Science Voices

Annual Report

2023

To Our Valued Partners and Supporters,

Over the past year, Science Voices focused on strengthening connections with our existing partners (mostly due to visa problems that prevented us from working in our desired destination of Brazil during most of the year). The delay in settling in Brazil, however, provided an excellent opportunity to meet with almost all of our partners in-person and do some significant planning for the upcoming years. Our visits included in-person work in Ternate, Indonesia, where we signed a 5-year memorandum of understanding with Khairun University; Salinas, California, USA, to meet our volunteers David and Daniel who have been working with us for many years on the Sustainable States program; Phoenix, Arizona, USA, to have longer board discussions about our long-term strategy; St. Thomas, USVI, USA, to finish up our Office Astronomy for Development grant; Przemyśl, Poland, where we discussed broader Ukraine plans with Dr. Ihor Bubniak; Košice, Slovakia, where we met with potential company partners for Greenworks; and Cluj-Napoca, Romania, for to meet our volunteer Alex and strategize for Agavi.

In the latter half of the year, we deployed a Greenworks professional development program for teachers as a new first step to onboarding them into the Greenworks program. In our past test deployments, we discovered from both teachers and students that there was a strong desire for professional development around Greenworks' "Project Design" curriculum so that teachers could better support students as they work to develop their environmental stewardship projects. Our online course lasted six weeks and featured interested teachers and teachers-in-training from Brazil, Indonesia, Iran, Pakistan, Ukraine, Uzbekistan, and Zambia. The online modality yielded mixed results, but we graduated teachers from Brazil, Indonesia, Iran, and Ukraine. These teachers will join our Greenworks community in 2024, with others joining as observers and the potential to try again next year.

We are expecting to increase our impact significantly in 2024. The Greenworks program will debut four community project programs, funded through your donations throughout 2023. These will include:

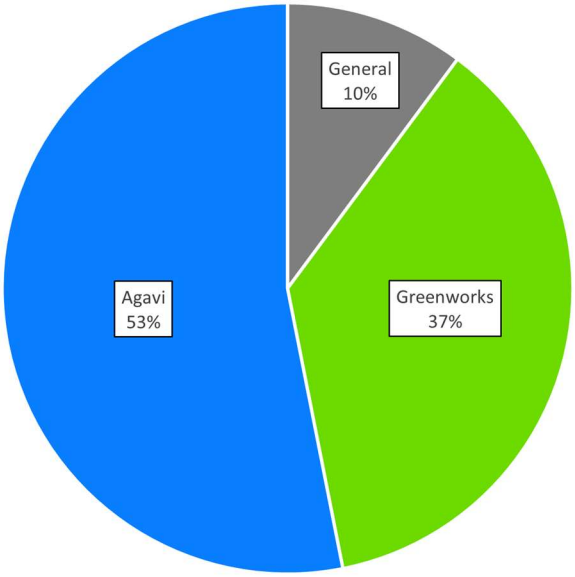
- Guapimel (Brazil) – a native beekeeping and honey production program that will be developed by members of the Guapiruvu agroforestry community and University of Campinas students and faculty
- Greenworks Ternate (Indonesia) – an incubator program for developing environmental stewardship projects through Khairun University's business degree program
- Clean Rivers (Ukraine) – a river clean-up and geotourism creation program that will be developed between Lviv Polytechnic faculty and students and Carpathian mountain river communities
- Astrosustainability Incubator (US Virgin Islands) – a program led by the University of the Virgin Island's Astronomy Club to integrate astronomy and science into agriculture and marine science businesses

Additionally, we are expecting to finish and begin testing prototypes of Agavi and Sustainable States in the upcoming year. As always, your generous contributions help us achieve our ambitious goals. Whether it's your attention to our work, volunteer time, or donations to help pay for equipment, materials, time, and travel, please keep us in mind as you think about your giving this year.

