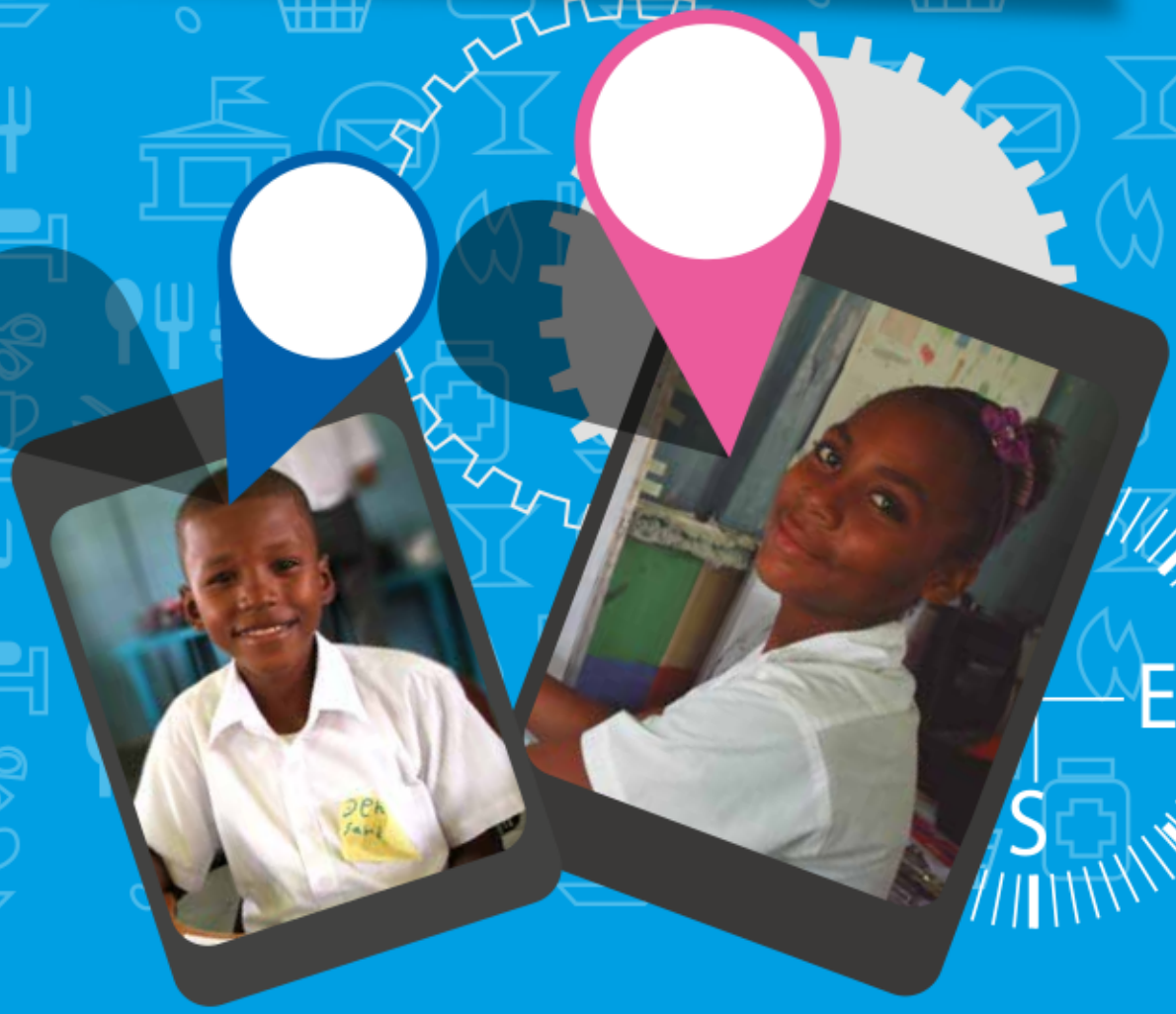
GEOTECHNOLOGY: A TOOL FOR INNOVATION:

Nicaragua's experience with child and youth participation



mapanica.net
OpenStreetMap Nicaragua

unicef
únete por la niñez

GEOTECHNOLOGY: A TOOL FOR INNOVATION:

Nicaragua's experience with child and youth participation

United Nations Children's Fund (UNICEF) Nicaragua and MapaNica

General coordination:
Rinko Kinoshita, Officer in Charge of UNICEF Nicaragua
Olga Moraga, Communication Specialist at UNICEF Nicaragua

Produced by:
Lucy Medina, MapaNica
Eduardo Mayorga, MapaNica
Felix Delattre, MapaNica
Anielka Jirón Montiel, Communication Assistant at UNICEF Nicaragua

Technical review:
UNICEF Nicaragua editorial committee

Design and layout:
Elvis Danfer Lanzas

Cover photograph:
Fifth-grade students from the Horatio Hodgson School who participated in the workshops to produce a map of the Beholden neighbourhood in Bluefields in Nicaragua's Southern Caribbean Coast Autonomous Region.
© UNICEF/Nicaragua-2015/A. Jirón.

December 2015
Managua, Nicaragua

CONTENTS

ABBREVIATIONS

BICU	Bluefields Indian and Caribbean University
DRASH	Regional Water, Sanitation and Hygiene Directorate of Nicaragua's Southern Caribbean Coast Autonomous Region
FADCANIC	Foundation for the Autonomy and Development of the Atlantic Coast of Nicaragua
GPS	Global positioning system
GRACCS	Autonomous Regional Government of the Southern Caribbean Coast
IBST	Inquiry-based science teaching
ICT	Information and communication technology
NGO	Nongovernmental organisation
OSM	OpenStreetMap
OsmAnd	OpenStreetMap Automated Navigation Directions (An offline map application for mobile telephones. The data are from OpenStreetMap and the application works without requiring an internet connection. It also allows the gathering of geographic information on points in the form of geotagged notes, images or audio recordings)
RACCN	Northern Caribbean Coast Autonomous Region
RACCS	Southern Caribbean Coast Autonomous Region
SEAR	Regional Autonomous Education System
UNICEF	United Nations Children's Fund
URACCAN	University of the Autonomous Regions of Nicaragua's Caribbean Coast

FOREWORD

Thanks to the Convention on the Rights of the Child, the international treaty most widely ratified at the global level, children from Nicaragua and any other part of the world have the right to the right to express their views and be listened to (Article 12); to receive and impart information (Article 13); to freedom of association and peaceful assembly (Article 15); and to access information (Article 17).

With the growth of new media and global networks, transformations can be seen in the management of knowledge, allowing more people to access and freely use information, data and coding (computer languages). However, so far both computer languages and technologies have been accessible to and dominated by a minority, or else their use generally lacks any social purpose.

One of the great challenges is to achieve the whole population's active participation in the digital media, including children and young people, to make information, data and coding accessible. Others include achieving 21st-century skills for future labour insertion, exchanging knowledge and ultimately creating alliances and participating in the solutions to problems that affect the rights of children in the digital era.

The discipline of geography has been one of the areas of knowledge reserved for certain elites. However, new technological possibilities have transformed it into a field of opportunities for everyone to use and participate in.

While it is true that technology has come to play a notable role in children's daily lives, the context is not entirely advantageous given the absence of favourable spaces in which they can relate with the technology as a life tool. Nicaragua particularly lacks spaces like this in which children can better understand their social environment.

Children from the Dinamarca School participating in a group activity to draw up a map of the Beholden neighbourhood in Bluefields in the Southern Caribbean Coast Autonomous Region (RACCS). MapaNica.net/Nicaragua-2015/F. Delattre.

However, it is precisely adolescents and younger people that are naturally adapting to the new technologies, so they must be trained as agents of change and rights promoters for the present and future societies.

Considering the Nicaraguan context and the new challenges, this document presents an experience that amounts to a proposal for children and youth in Nicaragua. We are putting it forward with the desire to establish a set of mechanisms, solutions and initiatives that allow them to take on technologies combined with geography as a way to understand and develop their environment in order to achieve their human rights and encourage the citizenry to assume responsibilities.

Rinko Kinoshita
Officer in Charge
UNICEF Nicaragua

Felix Delattre
MapaNica (OpenStreetMap Nicaragua)

INTRODUCTION

MapaNica, the Nicaraguan branch of OpenStreetMap, is a community of geographic information enthusiasts that are using new free technologies with a focus on social commitment. The group aims to create and distribute without restrictions the best map of Nicaragua, created collaboratively and with free access. It is very diverse, including professional cartographers, companies, non-profit organisations, programmers, students studying a number of subjects and other citizens empowered by the participatory tools used to contribute to the collection of geographic information.

The initiative emerged as part of the international OpenStreetMap (OSM) project, which has the same goals as MapaNica but with a global scope. This is rooted in the need for free access to updated and quality information in a way that is efficient due to its collaborative nature. Just as Wikipedia offers the world the most complete encyclopaedia, OSM distributes the world's best map that is free to use and free from any form of discrimination. The availability of the data in standard formats and with an open licence has allowed the development of all kinds of company, government, NGO and individual projects that require maps. That has led to collaboration among different parties for common ends.

UNICEF is an organisation that promotes the rights and wellbeing of all children. Together with its partners, it works in 190 countries and territories to translate that commitment into practical action that benefits all children, everywhere, focusing special effort on reaching the most vulnerable and excluded children.

Working with the conviction that caring for and attending to children are fundamental to human progress, UNICEF Nicaragua has supported different open data projects for development and is banking on initiatives like MapaNica that share new knowledge and encourage innovation. It is also giving children an opportunity to have more active participation as thinkers and implementers, helping them to identify risky places and to propose solutions to the problems affecting them.

Felix Delattre, a member of the MapaNica community, presenting the collaborative community mapping project at the TEDxManagua conference in 2013. TEDxManagua/ Nicaragua-2013

The relationship between UNICEF Nicaragua and MapaNica developed following a presentation given by MapaNica community member Felix Delattre at the TEDxManagua[1] conference in 2013. UNICEF Nicaragua became interested in community initiatives and started to define possible joint support for community mapping activities so that people, particularly children and youth, in the country's most vulnerable areas could empower themselves through participatory technologies.

1 TED, which stands for Technology, Entertainment and Technology, is an annual event in which important thinkers and entrepreneurs from around the world share what most inspires them.

THEORETICAL PRINCIPLES

This initiative was based on the following three main approaches, which combined in an innovative way to help achieve its objective: free technologies and open data; responsibility; and participation.

Free technologies and open data

Access to technologies and the information for their unfettered use is an essential requirement for non-discriminatory and inclusive technologies. The provision of technologies, information and data to be studied and modified is the first condition required for people to have greater access to them. It also opens the doors to a much more profound level of empowerment, which does not happen with private and closed technologies aimed exclusively at consumption.

The initiative promotes cultural benefits and is based on the philosophy of sharing. In relation to technologies, it provides the possibility of redistributing coding and information, as well as their unrestricted modification.

Only in this way, with the availability of the technology and the shared open data, can people really learn and take on the technologies.

Responsibility

Taking responsibility for one's environment and society is an essential component for all citizens, with the planet's resources proving to be finite and given the ongoing need to demand their rights to achieve conscious and just development.

