**ANNUAL REPORT**

**GLOBE Chile**

**2018 - 2019**

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# INTRODUCTION

The GLOBE PROGRAM in Chile is in a stage of reformulation of its processes and reactivation of the schools that have participated in some stage in it. In turn, it will integrate new schools and organizations with educational purposes.

The process described above is based on a paradigmatic vision of sustainability and on actions based on the development of environmentalization processes in the organizations in which it operates. To do this, there is a strict subscription to the GLOBE strategic plan, based on our academic affiliations, which we understand as one of our strengths.

From our previous process, we maintain the following considerations:

* Prioritize participation in teacher training centers (Universities), especially initial training (considering its multiplying power in the construction of learning and possibilities of linking students with the human environment), over training and services for individual teachers of Schools, without excluding this last modality.
* Prioritize initial actions in schools that have expressed both interest in the program and the capacity to finance its inputs, until a critical mass is formed to implement GLOBE in interested schools without financing capacity.
* Establish a pedagogical dynamic that privileges accompaniment (coaching), over intensive training workshops (without excluding the latter). Moreover, seek the inclusion of the GLOBE protocols in the study curricula by inserting them in the framework of curricular environmentalization processes and proposals in the form of collaborative work and S.T.E.A.M.-type projects. Additionally, define a monitoring system through action research methodology.
* Establish an autonomous presence of the GLOBE Program independent of the institutions that have been linked so far, such as the Ministry of Education. For this purpose, cooperation agreements are being established with educational institutions and work is being done on the formation of an NGO with the aim of managing the logistics function of the GLOBE application in the country in an expeditious and efficient manner.

# EDUCATION

1. **Running activities.**
   1. **Action in Higher Education**

Actions in Higher Education focus on three universities: University of the Americas (UDLA), Metropolitan University of Educational Sciences (UMCE) and the University of Chile (UCH). Lately, the AIPEP Professional Institute has been integrated, with whom we have formalized an agreement and whose students participate in local GLOBE actions.

* + 1. University of the Americas (UDLA)
* The final formalization of the agreement is in process; meanwhile the University maintains its support for the program with the participation of students in the activities and the provision of the necessary facilities. It is intended to form a stable group of students and teachers for GLOBE topics, whose work should be in the logic of linking with the environment (academic line) and research and the development of environmentalization.
* In the School of Basic Pedagogy, the inclusion of elements of GLOBE protocols in practical activities is still being considered. Considered an active part of environmentalization actions, together with the development of STEAM-type projects that include the use of protocols.
  + 1. Metropolitan University of Educational Sciences (UMCE):
* There is a small working group with which we have given some training, there is a station that collects meteorology data and a virtual classroom for GLOBE teachers who wish to register (it is conceived as a repository of materials and an instruction platform). Additionally, with them we try to advance on the issues of protocols to build instruments.
* After last year's contingency, the work in the Entomology areas is being expanded, where work actions are structured in hydrology protocols, specifically with benthic macroinvertebrates
  + 1. University of Chile
* There are actions to support activities in the atmosphere and Development protocols in the area of aerosols, with sponsorship and contribution from the Department of Meteorology
  + 1. AIEP Professional Institute.
* The integration of this house of studies has begun with a pre-service instructor training process and active participation in the data campaign for the second semester of 2019. We are analyzing other actions that contribute to institutional environmentalization and the strengthening of the B-CORP certification.

