS Technical Solution	3	4
PVSS operability	3	4
Connectivity Technical Solution	3	2
Connectivity operability	1	4
Computer Equipment Technical Solution	3	1
Operability of the Computer Equipment	2	4
Inclusion of ICTs in the pedagogical processes	4	2
Responsible use of the facilities - communities	4	4
Mechanisms for the maintenance of the	4	3

capacities of teachers		
Mechanisms for the maintenance of the capacities of the local maintainers	3	3
Measures for the sustainability	4	2

ANNEX 3. EVALUATION OF THE PROGRAM IN EACH COUNTRY

1. Institutional appropriation - Central Government Institutions

A. Importance, in your view, of the institutional appropriation by the central government institutions involved in the project.

1. The institutional appropriation of the project is not important for the achievement of the objectives of the project.

2. The institutional appropriation of the project is of low importance for the achievement of the objectives of the project.

3. The institutional appropriation of the project is very important for the achievement of the objectives of the project.

4. The institutional appropriation of the project is essential for the achievement of the objectives of the project.

B. How would you assess the institutional appropriation by the central government institutions involved in the project?

1. The institutional appropriation was very low or null. The institutions have not cooperated with the project or have not fulfilled their responsibilities.

2. The institutional appropriation was low. The institutions have cooperated with the project in a very limited way and have taken on very few responsibilities.

3. The institutional appropriation was medium. The institutions have actively cooperated with the project and have fulfilled the agreed responsibilities.

4. The institutional appropriation was high. The institutions have cooperated with the project very actively, including assuming more responsibilities than initially agreed and have fulfilled all their responsibilities, including the activities necessary to ensure the sustainability over time.

2. Institutional appropriation - Regional or Local Bodies

A. Importance, in your view, of the appropriation by the participating regional or local bodies (e.g. Municipalities or regional offices of the Ministries of Education).

1. The appropriation by regional or local bodies is not important for the achievement of the objectives of the project.

2. The appropriation by regional or local bodies is of low importance for the achievement of the objectives of the project.

3. The appropriation by regional or local bodies is very important for the achievement of the objectives of the project.

4. The appropriation by regional or local bodies is essential for the achievement of the objectives of the project.

B. How would you assess the appropriation by the participating regional or local bodies (e.g. Municipalities or regional offices of the Ministries of Education)

1. The appropriation by regional or local bodies was very low or zero. The regional bodies have not cooperated with the project or have not fulfilled their responsibilities.

2. The appropriation by regional or local bodies was low. The regional bodies have cooperated with the project in a very limited way and have taken on very few responsibilities.

3. The appropriation by regional or local bodies was medium. The regional bodies have actively cooperated with the project and have fulfilled the agreed responsibilities.

4. The appropriation by regional or local bodies was high. The regional bodies have cooperated very actively with the project, including assuming more responsibilities than initially agreed and have fulfilled all their responsibilities, including the activities necessary to ensure the sustainability over time.

3. Appropriation by the local communities

A. Importance, in your view, of the appropriation by the local communities.

1. The appropriation by the local communities is not important for the achievement of the objectives of the project.

2. The appropriation by the local communities is of low importance for the achievement of the objectives of the project.

3. The appropriation by the local communities is very important for the achievement of the objectives of the project.

4. The appropriation by the local communities is essential for the achievement of the objectives of the project.

B. How would you assess the appropriation by local communities?

1. The appropriation by the local communities was very low or zero. The local communities have not cooperated with the project or have not fulfilled their responsibilities.

2. The appropriation by the local communities was low. The local communities have cooperated with the project in a very limited way and have taken on very few responsibilities.

3. The appropriation by the local communities was medium. The local communities have actively cooperated with the project and have fulfilled the agreed responsibilities.

4. The appropriation by the local communities was high. The local communities have cooperated very actively with the project, including assuming more responsibilities than initially agreed and have fulfilled all their responsibilities, including the activities necessary to ensure the sustainability over time.