Contemporary US sociologist Amitai Etzioni, the founder of modern communitarianism, has stated that it is a mistake to think there are no rights without responsibilities or vice versa.

Fifth-grade student from the Dinamarca School participating in the mapping workshop. ©UNICEF/Nicaragua-2015/A. Jirón.

The virtues of worrying about others, wishing to improve one's surroundings and doing so with commitment, dedication and enthusiasm are the principles of an active community that forms its own dignified development through its culture and based on humanitarian values.

The new information era requires rights to be defined in conjunction with the new media. According to journalist Jeff Jarvis, using the technologies responsibly implies first of all knowing and understanding them, so they can then be employed to transform environments, demand rights and innovate as a society.

Participation

For individuals to exercise their rights and assume responsibility in a society, active participation is needed in all spheres.

With the achievements of the new media in recent decades, it has not only been possible to use technologies within the limits they are given as products. When they are free technologies, they provide infinite possibilities for development, experience and use. With the participation of involved and active citizens with rights, a favourable atmosphere can be generated for a literate society to positively exploit the technologies for itself.

In addition, participation is proposed for its valuable role not only in the development of people and a connected society, but also in co-creation, as it fosters the broad power of an organic and natural growth of knowledge, achievements, inventions and developments.

Young volunteers involved in the "Managua Routes" initiative in 2014 using the OpenStreetMap application. MapaNica.net/Nicaragua-2014/D. Castañeda

BACKGROUND

Open geographic information has been remotely gathered in Nicaraguan territory since 2007 using the OpenStreetMap platform. But four years later, in 2011, a local community started to grow around enthusiasm for geodata and mapping events. It was at this moment that geotechnologies started to be used in a participatory way in a community and interest in contributing to OSM began to grow.

In 2014, the mapping of Managua's bus routes emerged as a social impact initiative, with the availability of GPS and smart phones facilitating the involvement of more people.

Managua

MapaNica grew out of Managua's free software communities and the first workshops were held in an ambit of programmers and computer experts. Shortly after, workshops started to be held that were aimed at members of the general public interested in maps and how to use them to bring about a positive change in their environment. MapaNica's activities and projects in Managua encompass solutions to social problems in which open participation makes a difference.

To date, over 20 mapping festivals have been held. These are educational events involving horizontal exchange that are open to the public in which volunteers meet to share experiences and help new members start their collaboration. Introductory talks are given and then a walk is taken around the area to gather data. Generally speaking, these are thematic events with defined goals, selecting a university campus or park, for example

- Collective work on a map of Managua's public transport, which has been underway for two years. This is an initiative for the community and citizens to create a comprehensive public transport map. The data for over half of the complete routes have been collected and the results can now be seen on the MapaNica.net web site.

- An effort focused on mapping places that are highly significant for ordinary people, but that have not been included in maps, such as Managua's Eastern Market. Mapping festivals have been organised to go and gather data from Central America's largest market, for which there is no usable map from other sources. It is a work in progress. So far the data for all of the streets and part of the references have been collected.

Participants in the "Managua Routes" initiative in 2014 showing the map they produced during the campaign. MapaNica.net/Nicaragua-2014/S. Saballos

- Presentations at technology events and events held by organisations working on development. The volunteers organise to prepare a community roundtable and answer questions on the project in technology fairs, free software events or development cooperation conferences.

Bilwi, Puerto Cabezas

With support from UNICEF Nicaragua, two members of the MapaNica community travelled from Managua to Bilwi in the municipality of Puerto Cabezas in the country's Northern Caribbean Coast Autonomous Region (RACCN) to present the OpenStreetMap Nicaragua initiative and build alliances with interested groups and institutions.

Students from the Bluefields Indian and Caribbean University (BICU) who participated in the mapping festival in Bilwi in the Northern Caribbean Coast Autonomous Region. MapaNica. net/Nicaragua-2014/F. Delattre.

In addition to presentations and meetings with decision makers, public institutions and non-profit organisations, three successful workshops were held with about 100 participants. Most of these people involved came from the University of the Autonomous Regions of Nicaragua's Caribbean Coast (URACCAN) and the Bluefields Indian and Caribbean University (BICU), the two local universities; the local Bilwi free software community; and a group of social entrepreneurs known as KAIKS. Working together, the map of the city was substantially improved in a few days. Immediately afterwards, the highly-motivated free software group in Bilwi organised an event to follow up on the initiative.


#BilwiMapping
28 de Octubre 2014


2 de Noviembre
La Rotondita
Bar Marlamaya
Restaurante Prana
Joyeria July
Bar Maria
Restaurante Crisfa
MINSA
Auto Partes Mendoza
Centro Escolar Julio Buitrago
Comedor Aqui me quedo
Helados B&S
Farmacia Prado
Parque Municipal
Casa del Gobierno Regional
Massiel
Hotel Moncada
Polideportivo
Iguana Gym
Bar Nike
La Curacao
FISE
Sopas Bar
Miramar
Hostal Perez
Cadamuc
Gallo mas Gallo
Hotel Cortijo 2
Ferreteria Sherry

ACCOUNT OF THE *#BLUEFIELDSMAPPING INITIATIVE*

For eight days, from Monday March 16 to Monday March 23, 2015, an interdisciplinary team with members form the MapaNica community and UNICEF Nicaragua carried out a series of activities in Bluefields, the capital of Nicaragua's Southern Caribbean Coast Autonomous Region (RACCS). The purpose of the mission was to take MapaNica's participatory geotechnologies to regions where a high potential can be observed to use them in favour of equitable development and the most vulnerable people. In this particular case, with the collaboration of UNICEF Nicaragua, it was proposed for the mission to be carried out with children, in addition to future professionals and innovators from the local universities.

The mission's main areas were:

- Piloting and gaining experience on mapping with primary and secondary school children, focused mainly on their perceptions of the risks and dangers in their surroundings.
- Holding a meeting with strategic allies such as public institutions, social organisations and interested professionals to present the initiative's methodology and the opportunities and implications of free geotechnologies.
- Building the capacities of students from the BICU Innovation Laboratory and the URACCAN, as well as young people from the Youth Secretariat of the Southern Caribbean Coast Regional Government (GRACCS), in the use of open geotechnologies.
- Collaboratively collecting geographic information on the city through a nucleus team.

The first map shows the city of Bilwi through the OpenStreetMap platform before the mapping festivals and the second shows the points geotagged during the mapping campaign. MapaNica.net/Nicaragua-2014/F. Delattre.

The environment

Nicaragua's Caribbean Coast is characterised by its multiethnic, pluricultural and multilingual wealth, as well as being a region with a great diversity of natural resources. Despite its potential, there are still prevalent gaps in terms of poverty and inequality, placing it in a vulnerable situation. One of the factors accentuating many social problems is its geographic position. The region's limited access and the lack of road and communications infrastructure influence other social problems such as proximity to basic services and the compliance with rights such as education, health and children's registration in the civil registry.

Bluefields is one of the most culturally diverse and economically developed municipalities in the RACCS. It is inhabited by different indigenous communities, including Miskitos, Creoles, Mayangnas, and mestizos. Its inhabitants face big challenges in terms of achieving socioeconomic development that respects equality, identity and multiethnicity.

Beholden is one of the city's oldest and most traditional neighbourhoods, mainly inhabited by an ethnic Creole population. It is located in the centre of the city and surrounded by the neighbourhoods of Old Bank to the south, La Bahía to the east and Tres Cruces to the west. Beholden has a population of approximately 2,447 inhabitants.[2]

There are three churches of different denominations in the neighbourhood: two Moravian and one Evangelical. However, the predominant religious option is the Moravian church. In terms of infrastructure, the neighbourhood has a health centre, green areas and a sports area that contributes to the children's recreation, although it has also been identified as a focus of risk due to the initiation of drug consumption and trading.

One of the problems most keenly felt by the neighbourhood's population are illegal businesses selling alcohol and drugs based in houses that operate as clandestine bars. This situation fosters an insecure environment, particularly for children enrolled in the schools covering the demand for education. These include the "Dinamarca" School, the "Horatio Hodgson" School and the "Aron Hodgson" School, the latter attending to children with disabilities in the region.

There is a prevailing atmosphere of tension in the neighbourhood's households that is generated by unequal gender relations in the families. In the structure of bi-parent families, the father or husband works in fishing, while the mother or wife dedicates herself either to domestic

2 UNICEF school assessment study, 2014.

work or a formal job. This means that the men are away from home for long periods while fishing and engage in limited family coexistence when they return, with part of their recreation involving the consumption of alcohol, which leads to situations of domestic violence caused by cultural determinants that are aggravated by drinking.

Preparation and planning

Initially there were vague ideas of collecting geographic data from Bluefields, talking with certain representatives from institutions or social organisations interested in the issue, and working on participatory geotechnologies with children and young people.

The interdisciplinary team of MapaNica volunteers and members of UNICEF Nicaragua then established the Bluefields Mapping Initiative (#BluefieldsMapping[3]). This work has been achieved through a process that involved the collaboration of many people and through learning that took up all the experiences and thematic focuses of each person involved.

After a series of very constructive open meetings, a conversation was held on collaborative mapping and its utility, the context of the city of Bluefields and the groups that could be worked with. Also discussed were the multiple possibilities in which mapping could be incorporated into the work of social organisations or state institutions. Generally speaking, there was an exchange of opinions in these dialogue spaces to improve the initiative and ground the expectations of both the MapaNica and UNICEF teams.

The process of dialogue and exchange between both teams allowed the idea to be specified and a work agenda to be drawn up for the mapping in Bluefields. Based on this, the assignments and first coordinations were organised prior to the MapaNica team's arrival in Bluefields, along with the times for working with the schools and universities and the invitation for institutions and social organisations to participate in the initiative.

With a clearer vision of what the initiative was seeking to achieve, it was decided that three more people would form part of the UNICEF Nicaragua team. They were included with the objective of recording and documenting the activities to generate communication products and allow a better knowledge of the experience. In addition, the inputs gathered during the initiative could be used to evaluate the methodology's suitability for work aimed at guaranteeing the comprehensive development of children, particularly in relation to their participation and protection.

3 A hashtag for the Bluefields mapping initiative.

Ac

Diffe
be c

- Workshops with geotechnologies for students in the universities and secondary and primary schools.
- Mapping of the city and the local environment by the nucleus team.
- Conferences, presentations and sessions to present the results and achievements held with local actors from public institutions and social organisations.
- Documentation of the whole mission, as well as the preparation and facilitation of communication with national and regional media.

