ANNUAL REPORT

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INTRODUCTION

The GLOBE Program (Global Learning and Observations to Benefit the Environment Program) is an initiative that started in 2002 with the Ministry of Education and Environmental Agency in Paraguay. However, it was reactivated after the director of the program visited Paraguay on August 2016.

The GLOBE program created a Paraguayan national network of teachers and students interested in Climate Change and STEM disciplines increasing the amount of scientific data about Paraguay available online.

In 2017, two trainings were held at the Benjamin Franklin Science Corner with the collaboration of the Ministry of Education, the Scientific Society of Paraguay, and three Master trainers from Uruguay. For these workshops, 31 schools with 80 teachers, and Peace Corps volunteers in the Atmosphere and Hydrosphere protocols.

In 2018, one of the GLOBE high school was selected to participate in the GLOBE Learning Expedition in Ireland. Also, the Benjamin Franklin Science Corner was selected to participate in the GLOBE Zika Education and Prevention Program.

EDUCATION

The Benjamin Franklin Science Corner has been working with local high schools to increase student and teacher participation in GLOBE. Also, the Science Corner has been using GLOBE protocols and the GLOBE Observer App during their science camps and as part of their regular workshops.

In 2018, the science corner received the visit of local high schools to learn how to do the protocols. They were going to use the hydrosphere and atmosphere protocols. This project was part of their final project for the local high school a requirement need to take their final examinations.

Also, another NGO joined GLOBE in 2018 called Voices of Nature from the city of Pilar, Paraguay. Their Eco Club, Voces de la Naturaleza has been using the GLOBE program for several months now. They started with the Atmosphere Modules and have recently started exploring the Hydrosphere Modules. Their club has been collecting data by taking photos with cell phones and using several materials loaned to them by the Benjamin Franklin Science Corner. They have their rain gauge set up on the local military base and have tested rain levels and pH, they have used the microscope and mosquito larvae protocols to identify and count mosquito larvae in their community, and even though the cloud protocols were one of their very first experiences with GLOBE, the children still regularly bring in photographs on cell phones of clouds and can tell us whether the cloud is a cumulus, stratus or cirrus, says the coordinator of the program.

One of the greatest impacts for the children in the eco club is that they are contributing to something bigger, they are sharing data with the scientists at NASA, in many cases, data that NASA would not be able to obtain without their citizen science. When the children received the satellite photos that corresponded with our cloud observations, the excitement of the club was electric, the kids understood they were making a real impact that felt significant and impressive. We are grateful to have an organization like GLOBE working here in Paraguay and are looking forward to the next module!

Through GLOBE the Benjamin Franklin Science Corner volunteers has learned to measure temperature, relative humidity from the atmosphere protocols and other hydrology instruments. Also, we have learned the name of the clouds using the cloud protocol.

We hope to continue with the hydrology protocols in October once our new volunteer from AFS arrives. He will be in charge of taking measurements using GLOBE protocols and learning how do we do GLOBE in Paraguay.

In terms of technology the Science Corner has created a Larva printed in 3D to help identify parts of the larva during our classes of the GLOBE Zika Education and Prevention Program. We hope the 3D printed larva will help teachers and students to identify parts they are looking for under the microscope. For example, the siphon and the body parts.

We noticed it was much easier for students and teachers to explain the parts with the 3D printed larva. Also, we took the 3D printed larva to the Mini Maker Faire and participants were much more interested in using the Mosquito GLOBE Observer App with the help of the 3D printed larva.

COMMUNITY

The Benjamin Franklin Science Corner has started working in the community with a local highschool called Juan Ramon Dahlquist highschool to talk about the possibility of partnering. We decided to implement the GLOBE Mosquito Habitat Mapper with the high school. The high school is located at the entrance of the neighbourhood La Chacarita a shanty town where Dengue cases are high.

The high school was working on mosquito awareness to prevent dengue, zika y chikungunya disease in the community. They organized awareness days and they walked around their neighbourhood looking for possible breeding sites. It was natural to use the GLOBE Mosquito Habitat mapper with the high school.

