



Section 1: Implementation

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This Country Coordinator Implementation Guide has been developed as a resource guide to assist GLOBE Country Coordinators in the operations and implementation of The GLOBE Program in their countries. Section 1: Implementation contains:

1. GLOBE Agreement and Roles of the Government Point of Contact and Country Coordinator
2. Types of Country Coordinators
3. GLOBE Sponsors, GLOBE Program Office, GLOBE Implementation Office, GLOBE Working Groups, GLOBE Regional Coordination Offices and GLOBE Welcoming Process
4. School Selection and Support
5. Costs of Implementing GLOBE
6. Private Sector Support for GLOBE International Partners
7. Organizations Involved in GLOBE Activities
8. GLOBE Best Practices
9. Impact of The GLOBE Program

1. GLOBE Agreement and Roles of the Government Point of Contact and Country Coordinator

Under the GLOBE Agreements, NASA is responsible for providing the program infrastructure, and GLOBE partner countries are financially and managerially responsible for GLOBE activities in their country. Countries decide how to implement GLOBE to meet their educational, environmental and/or other national objectives, define the scope of and budget for their program, choose schools that will participate in the program and work with the schools on implementing GLOBE in the classroom. Following signature of the agreement, GLOBE Countries name a Government Point of Contact who is responsible for policy-level communications with the NASA GLOBE Program Office Director and provides high level oversight of the GLOBE Program in their country.

The Governmental Organization responsible for GLOBE in a country selects and appoints the GLOBE Country Coordinator (CC). The GLOBE CC is responsible for day-to-day management of the program in that country, usually including recruiting schools, organizing teacher training sessions, mentoring teachers, program oversight, etc. Most CCs have other responsibilities in addition to GLOBE. They appoint Deputy or Assistant CCs to support implementation of these activities and to ensure continuity when the CC departs. The Deputy or Assistant CC also ensures representation at events like annual GLOBE Regional Meetings if the appointed CC is unable to do so. Some countries also have designated more

than one individual to manage GLOBE, either to support different geographic regions or different education levels. In both of these cases, the country will designate one individual to submit country reports and surveys to The GLOBE Program.

The initial step for implementing GLOBE in a country is for the CC and others to be trained as GLOBE Trainers as soon as possible after signing the bilateral agreement. New countries are encouraged to volunteer to host the next annual GLOBE Regional Meeting (RM). Training opportunities for the CC and teachers exist since training will be included in the RM or after as arranged. CCs often cooperate with local scientists and teachers to enlarge their country training team. This enables the CC to provide training to GLOBE teachers in his/her country. In order to ensure the accuracy of the GLOBE data for use by GLOBE students conducting research as well as by the world science community, each GLOBE school must have a GLOBE teacher trained in guiding students in taking GLOBE measurements. CCs and their teams will be trained on the conduct of GLOBE environmental measurements according to the measurement protocols developed by GLOBE scientists, the reporting and use of GLOBE data, the use of GLOBE educational materials and learning activities, and the use of the GLOBE Website. Contact the Regional Coordination Office (RCO) for your region (See paragraph 3—*GLOBE Sponsors, GLOBE Program Office, GLOBE Implementation Office, GLOBE Working Groups, GLOBE Regional Coordination Offices and GLOBE Welcoming Process*) for upcoming GLOBE Trainer opportunities in your region or the GLOBE Community Support Team at globehelp@ucar.edu for other GLOBE Trainer opportunities.

The CC selects GLOBE schools and, in collaboration with the training team, trains at least one teacher in each of the schools in GLOBE protocols and various aspects of The GLOBE Program (see Section 3: Science). The CC provides assistance to the schools in the acquisition of resources that they need to participate in the GLOBE Program. (See paragraph 4—*School Selection and Support*). The CC also keeps the GLOBE schools updated on program matters, answers their questions, and addresses their concerns. The workload can be intensive, especially when the country is beginning its participation in the program and is training teachers; the efforts generally transition to ongoing support for each school after the school is trained and has initiated GLOBE activities.