Agenda:

Day	Time	Activity
Day 1	09:30 a.m. - 12:00 p.m.	Mapping of the city
	01:00 p.m. - 03:00 p.m.	Presentation to municipal authorities
Day 2	08:30 a.m. - 12:00 p.m.	Mapping of the focus neighbourhood
	01:00 p.m. - 05:00 p.m.	Workshop in secondary school
Day 3	08:00 a.m. - 12:00 p.m.	Workshop in primary school
	01:00 p.m. - 05:00 p.m.	Mapping of the city
Day 4	08:30 a.m. - 12:00 p.m.	Mapping of the city
	01:00 p.m. - 05:00 p.m.	Processing data and writing up
Day 5	08:30 a.m. - 04:30 p.m.	Workshop in the BICU university
Day 6	09:00 a.m. - 12:00 p.m.	Workshop in the URACCAN university
	01:00 p.m. - 05:00 p.m.	Processing data and writing up
Day 7	10:00 a.m. - 04:00 p.m.	Processing data and writing up
Day 8	10:00 a.m. - 12:00 p.m.	Presentation of results and achievements to municipal authorities
	01:00 p.m. - 05:00 p.m.	Mapping of the city

Presentation to and reflection with authorities

The first step in implementing the initiative was the presentation of the activities to the municipal authorities and members of organisations in Bluefields. Potential actors were identified that could take advantage of the information from the maps and the available geographic data and be interesting in contributing to feedback on them.

In addition to informing about the initiative, this presentation to local authorities helped generate reflection on the main problems affecting the region based on the local reality. Among the problems most stressed were limited access to public information and a lack of resources for updating the data; possible risks and dangers they face in the field work; difficult access to communities; a lack of information on actions related to domestic and sexual violence in the municipalities; communications; drug-selling places; and the high incidence of cases of sexual abuse.

The problems that most stand out are the lack of access to public information, limited communication with the municipalities and most remote rural communities, and the risk and danger sites for children.

Inés Hernández, director of the RACCS Regional Water, Sanitation and Hygiene Directorate (on the left); Lucía Castillo, a water technician at the Directorate (on the right); and Norman Howard, head of the United Nations Population Fund office in Bluefields (at the back). ©UNICEF/ Nicaragua-2015/A. Jirón.

"Many people die in rural areas due to flooding, but that wouldn't happen if we had the exact location of where they are. We also have the problem that there are six neighbourhoods with risk points in urban areas."

Inés Hernández, Director of the Regional Water, Sanitation and Hygiene Directorate.

Representatives of regional authorities and members of organisations from Bluefields in the RACCS during the presentation of the participatory mapping initiative. ©UNICEF/ Nicaragua-2015/A. Jirón

This meeting with local authorities also facilitated a debate on the utility and applicability of open maps as a tool that provides free, collective-use geographic technology for the linkage of local actors and communities in order to resolve problems.

Another issue addressed was that of "global community actors," based on reflection on the idea that "the benefit of sharing is a two-way process" that mutually benefits all stakeholders in society. Local governments, NGOs, companies, governments, remote volunteers and the educational community are all stakeholders that promote citizens' participation and this reflection awoke the authorities' interest in implementing maps as a tool for resolving problems such as the rapid response to emergencies and natural disasters, water and sanitation, risk sites for children, health care and the identification of cases of violence in rural communities.

"There are places we don't know about and don't have access to due to the distance involved, but with a map we can reach those communities where there is a greater incidence of cases of violence."

Erundina Hernández of the Women's Secretariat in the RACCS.

Workshops in the schools

The methodology for the workshops was designed with particular attention to working with children between the ages of nine and sixteen. The first workshop was held with 16 fifth-grade students from the Dinamarca School (9 girls and 7 boys) and the second with 17 ninth-grade students from the Horatio Hodgson School (11 girls and 6 boys), for a total participation of 33 students.

A group-based methodological design was established, with certain common exercises and others adapted for each age group. However, both had the same objective. The workshops were also facilitated at two different times.

"Los mapas no deberían llegar solo a los barrios sino a las comunidades rurales, porque cuando un joven está en riesgo y las personas más cercanas no lo están protegiendo ¿Qué va hacer? ¿Cómo él va a acudir a un lugar?, a lo mejor este mapa serviría para orientarlo."

Dominga Hernández, responsable de habilidades para la vida de Fundación para la Autonomía y Desarrollo de la Costa Atlántica de Nicaragua (FADCANIC).

Employing a play-based focus, games and exercises were organised to introduce the group of students to the perception and abstraction of space, so they could learn to orient themselves and then identify problems—in this case situations of risk—in their environment.

The children's capacity to build their own knowledge was taken into account at all times, in accordance with their particular stages of growth. In this sense, the team members set themselves up not as transmitters of knowledge, but rather as facilitators of sharing experiences and new ways of understanding this subject.

At the beginning, the activities were used to work on the subject of space and its abstraction in maps on paper and whiteboards, thus gradually introducing the students to the subject by allowing them to have direct and physical access to it.

It was decided to specifically incorporate technology through GPS devices with the ninth-grade group for the "treasure hunt" activity, using both new media and maps at the same time. The students then reflected on the differences in the media used and the possible difficulties or advantages of using geography to orient themselves.


Aquí SI me GUSTA
Por Aquí No Paso
→ Aquí NO me GUSTA
Beholden
Nombre completo:

The participants in both groups then drew their neighbourhood and compared their efforts. Based on this experience, a map of Beholden was jointly created, with all of them participating in the process. The facilitation from the MapaNica team ensured that this map was correct and the result of collaboration among everyone involved, allowing the participants widespread identification with and management of the map.

This collaborative map was printed out on paper and each participant was able to start identifying areas associated with risk and good environments on the maps. To this end, different coloured, circle-shaped stickers (green, yellow and red) were given out to label specific points in the school environment according to each student's individual perception. Each colour corresponded to one of three indicators:

- I like it here,
- I don't go here,
- I don't like it here,

This activity was repeated twice: once in the classroom based on what they remembered, labelling the points on a paper map; and once during a walk through the streets, recognising aspects of their neighbourhood.

At the end of the workshops, the MapaNica team systematised the data using open geotechnologies and created colour maps of the students' perception of danger, adding other indicators such as gender, age, what they want to be when they grow up and their favourite pastime.

Children participating in the school workshops. UNICEF/Nicaragua-2015/A. Jirón

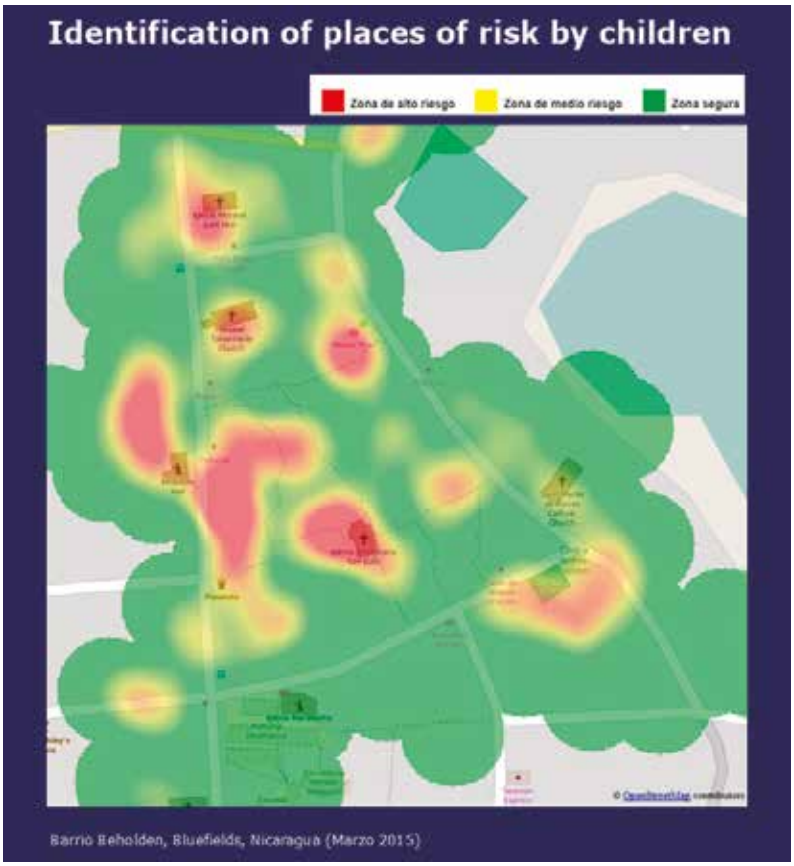
Denzel Sambola, a fifth-grade student at the Dinamarca School, showing the sites he most likes in the Beholden neighbourhood in Bluefields. UNICEF/Nicaragua-2015/A. Jirón

Results of the workshops in the schools

The MapaNica team created heat maps based directly on the activities and the data provided by the workshop participants. These indicate the places the children consider to be risk zones (yellow and red) and those they feel have a good environment (green).

The analysis of the mapping data was based on four indicators: age, sex, pastime and desired profession.

The maps provide a visual representation of the areas of greater risk and places that represent a limiting factor in terms of guaranteeing safe environments for the children of this neighbourhood. Combining the information from each map into a single map allowed a clear collective identification of the problems in the community, and that represents the first step towards demanding and building a better environment.



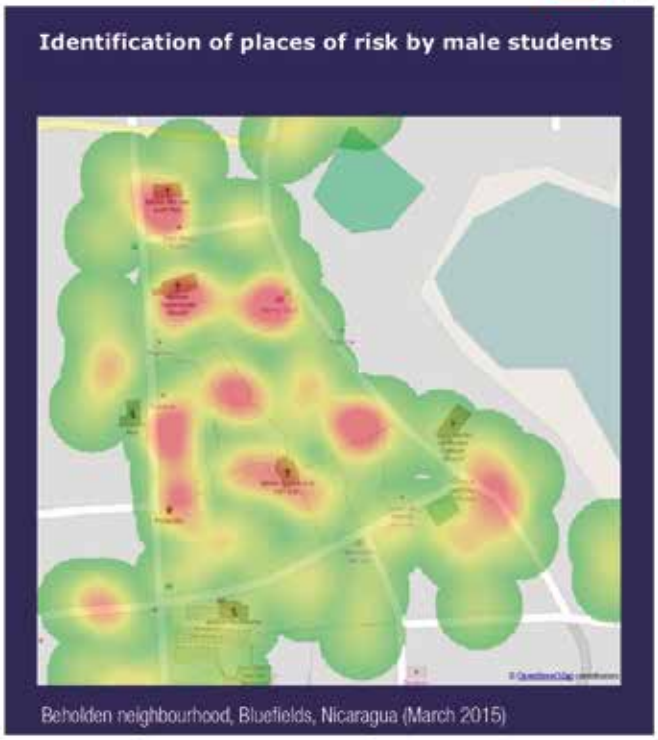
MapaNica.net/Nicaragua-2015/F. Delattre.

The perception by sex reveals that the girls feel unsafe in places near to bars, while the boys feel safe in sports areas. The perception by age shows that adolescents see sports areas as accessible places, while the perception by pastime reveals that both younger children and adolescents opt for new technologies and sports when it comes to recreation and socialisation.