Lev Horodyskyj
Founder, Science Voices

Funds Raised by Category (2023)

100% from donations and donation matching



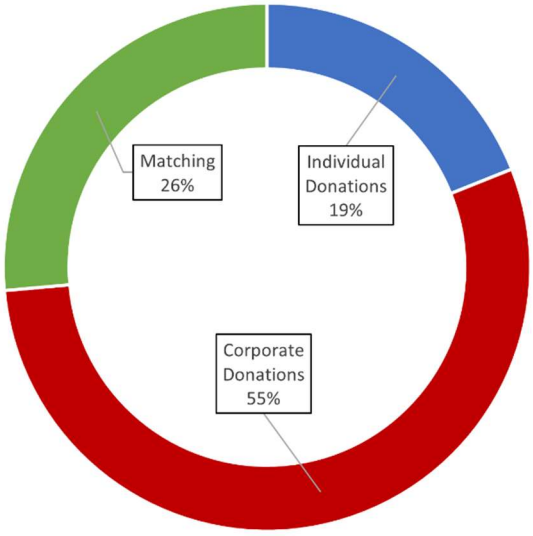
***General** = funds for operations, company travel, and prototyping*

***Greenworks** = funds for Greenworks start-up projects (Brazil, Indonesia, Ukraine, US Virgin Islands)*

***Agavi** = funds for Agavi platform development*

***Sustainable States** = funds for development of software and hardware for Sustainable States program (no funds raised in 2023)*

***Incubator (formerly Public Works)** = funds for experimental projects (no funds raised in 2023)*



Volunteers and Researchers

Greenworks (3 volunteers)

Agavi (7 volunteers, 2 researchers)

Sustainable States
(5 volunteers)

Instructor Partners

University Partnerships

Khairun University (Ternate, Indonesia)
5 Year Memorandum of Understanding

Students Impacted (Greenworks)

Brazil
+40 (Courses)

**This year's focus was on partnership and teacher professional development to help scale up student offerings more successfully in 2024*

Greenworks

Greenworks is a global environmental stewardship network that supports teachers in project-based teaching and their students in implementing local community projects.

Cohort 1

After developing and testing the full "Project Design" curriculum with students last year, in late 2023 we developed and offered a companion teacher development curriculum to help our teacher partners both gain experience in the Greenworks program and, more importantly, in the active learning style of teaching so that they can apply modern teaching principle more widely in their teaching. We originally worked with 17 high school and university teachers online who had been recruited in-person and through the Science Voices website. These teachers hailed from Indonesia, Iran, Pakistan, Ukraine, Uzbekistan, and Zambia. Additionally, we had an in-person offering for teachers-in-training in Brazil. The online and in-person offerings were marred by technical difficulties in some of the partner countries we were working with, as well as a student strike in Brazil over conditions at the university. However, we managed to successfully graduate teachers from Brazil, Indonesia, Iran, and Ukraine, who will be joining the Greenworks network in 2024.

Cohort 1 will be developing the following environmental stewardship projects, which are focused on giving students experience in project lifecycles and building collaborative partnerships with local communities:

- Guapimel (Brazil)

  A collaborative partnership between the University of Campinas (UNICAMP) and the Guapiruvu agroforestry community in São Paulo state, this project will focus on developing knowledge, research, and cultivation skills related to native stingless bees. The long-term goal of the project is to help the Guapiruvu community develop honey resources that can be sold to local co-ops that distribute forest food products throughout São Paulo state and to contribute to research on these understudied species of bees and the health of their hives.

  **Guapimel will also be the focus of a student consulting project through* 180 Degrees Consulting *to develop a "horizontal knowledge transfer" community with US high school and college partners that could form the basis of a future student exchange program. If successful, this model will be exported to our other Greenworks partners.*

- Greenworks Ternate (Indonesia)

  Driven by the business and marketing degree program at Khairun University, Greenworks Ternate aims to offer a condensed version of the Project Design curriculum to business and marketing students during a 1-2 week period in early 2024. Faculty will work with students to help them develop and implement environmental stewardship projects focused on garbage clean-up, waste management, vertical agriculture, marine resources, native bee cultivation, or whatever other topics interest students.

  **Additional in-person work in Indonesia is planned for late 2024.*

- Clean Rivers (Чисті Ріки) (Ukraine)

  A collaborative partnership between Lviv Polytechnic and Sukel' River communities in the Bolekhiv region of the Carpathian Mountains, this project will focus on developing knowledge, research, and teaching resources related to the Sukel' River and geoformations in the region as part of a broader effort to develop geotourism in the area. The project will be particularly focused on river health and pollution, working with the local community to develop teaching and public education resources for maintaining a clean river. Additionally, the river's relationship to local geoforms will be used to build resources for new geotourism programs.

