



Regional Forum

on Educational Innovation in Remote Indigenous Communities:

THE BOSAWAS PROJECT



Bilwí, Northern Caribbean Coast Autonomous Region of Nicaragua – July 21, 2023

Forum sponsored by



Fund for Innovation
and Transformation
Fonds pour l'innovation
et la transformation



Table of CONTENTS

Summary	ii
1. Welcome	1
2. Forum Opening	2
3. The Education Project in BOSAWAS	4
4. Project Results and Lessons Learned	5
4.1 Findings of the External Evaluation, May, 2022	5
4.2 Institutional Responses	11
4.3 Integrating Art into Education	13
5. Technology Demonstration	17
6. Presentation of Teacher Training Modules	20
7. Forum Participant Feedback	23
8. Arturo Collado, UNESCO, Nicaragua	27
9. Closing	29

Summary



The Regional Forum held in Bilwi, Nicaragua on July 21, 2023 was an opportunity to share the results of an educational technology pilot project with educators and policy makers from remote Indigenous communities in north-east Nicaragua. In the gathering, the implementing partners and educators shared the experience and outcomes of the three-year pilot project (2020-2023) using this innovative off-line and solar-powered technology in seven remote Miskito communities in the BOSAWAS.

The project was led by Change for Children, a Canadian NGO, the Indigenous government of Alto Wangki (MIKT - AWB) and local representatives of the Ministry of Education, with funding from The Fund for Innovation and Transformation (FIT) and 60 Million Girls Foundation (60MG) of Canada. Project partners included the SEAR Directorate, the URACCAN Intercultural Community University and FUNARTE, and art education organization.

The pilot project was implemented in seven schools in MIKT-AWB to improve the quality of education and to increase school attendance among indigenous girls, boys and young people. The schools were equipped with digital libraries (RACHEL) which act as servers connected to individual laptops and tablets in the classroom. The off-line technology is powered by low-impact solar energy. Teachers and student were trained to utilize and maintain the technology. There was a particular focus on intercultural and Indigenous language content, gender equality, and sexual and reproductive health education. Community leaders and families were also engaged in the learning and supporting improved education for their children. The project directly benefited 4,000 indigenous students and 200 primary and secondary education teachers in the AWB.

Ninety-four people participated in the event, including 54% women (51/94). There were 84 invited participants and 10 Canadian and Nicaraguan representatives of the implementing partners and funders. Participants included teachers, school directors, and technical support staff from all the municipalities in the region. As such, there was broad representation from all eight municipal districts in the region, including the MINED representative and at least one school director and one teacher from each municipality.



There was also significant interest on the part of university staff and students, as they considered the possible uses of technology for extending teacher training and professionalization. There are a limited number of international NGOs and institutions working in the region; however, there were representatives of Plan International, UNESCO, and 60MG in attendance. All of these organizations are concerned with education in this part of Nicaragua.

Participants from remote communities indicated that the technology would be highly adaptable and relevant to their own contexts. They highlighted the value of this technology to increase access to educational materials in remote schools with limited resources, and to facilitate the addition of linguistically and culturally-relevant content to curriculum. The potential to use the technology for teacher training was also emphasized. Participants noted that the integration of art and gender equality into educational processes was an important learning from the projects.

The primary obstacles noted by participants were the lack of resources for the purchase of equipment, and the need for solar-power generation. Government and NGO support are required to implement this model as communities cannot do this alone.

Key relationships and linkages were formed during the Forum between education stakeholders for potential collaboration and scale-up of these technological tools for improving educational quality in the region. As a result, school staff and leaders in remote Indigenous communities have new ideas and contacts for strategies to improve the quality of education in their isolated schools, including linkages with Ministry of Education officials and national and international NGOs.



Welcome



The Forum, held in Bilwi, Nicaragua in the auditorium of the regional government and was commemorated in celebration of the International and National Day of Indigenous Peoples (August 9), dedicated to the indigenous, Afro-descendant and mestizo peoples of the Caribbean coast.

The Forum was an opportunity to share the successful experience of using offline educational technology, “RACHEL,” powered by solar energy and implemented in seven Rural Nucleus Schools (NER) of the Miskitu Indian Tasbaika Kum Territory (MITK-AWB) in Alto Wangki. The Forum facilitated knowledge sharing between National, Regional, Municipal, Communal educational authorities, special guests and participants of the project.

The event began with an Indigenous cultural invocation to the Almighty God for guidance and wisdom. This was followed by the national anthem of Nicaragua sung in Spanish and Miskitu, as well as the anthem of the region.

The Departmental delegate of the Ministry of Education introduced the special guests during the opening panel and welcomed all those present including authorities of the Indigenous and Afro- descendant Territorial Governments, advisors, technicians from the Regional Secretariat of Education and teachers of Educational Information and Communication Technologies, MINED-RACCN. Representatives of the Intercultural Community Universities URACCAN and BICU, and representatives of the National Technological Institute (INATEC).



Forum OPENING



ENG. MIGUEL ABELLA, MAYOR OF THE MUNICIPALITY OF PUERTO CABEZAS (BILWI)

I welcome everyone to the Forum and want to highlight that educational innovation contributes to the strengthening of the Regional Autonomous Educational System (SEAR) and all the educational subsystems present in the region. The reduction of illiteracy is one of the achievements that is the result of the effort and commitment of the government despite the difficult conditions of the region. I would like to emphasize the progress we have in education thanks to the commitment of the government of Nicaragua.