One important finding is that both younger children and adolescents view their school as a safe environment.

dentification of places of risk by sex

High-risk zone Medium-risk zone Safe zone

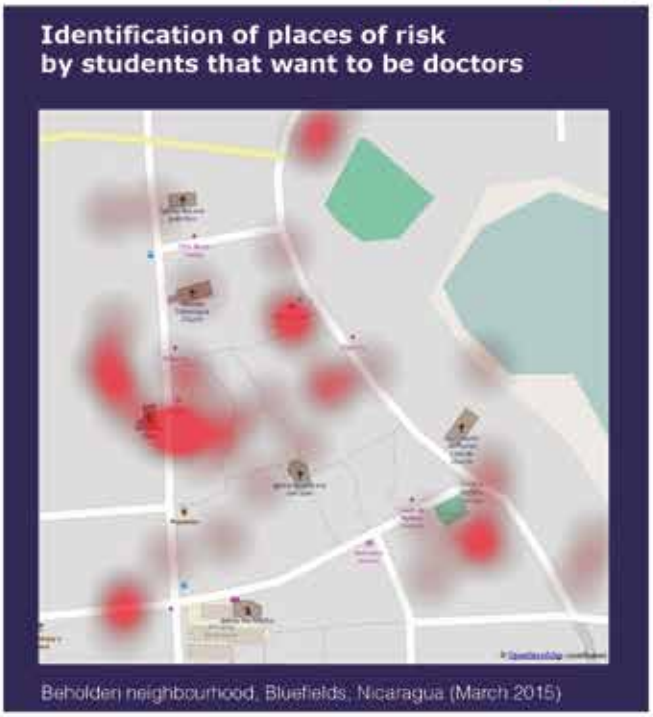


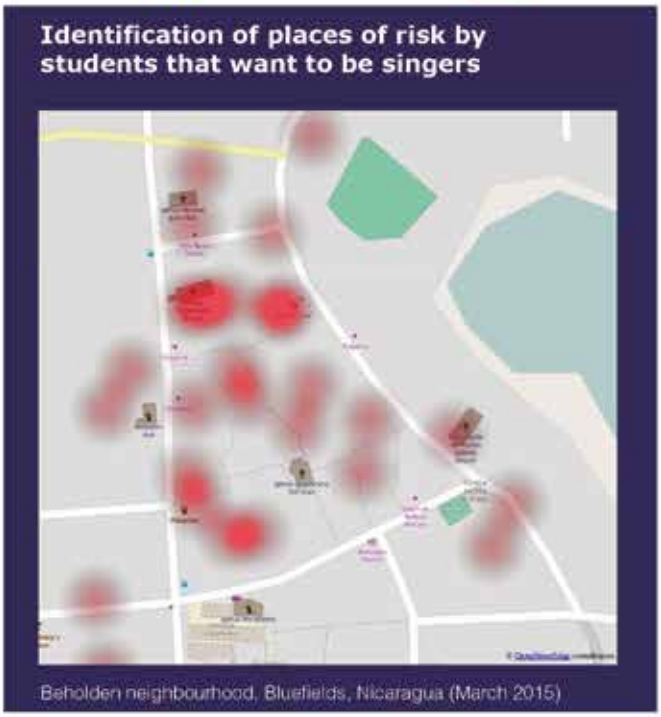
Identification of places of risk by age

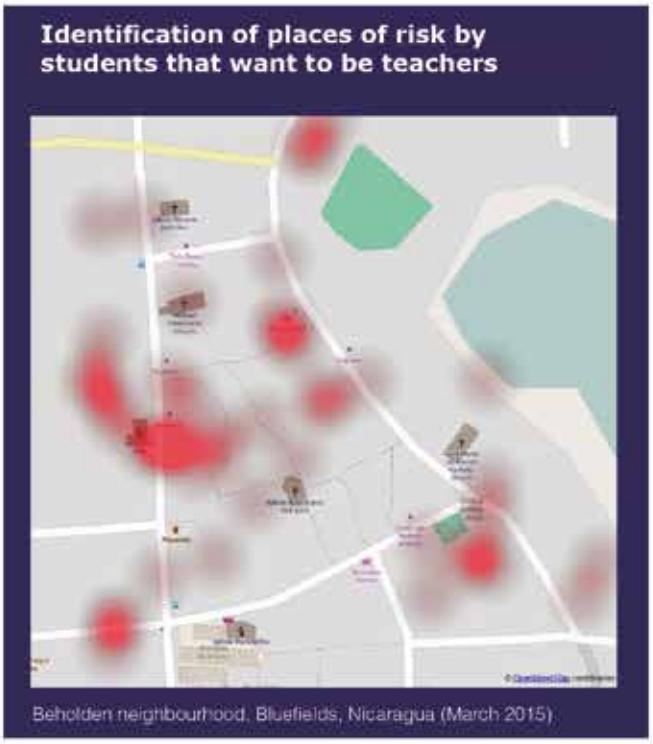
MapaNica.net/Nicaragua-2015/F. Delattre.

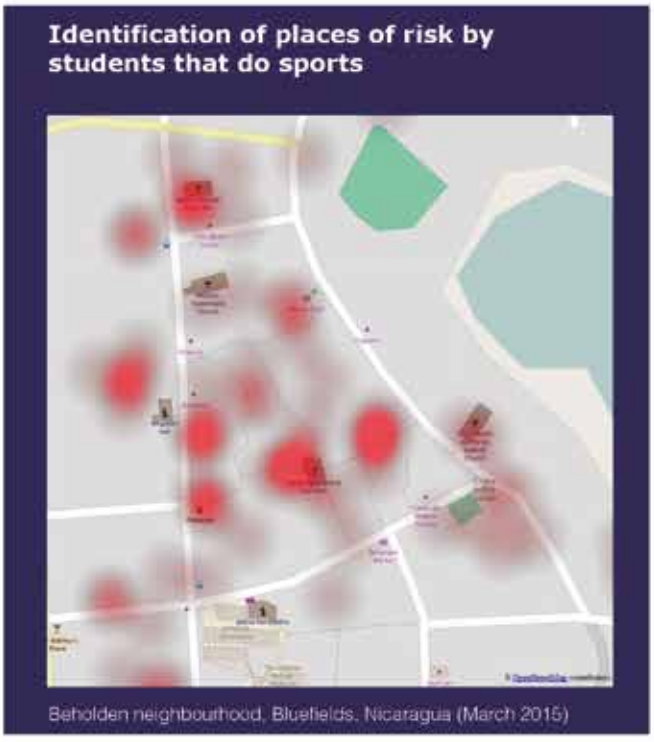
Identification of places of risk by desired profession

High-risk zone Medium-risk zone Safe zone









MapaNica.net/Nicaragua-2015/F. Delattre.

Mapping festivals in the universities

In the framework of the initiative, two mapping festivals were also held, the first in the BICU's Innovation Laboratory with 33 young people, including students of different subjects, young professionals and technicians from the GRACCS Youth Secretariat. The second was held with support from the Free Software Community on the URACCAN campus with 22 students. A total of 55 students participated in the two workshops.

One result of this activity is that both universities have a map of their campuses. To do this, the participants identified the university campus' areas of access, pedestrian circulation, buildings and green areas. It is hoped that these students will use this free software tool to help solve the region's main problems.

The workshops were facilitated in a play-based way, combining conference-style talks and interactive work sessions. Special attention was given to activities and active participation to introduce the issue of cartography and technology using a constructivist learning methodology. Those attending had very diverse backgrounds, including engineers, architects, administrators and students of different subjects.

The first part of the workshop consisted of activities and games to allow the participants to interact and get to know each other. The topic used was the use and consumption of technology so that the group could find common aspects that would bring them closer together. The subject of the use and perception of space was then gradually introduced, serving as an introduction to the next steps. During one game, the participants went to different places according to the directions given by the facilitator team and in another exercise they produced a hand-drawn map of the universities from memory.

This was followed by some introductory talks on what collaborative mapping is and the OSM initiative in Nicaragua, while an overview was also provided of the global actors involved and examples of noteworthy projects.

A ninth-grade student from the Horatio Hodgson School identifying the safest sites in her environment on the map during the tour of the Beholden neighbourhood in Bluefields in the RACCS. ©UNICEF/ Nicaragua-2015/A. Jirón

An attempt was then made to jointly identify possible problems in a general way, without explicitly linking them to the idea that a solution was going to be sought using the maps. The participants quickly found problems related to the availability of work equipment, a lack of time and the accessibility to infrastructure for people with disabilities. The problems mentioned were then specified in a discussion group and the participants talked about how geotechnologies could help resolve them.

After this, the participants divided up to go out with GPS units and map the university in teams. They collected tracklogs and created notes using the advanced applications, which allowed the whole group to participate and collaborate with data obtained on-site. Afterwards the participants were able to upload all of that information using their OSM accounts for the whole community to take advantage of.

At the end of the workshop, the collaborative map was edited using the web browser and smart phones. This made use of the previously-uploaded tracklogs and notes, while at all times adding local knowledge to jointly improve the map of the universities. There was a great deal of curiosity and interest and it was evident that the participants had been empowered by taking on this source of information.

Young students from the BICU using the OsmAnd application, which allows different geographic points to be geotagged, during the mapping festival held on the university campus. UNICEF/Nicaragua-2015/A. Jirón

MapaNica.net/Nicaragua-2015/F. Delattre.

Mapping the city

The city of Bluefields was mapped in several ways. It was drawn using aerial images, GPS tracklogs were recorded in vehicles and on foot, and the local knowledge of the team members was also taken advantage of.

The providers of aerial images for OpenStreetMap Automated Navigation Directions (OsmAnd - an offline map application for mobile telephones) have good coverage of Bluefields with high resolution images of the city, although occasionally with clouds in the atmosphere that conceal the maps or do not allow an adequate view. Before arriving and during the first days of the visit, certain visible elements were therefore drawn from the aerial photographs.

Some of the people involved shared their familiarity with the city to improve the map, and in this way we obtained the names of streets and neighbourhoods, as well as reference points that are either special or typical of Nicaragua, such as the "Tamarind Tree" in Bluefields. These people were some of the most valuable sources of information.

To collect information with mobile phones, the OsmAnd Android application was used and we added "notes" (informal reports) that could then be seen on the web page and in the programmes used to work on the mapping in order to actually incorporate those data.

More than 1,500 objects (nodes, ways or polygons) were added, of which around 500 are points of interest. Some notes remained unresolved, although the new local community has continued contributing to improve the map.

In the spirit of generating crowdsourced information,[4] the Mapillary[5] application was employed, enabling the collection and display of detailed photos of streets to allow anybody to interactively tour the city of Bluefields. Referring to Mapillary, Michel Vallée says that "If an image is worth more than 1,000 words, imagine what 500 images of a stretch of highway are worth." Vallée is a specialist from the Inter-American Development Bank's Transport Division and has been the engineer responsible for the construction of the new highway from Nueva Guinea to Bluefields.

4 Crowd-sourcing: Colaboración abierta distribuida o externalización abierta de tareas, y consiste en externalizar tareas que, tradicionalmente, realizaban empleados o contratistas, dejándolas a cargo de un grupo numeroso de personas o una comunidad, a través de una convocatoria abierta. (Wikipedia 2015)

5 Plataforma web y aplicación que permite la recolección abierta y colaborativa de fotos a detalle de calles.

Points geotagged during the mapping in the city of Bluefields in the RACCS using the OsmAnd platform and the Mapillary application, which allows photos with street details to be collected and displayed. ©UNICEF/ Nicaragua-2015/A. Jirón

COMMUNICATION

With the aim of documenting MapaNica's experience in Bluefields, photographs and videos were gathered and interviews held with those actors participating. The participants were asked for their informed consent before being photographed or recorded and it was guaranteed that the dignity of any children interviewed was respected.