1. **School Action.**
   1. We have increased our network with other schools, maintaining the criteria of sustainability and commitment to constant work, in which the following stand out:
      1. Lincoln College Academy, which has just awarded an equipment purchase project that will allow it to maintain digital stations in its two campuses and an exclusive laboratory for GLOBE for the research on aerosols and the implementation of the water protocols that will start in the second semester of 2019. Professor Hernán Costabal whom has been appointed as a Trainer leads this center and whom we hope can do his training to become a Mentor trainer in the near future.
      2. Colegio Eleuterio Ramírez: there are stations and a GLOBE work group that work rigorously and participate in campaigns. Some of the groups are: GLOBE OBSERVER, El Niño, and recently in the Eclipse bell, where they reported from a point in Combarabalá (IV Region)
      3. Liceo Federico Lhose de los Vilos: integrated recently, they are installing their meteorological station. They participated in the internal campaign of the Eclipse from the town of Vicuña (Valle del Elqui, IV Region) and, additionally, they are developing an investigation on fogs.
      4. Manuel Rodríguez de Arica School: the MT Viviana Zamorano runs this establishment has the mission of integrating a couple of schools and working on the mosquito protocol (it is the only locality in Chile with the presence of these vectors.
      5. International Preparatory School: This recently integrated school has a professor who is an expert in technology, with whom we design low-cost instrument manuals. His last action was to participate in the GLOBE Anemometer Challenger.
      6. Colegio Melián Talca: coordinated by our scientist Pamela Pizarro, is conducting research in fogs.
      7. Additionally, Santiago College is participating, which began its workshops and we analyzed the application of 5 schools that wish to join GLOBE CHILE.
2. **Workshop 2019**
   * 1. Celebrated with the presence of Mariana Savino, it was held in the facilities of the University of the Americas with three high-level academic speakers. Practical workshops and other exhibitors from the network of associated professors and scientists, beginning the training school cycle, to which two technical instruction meetings on atmosphere protocols have been added.
     2. It is noted that there is still total willingness to collaborate with any school that wishes to work in GLOBE, especially in my role as Deputy Country Coordinator. However, they need to concretely demonstrate their willingness to work with us.
3. **Campaign Action.**
   1. We participated as GLOBE CHILE in the Eclipse 2019 campaign with teams from four schools, one from AIEP.
   2. Actions framed in the Mosquito campaign have been carried out at the dissemination level (Our country is not an area of interest due to the low activity of these vectors). In the same way, we have made a bibliographic review that will be part of our repository on the subject. Furthermore, we have given a talk by the Director of the Public Health School of the PUC, Dr. Gonzalo Valdivia, on the inauguration of the academic year of the UDLA School of Basic Pedagogy in Santiago and the protocol is being implemented in Arica.
4. **Academic production**
   1. In addition to the work on curricular setting with the inclusion of GLOBE protocols from last year, a publication prospectus on STEAM projects for teachers in initial training is in the process of being finalized. In addition, with two scientists, we are preparing a study to survey Environmental education and the GLOBE protocols associated with the formal content of primary and secondary education in Chile.
5. **Network of scientists**
   1. We are restructuring our network of scientists in order to channel their contributions efficiently. At the same time, we intend to increase not only the number of participating scientists but also the diversity between specialties. It would be very important to be able to convene specialists in Education, which in our opinion is one of the aspects of little participation in GLOBE.

# TECHNOLOGY

**Development of low cost instruments.**

* Under the leadership of Professor Paillali, modalities are being developed to build accessories and instruments based on Arduino hardware and the use of 3D printers.
* Under the supervision of Professor Rondanelli's doctoral students. The construction of specific photometers for the study of aerosols is supported.
* We intend in the near future to be able to learn about and apply satellite technologies to our performance with GLOBE protocols.

# COMMUNITY

In this area, we have not had major progress or actions, in addition to talks by the teams participating in the eclipse campaign in their surrounding communities and social institutions.

We hope in the near future to be able to activate some actions in educational communities on epidemiological surveillance inspired by the mosquito campaign.

# COMMUNICATIONS

Within the framework of the collaboration agreement signed with the company LUDENS, work is being carried out to relaunch our national website in September 2019.

For now, our fan page is active on Facebook. In addition, the installation of a stand in the Quinta Normal art and technology museum in Santiago is being managed.

# STAFF

Active Capacitors:

MT Raul Perez

MT Viviana Zamorano

Trainer: Hernan Costabal

Active Agreements:

* Ludens
* Global Creative
* AIEP Institute.
* UDLA (in process)
* UMCE (in process).