We collected data from april until august. At first, it was difficult to find breeding sites because it was winter time; however, they found more breeding sites as time progressed and weather warmed. The students showed enthusiasm after they felt comfortable with collecting the data. At the time of presenting the results on a Mini Maker Faire an event that celebrates science and art they were satisfied with the results.

The teacher from the highschool told us it was a wonderful experience to share the GLOBE Project with her students at the school. The students had the opportunity to use the scientific method such as observation, experimentation, mathematical quantification, comparison, classification, analysis, tabulation, and deduction to solve practical problems of the community.

Also, the country coordinator, a GLOBE teacher, and one of the volunteers travelled to Peru to get trained into the GLOBE Zika Education and Prevention Program. The Science Corner was the one of the first countries to finish the training. Although, we encounter difficulties with the program we continue to promote the Zika and Education Program.

COMMUNICATION

The Benjamin Franklin Science Corner, the Scientific Society of Paraguay, and the United States Embassy in Asuncion is using their Facebook to promote any GLOBE related activity. Also, we use other social media platforms to promote GLOBE.

Consequently, the Science Corner is featuring GLOBE teachers who are doing the protocols in their schools through their Social Media. This helps spread GLOBE in schools and it also empowers the teachers doing GLOBE protocols.

As part of the GLOBE Zika Education and Prevention Program we have a lot of request to take the program to the remote areas of the country were mosquitoes diseases are high. This program was featured at a local digital media to increase teachers participation in the program.

STAFF



Antonieta Rojas de Arias, is the current Country Coordinator of GLOBE Paraguay has a degree in education from the Universidad Andrés Bello in Venezuela, in biology from the National University of Asunción, a degree in public health from the University of Sao Paulo, Brazil, and a doctorate in zoology from the University of Wales, United Kingdom, in addition to several specializations, highlighting those of tropical diseases.



Claudia Rodríguez-Ortega is a plant biologist from the University of California Davis in Davis, CA. She is also the Benjamin Franklin Science Corner Coordinator. She supervises all the Science, Technology, Engineering, and Math program from the U.S. Embassy. Also, she is currently working in various community centers around Asuncion to improve people's

perceptions on science.



Agatha Bóveda Aguirre, is a biologist pursuing her Master in education of Natural Sciences and a professional photographer. She has been teaching science for 6 years in private schools in Asunción, she is a GLOBE teacher and was chosen to go to GLE in Ireland this year. Also, she is a Master Trainer for the GLOBE Zika Education and Prevention Program. She also has publications of articles in national and the international press.



Alejandro Mendez Ferreira, is a senior student of Biotechnology at the National University. He is also part of the scientific initiation program at the Natural Resource Department of the National University. He is the regional coordinator or Allbiotech in Paraguay, an international organization that seeks to establish and strengthen a Latin American community that unites all segments of the bioeconomy ecosystem. GLOBE Master Trainer in mosquito

larva protocol and the application of Mosquito Habitat. Volunteer and member of the Marketing Group of Clubes de Ciencia Paraguay.



María Victoria Mendez Varela is a first year student of Biology at National University. She has been volunteering with GLOBE at the Benjamin Franklin Science corner since we started the program in 2016. Also, she is a volunteer and Coordinator of the Science area in the Club Escuela Solidaria Paraguay, the first open school in Paraguay, with a 360 ° education methodology, for children from vulnerable communities.



José Osvaldo Ocampos Florentín, is a second-year student of Electronic Engineering at the National University of the Polytechnic School. He is a GLOBE Volunteer of the Benjamin Franklin Science Corner since 2016. He was a former participant of Clubes de Ciencia and he also volunteers at a local NGO called HablArte

APPENDIX



Juan Ramon Dahlquist

Students working on the GLOBE Observer Mosquito Habitat Mapper App





Voices of Nature Eco Club in Pilar, Paraguay



3D Printed Larva





GLE Photos from Agatha Boveda



GLOBE- Zika Education and Prevention Program

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