The following communication outputs were produced in the framework of the initiative: a) a press release, b) a video with photos from the workshop in the Dinamarca School, c) a video with photos from the collective mapping workshop at the Horatio Hodgson School, d) articles published on the ManaguaFuriosa website and the MapaNica blog, and, e) a general video on the initiative produced with the collaboration of journalist Jorge Contreras.

In the communication component, both the national and local media were considered to be strategic allies for the initiative's dissemination and accompaniment. Although no national media covered the initiative's actual development, UNICEF and MapaNica shared the results and audiovisual materials with the media, which disseminated them.

Press release on the Bluefields mapping initiative published in the daily newspaper La Prensa on March 26, 2015. ©MapaNica-2015/F. Delattre

At the local level, the feedback of the results to the municipal authorities was covered by Radio Bluefields Stereo, Radio La Costeñísima and the magazine Revista Costeña. The close relationship with the media allowed the initiative to be disseminated at the national and local levels, while at the regional level the UNICEF Latin American and Caribbean Regional Office (UNICEF LACRO) published the press release on its web page.

Generally speaking, the initiative's communication products were registered as having been published in La Prensa, Nicaragua's most-read newspaper, and in the following sites and platforms: UNICEF Nicaragua's web page and social networks, OpenStreetMap's Facebook page, the UNICEF LACRO web page, the ManaguaFuriosa web page, the De HUMO TV television programme, La Prensa, La Voz del Sandinismo, Caribe Digital, Nosolosig, and two blog posts.

UNICEF communication assistant Anielka Jirón taking a photograph of two participants during the mapping workshop with adolescents at the Horatio Hodgson School. ©MapaNica-2015/F. Delattre

EXPERIENCE

The team

Good teamwork can guarantee the success of this kind of initiative and it is important to talk about it as one of the positive elements. In this sense, it was not a case of various people working on their own particular assignments, but rather a team collaborating synergistically to achieve a goal.

The team formed for this week of work consisted of different UNICEF Nicaragua staff members that provided support with the local coordinations, and during the week of mapping in Bluefields it was also joined by very versatile young professionals from areas related to technology, social communication and working for child rights.

The latter included electronic engineering student Eduardo Mayorga, one of MapaNica's active contributors; Felix Delattre, a free software activist specialising in digital media and geotechnologies; and Lucy Medina, a social communicator with experience in educational work with children.

The team members from UNICEF Nicaragua were: communication assistant Anielka Jirón; Kevin Mendes, a UN volunteer in the area of social policies; journalist Jorge Contreras, who is responsible for strengthening the UNICEF-promoted Network of Adolescents and Communicators for the Prevention of Sexual Abuse through ICTs; Óscar Urbina, a UN volunteer in the area of education; and Roy Downs, who provides driving and logistical support services for the Bluefields office.

Basically speaking, the members mutually collaborated under the premise that everyone was contributing something to the initiative and they were all accumulating new learning.

The group was characterised by the following aspects during the week of work:

Collaboration

Everybody in the team was willing to collaborate in the initiative's success at all times with a positive and enthusiastic attitude, even outside of their assigned roles and areas of specialisation. A strong team spirit was generated that united the members and ensured good results and satisfied people.

Sharing knowledge

There was a great willingness to learn from other people's knowledge in terms of facilitating spaces with children, technological tools, the local environment, or geographic theories.

Flexibility

The team demonstrated a notable capacity to respond to both unforeseen and new circumstances and always had a proactive attitude to resolving and creating any situation. Almost all of the activities were new for at least part of the team and the initiative's success was achieved thanks to a willingness to react flexibly at any given moment.

Internal communication

Fluent and inclusive communication practically free of any hierarchy was achieved at all times and among everyone involved in the initiative.

During the planning phase, open meetings were held so that anyone interested in the issue from both teams could attend. This was followed by extensive e-mail communication to update, define and make changes to the agenda or to remind people of important aspects for the development of the week's work.

Once the implementation week was underway, the communication was mainly in-person and direct and there were always spaces for talking, collective reflection and coordinating the next steps. Based on relations of respect, the focus was always on each person's strengths and the premise of constantly improving

THE TEAM

TEAM MEMBERS' PERSONAL TESTIMONIES

Anielka Jirón: The conscious and informed use of free technologies is possible

"New technologies emerge every day and we're being immersed in a more digitalised world that, while it does satisfy people's needs, also aggravates the social inequalities between those that have the economic resources to access them and those with limited access or simply no access at all.

I put myself in the shoes of the most vulnerable children and young people of Bluefields for a moment to reflect on the following questions: Do they have real access to free technologies? Do they know the potentialities of using free technologies? Are they aware that free technologies are a tool for promoting their participation and children's freedom of expression?

UNICEF communication assistant Anielka Jirón with children participating in the mapping workshop at the Dinamarca School after finishing their tour of the Beholden neighbourhood. ©UNICEF/Nicaragua-2015/J. Contreras.

Through my direct participation during the MapaNica initiative I became convinced that it is possible to employ free technologies in favour of child rights and that the empowerment of children in the use of the technologies can be promoted in a conscious and informed way.

The pupils of Dinamarca School and adolescents from the Horatio Hodgson School identified the points of reference in Bluefields' Beholden neighbourhood and created a map of it. This exercise introduced them to the world of free technologies and how they can be used for the common good, for example as a useful tool for identifying dangerous or risky sites in their environment.

Although for many taking advantage of information and communication technologies is reduced to the use of the different social networks (Facebook, YouTube, Twitter), this experience demonstrated that technology is a vehicle that promotes collaboration and the exchange of ideas and knowledge. However, the most important thing is the children's participation in finding solutions to the problems that affect them and as promoters of their own development.

The initiative's implementation also allowed the children to identify the danger sites in their environment through a walk around the Beholden neighbourhood. That experience enabled them to express from their own perception the places they like and those in which they do not feel so safe, thus promoting their participation and encouraging them to propose different actions to solve the problems affecting them.

However, to make the children's participation real, it will be necessary for them to take ownership of the map and continue feeding it, along with the whole educational community and other community actors."

Lucy Medina: Diversity of visions in a work team

"Without the contribution of many people, this proposal would not have taken a chance on working with children on this subject.

Generally speaking, we are a diverse team that took an interest in two subjects: child and youth participation and geotechnologies. So the challenge was how to achieve this convergence in a practical, flexible work plan and with a clear objective.

When we are experts in something, it is popularly said 'I know it all'. But that wasn't the case for us. Each of us knew about what they knew about: communication, the facilitation of child arenas, or maps, technologies, open data. Based on this, we got to work with the enthusiasm of a new experience.

Lucy Medina, a member of MapaNica and facilitator of the workshops, with a fifth-grade student from the Dinamarca School during a group activity. ©UNICEF/Nicaragua-2015/A. Jirón.

Along the way, UNICEF suggested collaboration from professionals and volunteers that know about education, water and sanitation, and protection policies. So aspects related to the contents and logistics were gradually fine-tuned.

The week working in Bluefields was a time to continue expanding our visions, as we came up against the audacity of the children, the enthusiasm of the adolescents and all the interest of the young university students. All of these people had something to share with us and we had something to share with them.

That's why I love diverse teams that include people who perhaps at the beginning you don't understand how they're going to connect with you. And there's a big bonus in such teams as the diversity expands your perspective of things (issues, methods, contexts). You can generate new ideas and there are multiple possibilities for doing the same thing. It completely enriches the work, and you along with it.

Through this experience, I again confirmed that diversity has many benefits, particularly if you have an attitude of sharing and learning."

Eduardo Mayorga: How the knowledge was transmitted

"We went to the universities with two goals: to create a map of the universities and to transfer knowledge. Many participants quickly recognised the possibilities that maps open up and they were the ones who got most out of the session. Perceiving a practical benefit beyond the philosophy of sharing sparked a motivation to learn.

Eduardo Mayorga, a member of MapaNica and facilitator of the mapping festivals, sharing his knowledge on the OpenStreetMap platform with BICU student Dina Castillo during the workshop at that university. ©UNICEF/ Nicaragua-2015/A. Jirón.

A seed was sown in Bluefields through the workshops in the universities. The fruits haven't ended with the transfer of knowledge from facilitators to participants, as those participants are now sharing their experiences in their communities.

In addition to sharing knowledge, it was interesting to see that three workshop participants are applying what they learned to map Bluefields and other places they know. The exercise of mapping the university was key to achieving that."

Felix Delattre: Participation and motivation

"One of this mission's most notable experiences has been the level of motivation and participation of all the people involved:

Schools

The children were invited to participate in the events, which were activities outside of school hours. This participation has been completely voluntary. However, a large part of one class put down their names and almost all of them turned up at the end—33 of the 34 initially registered. The kids' willingness and interests impressed the whole team. The young people were eager to learn about maps and to follow us in the workshops. It is also worth mentioning that the two teachers that accompanied us at all times actively participated in all of the activities alongside the children.

Workshops

The response of the people in the workshops couldn't have been better. Not only did students and professionals from all disciplines learn and map during this day, but several of them continued improving the map of their environment in the days and weeks following the activities.

Authorities

We observed a high degree of interest in the subject from the local authorities and representatives of international and non-profit organisations. It's been positive to have been able to organise two events, one for a presentation and one to sum up the achievements. However, the organisations undoubtedly require in-depth accompaniment to transform their motivation into real participation.

Team

The interdisciplinary implementation team itself worked voluntarily in a very intense way for eight days. And the involvement of the whole national UNICEF Nicaragua team was spectacular, with various people from UNICEF in Bluefields participating voluntarily, along with the communication and child protection areas. Taken together, this has guaranteed the successful implementation of the activities."

Felix Delattre, a member of MapaNica and facilitator of the mapping festivals, using the OsmAnd platform accompanied by a student from the URACCAN. ©UNICEF/Nicaragua-2015/A. Jirón.

PARTICIPANTS' TESTIMONIES

Greta González: "I'm using OpenStreetMap as a form of entertainment and investigation"

"I'm Greta Daniela González from the Central neighbourhood here in Bluefields. I studied architecture and work as an independent consultant. I'm also a UNICEF volunteer for the Regional Policy and Strategy for Children in my city.

I thought the experience in the mapping workshop held in Bluefields was excellent due to the participatory methodologies the team implemented to achieve a clearer understanding or reception of the idea. Initiatives of this kind are important because they encourage young people to make innovative proposals, use easily-accessible free technologies and open up our horizons in an interconnected and global world.

I remember that when I came home after the workshops I shared the experience with my family, particularly my father who's also an architect and works in the regional government. So I hope he can reproduce it with his team.

I'm currently using OpenStreetMap as a form of entertainment and investigation of certain areas of the region I still don't know.

Personally speaking, I studied architecture and did my thesis on an urban issue in the city's most precarious neighbourhood. I've also worked on issues related to the city's urban image. In this sense, this tool (OSM), which is easy to use and editable, allows me to browse the city's planimetry and add certain new points I hadn't previously considered in my studies.