DR. EDGAR SALAZAR FRANCIS, GENERAL DIRECTOR MINED – SEAR

The learning process is a daily task to continue changing and eradicating poverty. For our people, every initiative and effort that contributes to learning is an educational victory. Today we meet to exchange new and positive experiences making use of educational technology in seven schools of Alto Wangki-Bocay (AWB), including teacher training and family participation in all phases of the project. There was also the unconditional support of the Canadian people through Change for Children (CFC), 60 Million Girls, and FIT. However, the main protagonists are the students who attend these schools in the Indigenous communities. The learning environments are a space for the exchange of knowledge with the technological tools that are improving education in that region.

**MR. CARLOS ALEMÁN CUNNINGHAM,
COORDINATOR OF THE NORTH
CARIBBEAN COAST AUTONOMOUS
REGIONAL GOVERNMENT**

Most of the communities in the Caribbean region of Nicaragua have gained internet connectivity in the last 15 years. COVID accelerated the use of technology in the region, and specifically in education. This new technology and connectivity have required adjustments to our way of doing things. To continue to preserve and nurture our reality and our culture, we require conscious students, grounded in our local reality and culture. The entire country is multiethnic; the education system generates information at the initial, primary, secondary and higher education levels. It is a challenge to generate more knowledge, and to advance in each of the communities and territories while staying grounded in the local context and culture.



**MS. LORENA SWIFT, EXECUTIVE
DIRECTOR OF CFC, CANADA**

In 1999 I arrived in Nicaragua to work in the BOSAWAS region as a Canadian volunteer focused on the right to education. To this day, I continue to be committed to supporting education in the region. There are not enough schools in the BOSAWAS region and so that is why CFC is working there. CFC has prioritized building schools and improving the quality of education in the region. I am very happy to be in Bilwi for this Forum to share our experience in BOSAWAS and learn from others working on improving education in the wider region.



**The Education
PROJECT IN BOSAWAS**



**MR. PRIMITIVO CENTENO, PRESIDENT
OF THE MITK INDIGENOUS TERRITORIAL
GOVERNMENT**

Today, in this Forum, we want to share as part our Indigenous rights in the educational process in Alto Wangki Bocay (MIKT-AWB). We want to share the progress we have made, and how we are now, compared to the past. Ten to fifteen years ago, we looked at how we could guarantee education in our communities. We only had five teaching positions. We were not a recognized Territorial Government. We were abandoned by the national governments; we were associations. Today, we have managed to establish our own Indigenous Territorial Government. We have built seven secondary schools, and trained 135 teachers, who are the first group of professionals in MIKT-AWB.

In the second stage, we have been able to activate model schools and implement the Education with Technology project. We have increased the number of teachers with improved capacity through technology and the virtual library. Today, school enrollment has increased, and parents are very encouraged and happy about the innovation and results that have been obtained with the intervention of the project. We have obtained these advances thanks to good coordination with the Ministry of Education (MINED), with the unconditional sponsorship of CFC of Canada, 60MG, and FIT, as well as national counterparts such as URACCAN, FUNARTE among others.

**PROFESSOR ORNIS BRICEÑO, MINED
DELEGATE OF ALTO WANGKI AND BOCAY**

In the Ministry of Education in Alto Wangki Bocay (AWB), we recognize that there are many gaps. The three municipalities of BOSAWAS are far from the municipal centre. Non-Governmental Organizations (NGOs) support to the work of the Indigenous Territorial Governments (GTI). They help us a lot in education, with textbooks, transfer of materials, training, teachers' use technology for research and development of their lesson plans, and teacher training in RACHEL servers. Previously, teachers did not have updated and relevant scientific information and pedagogical training. Today with the availability of these tools and resources, enables teachers to offer improved educational quality to their students.

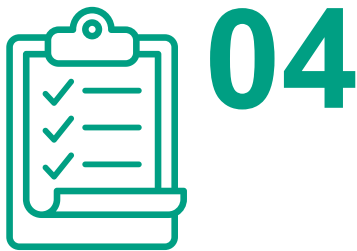


Mr. Primitivo Centeno



Professor Ornis Briceño

Project Results & LESSONS LEARNED



4.1 Findings of the External Evaluation, May, 2022

The results and learnings of the External Evaluation conducted in May 2022 of the project were presented with the objective of sharing the achievements, scope, effectiveness and relevance of the project intervention, as well as the learnings from the implementation in the benefited communities. Funded by the Change for Children Association (CFC), Edmonton, Canada with the cooperation of Fund for Innovation and Transformation (FIT) and 60 Million Girls Foundation (60MG), the evaluation was conducted by Claudia Sofia Manzanares. The project piloted an innovative, technology-enabled RACHEL program (a digital library and an offline server), a classroom laptop suite, and a teacher-training program all powered by solar energy in Miskitu Indian Territory Tasbaika Kum (MITK) of the BOSAWAS Biosphere Reserve.

Within the framework of the Rights of Indigenous Peoples of the ILO (International Labour Organization) and the United Nations Declaration on the Rights of Indigenous Peoples, the Free, Prior and Informed Consent of the communities where the data will be collected needs to be requested and guaranteed. A Consent Act was signed by the President of the Indigenous government and the communal authorities to allow the implementation of the evaluation and collection of data in the communities. In the case of the participants in the interviews and focus groups, consent was explained and obtained orally before starting.