4. Appropriation by schoolteachers

A. Importance, in your view, of the appropriation by schoolteachers.

1: The appropriation by the schoolteachers is not important for the achievement of the objectives of the project.

2: The appropriation by the schoolteachers is of low importance for the achievement of the objectives of the project.

3: The appropriation by the schoolteachers is very important for the achievement of the objectives of the project.

4: The appropriation by the schoolteachers is essential for the achievement of the objectives of the project.

B. How would you assess the appropriation by schoolteachers?

1. The appropriation by the schoolteachers was very low or zero. The schoolteachers have not cooperated with the project or have not fulfilled their responsibilities.

2. The appropriation by the schoolteachers was low. The schoolteachers have cooperated with the project in a very limited way and have taken on very few responsibilities.

3. The appropriation by the schoolteachers was medium. The schoolteachers have actively cooperated with the project and have fulfilled the agreed responsibilities.

4. The appropriation by the schoolteachers was high. The schoolteachers have cooperated very actively with the project, including assuming more responsibilities than initially agreed and have fulfilled all their responsibilities, including the activities necessary to ensure the sustainability over time.

5. Monitoring Mechanisms

A. Importance, in your view, of establishing effective monitoring mechanisms between the offices of the OEI and the institutions involved during the implementation of the project.

1. The establishment of effective monitoring mechanisms during the implementation of the project is not important since most activities are implemented by the NO-OEI.

2. The establishment of effective monitoring mechanisms is of low importance.

3. It is very important to establish effective monitoring mechanisms, as it contributes to the proper implementation of the planned activities and increases the appropriation of the project by the participating agents.

4. It is essential to establish effective monitoring mechanisms, as it contributes to the proper implementation of the planned activities, increases the appropriation of the project by the participating agents, and helps in the consideration of measures that foster the sustainability of the project.

B. How would you assess the monitoring mechanisms established between the OEI offices and the agencies involved during the implementation of the project?

1. Very low or practically non-existent, but without affecting the proper implementation of the project.

2. Very low or practically non-existent, affecting the proper implementation of the project.

3. Acceptable, the established mechanism allows for the proper implementation of the project.

4. Good or very good, the established mechanism allowed for the proper implementation of the project and promoted the institutional appropriation; it even helped in the adoption of measures to promote the sustainability.

6. Delays in the implementation

A. Importance, in your view, of delays in the implementation of the project.

1. Delays are not important for the achievement of the objectives of the project.

2. Delays may have small impacts on the management of the project, but without conditioning the achievement of the objectives of the project.

3. Delays may have certain impacts on the management of the project and may condition the objectives of the project.

4. Delays have significant impacts on the project and may affect the achievement of the objectives of the project; they may even compromise the viability of the project.

B. How would you assess the delays that may have occurred in the implementation of the project?

1. There were significant delays with impacts in the project.

2. There were significant delays with no impacts in the project.

3. There were no significant delays, but with impacts in the project.

4. There were no significant delays and no impacts in the project.

7. Turnover of teachers

A. Importance, in your view, of the turnover of teachers.

1. The turnover of teachers does not impact on the achievement of the objectives of the project.

2. The turnover of teachers may have some impacts on the achievement of the objectives of the project.

3. The turnover of teachers may have significant impacts on the achievement of the objectives of the project.

4. The turnover of teachers may have impacts that condition the viability and sustainability of the project over time.

B. How would access the turnover of teachers?

1. The turnover of teachers is high, and it has significant impacts on the project (there are no mechanisms to ensure that new teachers have sufficient expertise to manage the facilities and the knowledge resulting from the project).

2. The turnover of teachers is very low or practically non-existent, but it may have impacts on the project.

3. The turnover of teachers is high, but it does not necessarily have impacts on the project (there are mechanisms to ensure that new teachers have sufficient expertise to manage the facilities and the knowledge resulting from the project).

4. The turnover of teachers is very low or practically non-existent, without impacts on the project that may condition its sustainability.

8. Security measures

A. Importance, in your opinion, of the implementation of the security measures to avoid damages or thefts of the equipment.