At this particular moment, we're working on a workshop to create prototypes of some of the strategies of the

Greta González using the osm.org website to locate the geotagged points of the Bluefields Indian and Caribbean University with the help of the satellite image. ©UNICEF/Nicaragua-2015/A. Jirón.

Regional Policy for Children. My team is responsible for opportunities and recreation in the community of Sandybay Sirpay, where it is proposed to intervene in public spaces, which will require a spatial analysis of the community for which we will need MapaNica. In addition to facilitating the work, we will contribute and add new tracklogs.

There are weaknesses in many of the region's municipalities in terms of updating the planimetry, and sometimes it doesn't even exist. That's why my vision of community maps in the region is that easy-to-access technologies can motivate the local government technical teams, inhabitants, universities and even community members to gradually gather tracklogs and landmarks of their localities. This would allow a better recognition of the environment, identifying vulnerable points, tourist areas and equipment, among others.

Finally, I believe that the universities are key institutions for following up on this initiative, because that's where the specialists in pedagogies are found. They are the hub for many people linked to the region's development, contain the spaces and materials, and are also focal points of regional leaders."

Óscar Urbina: "The initiative is very positive because there are places that are dangerous for children in and around many schools."

"My name is Óscar Urbina and I live in the Pancasán neighbourhood of Bluefields. I'm a United Nations volunteer providing technical support in educational management in the Southern Caribbean Coast Autonomous Region. At the moment, I'm giving technical assistance to the Regional Water, Sanitation and Hygiene Directorate (DRASH) and the regional Education Secretariat on the implementation of the initiative for the real-time monitoring of certain educational management indicators in schools and on inquiry-based science teaching (IBST).

The mapping workshop seemed very positive to me. I learned new knowledge about maps. What I most liked was that this initiative promoted the participation of children inside the school system, and I perceived a lot of enthusiasm and interest from the whole educational community.

This kind of initiative is important because it allows the region's different institutions to replicate the experience, taking advantage of the new free software tools that seem very novel to me.

This application allows you to map the different points of a city and identify the risk sites for the population. This is very positive, because there are places that are dangerous for children in and around many schools. Using the learning the initiative has provided me with, I've mapped my neighbourhood and other places such as schools, casinos, alleys and local stores in Bluefields. I did this voluntarily to see how to take advantage of the free technologies.

I recently made a field visit to other municipalities in the region and had the chance to map the schools of Laguna de Perlas, Orinoco, Tasbapauni and Karawala. In that way I realised that there were many points that had already been mapped, and others that hadn't. I managed to geotag a total of 15 points in these communities.

The advantage of this application is that you don't need an internet connection. A satellite signal is enough, so it's accessible to everyone. All you have to do is activate your GPS.

I also participated in a social innovation camp in September this year in El Bluff with the participation of 60 primary and secondary school pupils to identify the focal points of risk inside and around two schools using the mapping technique. This exercise helped enhance and update the school assessment studies for both schools.

At the professional level, the experience with MapaNica is going to help me put into practice the same dynamic and methodology used in the workshops with the participation of children from the Dinamarca School.

UNICEF education volunteer Oscar Urbina using the OsmAnd platform during the mapping festival at the URACCAN. ©UNICEF/Nicaragua-2015/A. Jirón.

It is also hoped to take advantage of the methodology to enhance the school assessment studies corresponding to 10 schools in Bluefields and Laguna de Perlas.

I've used OpenStreetMap at both the personal and professional levels. It's a very useful tool. At the personal level, I map the streets and alleys of my neighbourhood (businesses, streets, etc.), and at the professional level I take advantage of field visits to map the schools in other communities and municipalities.

I feel that this initiative really caught the attention of certain organisations at the local level. The maps are really useful for any intervention, but the NGOs use Google Maps[6] and have realised that the geographic information is not updated and is also limited.

I've also shared what I've learned with friends in my neighbourhood, work colleagues, family members and the counterparts I work with. But I feel it isn't enough to share the knowledge because not everyone's interested in learning and others don't have time. The best thing is to promote mapping festivals to motivate the population.

Students from the Dinamarca School participating in a group activity during the mapping workshops. ©UNICEF/ Nicaragua-2015/A. Jirón

6 Es una aplicación gratuita que te permite llegar a los sitios que ya conoces de forma más fácil y rápida, así como descubrir lugares interesantes cerca y disponer de la información que necesitas para acceder a ellos.

A lot of work needs to be done for the regional authorities to follow up on this kind of initiative or take advantage of it to improve their work. One limitation of the experience is that it lasted for a short time and no human resource was left at the local level to support the initiative's continuation.

As well as allowing the population to identify points of interest, collaborative maps promote collaboration. With OpenStreetMap, anybody can add to the map, which isn't possible with traditional applications.

I have the idea of following up on the initiative by creating brigades with the participants from the mapping festivals to map the five districts of Bluefields. I'm also thinking about establishing coordination with students from the teacher training school, because as future teachers responsible for the formation of children they should know about new innovative tools that allow them to provide a quality education and would at the same time contribute to knowledge management.

I also think it could be possible to link up with other actors to follow up on the initiative. These might include local universities (URACCAN and BICU), the DRASH, the Regional Autonomous Education Secretariat (SEAR), directors of the schools where UNICEF is working, the Federation of Secondary School Students of Nicaragua and the school parent-teacher boards."

LESSONS LEARNED

Complexity of the subject

The combining of various disciplines, such as geography and sociology with technology and education, based on free, unobstructed access to information and tools, opens up great opportunities for the participation and empowerment of everyone involved, regardless of people's in-depth knowledge in particular areas. However, it should be taken into account that it is important for the participants to obtain a base knowledge in almost all related spheres, including both the geographic abstraction of space in other media, whether paper or technological, and the basic capacity to operate computers and tablets.

Space is always required to address applicability, lead participants to an understanding of relevant data, and identify and gather data depending on the purpose.

Aplicabilidad de la experiencia

The experience and learning gained by the children in this initiative can help them empower themselves in relation to their rights and become the subjects of their own changes. And given the need to use community maps as a tool for social change, it should be noted that it is essential for solutions based on geoinformation to be applied with the participants' direct participation. The results must be accompanied by a real need and their subsequent use for a given objective.

As part of the applicability of the Bluefields mapping experience, a social innovation camp was held in El Bluff in the RACCS. This initiative involved the conscious and active participation of over 80 people, including children, young people, university students, local and regional authorities, and leaders from this community.

The initiative's first step was the analysis of the social problems. Primary and secondary school students expressed their ideas in relation to the perception of risk in their environment through the creation of a

MapaNica member Lucy Medina during the mapping workshop with fifth-grade children from the Dinamarca School. ©UNICEF/Nicaragua-2015/A. Jirón

collaborative map of El Bluff. This workshop was facilitated by the UNICEF team that had participated in #BluefieldsMapping and a member of MapaNica. The second step involved students from BICU and URACCAN interviewing community leaders, authorities and other key informants to examine in greater depth the causes of the social problems identified in the mapping.

This experience was an excellent example of how the learning from the #BluefieldsMapping initiative was put into practice, in terms of both developing participatory methodologies with students in a rural community and identifying problems that affect children's rights through mapping.

In contrast with the #BluefieldsMapping experience in which there was no space to explore issues in greater depth through dialogue with children participating in the mapping, the causes of the problems and their proposals for possible solutions were taken up during the social innovation camp.

Human rights focus

The rights-for-all focus is the basis for all expressions of the use of maps for social change, as it promotes both active participation and a leading role for children as the builders of their own changes. To achieve this, it is necessary for the children to be aware of the problems that affect them, to organise and self-manage the solution to those problems and to demand the fulfilment of their rights.

In this sense, it is considered that in addition to a focus on child participation, the child rights-based focus also has to be strengthened. Dialogue with children, from their perspective, facilitates a more profound vision of the environment in which they are developing.

Follow up and continuity

Most people that participate in an initiative do not necessarily find priorities or interests that drive them to continue, whether through lack of motivation, time or disposition, or because they are not committed to the cause. It is therefore important to identify and support potential multipliers who, in addition to being motivated, are aware of the changes they can generate. They must be individuals or organisations that in most cases are aiming for a direct benefit to help them achieve their goals.

In this sense, the sustainability of the initiative depends to a great extent on the involvement of the people at the local level and the open coordination among them. It is necessary to identify and strengthen the competencies of the young volunteers taking on any initiative.

Another important point during the follow-up stage is the accompaniment given to those multiplying the experience, as they must propose clear objectives and achievable goals, because mapping is a tool rather than the end in itself.

Technical flow of data work and interaction with OpenStreetMap

Hay mucho espacio de mejoramiento en el uso de los
There is a lot of room for improvement in the use of the OpenStreetMap data and in ensuring the contribution and use of the data for better-quality and more complex results. Following the experience of teaching OSM to young people from the universities, there are many visions and ideas for continuing to develop more sophisticated solutions adapted to the needs in the countryside and thus facilitate the linkage of human rights through free geotechnologies.

Trabajo voluntario

The whole MapaNica team is made up of volunteers. This has the advantage that there is a high degree of motivation and participation to implement on-site and community initiatives. However, the same dynamic means the volunteers are not limited from joining other participation spaces and at some moments this represents a challenge in terms of fulfilling commitments and desk work. There is therefore a need to work jointly with formal or structured organisations like UNICEF to realise initiatives.

While it is true that voluntary work contributes to people becoming aware of the problems that affect others and helping change that reality through specific actions motivated by commitment, it is almost a challenge to comply with all of the formalities implied by this kind of initiative. The formulation of a project that defines certain permanent posts should therefore be considered

Sammy Rodríguez, a student from the Horatio Hodgson School, using the OsmAnd application to identify points of interest in his school. ©UNICEF/Nicaragua-2015/A. Jirón.

GOOD PRACTICES

Young people promoting child participation

MapaNica's experience has always focused on work with university students and adults. So including children was a good practice in itself, as it initiates exploring the possibilities of sharing mapping as a tool for the empowerment of all people.

That implied preparing in order to interact with these age groups, employing a methodology to facilitate sharing this subject that involved geotechnologies and shared data. It also allowed the educational community (schools) to be considered key allies in the implementation of these initiatives.

Participation of different actors

Compared to the previous experience in Bilwi in the municipality of Puerto Cabezas, it has proved very beneficial at the beginning of the activities to make a presentation to local authorities, including local governments and organisations, as well as journalists and decision makers. This provides an arena to present the planned work and is based on the principle of volition, thus ensuring that actors and organisations participate out of their own interest.

"What I most liked is that this initiative promoted the participation of children who are inside the school system, and I perceived a lot of enthusiasm and interest from the whole educational community."