CCs have a variety of special administrative Website tools to manage GLOBE workshops, schools and users that enable the implementation of GLOBE, including certification of GLOBE teachers, student accounts and data entry. (See Section 5 – Technology Systems)

The role of the CC is of critical importance to the overall success of a country's GLOBE Program. The CC acts as the point of contact for all GLOBE schools in the country. This is necessary for many reasons but mainly so that the CC is aware of questions and/or problems schools are facing in their implementation of GLOBE. With this awareness, the CC can identify issues facing his/her schools and develop strategies to avoid similar problems in the future. The CC also can help develop solutions specific to the education system in their country. It is often quicker and more efficient and relevant to obtain answers locally or nationally than from the GLOBE Implementation Office (GIO). This procedure for addressing schools' problems and concerns provides an opportunity for interaction between

the CC and GLOBE schools and helps to establish relationships between the various individuals involved in the country's GLOBE Program.

The CC is responsible for completing the annual GLOBE Partner Survey. This survey has been designed so that it is aligned with the [2018–2023 Strategic Plan](#). The information contained in this survey also helps the GIO in modifying its services provided to partners. CCs receive a link to the annual survey from the GIO in late December of each year. CCs also are responsible for completing the annual Country Report that provides additional information to GIO as well as other GLOBE countries in the region to facilitate sharing of best practices and development of collaborative activities. CCs are responsible for providing their Country Report to the RCO in their region at the beginning of each year; the Country Report is a requirement for receiving support to attend the annual GLOBE Regional Meetings (See paragraph 3—*GLOBE Sponsors, GLOBE Program Office, GLOBE Implementation Office, GLOBE Working Groups, GLOBE Regional Coordination Offices and GLOBE Welcoming Process*).

Over the history of the Program, CCs have adopted a variety of mechanisms for providing ongoing support to and communicating with their GLOBE schools. National GLOBE Websites, blogs and Facebook pages, other social media accounts (i.e. Twitter and Instagram), monthly newsletters, news briefs, email user groups, and WhatsApp groups are examples of communication tools successfully used by CC to keep their GLOBE community updated.

Regular CC communication with the RCO to share achievements, pictures of workshops and other activities helps the RCO to share the country achievements on various platforms and also to gauge how the RCO can better support the CC. Following is a summary of CC responsibilities:

Responsibilities of GLOBE Country Coordinators

School-Based

1. Identify schools that will participate in The GLOBE Program
2. Ensure that GLOBE schools conduct the fundamental activities of GLOBE schools (take GLOBE environmental measurement, report data, and receive and use GLOBE visualization, graphs and datasets, using GLOBE educational materials under the guidance of GLOBE-trained teachers)
3. Attend annual GLOBE Regional Meeting to become a GLOBE Trainer (and as necessary identify and support training of qualified GLOBE trainers) and provide GLOBE training to at least one teacher in each GLOBE school
4. Create teacher training workshops and GLOBE teacher accounts for trained teachers following the workshops using the GLOBE Website
5. Ensure that GLOBE instructional materials related to measurement procedures and data reporting protocols are utilized in GLOBE schools, and that broader GLOBE educational materials are appropriately translated, adapted, reproduced and distributed to all GLOBE schools

6. Ensure that the measurement equipment used by GLOBE schools to take GLOBE environmental measurements meets GLOBE specifications
7. Ensure that teachers and students at GLOBE schools calibrate GLOBE measurement equipment according to procedures provided in GLOBE instructional materials
8. Ensure that GLOBE schools have the necessary computer and communications systems to allow Internet/web access in order to report GLOBE environmental measurements and to receive and use GLOBE environmental images; if such computer and communications systems are not available in schools, make agreed alternative arrangements for such reporting and receipt
9. Make full use of data technology now available for data entry such as the GLOBE Website and apps
10. Assess needs to provide follow-up training and/or support for teachers
11. Develop and use an effective communications infrastructure (for example, newsletter, listserv, etc.) to support GLOBE teachers and their students