1. It is not relevant to implement safety measures in schools because schools are safe or the risk of theft is very low.

2. It is of low relevance to implement safety measures in schools because schools are safe or the risk of theft is low.

3. It is quite important to implement safety measures in schools because schools are not safe or the risk of theft is high.

4. It is essential to implement safety measures in schools because schools are not safe or the risk of theft is very high.

B. How would you assess the safety of the facilities?

1. The safety of the schools is very low, since no safety measures have been implemented or the measures implemented do not ensure that the schools and facilities are safe.

2. The safety of the schools is low because no safety measures have been implemented or the measures implemented do not ensure that the schools are safe.

3. The safety of the schools is medium, since safety measures have been implemented and the measures implemented ensure that schools are safe.

4. The safety of the schools is very high, since safety measures have been implemented, the measures implemented ensure that schools are safe, and there are mechanisms to replace the equipment in the event of damage or theft.

9. PVSS Technical Solution

A. Importance, in your view, of defining a technical solution for the photovoltaic solar system (PVSS) according to the intended uses of the facilities, i.e. to cover the needs of the schools.

1. It is not relevant to adapt the PVSS design to the intended uses of the facilities, since it is not necessary to specify the needs of the schools.

2. It is of low relevance to adapt the PVSS design to the intended uses of the facilities, since the schools will be adapted to the possibilities offered by the PVSS.

3. It is very relevant to adapt the design of the PVSS to the intended uses of the facilities, since the schools may have difficulty benefiting from all the possibilities offered by the PVSS.

4. It is essential to adapt the design of the PVSS to the intended uses of the facilities, because otherwise it can compromise the ability to cover the needs or miss the opportunities of an expensive installation.

B. How would you assess the technical solution provided by the photovoltaic solar system (PVSS)?

1. The technical solution provided does not meet the needs of schools; it even compromises the achievement of the objectives of the project.

2. The technical solution provided meets the minimum needs of the schools and does not compromise the achievement of the objectives of the project. The system installed does not allow other social or community activities.

3. The technical solution provided exceeds the needs of schools and other community activities; it does not compromise the achievement of the objectives of the project, but a cheaper facility could have been selected.

4. The technical solution provided is optimized to adequately meet the needs of schools and other social activities, ensuring that all objectives of the project can be achieved at an appropriate cost.

10. PVSS operability

A. Importance, in your view, of making PVSS systems operational to meet the needs that have been defined.

1. It is not relevant that the PVSS systems are always operational, since these equipment cover needs in the schools that can be covered alternatively.

2. It is relevant that the PVSS are operational since these equipment cover needs in the schools that cannot be covered alternatively. For this purpose, it suffices to have highly qualified local maintainers, with the tools to perform basic maintenance operations and with the most recurring replacement equipment.

3. It is relevant that PVSS are operational since these equipment cover needs in the schools that cannot be covered alternatively. For this purpose, it is necessary to have highly qualified local maintainers, with the tools to perform basic maintenance operations and with the most recurring replacement equipment. Besides, it is necessary to have professional maintainers who are able to repair the breakdowns that cannot be handled by local maintainers; where appropriate, it could be a higher administrative body (such as the OEI, the Municipality, or the Ministries) that support the local maintainers in those actions for which they do not have capacities.

4. It is relevant that PVSS are operational since these equipment cover needs in the schools that cannot be covered alternatively. For this purpose, it is necessary to have highly qualified local maintainers with the tools to perform basic maintenance operations and with the most recurring replacement equipment. Besides, it is necessary to have professional maintainers that perform preventive maintenance of greater scope and repair the breakdowns that cannot be handled by local maintainers; where appropriate, it could be a higher administrative body (such as the OEI, the Municipality, or the Ministries) that support the local maintainers in those actions for which they do not have capacities.

B. How would you assess the operability of the PVSS systems?

1. The operability of the PVSS systems is unknown.

2. The operability of the PVSS systems is low; it is known that some failures occurred in more than 50% of the schools.

3. The operability of the PVSS systems is medium; some failures occurred in less than 50% of schools, and if these failures were solved, they would be solved in less than a month.