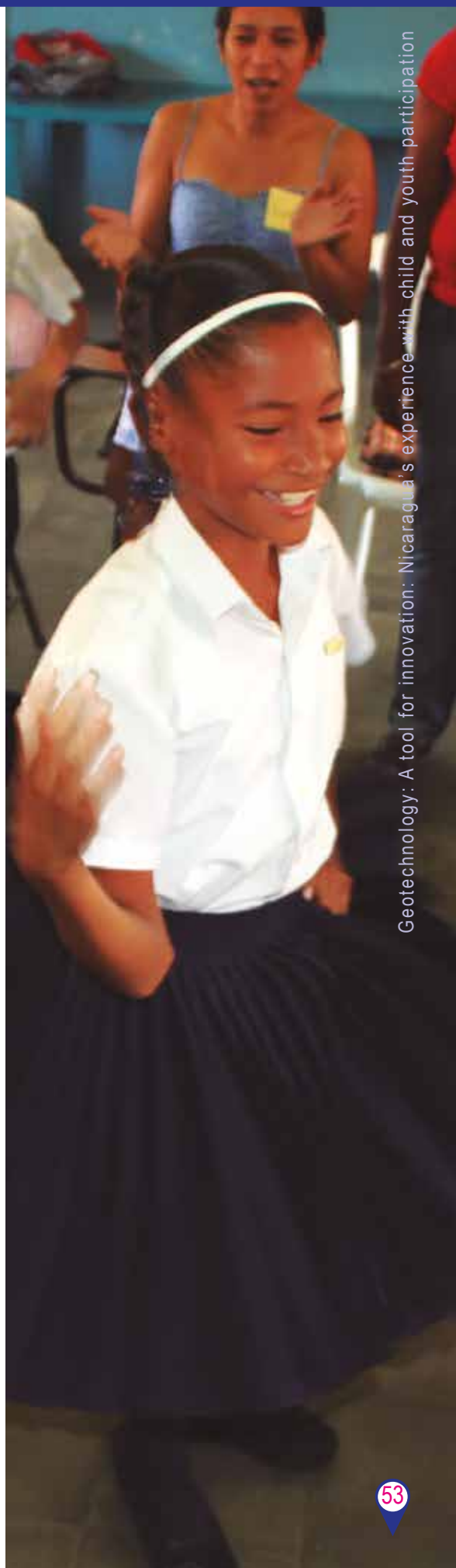
Óscar Urbina, Voluntario de Educación de UNICEF

At the end of the work in Bluefields a meeting was held to inform local stakeholders about the initiative's activities and results, inviting the same people that participated in the initial presentation, as well as the participants in the workshops and the work team. This meeting presented the achievements of the activities carried out and gave decision makers the chance to see the initiative's real and local possibilities

Activities and play-based pedagogy

The play- and experience-based methodology helped the participants feel motivated to participate actively and express their opinions in the different moments of the workshops, despite not being so familiar with the use of maps and not having a clear perception of space. It has been a learning experience based on "learning while doing." The activities also helped generate group cohesion, trust in the facilitators and team work.

The play-based pedagogy and elements of constructivist-based educational methodologies are the most appropriate techniques for children to link their pre-knowledge and experiences with the subject being worked on (perception). This helps make the learning process more rewarding, as it is based on their past experiences.



Fifth-grade student from the Dinamarca School participating in an activity during the mapping workshop.
©UNICEF/Nicaragua-2015/A. Jirón

Collective construction

All of the voices involved in the mapping process were taken into account at all times on issues ranging from the priority for collecting data (which was important because they have a better understanding of the needs) to the contribution of local knowledge. It amounted to an exercise in team work involving various actors with different ends who were nonetheless helping each other out.

Involving the largest number of people possible provides us with more points of view and a better vision of the reality involved. Each contribution was valuable and the objectives were achieved more quickly and efficiently thanks to the collective work.

Diversity

One particularly positive aspect has been the way the initiative has been enriched by diversity in all of its aspects. The interdisciplinary implementation team itself was made up of people from different professional backgrounds (computer technicians, geographic information specialists, and communication and pedagogy experts) and from different organisations that are organised in contrasting ways and structures (MapaNica, a non-hierarchical open community; UNICEF, a United Nations organisation; and other non-profit organisations). It was precisely this diversity that made it possible to achieve and exceed the previously-defined goals.

There was also extraordinarily diverse participation in the workshops. This included people from the Bluefields environment that identify with various ethnic groups (Miskitos, Creoles, mestizos) and a wide range of ages, from 9 to over 40. All of those attending were also from a great variety of different professional backgrounds and university courses. It is worth mentioning as well that the participation was balanced in terms of gender.

Alison Suárez, a fifth-grade student from the Dinamarca School, identifying the different reference points of the Beholden neighbourhood in the city of Bluefields in the RACCS. UNICEF/Nicaragua-2015/A. Jirón

In addition, different municipal stakeholders were involved during the work, including primary and secondary school students, young entrepreneurs and future professionals from the universities, as well as officials from public institutions and decision makers from social organisations working in the area.

Collaboration with the international community

With the same spirt and understanding of contributing and building based on collaboration, possibilities were identified in the global OSM community to use the experiences of other people that have undertaken similar endeavours and to improve our work through individual and international recommendations. One example is the TeachOSM[7] initiative. Similarly, it is constantly being sought to link the local experience with those of other communities, publishing information and collaborating in existing developments

Innovation in a context of limited economic resources

This kind of initiative contributes to the development of local competencies and is a strategy for resolving social problems through innovation in a context of limited resources, using mapping as a tool for innovation

In this sense, the initiative's implementation demonstrated that better results and greater coverage can be achieved with limited investment. With an investment of approximately USD 5,791.00, the week in Bluefields achieved the participation of 16 younger children and 17 adolescents from the two schools that participated; 2 adolescent members of the Network of Child and Adolescent Communicators for the Prevention of Sexual Abuse through ITCs; 55 young people; and 15 representatives of regional authorities and members of local organisations. A total of 105 people were therefore involved during different moments of the initiative over the eight-day work period.

When we build local capacities, mainly through training young people, this kind of initiative can be replicated at a lower cost and in rural or hard-to-access areas.

7 Punto de concentración y compartir de documentos y materiales de enseñanza alrededor de OpenStreetMap.

CONCLUSIONS

The participants displayed notable emotion and motivation in all aspects of the different activities. Geotechnologies provide an optimum multimedia tool for exercising rights in the digital era. However, it is recognised that, as in all training in the context of new technologies, the subject of maps and mapping requires ongoing accompaniment with a thematic focus directly related to people's environments, particularly if the aim is for the new media involved to be actively taken on.

It is therefore recommended to expand the educational activities for a certain time and for them to be accompanied by a rights-based approach, with an important and direct connection with daily life and based on personal and collective development. Concrete results should be aimed at, which will not be achieved unless there is a tangible result or impact on people's lives.

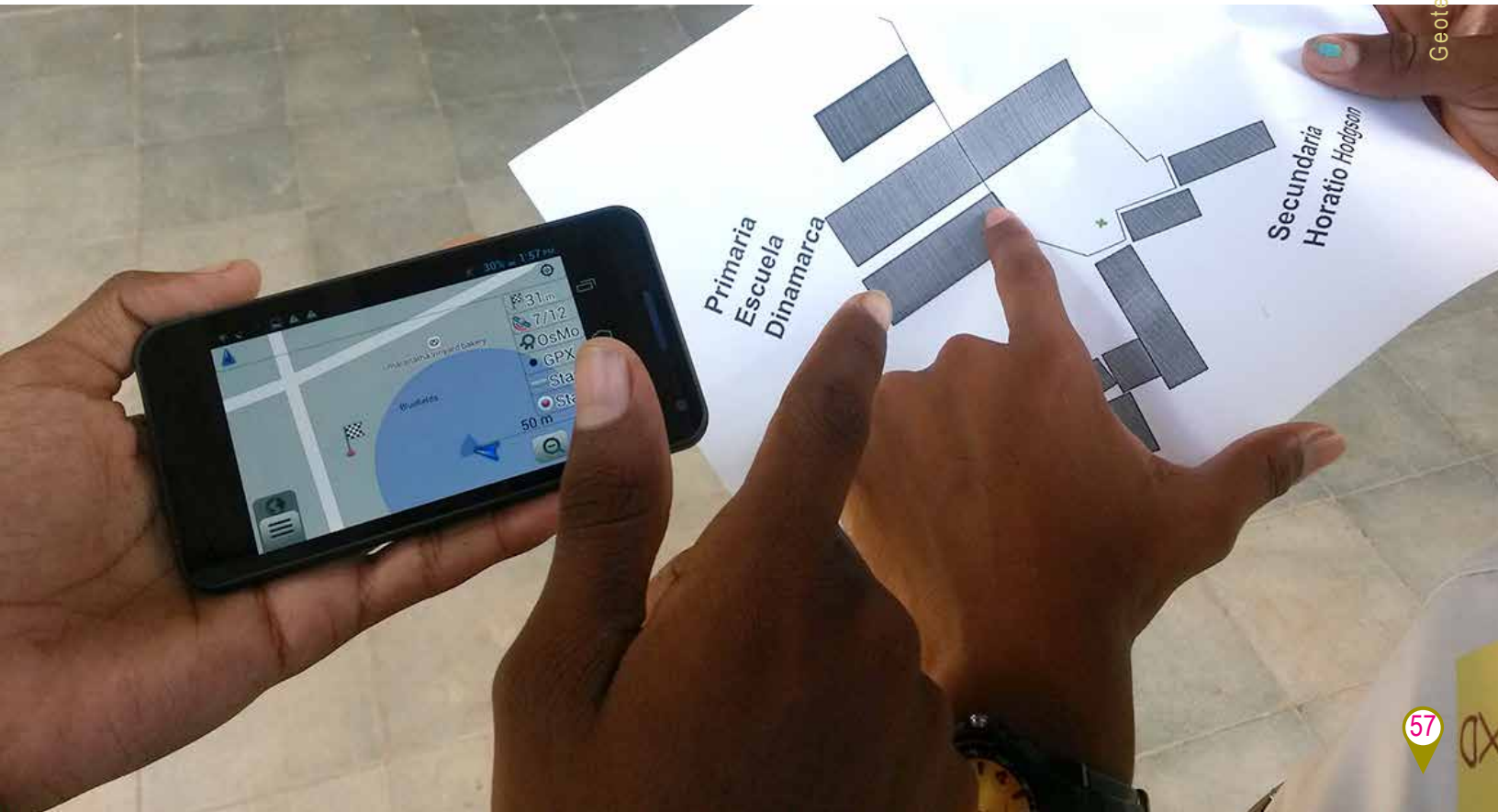
To achieve broad acceptance, it is essential to identify and train potential multipliers based on both their technical affinity and their links with other organisations or subjects, allowing the geographic tools to be used for the benefit of an extensive number of people.

Both the technology and the focus for its application are novel and innovative. The good practices, flow of work that can emerge from the technologies and the technologies to be used themselves are therefore continuing to be developed.

Positive steps have been taken in the documentation of the activities, but in order to guarantee good use and all possibilities, the documentation has to be consolidated to achieve an information base that allows the mapping activities to be reproduced in the sphere of human rights. It is recommended to extend the collaboration with the "TeachOSM" international project in which experience and methodologies are being developed in a complementary and collaborative way.

