

ONE COMPUTER PER CHILD – PARAGUAY

I. SUMMARY

Name of the Program:	Incorporation of XO computers in 10 primary schools in Caacupé.
Final Beneficiary:	3,607 elementary school children (grades 1 through 6) and 156 teachers from the district of Caacupé, Department of Cordillera.
Executing Agency:	NGO Paraguay Educa
Financing:	IADB: US\$ 300,000 Local: US\$ 900,000 Total: US\$1,200,000

II. BACKGROUND

- 2.1 The digital divide in Paraguay is a contributing factor in the inadequate human development of the country and the insertion of new information and communications technologies is the lowest in the region: 6.5% of Paraguayan homes have one computer and 2.8% have an internet connection. Likewise, it is estimated that no more than 10% of the educational institutions have computer equipment and less than 5% have access to the internet, this being one of the lowest rates in the region¹. Greater access to information through communication tools is essential in educating the new generations of children and youth who will propel Paraguay's development in the coming decades.
- 2.2 Despite the significant progress Paraguay has achieved in recent years in access to education and school permanence, the country still faces great challenges. These include the problems of internal efficiency, quality in learning and equity. For instance, retention rates indicate that half of school children finish their 6th grade without having to repeat any grade (44% in rural areas and 62% in urban areas). While in regard to children's learning, the low scores achieved in the SNEPE's tests of 2004 (3rd grade: 54% for language and literature and 58% for math; 6th grade: 60% for language and literature; and 63% for math) show that the quantitative growth of the system is not ensuring an adequate level of learning.
- 2.3 The current national government has shown a clear intention to improve the quality of educational processes in basic education, particularly for the most vulnerable. Considering this group of challenges, the NGO Paraguay Educa seeks today to implement the "One Laptop per Child" technology in the city of Caacupé. This initiative seeks to improve pedagogical processes through the extensive use of computers and computer networks. For this purpose, a low cost laptop (the XO model) has been designed for boys and girls to take an active role in constructing their own knowledge.
- 2.4 Today, Paraguay Educa, a non-profit organization, manages the first large-scale implementation of 4,000 XO computers. For this purpose, 10 public schools in Caacupé, the capital of the Department of Cordillera, were chosen to install an educational model in conjunction with the Ministry of Education (MEC), who has already appointed a team for this purpose. Currently, the Inter-American Development Bank funds a Technical Cooperation with the Ministry of Education to explore various strategies to incorporate Information and Communication Technologies (ICT) innovation to the educational institutions, whose results will serve for a better implementation of this experience at a bigger scale.

¹<http://www.cepal.org/SocInfo/eLAC>

III. OBJETIVES AND PROJECT DESCRIPTION

A. Objectives

- 3.1 Installing educational technologies that enhance student learning in primary schools while contributing to the reduction of the digital divide and helping to a better development of the Paraguayan youth. For this purpose, a systemic and inclusive model of digital inclusion in elementary education has been designed and will be executed through cooperative agreements with the public and private sectors to promote digital inclusion in Caacupé and elsewhere.
- 3.2 Specific aims: i) Make up a team of trainers and teachers familiarized with the use of new technology, both inside and outside the classroom, aimed at improving learning and acquiring new technological skills; ii) Manage the delivery of XO computers, establish a maintenance and repair plan for computer hardware and providing software solutions and network monitoring; iii) Develop systematic and relevant tools for the longitudinal evaluation of the experience.

B. Description

- 3.3 To achieve the objectives, the Program is structured in three components:
 - a. 1st. Component. **Training and material design:** The project will finance the training course of 25 trainers, 146 teachers from the selected schools, the production and design of the training course material (module) referred to the use of XO computers as well as in models and pedagogical innovation directed to provide an incentive in children's imagination, the research spirit and the sense of responsibility of their own education using the XO computers. Furthermore, this project will also fund the hiring of local universities with experience in training courses and in the use of new Technologies.
 - b. 2nd. Component. **Equipment, Maintenance and security:** The project will finance the development of the XO network infrastructure. On the one hand the training in maintenance at the school level will be done. Moreover, to solve more complex problems in the computer system, Paraguay Educa will install a monitoring center to observe the network and the computers. From this system, it will be possible to collect information about the use of networks in each school. Also, Paraguay Educa will have a network staging reproduction in smaller scale at their office, where simulations can be made to test changes before implementing them in the schools to minimize the absence time of the connectivity services. Similarly, the Project will also fund the Internet access and the infrastructure adaptations needed at the schools to guarantee the equipments' safety: each school will be provided with an Internet access server that must be kept in a safe place.
 - c. 3rd. Component. **Evaluation:** The Project will finance the development of tools and procedures for systematic evaluation that will serve as a base and follow up for future XO implementations. This may comprehend: i) the impact of new technologies in improving learning; ii) the impact of the pedagogical model; iii) the teaching environment, including classroom management, administrative relations and community impact; and (iv) Paraguay Educa's performance on decentralized and multi-sectors system could achieve a worldwide innovation in terms of ITC insertion in the educational system. The pedagogical, technological and administrative team of the NGO Paraguay Educa will be responsible for the implementation and design of evaluation tools.