4. The operability of the PVSS systems is high; some failures occurred in less than 20% of schools, and if these failures were solved, they would be solved in less than a month.

11. Connectivity Technical Solution

A. Importance, in your view, of defining a technical solution for connectivity according to the uses to be given to the facilities, i.e. covering the needs of the schools.

1. It is not relevant to define a technical solution for connectivity since this component is not considered in the project.

2. It is not relevant to define a technical solution for connectivity since connectivity is provided through other programs.

3. It is very important to define a technical solution for connectivity, since the solutions available to some schools may not be economically viable.

4. It is essential to define a technical solution for connectivity, since this component is determinant to achieve the objectives of the project and its cost determines the economic sustainability of the same.

B. How would you assess the provided connectivity solution?

1. The project has not considered this component, or it has been considered through other programs.

2. The project could only consider this component in a certain number of schools either because the available technical solution was not economically viable or for other reasons.

3. The project has considered this component in all schools. The connectivity costs have been borne by the project for a certain time (of generally less than one year) and subsequently these costs will be borne by the final owner of the facilities or by the manager, although it is not certain that the owner or manager will bear these costs.

4. The project has considered this component in all schools. The connectivity costs have been borne by the project for a certain time (of generally less than one year) and subsequently these costs will be borne by the final owner of the facilities or by the manager, and it is certain that the owner or manager will bear these costs.

12. Connectivity Operability

A. Importance, in your view, that schools are connected to meet the needs that have been defined.

1. It is not relevant that the connectivity system is operational since the needs covered by these equipment in the schools can be covered alternatively (for example, through a specific offline teaching software).

2. It is relevant that schools are connected because the needs covered by the connectivity cannot be covered alternatively. When the connectivity does not work, the services outlined in the project cannot be provided. For this purpose, it is necessary to have highly qualified local maintainers with the tools to perform basic maintenance operations and with the necessary replacement equipment.

3. It is relevant that there is connectivity since the needs covered by the connectivity cannot be covered alternatively. When the connectivity does not work, the services outlined in the project cannot be provided. For this purpose, it is necessary to have highly qualified local maintainers with the tools to perform basic maintenance operations and with the necessary replacement equipment. Besides, it is necessary to have professional maintainers who are able to repair the breakdowns that cannot be handled by local maintainers

4. It is relevant that there is connectivity since the needs covered by the connectivity cannot be covered alternatively. When the connectivity does not work, the services outlined in the project cannot be provided. For this purpose, it is necessary to have highly qualified local maintainers with the tools to perform basic maintenance operations and with the necessary replacement equipment. It is also necessary to have professional maintainers who are able to repair the breakdowns that cannot be handled by local maintainers. In addition, the local maintainers need to have a higher administrative body (such as the OEI, the Municipality, or the Ministries) that support them in those actions for which they do not have capacities.

B. How would you assess the connectivity operability?

1. It is unknown whether schools that should have access to connectivity are connected.

2. The operability of the connectivity systems is low; it is known that some failures occurred in more than 50% of the schools.

3. The operability of the connectivity systems is medium; some failures occurred in less than 50% of schools, and if these failures were solved, they would be solved in less than a month.

4. The operability of the connectivity systems is high; some failures occurred in less than 20% of schools, and if these failures were solved, they would be solved in less than a month.

13. Computer Equipment Technical Solution

A. Importance, in your view, of defining a technical solution for computer equipment according to the uses to be made of the facilities, i.e. covering the needs of the schools.

1. It is not relevant to adapt the computer equipment provided to the intended uses of the facilities, since it is not necessary to specify the needs of the schools.

2. It is of low relevance to adapt the computer equipment provided to the intended uses of the facilities, as schools will be adapted to the possibilities offered by the equipment provided.

3. It is quite relevant to adapt the computer equipment to the intended uses of the facilities, since the schools cannot be easily adapted to the possibilities offered by the computer equipment.