Although the community always focuses on human beings and voluntary collaboration is an important value in the process of taking on the technologies, the creation of a formal, legal and also professional base should be considered to ensure the continuity of the activities and the appropriate and timely achievement of the less attractive tasks. There is also great potential in terms of collaboration with national and international organisations in education and entrepreneurialism programmes.

Adolescents from the Horatio Hodgson School using the OsmAnd platform to locate certain sites corresponding to their school. MapaNica. net/Nicaragua-2015/L. Medina



ANNEXES

Press releases and articles

UNICEF
http://www.unicef.org.ni/prensa/285/
http://www.unicef.org.ni/prensa/286/
http://www.unicef.org/lac/media_29241.htm

Medios de comunicación:
http://www.laprensa.com.ni/2015/03/26/departamentales/1805769-bluefields-ya-tiene-mapa
http://www.lavozdelsandinismo.com/nicaragua/2015-03-27/aportara-mapa-de-bluefields-datos-de-interes-a-comunidades/
http://www.nosolosig.com/noticias/481-resumen-de-noticias-tig-geo-semana-del-13-al-19-de-abril-2015
http://www.caribedigital.com.ni/?p=1259
http://www.caribedigital.com.ni/?p=1267

Tecnología hecha por chavalos
https://www.youtube.com/watch?v=nHsCH3cxroM

MapaNica
https://www.facebook.com/mapanica?fref=ts
http://blog.mapanica.net/emocion-mapeadora-bluefields/

Escritos independientes
http://felix.delattre.de/weblog/2015/04/09/bluefieldsmapping
http://www.managuafuriosa.com/bluefields-mapping-tomando-espacio-manos/

Activity 1

Personal presentation

Ages: All.
Resources: None.
Objectives: Getting to know the participants. Creating coexistence agreements for a pleasant meeting.

Description: The children form a circle and all of them voluntarily say their name, something they like to do in their spare time, what they are expecting to happen in a workshop on maps, and how they are going to help make it a nice workshop.

Note: This activity includes the request to take photographs, respecting those participants that do not want to have their photo taken.

A fifth-grade student from the Dinamarca School participating in the mapping workshop showing the map of the Beholden neighbourhood on which she has marked the places she likes the most and the risky places. ©UNICEF/Nicaragua-2015/A. Jirón

Activity 2

Blind man's buff

Ages: 8 to 13.
Resources: 4 blindfolds, physical space, tables.
Objectives: Establish a pleasant and trusting environment among the group members. Introduce the general theme of the workshop (maps).

Description: A circle is formed and the game area is prepared making two "L" shapes out of tables (as above).

Two girls and two boys are asked to volunteer. The rules of the game are explained: respect, no violence, no pushing, no tripping, among others.

With the children still in the circle, the facilitator explains the activity: I'm going to blindfold the 2 girls and 2 boys who are voluntarily participating (they are taken to the centre of the circle) and they will try to catch one of you. Every time a blindfolded child traps someone, he or she returns to the circle and the trapped player is blindfolded and tries to catch another child. This continues until the game is stopped.

This is followed by a collective reflection, introducing the subject of orientation:

- Did you like the activity?
- How did you feel when you were blindfolded?
- Why did you feel that way? What was missing?
- How did you feel when you did not have the blindfold on?
- Why did you feel that way? What favoured you?
- How can you relate this activity to your life and the importance of having a map of your community that shows us the different places that are important for you? What is a map and how does it help us?

The facilitator concludes the exercise by going over the children's contributions on the importance of the subject.

Activity 3

Treasure hunt game

Ages: 13 to 17.

Resources: GPS devices, maps of the space on paper, treasures (small gifts).

Objectives: Establish a pleasant and trusting atmosphere among the group members. Introduce the general theme of the workshop (maps). Use multimedia maps and reflect on their use and orientation.

Description: The participants form groups of 2-4 people, deciding for themselves who to work with. Each group is given a GPS device or a map of the school grounds on paper. One individual place for each group must be previously marked where there is a hidden treasure.

The young people start to look for their treasure and after they have found it return to a specific place.

The following questions are asked during a reflection session:

- Did you like the activity? What was it that you liked? What could be done better?
- How did you feel when you found the right place by locating it on the map?
- What differences can you see between the two media (GPS device and printed maps)?
- How do you relate this activity to your lives and to the importance of having a map of your community showing the different places that are important to you? What **is a map** and what use is it to us?

The facilitator concludes the exercise by going over the children's contributions on the importance of the subject.

Activity 4

Dialogue

Ages: All.
Resources: Flip-chart paper, masking tape.
Objectives: Share the workshop's objectives and present the programme for the day.

Description: It is explained to the group that the subject for the day is maps and the expectations the participants expressed at the beginning of the workshop are looked at again. The objectives of this workshop are then explained and compared, emphasising what it is wanted to achieve on that day. The objectives and the day's programme are both written out on flip-chart paper.

Activity 5

Drawing a map of my neighbourhood

Ages: All.

Resources: Legal size paper, fine marker pens (one per child), masking tape.

Objectives: Familiarise the children with maps based on drawing a map according to their perception.

Description: Each participant is told to draw a map of the neighbourhood where their school is located on a blank piece of paper. They will put their name and surname in one corner of their map.

Once each participant has drawn his or her map, all of the maps are put up on a wall and we talk a little about the differences and similarities among the individual maps. After the activity, one of the facilitators takes photos of each map and the youngsters can then take their maps home with them after the workshop.

Luvy Hernández, a lecturer at the URACCAN's Geographic Information Centre in Bluefields, mapping the university campus with a group of young people.

Activity 6

Jointly creating a map of my neighbourhood

Ages: All.
Resources: Whiteboard and different-coloured marker pens.
Objectives: Collectively create a suitable base map.

Description: The facilitators present an "official map" of the neighbourhood, drawn on a whiteboard. The youngsters are given a short amount of time to compare that map with the maps they have done. Then all of them are asked to voluntarily put on this "official map" a point of reference they would like to add (local store, the school, etc.) using coloured marker pens. The other pupils help to put the points in the right place.

MapaNica member Felix Delattre with students from the Horatio Hodgson School locating certain sites corresponding to their school. ©UNICEF/Nicaragua-2015/A. Jirón.

Activity 7

Points from my memory

Age: All.
Resources: A base map (from Activity 6) printed and copied for each child; coloured stickers—at least 20 per child.
Objectives: For the children to identify the places that are important for them.

Description: A photocopy of the base map is given to each of the youngsters and they are asked to individually place round stickers on it according to the following classification:

- Red: "I do not pass through here".
- Yellow: "I do not like it here".
- White: "I like it here" – for this option, they write the name of the place in question (cyber café, barber's, local store, etc.).

They are asked to leave the following details on one side of the paper: name and surname, age, gender, what I want to be when I grow up.

After the activity, one of the facilitators takes photos of each of the maps and the youngsters can then take their map home with them after the workshop.

A fifth-grade student from the Dinamarca School participating in the mapping workshop showing the map of the Beholden neighbourhood on which she has marked the places she likes the most and the risky places. ©UNICEF/Nicaragua-2015/A. Jirón.

Activity 8

each personal opinion, as the experiences of each child are important. It does not matter if they already included that point on the previous map or whether they are only identifying it at this point while on the tour.

The same key is used for the coloured stickers:

- Red: "I do not pass through here".
- Yellow: "I do not like it here".
- White: "I like it here" – for this option, they write the name of the place in question (cyber café, barber's, local store, etc.).

They are asked to leave the following details on one side of the paper: name and surname, my favourite pastime.

When they return, we initiate a dialogue about the experience using the following leading questions:

- How did you feel mapping the neighbourhood?
- What did you like? Why?
- What did you not like? Why?
- Do you think it is important to make maps of our neighbourhoods? Why?

After the activity, one of the facilitators takes photos of each map and the youngsters can then take their map home with them after the workshop.

Activity 9

The traffic light

Ages: All.
Resources: 3 circles of cardboard, each with one of the colours of a traffic light, to be stuck on the wall; masking tape.
Objectives: Learn the level of satisfaction with and observations about the activities.

Description: The group is told that they are going to be read some phrases related to what was experienced during the workshop. If they agree with the phrase they are going to move to the green spot; if they are not sure they are going to go to the yellow spot; and if they do not agree they are going to go to the red spot. Each time they chose a position, we are going to talk a little about the reason for their choice. After the conversation, the group returns to the centre.

The following leading phrases are proposed:

- I've felt good in the workshop.
- I liked the exercises we did.
- We did good group work.
- I know new things about maps.

METHODOLOGICAL PLAN FOR WORKSHOPS WITH ADOLESCENTS

Topic: Identification of the environment; maps; and how they use the community space.
Participants: 12-20 girls and boys from 9th grade secondary school.
Date: March 2015.
General objective: Get the children to identify, from their own perspective or experience, important sites in their community for their protection and developmen

Subtopic	Specific objective	Technique	Resources	Time
Welcome Registration	Have an attendance register for the children participating in the workshop.	The participants will register using the attendance list and each will be given a piece of coloured card to make a name tag.	Attendance form Cards for name tags Marker pen Masking tape	1:00 – 1:15
Presentation of the children and facilitating team.	Get to know the participants. Create the coexistence agreements for a pleasant meeting.	Activity 1 Personal presentation	Masking tape Coloured pencils Blank sheets of legal size paper	1:15 – 1:25
Integration activity	Establish a pleasant and trusting environment among the members of the group and the general theme of the workshop.	Activity 3 Treasure hunt game	GPS devices Maps of the relevant space on paper Treasures (small gifts)	1:25 – 1:45
Presentation of the objectives and programme	Share the workshop's objectives and present the day's programme.	Activity 4 Dialogue	Flip-chart paper Masking tape	1:45 – 2:00
A collective map of our community	Familiarise the children with maps based on drawing a map according to their perceptions.	Activity 5 Drawing a map of my neighbourhood	Sheets of legal size paper Fine marker pens (one for each child)	2:00 - 2:30
A collective map of our community	Collectively create an appropriate base map.	Activity 6 Jointly creating a map of my neighbourhood	Whiteboard and different-coloured marker pens	2:30 - 3:00

Subtopic	Specific objective	Technique	Resources	Time
Free time	The children take a break to recharge their batteries for the rest of the workshop.	Free time Note: This time is used to obtain copies of the collaborative base map for each child.	Human resources	3:00 – 3:30
Places from my neighbourhood	The children identify the places that are important for them.	Activity 7 Points from my memory	A base map (from Activity 6) printed out and copied for each child	3:30 – 3:45
Places from my neighbourhood	The children identify the places that are important for them.	Activity 8 A tour of my neighbourhood	Coloured stickers - at least 20 per child.	3:45 – 4:30
Evaluation	Discover the degree of satisfaction with and observations on the activities.	Activity 9 The traffic light	3 circles of cardboard (the colours of a traffic light) to stick on the wall Masking tape	4:30 - 5:00

UNICEF Nicaragua
Edificio Naciones Unidas Nivel 1
Rotonda el Güegüense 400 mts. Al Sur.
Tel: (505) 2268-0687/8
E-mail: managua@unicef.org
www.unicef.org.ni

unicef
únete por la niñez