It was explained that the evaluation of the Project was based on a Participatory Methodology and the application of techniques that facilitate the active participation in the evaluation process. Qualitative and quantitative analysis was applied to all data collected. The evaluation was conducted in accordance with the OECD/DAC Quality Standards for Development Evaluation (2010) and best practices in evaluation according to the Terms of Reference.

The target population for the external evaluation consisted of teachers and students from four core schools (Walakitang, San Andrés de Bocay, Tuburús and Yakalpanani) of the Indigenous communities of the BOSAWAS reserve. Representatives of the GTI, MINED and SEAR also participated in the evaluation. A sample of teachers and students was selected in each of the intervention communities of the Project from Phases I and II.



THE EXPECTED RESULTS OF THE PROJECT WERE:

1. Teachers from the beneficiary communities make effective use of pedagogical training.
2. Teachers from the beneficiary communities make effective use of educational resources.
3. Teachers promote, defend and model gender equality and SRHR in the classroom.
4. Teachers have access to and utilize culturally and linguistically-specific educational content.



RESULTS OBTAINED AFTER THE PROJECT INTERVENTION:

Improved School Attendance & Student Learning

- There was an increase in enrollment and school retention which contributed to improving the learning, skills and abilities of the students in the seven educational core school communities and 35 neighboring schools in the MITK territory.
- The increase enrollment and retention was at least partially linked to the improvement of teaching methods and increased access to quality educational resources through technology.
- When the project began Phase 1 (February 2020 – July 2021), there was a school enrollment of 1,856 students, of which 907 were women (47%). At the close of Phase 1, there was an enrollment of 2,244 students, 1079 being girls (48%), with an increase in school enrollment of 388 students.
- In relation to the target group of students: Phase 1 was completed with a total of 2,244 students (1079 are women) who have improved their learning and skills through the use of technology (RACHEL, LAM) as a result of the intervention. For an over-fulfillment of 121 percent (2244/1856) of the anticipated reach of the Project.



- A total of 1,168 students were directly assisted, of which 592 are girls (51%) from four core schools. A total of 1,076 students from 24 neighboring schools were served indirectly.
- Phase 2 (February 2021 – April 2022) opens with an enrollment of 1,926, (903 were girls) for a percentage of 47%. Ending with a school enrollment of 2,534 students, of which 1,200 are girls (47.35%), increasing school enrollment with 608 more active students in the classrooms.
- In Phase 2: A total of 2,534 (1,200 are girls) students were served surpassing the anticipated reach by 362 percent (2,534/700).
- 2,018 (977 are women) from three core schools directly benefitted.
- 516 students (223 are women) from 11 neighboring schools indirectly benefitted.

Teacher Capacity-building

- In Phase 1, 116 teachers (69 women) benefited from improved pedagogy through professional training with technology and capacity-building with the technological tools provided by the project; thus, the project target was surpassed by 145 percent(116/80).
- Professional development training was provided to 68 empirical (lay) teachers (42 women). In addition, 28 teachers (9 women) with some level of post-secondary education participated in teacher training.
- In Phase 2, there were 118 teachers participating, of whom 68 (58%) were women and the majority (62) of these women were lay teachers with no formal pedagogy training.

Gender Equality

- There were 2,279 girls in the total of 4,170 in the two Phases of the Project; that is 55% girls. There were also 120 women teachers from a total of 234 teachers in the two Phases.
- Over 100 new gender and SRHR (sexual and reproductive health and rights) materials were added to the RACHEL. Teachers reported increased ability to conduct classes on these topics.
- Workshops on gender and SRHR were held with invited community leaders and with parents in all communities. This was critical to gain their support for gender and SRHR education.

Cultural and Linguistically-Specific Educational

- Miskito curriculum from the Ministry of Education was uploaded to the RACHEL, as well as newly collected or locally-created Miskito materials. More than 87 materials in Miskito were added, including stories and histories from each community, as well as dictionaries.
- Classroom observation, RACHEL-use records, and student surveys indicate that Miskito materials are used an average of twice a week with each grade. Participants felt that Miskito resources build student confidence in comprehension and foster learning and pride in Indigenous culture and identify.



The outcomes of the project intervention are evidenced in the Testimonies of Most Significant Changes (CMS), from the participants and key social actors.



"I am a secondary education teacher, specializing in Social Studies. There has been a change in my way of working and this has improved student learning. It is now easier for me to teach my students. Before we didn't know anything or understand about this technology, now we know and understand. With gender training we have improved our lives of coexistence."

Lenin Rojas Granado, Tuburús teacher

“

"The implementation of this project has been very good for us. Through sexual health workshops we have learned to be responsible in intimate relationships, and the importance of technological means. Everything has been very helpful to us as students and has left us with great growth in our education. We have learned to do research, which is knowledge that we will always carry with us when searching for information."

Focus Group Discussion, female student, Walakitang

“

"We, as the authority of the territory, value that we have greatly improved the quality of education; now the participation of secondary school students as well as primary school students is more active. The project offered several methods using the technology. There was great enthusiasm by students to study using the computer; computers were unknown in the communities. The teachers have improved their way of teaching, now they do it with educational and cultural videos, music and dance. This has made classes more engaging for children and adolescents."