4. It is essential to adapt the computer equipment to the intended uses of the facilities, because otherwise the ability to meet the needs is compromised.

B. How would you assess the installation of the computer equipment provided?

1. The computer equipment do not meet the needs of schools, and they compromise the achievement of the objectives of the project. For example, the number of computer devices per number of students is very low.

2. The computer equipment provided do not meet the needs of the schools, but they do not compromise the achievement of the objectives of the project. Irrespective of whether the facilitated system does not meet the needs of the schools, the achievement of the objectives of the project is not compromised.

3. The technical solution provided is suited to the needs of the schools, and it does not compromise the achievement of the objectives of the project.

4. The technical solution provided is optimized to meet the needs of the schools, and it does not compromise the achievement of the objectives of the project.

14. Operability of the Computer Equipment

A. Importance, in your view, that the solution for the computer equipment is operative to cover the needs that have been defined.

1. It is not relevant that the computer equipment are always operative, since these equipment cover needs in the schools that can be covered alternatively.

2. It is relevant that the computer equipment are operative, since these equipment cover needs in the schools that cannot be covered alternatively. For this purpose, it suffices to have highly qualified local maintainers, with the tools to perform basic maintenance operations and with the most recurring replacement equipment.

3. It is relevant that the computer equipment are operative, since these equipment cover needs in the schools that cannot be covered alternatively. For this purpose, it is necessary to have highly qualified local maintainers, with the tools to perform basic maintenance operations and with the most recurring replacement equipment. Besides, it is necessary to have professional maintainers who are able to repair the breakdowns that cannot be handled by local maintainers; where appropriate, it could be a higher administrative body (such as the OEI, the Municipality, or the Ministries) that support the local maintainers in those actions for which they do not have capacities.

4. It is relevant that the computer equipment are operative, since these equipment cover needs in the schools that cannot be covered alternatively. For this purpose, it is necessary to have highly qualified local maintainers, with the tools to perform the basic maintenance operations and with the most frequent replacement equipment. Besides, it is necessary to have professional maintainers that perform preventive maintenance of greater scope and repair the breakdowns that cannot be handled by local maintainers; where appropriate, it could be a higher administrative body (such as the OEI, the Municipality, or the Ministries) that support the local maintainers in those actions for which they do not have capacities.

B. How would you assess the operability of the computer equipment provided?

1. The operability of the computer equipment is unknown.

2. The operability of the computer equipment is low; it is known that some equipment failures occurred in at least 25% of the equipment in more than 50% of the schools.

3. The operability of the computer equipment is medium; some failures occurred in less than 50% of schools, and if these failures were solved, they would be solved in less than a month.

4. The operability of the computer equipment is high; some failures occurred in less than 20% of schools, and if these failures were solved, they would be solved in less than a month.

15. Inclusion of ICTs in the pedagogical processes

A. Importance, in your view, that ICTs are included in the pedagogical processes.

1. It is not important to incorporate the ICT (computer equipment and connectivity) in the pedagogical processes of the schools for the achievement of the objectives of the project.

2. The incorporation of the ICT (computer equipment and connectivity) into the pedagogical processes of the schools is of low importance for the achievement of the objectives of the project.

3. It is very important to incorporate the ICT (computer equipment and connectivity) in the pedagogical processes of the schools for the achievement of the objectives of the project.

4. The incorporation of ICT (computer hardware and connectivity) into the pedagogical processes of schools is essential for the achievement of the objectives of the project.

B. How would you value the inclusion of ICTs in the pedagogical processes of the schools benefiting from the project?

1. The incorporation of the ICTs in the pedagogical processes of the schools is very low, because either the appropriate equipment are not available or the teachers are not sufficiently trained to properly manage the ICTs.

2. The incorporation of ICTs in the pedagogical processes of the schools is low, because either the appropriate equipment are not available or the teachers are not sufficiently trained to properly manage the ICTs.

3. The incorporation of the ICTs in the pedagogical processes of the schools is medium, since the appropriate equipment are available and the teachers are sufficiently trained to properly manage the ICTs.