- Astrosustainability Incubator (US Virgin Islands)

  As a follow-on from the astrotourism project developed in previous years, the project has been folded into the Greenworks portfolio as more students in sustainability and marine sciences have gotten involved in the burgeoning Astronomy Club developing at the University of the Virgin Islands through supervision by the Etelman Observatory. This program will work to develop a sustainable Astronomy Club that helps students build understanding and project prototypes that integrate astronomy with other island activities, such as agriculture and marine tourism.

To prepare Cohort 1 for year 2 of their projects (2025), we will be developing and offering a "Funding Development" curriculum in mid-2024 to help build understanding of funding resources for research and community projects, as well as launching new fundraisers to help them crowdsource funds for year 2.

Cohort 2

In late 2024, we will offer the teacher development program again to recruit Cohort 2 for 2025. To keep teachers accountable and invested in the program, we will charge a small tuition fee. Additionally, we will make changes to the curriculum based on our 2023 experience to help improve completion rates.

Greenworks Junior

Because we have recruited and graduated a number of primary and secondary school teachers with an intense interested in Greenworks, we will be working with them to develop Greenworks Junior, an adaptation of Greenworks for the primary and secondary school levels. These partners include teachers in South Korea and Iran, with additional observers who participated in the Greenworks teacher development program but have not yet successfully completed it.

Partner Locations

University of Campinas
(Brazil)

Khairun University
(Indonesia)

Ivy Collegiate School
(South Korea)

Lviv Polytechnic
(Ukraine)

University of the Virgin Islands
(USA)

Program Development

Lev Horodyskyj
Co-Lead (Science)
Brazil/USA

Tara Lennon
Co-Lead (Policy)
USA

Anirudh Mannattil
Community Manager
Singapore

Faculty Partners

Roberto Greco
In-Country Facilitator
Brazil (São Paulo)

Halikuddin Umasangaji
In-Country Facilitator
Indonesia (North Maluku)

Lily Ishak
In-Country Facilitator
Indonesia (North Maluku)

Zandy Zain
In-Country Facilitator
Indonesia (North Maluku)

Ihor Bubniak
In-Country Facilitator
Ukraine (Lviv)

Brice Orange
In-Country Facilitator
USA (US Virgin Islands)

Jim Morgan
Greenworks Junior
South Korea

Soodeh Sepehri
Greenworks Junior
Iran

Looking Forward

Greenworks is well on its way along its development pathway, with a number of teachers formally inducted into the Greenworks community and working their way through implementation of projects with their students. In 2024, we will be working with these teachers to ensure successful implementation of their programs and then build on those successes to realize our grander vision of a global sustainability network that empowers students and teachers alike. Our roadmap for 2024 includes:

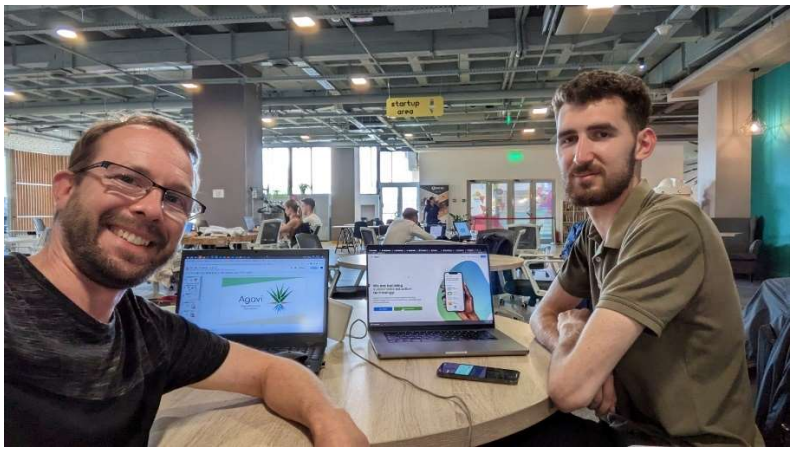
- Successful implementation of Cohort 1 projects (Brazil, Indonesia, Ukraine, US Virgin Islands)
- Successful recruitment of long-term collaborators for Greenworks Brazil via 180 Degrees Consulting (3-5 student groups with interest in sustainability, electronics, local governance, and fundraising)
- Funding Development curriculum creation and implementation for Cohort 1 in mid 2024
- Recruitment and successful graduation of Cohort 2 in late 2024
- Raise at least $10,000 for continuation of Cohort 1 projects and $20,000 for funding of Cohort 2 projects in 2025
- Development and successful implementation of pilot Greenworks Junior program (South Korea and Iran)
- Professional workshops and presentations at the International Geological Congress quadrennial meeting in Busan, South Korea
- In-person work with partners in Brazil, Indonesia, and South Korea in mid-to-late 2024
- Additional Memoranda of Understanding with partner universities to secure long-term commitments