Primitivo Centeno Pérez, President GTI MITK

Learned lessons:

- A participatory approach with teachers and students is essential. The Project was planned and executed with close involvement of teachers and students, particularly in organization, planning and training processes.
- An emphasis on gender dimensions and interculturality is important. Culturally-appropriate strategies and methodologies for the beneficiary communities facilitated the understanding and success of the training process for both Indigenous Miskitu teachers and students.
- Employing local technical personnel facilitates communication, and accessibility to the target group and the general population.
- Contents of workshops and lessons need to be tailored to the socio-linguistic and cultural context. Without this, subject material is not user-friendly, engaging or relevant.
- It is critical to work collaboratively with existing education authorities to ensure permissions and sustainability. The Ministry of Education and the SEAR accompanied each of these processes developed in the territory.

The Challenges:

On-going Teacher Professionalization - From the perspective of the Indigenous Territorial Government, the challenge is to ensure that empirical teachers and young graduates are professionalized in teaching and technical careers as a way to develop the community and improve the quality of life of girls, women, adolescents, young people and the general population.

Expansion to other Marginalized Communities - Another need is to provide educational technology in the other rural core schools in the region and to reduce the number of teachers with no formal training. It is critical to maintain good coordination with relevant government departments responsible for education in the region in order to expand the reach of these types of solutions.



Recommendations:

The External Evaluation recommended the following:

- **Teacher Professionalization** - As part of the sustainability of the efforts and human resources formed by the project, it is recommended to consider the professionalization of the empirical teachers and young graduates of the territories in coordination with partner organizations and the Ministry of Education as the responsible entity for education in Nicaragua. This could be implemented through training courses through University extension programs.
- **A Concrete Action Plan** - Define a medium and long-term Action Plan that guarantees the visibility and sustainability of the processes promoted with the support of social organizations in coordination with the Indigenous Territorial Governments.
- **A Community-based Approach** - Continue strengthening the component of the gender, climate change and intercultural approach in upcoming community development project initiatives, considering parents within the target groups, as well as religious leaders and women's organizations.
- **Commitments to Replicating Learning** - Define selection criteria for beneficiaries in the training processes and the commitment to complete the training and its replication with their peers as part of the sustainability of the efforts and actions achieved.



4.2 Institutional Responses

MS. TESSIA TORRES, MINISTRY OF NATIONAL EDUCATION

I congratulate CFC for its valuable contribution to education in the seven Indigenous communities where the project was implemented. The results and impacts achieved in these community schools can be seen in the improvement of the strategies and methods of learning in the classrooms. With the facilitation of teaching tools, through the virtual library and the support from the Ministry of Education and the Indigenous Territorial Government of MITK, this project has been successful. However, there are things that could be done better, for example: Maintaining a database of the education and age range of students regarding the progress of their training and school retention. The external evaluation is very good; I only recommend presenting graphic tables for future evaluations.

DR. EDGAR SALAZAR FRANCIS, GENERAL DIRECTOR OF MINED – SEAR

This is an innovative, impactful project achieved thanks to coordination and articulation with the 2022-2026 National Education Plan. The Regional Autonomous Educational Subsystem (SEAR) empowers us to develop education programs for Indigenous peoples. Inter-institutional management is done to connect the various actors and make possible innovations in the classroom.

The National Council of Education (CNE) includes representatives of CNU, INATEC, MINED and SEAR, and meets every fifteen days to address strategic issues related to the advancement of educational quality in our country. Our priority is the fight against empiricism [teachers with no formal training]; we still have 1% left for our country to be declared free of empiricism. 21 years ago, education arrived in the Alto Wangki and Bocay territory, as a result of the cooperation between the Indigenous Territorial Government (GTI) with the Central Government and others.

We are advancing in the restitution of human rights, promoting Intercultural Education and the use of mother-tongue languages. MINED and SEAR work together to support the learning process. We have high attendance rates in classrooms, significant participation of parents, and teachers improving scientific learning processes every day. Today this educational technology system is accessible to teachers for searching and using scientific information. Teachers use updated information through RACHEL and students are able to use it to do math work, reading and analyzing texts.



Seven core schools and more than 4,700 students have benefited from this pilot Project. There are more than eighty schools in the territory, we are only reaching a few. We do not lose faith and hope that we will to be able to reach 100% of these schools in the AWB.

The positive impacts are also the result of the involvement of the SEAR and the active participation of the community. As a result of the installation of tele-classes that will be hosted on these servers, the Indigenous government and parents are fulfilling a commitment to provide quality education for their children. We thank Change for Children, Lorena and the people of Canada for their support in this work.

4.3 Integrating Art into Education

Ms. Erika Término Colindres - Artist and Art and Painting Psychologist from FUNARTE in Estelí shared the activities they promoted with teachers and students from the Miskitu Indian Tasbaika Kum (MITK) territory.

FUNARTE is based in Estelí. Since 2008, FUNARTE has worked in the Caribbean Coast Regions, supporting intercultural bilingual education through processes of training and accompaniment in psycho-emotional development through art, reaching children, youth, teachers, and education officials.

FUNARTE works to:

- Integrate art into educational process with children.
- Facilitate artistic, cultural, and psycho-social development in children.
- Share children's ideas publicly through murals and other artistic expressions.

We create conditions for children and youth to receive support from leaders, models, and local artists. We develop practical experiences to strengthen self-esteem, creativity and internal strength to confront challenges in life.

Cross-cutting Themes

1. Psycho-emotional development
2. Preservation and care of the environment
3. Creation of collective public art
4. Gender Equality
5. Ecology
6. Inter-generational
7. Human Rights



Collective Art Project, 2022 – During this process, 18 youth from San Andres reflected on and painted murals about the flora and fauna of the BOSAWAS. Their works were displayed in the National Palace of Culture, in Managua, Nicaragua.