4. The incorporation of the ICTs in the pedagogical processes of the schools is very high, since the appropriate equipment are available and the teachers are sufficiently trained to properly manage the ICTs.

16. Responsible use of the facilities - communities

A. Importance, in your view, that communities make responsible use of the facilities.

1. It is not important.
2. It is of little importance.
3. It is quite important.
4. It is essential.

B. How would you assess the use of the facilities by the communities?

1. The use of the facilities by the communities is very low or non-existent. There are no mechanisms to ensure that the facilities are properly used (there is no supervisor trained to properly manage the equipment or there are no other procedures to ensure that the equipment are properly managed).

2. The use of the facilities by the communities is very low or non-existent. However, there are mechanisms to ensure that the facilities are properly used (there are supervisors trained to properly manage the equipment or there are other procedures to ensure that the equipment are properly managed).

3. The use of the facilities by the communities is medium or high, but there are no mechanisms to ensure that the facilities are properly used (there is no supervisor trained to properly manage the equipment or there are no other procedures to ensure that the equipment are properly managed).

4. The use of the facilities by the communities is medium or high. Besides, there are mechanisms to ensure that the facilities are properly used (there are supervisors trained to properly manage the equipment or there are other procedures to ensure that the equipment are properly managed).

17. Mechanisms for the maintenance of the capacities of teachers

A. Importance, in your view, of the existence of adequate mechanisms to ensure the maintenance of the capacities of teachers over time.

1. It is not important.

2. It is of little importance.

3. It is quite important.

4. It is essential.

B. How would you assess the existing mechanisms to ensure the maintenance of the capacities of teachers over time?

1. No mechanisms have been established, or there can be no assurance that the established mechanisms can be implemented.

2. There are certain mechanisms or there is sufficient interest on the part of the accountable institutions. However, these mechanisms were not formally established (or they are weak mechanisms).

3. There are certain mechanisms or there is sufficient interest on the part of the accountable institutions, and there is a good chance that these mechanisms can be implemented.

4. There are sufficient guarantees to secure that the mechanisms established are adequate to ensure the maintenance of the capacities of teachers over time, even if there is turnover of teachers.

18. Mechanisms for the maintenance of the capacities of the local maintainers

A. Importance, in your view, that local maintainers maintain their capacities over time.

1. It is not important.

2. It is of little importance.

3. It is quite important.

4. It is essential.

B. How would you assess the existing mechanisms to ensure the maintenance of the capacities of the local maintainers over time?

1. No mechanisms have been established, or there can be no assurance that the established mechanisms can be implemented.

2. There are certain mechanisms or there is sufficient interest on the part of the accountable institutions. However, these mechanisms were not formally established (or they are weak mechanisms).

3. There are certain mechanisms or there is sufficient interest on the part of the accountable institutions, and there is a good chance that these mechanisms can be implemented.

4. There are sufficient guarantees to secure that the mechanisms established are adequate to ensure the maintenance of the capacities of the local maintainers over time, even if there is turnover of maintainers.

19. Measures for the sustainability

A. Importance, in your view, that the sustainability of the project is accomplished over time. This may include the establishment of the necessary measures to ensure that the responsible for the sustainability compliance of the project fulfills its responsibilities in the long term, including the development of protocols for the management of the facilities and the payment of maintenance and replacement costs of the equipment.

1. It is not important.

2. It is of little importance.

3. It is quite important.

4. It is essential.

B. How would you assess the measures established to ensure the project sustainability over time?

1. No mechanisms to ensure the sustainability of the project were established, or there can be no assurance that the established mechanisms will secure the sustainability of the project.

2. There are certain mechanisms or there is sufficient interest on the part of the accountable institutions. However, these mechanisms were not formally established (or they are weak mechanisms).

3. There are certain mechanisms or there is sufficient interest on the part of the accountable institutions, and there is a good chance that these mechanisms can be implemented.

4. There are sufficient guarantees to secure that the mechanisms established are adequate to ensure the sustainability of the project over time.