IV.COSTS

- 4.1 It is estimated that the total cost of the Project will be of US\$1,200,000. The IADB will contribute up to US\$300,000, which comes from the fund for special operations net income; and the local compensation (NGO Paraguay Educa) will be of US\$ 900,000 (in cash or in countable material). The chart below shows the costs and budget:

**Chart III-1
Consolidated budget (US\$)**

Description	BID	Local	Total
1st. Component. Training and material design	1 8 0 .0 0 0 0	1	2
2nd. Component. Equipment, Maintenance and security	1 1 0 .0 0 0	8	9
3rd. Component. Evaluation	10.000		10.000
4. Administrative expenses	Pending		
5. Audit	2.000		2.000
6. Unforeseen	Pending		
Total	300.000	900.000	1200.000

4.2 The continuity of efforts begun with this technical cooperation will depend on political will and the availability of funding sources to support the development of this experience at other districts of the country. There are several signs suggesting that these conditions exist and implements a long-term policy for integrating ICT into the Paraguayan school system and thus the Project's experience. In fact, during the design process of this project, the highest authorities of the MEC and public and private sector have expressed interest in the various players in the country by promoting a policy in this area. On the other hand, various international agencies are very interested in the project, including the IADB, for supporting efforts in this direction. The external evaluation to be applied at the end of this technical cooperation is of paramount importance since its results will deliver valuable lessons learned whose results will determine the technical feasibility and operational expansion at other districts in the country

V.EXECUTING AGENCY AND EXECUTION STRUCTURE

The executing agency will be Paraguay Educa, a non-governmental and non-profit organization that is made up of professionals from different areas and having proven track record in project management in civil society organizations. This will be the body that will receive and manage resources in accordance with policies and procedures established by the Bank. It is estimated that the project will last 12 months and disbursements may be extended up to 18 months from the signing of the technical cooperation. In the case of the 1st Component, a consortium of universities that

participate by providing infrastructure will be formed, providing educational and pedagogical counseling, and involving its student body through voluntary participation in the project. In addition, the government of Cordillera, where the City of Caacupé is located, has made available to the project headquarters and training volunteers. In addition, the Fundación en Alianza, the leading publisher of school textbooks in Paraguay, will provide some digital content.

VI. LESSONS LEARNED AND ADDED VALUE.

- 6.1. Some lessons learned are: (i) ICT initiatives from the moment that are supported by MEC do not continue in educational institutions beyond time, showing that the installation capacity of long-term strategies requires greater intensity and duration, (ii) The process of incorporating the XO in educational institutions requires a policy that looks simultaneously pedagogical and technological aspects of digital content and teacher training involved in the installation of new educational practices with the support of ICT, (iii) provision of Internet to educational institutions represents special complexities in the case of Paraguay, this will require a combined effort of various state and private actors, and (iv) the timely assistance or technical support, standing near the school and helps to ensure the credibility of the project by students and teachers, and (v) requires vigorous activities and effective training of teachers. They remain the final arbiter of what is happening with technology in the classroom and their environment.
- 6.2. The added value of this operation is to create conditions for the later implementation of the One Computer per Child project throughout the country, with an experience located in a district with high concentration of educational school population and significant migration problems. It is hoped that all students, teachers and families use this educational tool as a means of communication and coordination for developing educational projects. Also this cooperation will create technical skills in students and teachers for the proper use of the personal computer in terms of better learning and greater rapprochement with new technologies. Finally, this operation will enable the development of a local system for implementing the XO throughout the country, with a strong public-private partnership, whose results will enable to make decisions overcrowding the education system from this experience.

VII. BENEFITS AND RISKS OF THE PROJECT.

A. Project benefits and impact on development

- 7.1 The project is expected to be a novel alternative access to ICT within the Paraguayan education system benefiting directly to children. Specifically: (i) each student would have his/her own laptop, which would allow a greater number of hours of usage of ICT, both at school and at home, (ii) to deliver a laptop per child: learning environments are transformed The assessment techniques are changing, students undertake much more to learn and improve their competencies and skills, productivity increases in the school work and attitudes to writing improvement in synthesis

stimulate and facilitate meaningful and collaborative learning with access a rich source of information, and (iii) would help bridge the digital divide between children and children of high and low income (and their families).

B. Beneficiaries

7.2 The project will directly benefit 3,607 elementary school children (grades 1 to 6) and 156 principals and teachers from the district of Caacupé.

C. Risks

7.3 There are two main risks facing this program: (i) difficulties in access to connectivity, and (ii) computer security. In Paraguay, Internet access is subject to high costs and there is an extreme polarization in providing the service, being that the communications infrastructure of high technology is concentrated in the capital city. To achieve success in this experience, it is proposed that connectivity will be funded from CT. At present government is considering a scheme of preferential access to the Internet to the field of public education. Regarding the issue of Security, a program will work strongly at the community level, together with authorities and local opinion leaders to ensure full awareness and community involvement, explaining the benefits of the project not only for children but benefit also for their families, friends and neighbors. The aim is that computers are recognized as a tool for development and growth for the whole community and are cared for and protected as such (see Component 2).