Participants, 2022 – FUNARTE in BOSAWAS

- 65 WIMPA (women's association)
- 155 children
- 18 youth
- 33 teachers
- **TOTAL - 271**



**PARTICIPANT REFLECTIONS
ON ART INTEGRATION**

**TESSIA TORRES THOMAS, MINED
HEADQUARTERS**

The implementation of this project contributed to our educational models. In the future, we will have to see what we can do to work with teachers on those didactic and methodological competencies to develop these socio-emotional skills with both teachers and children through art.



**LICHE FRANCIS, BICU – BLUEFIELDS
INDIGENOUS AND CARIBBEAN UNIVERSITY**

We consider the experience of FUNARTE very important. This facilitates the creativity and the development of imagination in our students. It is necessary that we are aware of, and monitor, the indicators used in the educational system to track educational quality and learning. Everything should align with the guidelines. The methodology helps us all stay on track. For example, at the university we have a career in children’s pedagogy, this means a lot to everyone, including parents.



**EDDY MCDONALD FÚNEZ, TECHNICAL COORDINATOR,
RACCN EDUCATION SECRETARIAT**

First, I believe that when Lorena and CFC chose FUNARTE, it was a very appropriate decision due to the experience FUNARTE has working in the Northern and Southern Caribbean. I would like to convey to the FUNARTE team that we will always welcome you here with open arms. I believe that the teachings and learnings that we have shared have been very important. The methodology and themes are based primarily on the psycho-effectiveness, and emotional awareness that comes from art. We continue to teach the lessons we have learned and all of the teachers are very grateful. The task that FUNARTE has taken to continue with these programs is admirable. I can convey to Yadira, Tania, Argentina, Pablito, and Karina, that we continue to value what we have learned from them. To the territorial governments present here, if at any time you want to address these issues from the few resources you have, do not hesitate to hire FUNARTE because they have also translated books into Indigenous languages.

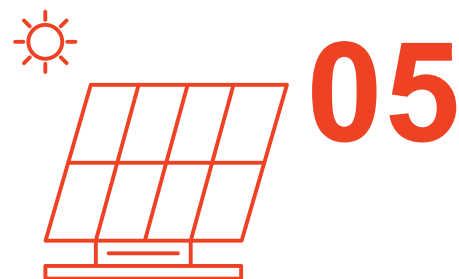
FUNARTE’s response:

Thank you for your positive feedback. In our work, we start from the base of empowerment and self-esteem. We do not use high, medium or low self-esteem, but rather adequate self-esteem through the work of the SELF. There are three modules on how to develop self-esteem and these are translated into Miskitu. We believe that we can be the most effective by working directly with teachers. We always work with the pedagogical advisors and with the SEAR technicians. We scale-up our work slowly in coordination with the local technicians.

For example, if you train the advisors, they are going to train the directors, they are going to train the other teachers because when the top understands the importance of having an identity, having self-esteem, of creativity, and using art, then this approach can spread. We do it directly with the boys and girls; we model for the teachers how to work. They have to experience the process to be able to put it into practice. It is very important to encourage this capacity. We need those teachers to once again be the center of their community, along with community leaders and families who are references and models. We develop all these processes. What the boys and girls experience is priceless.



Technology DEMONSTRATION



DERLING CENTENO, SCHOOL FACILITATOR CFC, BOSAWAS, NICARAGUA

It is evident that the students have learned more than the teachers themselves; the students quickly caught on to the use of technology. Now we have an increase in school attendance in 2022 and the Alto Wangki region was recognized for this. Today teachers are always using RACHEL technology, when it is the EPI (Inter-learning Pedagogical Meeting), and when they carry out evaluations. We also observe greater gender equality; men and women are working together with equal rights. I thank FUNARTE, they have supported us a lot in the training processes, support with materials, and teaching us the equity methodology of creative thinking with children and teachers.



ENG. JUAN BARQUERO, TECHNICAL COORDINATOR, CFC NICARAGUA

I will share a little about the findings of the Baseline of the project. This allows us to understand the current situation. We can see the beginning context in which the project was implemented and the positive impacts in the intervention communities at the end.

Seven hybrid photovoltaic systems with a capacity of 2.96 kilowatts per hour were installed in seven Indigenous communities of Alto Wangki; each system has a bank of four 200 AH batteries.

Achievements of the Project:

- Installation of hybrid solar inverters.
- Installation of support structures.
- Installation of cable in CD and CA and within the ground.
- Channels for the electric conductors.
- Maintenance during the project cycle of the operational plant.
- Electrical testing and adjustments in order to operate the solar power equipment.

The solar power system at each School:

1. 6 to 8 solar panels of 370-400 Watts
2. Hybrid inverter of 3000 watts
3. 4 sealed batteries of 12 volts
4. 2 chargers and 2 electrical connector regulators
5. 5 cables, switches

Results at each School:

- Classrooms are using alternative energy.
- Teachers and students can work with the computer technology with the guarantee that there will be no interruption in the electricity flow.
- Beneficiaries have the capacity to use their equipment and navigate in the off-line server.



MR. TONY LLORENTE, TECHNOLOGY AND MONITORING COORDINATOR, CFC PROJECT:

Now I am going to tell you briefly what RACHEL is through illustrations so that you understand better.

RACHEL = Remote Area Community Hotspot for Education and Learning.