Programmatic

1. Complete the Annual GLOBE Partner Survey conducted each year to support evaluation of the overall GLOBE Program
2. Complete and submit the annual Country Report of activities distributed by the Regional Coordination Offices (RCOs) to be shared at the annual GLOBE Regional Meeting each year
3. Name and integrate a Deputy or Assistant CC
4. Keep up-to-date all contact and country information posted on the GLOBE Website
5. Keep up-to-date with developments in the program, the Website and data systems, as well as changes to protocols and instrumentation
6. Communicate with Citizen Scientists and Citizen Science organizations who contact the CC
7. Be engaged in the implementation of the GLOBE Strategic Plan (2018–2023) to strengthen the program in their country
8. Be involved in GLOBE Program processes as required (the nomination of candidates for the GLOBE Working Groups, training certification, etc.)
9. Regular communication with the RCO

Additional capabilities available:

- Post national news and events on country page (on the GLOBE Website)
- Blog
- Write up and submit GLOBEStar and STEM Stories

2. Types of Country Coordinators

Government Organizations: Frequently, the government agency responsible for GLOBE will select a CC from within one of its ministries or departments. In some countries, the Ministry of Education acts as the CC because this Ministry is responsible for all in-school programs, for example Bahrain, Croatia and Israel. In other countries, the GLOBE CC is from the Ministry of Environment because this agency has the role of overseeing environmental education, such as in India, North Macedonia and Uruguay. GLOBE has also been implemented by the Ministry of Science and Innovation because of the importance of introducing technology in the classroom, as in the case of Thailand. In South Africa, an implementing agency with a similar mandate—South African Agency for Science and Technology Advancement—is the implementing agency.

Space Agencies: National space agencies are serving as GLOBE Country Coordinating organizations in France (Centre National d’Etudes Spatiales—CNES), Brazil (Brazilian Space Agency—AEB), and Kenya (Kenyan Space Agency). In Australia, the Australian Space Agency has designated the Commonwealth Scientific and Research Organization (CSIRO) as the CC organization.

Non-Governmental Organizations (NGOs): The CC need not be from the government. Although the government agency that signs the GLOBE agreement is responsible for selecting a CC, in many cases, a CC is chosen from outside the government. In these cases, the government often selects an NGO with which it has existing relationships and/or an NGO which is known to already have relationships with schools. For example, in Suriname, the NGO Green Heritage Fund Suriname had an established relationship with the Ministry of Education. In the Czech Republic, the NGO TEREZA was selected to act as the CC because of its experience and strong reputation for high quality environmental education programs for students. In Nepal, a local NGO named Environmental Camps for Conservation Awareness (ECCA) was selected to implement GLOBE partly because of its experience in working with remote communities. In The Netherlands, a new NGO was established for the purpose of coordinating GLOBE—the GLOBE Netherlands Foundation.

Universities: Individuals from universities are also commonly selected to serve as GLOBE CCs. This strategy has worked well in countries where the universities selected have the ability to provide scientific training and support to schools or computer and Internet support. In Argentina, Canada, Finland, Greece, Japan and Malta, universities were selected as the Country Coordinating organizations.

Teachers: Occasionally, teachers with significant environmental education or Internet training are selected as the GLOBE CC for an entire country. For example, Cyprus and Norway appointed teachers as their CCs. Teachers have been extremely effective CCs when they have the support of their own school administration in addition to the GPOC.

3. GLOBE Sponsors, GLOBE Program Office, GLOBE Implementation Office, GLOBE Working Groups, GLOBE Regional Coordination Offices, and GLOBE Welcoming Process

The GLOBE Program is led by the National Aeronautics and Space Administration (NASA) and supported by the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF) and the Department of State. The GLOBE Program Office (GPO) is located at NASA HQ in Washington DC. The GLOBE Implementation Office (GIO) provides high-quality support to the worldwide GLOBE community to promote increased and enhanced participation in GLOBE. Sponsored through a NASA cooperative agreement award to the University Corporation for Atmospheric Research (UCAR) in Boulder, Colorado, USA, the GIO collaborates with the GLOBE Working Groups in the areas of science, education, evaluation, technology and diversity, equity and inclusion to support community initiatives, the development of new science and education content, and other tools. To contact GIO, call 1-800-858-9947 or send an email at globehelp@ucar.edu.