Agavi

Agavi is an adaptive learning platform designed for smartphones that enables teachers to build innovative new experiences for their students.

Progress Report

After slowing down this year to reassess the project, its personnel, and its organization, in the last few months of this year we were able to accelerate development of the Agavi platform. Alex Gazdac has taken over as lead for the project due to his business and software development experience, with Lev Horodyskyj as co-lead for developing school partnerships in economically and socially challenging learning environments. In the last few months of 2023, development of Agavi has progressed well, with a new prototype quickly reaching completion as well as a new visual library to help make the program more accessible to teachers with less comfort with digital teaching tools. Additionally, we have begun to develop partnerships with Internet-of-Things and trades skills groups to extend the use of Agavi quickly beyond just the phone to include sensors and physical objects as well as non-traditional teaching contexts, where we think we have strong market potential.



Lev and Alex meet in person for the first time ever to plan Agavi strategy (Cluj-Napoca, Romania, 2023)

Research Group (Global)

As always, we hosted summer students through the Blue Marble Space Institute of Science's Young Scientist Program (BMSIS YSP). This program provides research experience to students around the world. This year, we welcomed Giane Galhard (Brazil), Leonardo Macedo (Brazil), and Yuqing Yang (China) to the team. Leonardo and Yuqing worked with Jonathan Oribello on developing competency metrics that can help teachers use Agavi to evaluate students beyond just a simple points system and instead help them identify skills and knowledge bases where students excel or struggle. Giane worked with Alex on developing the user interface for Agavi, with a focus on making the system accessible to teachers of all abilities. Giane and Leonardo joined the team after the completion of the program and have continued to remain involved in research and development of the Agavi platform.

Alexandru Gazdac

Co-Lead

Romania

Lev Horodyskyj

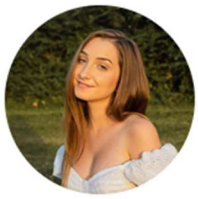
Co-Lead

Brazil/USA

Giane Galhard

Programming

Brazil



Iulia Toma

UI/UX

Romania

Wayne Parkhurst

Programming

USA

Jonathan Oribello

Data Analytics and Research

USA

Leonardo Macedo

Data Analytics and Research

Brazil

Felipe Alves de Souza

Amazon Projects

Brazil

Kira Nolan

National Parks Projects

USA

Looking Forward

We anticipate being able to begin testing Agavi with teachers in the latter half of this year. Our roadmap for the upcoming year includes:

- Complete the Agavi prototype (mid 2024)
- Begin testing with teacher partners who have volunteered to help test over the years (mid-to-late 2024)
- Develop bee education resources and test Agavi with the Guapiruvu community in Brazil as part of the Greenworks Guapimel project (mid-to-late 2024)
- Professional presentations at the International Conference on Education Technology and Online Learning conference (online and Eskişehir, Turkey) and International Geological Congress quadrennial meeting (Busan, South Korea)
- In-person training with Agavi for teachers in Brazil, Indonesia, and South Korea
- Begin preparing for implementation of Agavi with Amazon River Schools (late 2024 to early 2025)
- Continue developing Agavi-associated research projects with interested affiliates and BMSIS YSP

Sustainable States

Sustainable States is a role-playing game that trains teachers and students in game-based learning through environmental diplomacy.