- Digital Educational Library
- More than 96 uploaded modules
- More than 10 modules in Miskito (created or translated)
- Contextualized Materials





RACHEL

LAN: 203.30.1.1
WIFI: 192.168.88.1
Battery: 

Admin

HOMEABOUTWEBMAILLOCAL CONTENT



Materiales académicos e investigativos sobre el medio ambiente y el cambio climático

Mediante este módulo se podrá acceder a una gran variedad de materiales con carácter investigativo y académico que proveen excelente información sobre el medio ambiente, el cambio climático, las legislaciones vigentes sobre el medio ambiente, los manuales de procedimiento de cuidado y conservación de los bosques, estudios de desarrollo con enfoques en impactos económicos, la creación de comunidades sostenibles y la resaltaación del rol de las mujeres como conservadoras del planeta. Toda esta información pone en descubierta las realidades de los países centroamericanos, con un especial énfasis en las problemáticas relacionadas al cuidado del medio ambiente en Nicaragua.

Cambio climático

Sistemas productivos indígenas

Adaptación al cambio - Video

Adaptación de ecosistemas

Adelantando siglo

Alianzas Barra Santiago

Alianzas Bocas

Alianza Gaspar

Alianza sin fronteras

Alianzas Talamaca

Cuento con vos - Derecho de niños

Amigos manglares

Tortugas marinas

Análisis de actores

Diagnóstico jurídico de la biodiversidad en Nicaragua

Diálogo sobre agua

Diálogo Tikal

Directorio de miembros

Directorio de profesionales

Distribución equitativa

Diversidades y diferencias

Riqueza de la diversidad

Narración de dos décadas

Ecosystem adaptation

Educación indígena

Educando para la conservación de la vida silvestre

EIA Avanza

Herederas ancestrales

Historia Sierpe

Historias no contadas

Holchan marine reserve

Humedales de Centroamérica

Humedales de Costa Rica

Humedales en Costa Rica

Humedales mesoamericanas

Humedales de Nicaragua

Ideas para una sistematización participativa

IDH Caribe Completo

Incidencias ambientales

Ineludible oculto

Iniciativa Caribe

Pilares

Pilares 2022

Pilares 2006

Pilares Junio 2007

Pilares - Reto para tiburones

Pistas observables

Plan acción meosamericana

Plan de gestión territorial

Plan de monitoreo

Plan de sistemas

Planes de manejo

Plan estratégico

Plan de manejo

Política de los humedales

Política centroamericana

Primitivo Centeno, President of the Indigenous Territorial Government (MITK):
At the end of the project, we passed all this technology into the hands of the Ministry of Education (MINED) through the SEAR (regional Department of Education), so that MINED assumes responsibility for the equipment. The transfer was made through a document duly signed by the donors, the GTI and MINED. MINED and SEAR will be responsible for the maintenance of this technology and it will be for the use of our teachers and students. This works because all the teachers were trained and the community itself is responsible for taking care of the equipment and installations.

Are there plans to electrify AWB? Edgar Salazar answers:
Alto Wangki is projected for solar power. Due to the difficult conditions of road accessibility, it is impossible to do a land-based power grid. The solar power system is in the development plan to combat poverty and in the ENATREL 2022-2026 plan.

19 REGIONAL FORUM

Presentation OF TEACHER TRAINING MODULES

Next, we have a presentation on the “MOOC RACHEL module.” These are the training modules for teachers which are included on the RACHELS. The presentation explained the structure, content and purpose of the modules. Some of the beneficiaries, including a teacher, a school director, and a facilitator, will share their experiences with the teacher training modules.

PROF. EDDA MÜLLER, PROJECT PEDAGOGY SPECIALIST, CFC NICARAGUA

I will explain the methodology, including the transversal gender equality axis, that was implemented in the project with the following illustrations.

Process of Teacher Training using Modules on the RACHEL

```
graph TD; A[Facilitator Orientation] --> B[Teachers work individually on the RACHEL modules]; B --> C[Group Workshop with Pedagogy Specialist]; C --> D[Evaluate Progress of Teachers]; D --> E[Teachers implement in the Classroom];
```

REGIONAL FORUM 20

Actions on Gender Themes

- Gender materials digitalized and added to the RACHEL.
- Training about Gender Equality for the Project Team.
- Teachers participate in workshops about gender equality.
- Diversification and additions to materials about gender and sexual health and rights.
- Sessions exclusively for girls, young women, and female teachers.
- Workshops on gender with the participation of community leaders.

Methodologies Taught in MOOC Modules on the RACHEL

- 1) SOLE – Self-organized learning environments
- 2) ABP – Project-based Learning
- 3) Creative Thought Spiral
- 4) Comparative Tables
- 5) Conceptual Maps
- 6) Mental Maps
- 7) Learning through videos

What teachers said about using RACHEL:

- The teacher training modules are easy and convenient with the support of the facilitator.
- Now we have knowledge of more in-depth methodologies.
- Technology facilitates teaching both directly and indirectly, and individualized.
- Technology motivates and promotes participation in the classroom.
- It provides access to information about sexual health and gender equality.
- Enables us to develop classes in the mother-tongue that is Miskito.
- Provides materials for teaching about the history of our indigenous communities..

At the end of the project, 212 teachers finished the teacher training modules successfully, of which 120 were women and 69% were empirical teachers..