The purpose of the [GLOBE Working Groups](#) (WGs) is to enhance the role of GLOBE CCs, U.S. Partners and GLOBE scientists and educators in shaping the future of The GLOBE Program and supporting the development and implementation of GLOBE worldwide. Five GLOBE WGs (Diversity, Equity and Inclusion – DEI, Education, Evaluation, Science, and Technology) have been created comprising community members. The WGs can have up to seven members; all efforts are made to have each of the six GLOBE regions represented in the groups. The one remaining slot can be filled by At-Large members from any of the regions. If CCs believe there are topics that the groups should discuss and bring forward to the management of the program, they should contact their regional representative. If a region does not have a representative at the time, CCs should feel free to contact the WG Chair. Information on WG Chairs and Members can be found at <http://www.globe.gov/globe-community/globe-working-groups>.



The GLOBE Program has divided the participating countries into six regions (shown in the above map).

Each region has a Regional Coordination Office (RCO) and Regional Coordinator who helps support the Program in its respective region. Duties of the RCO include:

- Basic support services to all community members in the region
- Sustainability through identification and generation of external funding from sources within and outside of the region.
- Translation of relevant GLOBE and GIO communications and regionally-produced materials in the languages of the region if needed, and dissemination of information to community members.
- Recruitment of community members in existing countries and identification and assistance of recruitment of new countries in the region in collaboration with the GIO
- Logistical organization of regional student research campaigns and events, including the annual Regional Meeting, as outlined and agreed upon by the regional governance board or advisory committees if they exist.
- Building and collaboration with the region's GLOBE Alumni and Scientist Network.
- Record keeping and evaluation reporting as required by GIO

The RCOs are:



Africa RCO

- Mark Brettenny, Coordinator
- GIA Environmental Resource Development and Training
- Mossel Bay, South Africa
- Email: africa.region.globe@gmail.com



Asia and Pacific RCO

- Desh Bandhu, Coordinator
- Indian Environmental Society
- New Delhi, India
- Email: ap.region.globe@gmail.com



Europe and Eurasia RCO

- Dana Votapkova, Coordinator
- TEREZA Educational Center
- Prague, Czech Republic
- Email: ee.region.globe@gmail.com



Latin America and Caribbean RCO

- Mariana Savino, Coordinator
- Universidad Austral, Escuela de Educacion
- Buenos Aires, Argentina
- Email: lac.region.globe@gmail.com



Near East and North Africa RCO

- Salma Al Zubi, Coordinator
- Al Tarfiaa Organization
- Amman, Jordan
- Email: nenaregion.globe@gmail.com

North American Regional Office (NARO)

- Karl C. Clarke, Coordinator
- GIO Office
- UCAR
- Boulder, CO, USA
- Email: naro.globe@gmail.com

A Welcoming Process to GLOBE!

When a country joins GLOBE, the NASA GLOBE Program Manager sends a welcome letter to the country Government Point of Contact (GPOC). Following this, GIO organizes a virtual meeting with the RCO to introduce the CC to the overall GLOBE organization, community, policies and regularly held events. GIO also guides the CC in the first stages of launching the program in the country, including but not limited to obtaining training and establishing its web presence on the GLOBE Website. GIO familiarizes the CC with the functionality and content of the GLOBE Website and provides the CC GLOBE materials and resources. The CC is requested to develop an implementation plan based on this information and the country's goals and objectives for discussion with GIO in a second virtual meeting.

GIO announces the new partnering country to the GLOBE community, and the RCO introduces the CC to the CCs in the region. It also briefs the CC on the functions of the RCO

and activities in the region and helps the CC make contacts as appropriate with other CCs who may have shared interests in various projects or activities.

Details on this process are in Section 4: Community, paragraph 2—*GLOBE Training and Support*

4. School Selection and Support

Each country is responsible for selecting its schools that participate in GLOBE. It is the responsibility of the CC to train or ensure the training of at least one teacher in every GLOBE school who is certified to supervise GLOBE activities at their school. Frequently, the schools selected to participate in GLOBE receive assistance from the CC in acquiring scientific instruments, computer equipment or Internet connectivity, either via the provision of government resources or by securing resources from other sources.

Throughout GLOBE's history, there have been a variety of ways in which CCs have selected schools and resources have been obtained by GLOBE schools. While some of the examples below are no longer current, they serve as useful illustrations for how GLOBE has been established and sustained.