Progress Report

Originally part of the Greenworks program, this year we spun off Sustainable States as a separate program due to the incompatibility between the development pathways of the role-playing game and the formal Greenworks program.

Over the past year, we recruited for and organized the new team that is working to build the Sustainable States software and hardware. Through the Blue Marble Space Institute of Science's Young Scientist Program (BMSIS YSP) we welcomed Miguel Puga (Brazil) and Patricio Mendoza (Ecuador). Through Hartnell College's Internship Program we welcomed Isael Estrada (USA) and Victor San Juan (USA). The team worked to explore game design options and rulesets to help us achieve our Sustainable States learning outcomes, and developed some early prototypes to test our ideas. Miguel, Isael, and Victor continued with us after the completion of their programs.

There were no classroom offerings of Sustainable States in 2023 as we were working on redeveloping the team and the software necessary for offerings in 2024.


Lev Horodyskyj
Co-Lead (Science)
Brazil/USA


Tara Lennon
Co-Lead (Policy)
USA


David Orta
Programming and Game Design
USA


Daniel Orta
Programming and Game Design
USA


Isael Estrada
Game Design
USA


Miguel Puga
Programming
Brazil


Victor San Juan
Game Design
USA

Looking Forward

We anticipate being able to begin testing Sustainable States software with teachers in the latter half of this year. Our roadmap for the upcoming year includes:

- Complete the Sustainable States software prototype (mid 2024)
- Professional workshops and presentations at the International Geological Congress quadrennial meeting in Busan, South Korea
- In-person demonstrations in Indonesia and South Korea
- Implement an updated classroom version of Sustainable States with our partners at UNICAMP
- Continue developing Sustainable States projects with interested affiliates, BMSIS YSP, and Hartnell College

Public Works / Incubator

We concluded our Office of Astronomy for Development grant with an event at the Bordeaux Farmers' Market in St. Thomas, USVI, in April 2023. This event featured our intern Nikita Beck and several additional students introducing a solar telescope and other solar observations to farmers at the market, as well as tourists who were visiting the island. Attendance was light as it was Easter weekend, but interest was high enough to justify continued work with the market in the future. This project has now been subsumed into Greenworks USVI, where it will continue to be developed by the Astronomy Club under the supervision of Dr. Brice Orange at the Etelman Observatory in St. Thomas.

A project that we are looking to further develop in 2024 is a Brazilian spin-off of Science Voices that can help us develop and implement projects in Brazil and give access to Brazilian grant opportunities, which as a US-based institution, Science Voices is not currently able to do. We are working with local science and arts colleagues to further develop the concept, which may involve forming a community organization or institute in Brazil that can put a Brazilian spin on Science Voices' mission of improving science learning through technology and art. If successful, this community organization or institute will be able to host and coordinate our growing portfolio of Brazilian projects and potentially host exchange students in 2025. Additionally, it can serve as a model for our other international partners and help them take ownership of the projects that we help launch.

Global.Science

We have paused further development on the Global.Science podcast until more of our main projects develop and provide new teacher experiences that will be more interesting for our audience to learn about. The podcast's listenership is higher than we expected, but extensive travel and partnership development this year precluded us from recording more than a handful of episodes.

Partners and Major Supporters

Long-Term Partners

180 Degrees Consulting
Blue Marble Space Institute of Science
Khairun University
Orange Wave Innovative Science, LLC

Dr. Roberto Greco (University of Campinas, Brazil)
Dr. Halikuddin Umasangaji and Dr. Lily Ishak (Khairun University, Indonesia)
Jim Morgan (Ivy Collegiate School, South Korea)
Dr. Ihor Bubniak (Lviv Polytechnic, Ukraine)
Dr. Brice Orange (University of the Virgin Islands, USA)

Major Supporters

H.B. Fuller Company

Ivan and Luba Horodyskyj
Lev Horodyskyj
David Orta

Join Our Journey

A heartfelt thank you to all the donors and volunteers who have contributed their time, expertise, and money to our cause. If you would like to join us on this journey, you can contact us at https://sciencevoices.org/get-involved/. Additionally, you can follow us at our websites and social media channels.

www.sciencevoices.org

info@sciencevoices.org