ELIZABETH URBINA, SHIMINKA TEACHER

It gives me great pleasure to share our experiences with you. This project started in 2000. The facilitators shared and taught all the teachers the strategies, how to prepare a lesson plan, and how to carry out scientific and pedagogical information research. Little by little we learned because before we did not have access to good books on this topic. Now we have access to information on social studies and natural sciences. Today we find it easily. Our teaching methods, skills, and research of teaching content have improved a lot. The use of technology facilitates learning in an active and participatory way for the students.



GIMBER FIALLOS SERAPIO, SCHOOL PRINCIPAL, ROGER SALGADO WILSON SCHOOL, WALAKITANG

We are gathered here to share our experiences. We are increasingly acquiring more and better knowledge, living and coexisting with technology. As a school director who has benefited from this project, I can say that today teachers enjoy working with these devices and instruments; we are very proud of what we have learned. As our authorities say, education arrived in our region about 23 years ago, but every day we are improving education with the help of colleagues who support us. In the school, teachers meet and use educational technology to plan their classes, do training, and take advantage of pedagogical circles and EPI (government training) in a more scientific way.



Forum PARTICIPANT FEEDBACK



Participant feedback highlighted the following themes:

- Embedding an Intercultural Lens in Technological Applications.
- Adapting to Societal Change.
- Bridging the digital divide.
- Advancing learning with technology.
- Overcoming isolation and barriers.
- Committing to the right to quality education for all.
- Ensuring Indigenous community leadership.
- Providing on-going support for teachers.
- Expanding the project to new communities and regions.
- Sharing Knowledge.
- Providing technical training at the university-level.



Kent Castro Vanegas, ICT Normal School – Bilwi:
Advancing learning with Technology

“I consider that technology is very important and necessary. We are in the era of technology, introducing technology in education can have important benefits for both teachers and students.”



Michel Cantillano, Computer Scientist
at URACCAN Bilwi: Bridging the Digital Divide

“The limitations with the internet and innovation is reach and connectivity. The digital divide exists. One of the opportunities is being able to see RACHEL as a great opportunity. We have a good vision; there are systems that can support us. There are many expectations and many ideas are going to come out of this. This project greatly supports the learning process and educational quality.”



Tessia Torres: Embedding an Intercultural Lens in Technological Applications

“I would like to note two things: 1) that we have a challenge, and 2) that we have an opportunity in this project. The people of Alto Wangki who have presented today have taught us a great lesson: when you want, you can. We have the experiences and capabilities. We have two intercultural universities. The teachers work in the daily pedagogical experience in the life of learning with the students. The challenge now is to work on a competency curriculum with a focus on interculturality. We are advancing: technology is a great step. The challenge is how to transform our educational programs and our pedagogical units into that bilingual intercultural education. We have to identify the competencies, their scope, and the content to develop, as well as the indicators. Let's make the proposal here: let's use that technology to contribute in ways that respect and enhance interculturality.”



Regina Velasquez Cirilo, MINED RACCN: Adapting to Societal Change

“I recognize the great work of this project; the great achievement is apparent. The government has been promoting technology through the Ministry of Education in the field of education, in cities and rural communities through programs, equipment in classrooms and mobile digital suitcases. Today we live in a time of change; we have to continue adapting. There are people who still fear technological change and advancement. Teachers and students have access to these study materials. This was a very positive forum, despite the challenges.”



Obeth Prisman Ocenés, Director Kum, Río Coco Abajo: Sharing Knowledge

“I feel very happy sharing this experience; I feel part of this new technology that shares these experiences and knowledge.”



Yelva López, Deputy Director of the Nidia White – Bilwi public school: *Overcoming Isolation*

“Congratulations to the team that visits us today. It was a well-organized Forum. It is a challenge to go from Wiwili to Alto Wangki. Congratulations to them that despite not having electricity or internet, they made the extra effort to be connected with the era of technology. We recognize all the effort these teachers made. The teachers now have the availability to be update their teaching. Here in Bilwi, many teachers look for excuses not to continue improving. It is good to return to the example of this team. Our region needs prepared and updated teachers to improve the quality of our work.”

Liche Francis, BICU teacher: *Committing to the Right to Quality Education for All*

“78 communities, 40 thousand inhabitants – this is admirable. It is apparent that they are empowered by the work they are doing in a united and coordinated way. This is what we are practicing: we carry out the curricular activities with a clear vision of the expected educational quality. I am very satisfied with all the work they have done together. Above all, a quality education is a right for boys and girls, for all people. Let’s do this with love and passion.”

Treminio Salomón Lacayo, Kipla Sait Tasbaika Kum (KST), Alto Wangki: *Scaling the Project*

“Thank you to those who organized this forum. I want to ask Mrs. Lorena, is there a possibility of expanding the coverage of this project?”

Lorena Swift, CFC: Yes, we are currently looking for additional resources for BOSAWAS. We are continuously applying for grants and projects, and doing activities in Canada to raise funds and sometimes we succeed. We will continue working in this territory in the future.

GTI Secretary, Twi Waupasa, Puerto Cabezas: *Ensuring Indigenous Community Leadership*

“We congratulate the Alto Wangki Indigenous Territorial Government for bringing this project to its territory, since, if the community leaders do not have the will, there is no progress. You can see the love for their people and their town. The work they have done is very beautiful.”



Bianora Álvarez, School Director, Bilwi: *Providing on-going Support to Teachers*

“The implementation of this project is very good. Following up with the teachers of the Zamora Terán project, they said that they had a lot to do and that they could not or did not have time to incorporate technology into their work. I urge you to follow up on this: the learning acquired by teachers needs on-going support.”