Monitoring indicators		Implemented Pilot Program											Pilot Program under Implementation	
		AR	BO	CO	SV	GT	HN	NI	PY	PE	DO	UY	CR	PA
Institutional appropriation - Central Government Institutions	Importance	4	3	4	4	4	4	3	4	4	4	4	4	3
	Assessment	2	4	2	3	2	3	2	2	3	3	4	2	3
Institutional appropriation - Regional or Local Bodies	Importance	4	3	4	4	3	4		3	4	4	4	3	3
	Assessment	3	4	2	3	2	2		2	3	3	4	2	2
Appropriation by the local communities	Importance	6	3	4	4	4	4	4	4	4	3	4	4	3
	Assessment	3	4	3	4	4	3	3	3	4	4	4	4	3
Appropriation by schoolteachers	Importance	3	3	4	4	4	4	4	4	4	4	4	4	
	Assessment	3	4	3	3	4	4	3	3	4	4	4	4	4
Monitoring Mechanisms	Importance	3	3	4	4	4	4	4	4	4	4	4	4	4
	Assessment	3	3	3	4	2	4	3	3	3	3	4	2	4
Delays in the implementation	Importance	3	3	4	4	3	2	3	3	3	3	1	3	3
	Assessment	2	2	3	2	1	2	1	4	4	3	4	1	1
Turnover of teachers	Importance	3	3	3	2	4	2	3	3	4	4	2	4	3
	Assessment	3	2	1	2	4	2	2	4	1	1	3	4	3
Security measures	Importance	4	3	3	4	4	3	4	4	4	4	2	4	2
	Assessment	3	3	2	2	3	3	2	2	3	3	3	3	3
PVSS Technical Solution	Importance	3	3	4	4	4	4	3	4	4	2	2	4	3
	Assessment	3	3	4	4	3	4	4	2	4	3	4	3	4
PVSS operability	Importance	2	3	4	4	4	3	3.5	4	3	4	4	4	2
	Assessment	4	3	1	4	4	4	4	4	3	3	4	4	4
Connectivity Technical Solution	Importance	3	3	3	4	4	4	1	3	4	4	4	4	3
	Assessment	1	1	2	1	2	4	1	2	1	4	4	2	3
Connectivity Operability	Importance	1	3	3	4	4	2	1	3	3	2	4	4	1
	Assessment	not applied	2	1	4	4	3		2	3	2	4	4	2
–Computer Equipment Technical Solution	Importance	4	2		4	4	2	3	4	4	3	4	4	3
	Assessment	3	2	3	3	3	3	3	3	4	3	4	3	3

Monitoring indicators		Implemented Pilot Program											Pilot Program under Implementation	
		AR	BO	CO	SV	GT	HN	NI	PY	PE	DO	UY	CR	PA
Operability of the Computer Equipment	Importance	3	2	3	4	4	3	3	3	4	4	4	4	2
	Assessment	4	1	1	4	4	4	3	3	3	4	4	4	4
Inclusion of ICTs in the pedagogical processes	Importance	4	3	4	4	4	4	4	3	4	4	4	4	3
	Assessment	3	3	1	3	3	3	3	2	1	2	4	3	2
Responsible use of the facilities - communities	Importance	4	4	4	4	4	4	4	4	1	4	4	4	4
	Assessment	3	2	2	3	4	4	3	3	1	3	4	4	2
Mechanisms for the maintenance of the capacities of teachers	Importance	4	3	4	4	4	4	3	3	4	4	4	4	4
	Assessment	3	2	1	3	4	2	3	2	2	2	4	4	3
Mechanisms for the maintenance of the capacities of the local maintainers	Importance	4	3	4	4	4	4	3	4		4	4	4	3
	Assessment	1	2	1	3	1	2	3	2	4	2	4	1	3
Measures for the sustainability	Importance	3	3	4	4	4	4	4	4	4	4	4	4	3
	Assessment	2	1	2	3	2	3	3	2	3	2	4	2	3