Juleige Ivania Balladares Mails, MINED Delegate, Prinzapolka: *Extending the Project*

“This project demonstrates positive attitudes and values. As MINED, we want to bring educational quality to every corner of our regions. These development programs cause us to ask ourselves: what am I doing as a person, as a delegate? I represent a region with 97 schools, 5 of them with access by land, 92 by water. As a result, we do not have access to electricity, only with solar panels, I would like Prinzapolka to be on the list of beneficiaries in the future.”



Liche Francis, BICU: *Developing technology training at the University-level*

“We have initiated a new program at the BICU university. We are aware that we cannot avoid technology. Technology involves everything from the administration to classrooms. There are challenges, without a doubt. The presentation shared the passion and commitment required. We are clear that from the university we can. Currently, we have incorporated the topic of technology as a discipline. We work on reinforcement and training for personnel in the extension departments of the university in Waspám and Bonanza, and in the south. However, we are seeing that we need to reinforce technology to go even further. The university’s commitments have to do with the human resources we have at our university. Our best allies must be the leaders of the communities and MINED. Let’s collaborate even more to benefit both urban and rural students with improved educational quality.”



Arturo Collado

UNESCO, NICARAGUA



It is a real pleasure to be here to listen and learn about the things that have been raised today. 78 years ago, the Second World War ended, the countries came together to say that they did not want there to be another war. They came together to form the United Nations. They also formed another organization of states to cooperate in science and culture education and this organization is UNESCO. UNESCO is a call to cooperate in education, but cooperate for what? To build the foundations; that is the main line of work of UNESCO. This includes work in education, but with equal rights, for the rights of boys and girls. There is a United Nations program called the 2023 agenda that has 17 Sustainable Development Goals (SDGs). It is up to UNESCO to lead on nine of these goals. These programs are embraced by the 195 sovereign countries and another five territories that do not have sovereignty. UNESCO works with 200 offices. I have been asked: do you work for the Nicaraguan government or UNESCO? The answer is, I work in both, because I bring things from UNESCO to Nicaragua and I bring things from Nicaragua to UNESCO.

At this meeting, the central theme has been education. UNESCO has awards, recognitions and areas of project work. UNESCO has awards for education for sustainable development, so I told teacher Edgar Salazar that when I saw this project, I was thinking that this project would fit perfectly in this competition. I'm talking about world-class awards, an award that is given to a country in one year. It also has an award in the area of interculturality, awards in information and communication technology. This project fits closely with these objectives. The awards generate world recognition. How are these recognitions delivered? To those living and working in the reserves to preserve the reserves through education. You are teaching how to manage and develop the reserve in a sustainable way.



You are doing super interesting work. I heard some expressions from FUNARTE and I want to comment on something, regarding education, culture, environment, and human rights. In the area of education, UNESCO has established important main areas of work. The topic of AI (artificial intelligence), your project aims at that, particularly with the teacher-training MOOCs. We are not that far behind on this topic. The Nicaraguan government is looking at what competencies our teachers must have to work on this issue. What are the exit competencies that our students must have at the different educational levels in this matter? How are we going to deal with the ethical problems in AI? Technology breaks everything; things become complicated. We are going to find some contradictions as a result of technological development.

The use, misuse or abuse of technology has resulted in the loss of some capacities in children, and people in general, the world. We have created a technological dependency, and as a result, people have lost capacity for analysis, reading comprehension has been lost, critical thinking has been lost, analytical thinking has been lost. So we must strengthen curiosity and creativity. In UNESCO's central line of work, we have an interesting program, a subject called "Learn, Undertake and Prosper" that has the purpose of creating a culture of innovation, an entrepreneurial culture. It is creating a culture of entrepreneurship and that is through creativity. We are contributing to those two great lines of work; technology and creativity.

UNESCO has learned a lot from Nicaragua, particularly from the great national literacy crusade of the 1980s. UNESCO gave two awards to Nicaragua and Nicaragua has been requested to provide technical assistance in this matter to other countries that have literacy challenges.

I appreciate the cooperation of our Canadian friends. The project was the vision of solidarity; it is an equal relationship. I wanted to present these reflections and tell you that you are on the right path; that you are sufficiently empowered. Now what you have to do is to write a little more and systematize the information and learnings from the project.



Closing



The event was closed with words of conclusion and thanks by Lorena Swift, Executive Director of Change for Children - CFC.

Thank you for reaching this moment. I want to summarize with some points that we had talked about:

- The success of the project is the effort of the local people, especially the teachers of different modalities. The boys and girls deserve a quality education. Now it gives me pleasure to see them with resources that perhaps they didn't have before.
- In the next two weeks, a brigade of volunteer Canadian teachers will share knowledge with BOSAWAS teachers, they will also work with FUNARTE in Estelí. This opportunity is also for other territories because there are always brigades, more people who want to come and support.
- We recently received approval of a new project of more than two-million dollars for the training and professionalization of empirical teachers in Alto Wangki Bocay. This is funding from Global Affairs Canada.

- We have a group of people/employees of ours who will travel to Canada in September to visit Canadian schools to meet with the beneficiaries of ancestral resources who are Indigenous.
- We can provide documents for this project, applications, texts so that you can use them.
- Please provide your name, organization, and email. We would like to share a survey with you, email is necessary and also to continue communicating.
- Thank you to everyone who took the time to come to this event and participate so generously in the discussion and sharing of ideas.