Geographic Regions: Some countries choose schools by geographic region. GLOBE schools can be selected by state or province to either facilitate distribution throughout the country and/or serve as GLOBE hubs for other schools in the state or province in coordination with the provincial and local environmental offices. Spain identified a GLOBE contact in each of its Autonomous Communities to be trained as a GLOBE Trainer to train and follow-up with schools in their community. Initially, South Africa selected five to ten schools in each province, and at least five of the schools in each South African province were historically disadvantaged schools with limited resources which received support from the then Department of Arts, Culture, Science and Technology for their GLOBE activities.

Competition: Countries have established competitive means for schools to apply to become GLOBE schools. Under this mechanism, only qualified entrants based on established criteria become GLOBE schools. For example, in Greece, schools from a wide geographic region and from all levels of education applied and competed against a set of established criteria. Several hundred schools applied, and 24 schools were initially selected.

Self-Select: Many countries advertise the GLOBE Program, and schools that express an interest in participating are invited to join the program. For example, The Netherlands and Finland have used this approach.

Availability of Resources: Some countries provide resources to schools, and others select schools that can support their own participation in GLOBE. In Portugal, the Ministry of Environment supported the purchase of instruments and equipment for its first six GLOBE schools. In other countries, such as Turkey, schools were selected based on their access to existing resources such as computers, Internet connectivity and scientific instruments. And, some countries have received support for their GLOBE activities from the private sector (See paragraph 6—*Private Sector Support for GLOBE International Partners*).

Relationship with Non-Governmental Organizations and Universities: In countries where NGOs and universities serve as the GLOBE CCs, schools that have existing relationships with these organizations, or are located nearby, are frequently selected to become GLOBE schools. For example, the Czech Republic CC TEREZA had relationships with schools and children's groups around the country prior to assuming leadership of GLOBE, and these schools were initially selected to participate in the GLOBE Program. U.S. Peace Corps Volunteers teaching English as a foreign language were also trained along with their host-country counterparts, and this led to additional schools. India also focused on the implementation of GLOBE in schools located near certain NGOs that were selected by the Ministry of Environment and Forests to help with the implementation of GLOBE.

Environmental Clubs: Some GLOBE Partners utilize existing after-school environmental clubs to expand the GLOBE Program. Japan, for example, chose to implement GLOBE in both schools and in Eco Clubs. In Ukraine, GLOBE activities have been done as part of after-school environmental clubs.

5. The Costs of Implementing GLOBE

Under the GLOBE Agreements, NASA is responsible for providing the program infrastructure, and countries are financially and managerially responsible for GLOBE activities in their country. There are a number of categories of costs for countries to implement these activities, all of which may not be solely applicable to The GLOBE Program. The costs depend on how the country chooses to implement the program and the level of resources currently available in its schools. For example, if a country decides to select schools to participate in GLOBE which already have computers and Internet connectivity, then it need not include the expense of computers and Internet into the GLOBE costs. Also, if the schools utilize various scientific equipment they already have, or schools choose to make some of the scientific instruments by hand, then GLOBE instrument costs can also be reduced dramatically. That being said, below are the potential categories of costs related to implementation of GLOBE activities in-country:

Support for a Country Coordinator: Almost all of the CCs have had other responsibilities in addition to their GLOBE responsibilities. Increasingly, countries also are supporting Deputy or Assistant CCs to help the CC with implementation and to ensure a smooth transition when the CC departs. The salary of the CC and Deputy or Assistant CC, therefore, may be necessary for the country to include in the costs of GLOBE implementation. However, if the person(s) selected assume the GLOBE positions as a part of their already established duties, then this cost need not be considered as part of the implementation costs.

Building a sustained GLOBE Program and Developing a GLOBE Community: The initial CC's work is initiating the program; i.e., the CC attends a workshop to be certified as a GLOBE Trainer, selects GLOBE schools, trains teachers in those schools, and may help those schools acquire the necessary equipment to participate in GLOBE. Their implementation activities shift in focus after the teachers are trained: the CC supports schools by translating GLOBE materials and aligning them with the curriculum, keeping them up to date on program matters, and answering their questions and/or addressing

their concerns. Beyond these, there are many strategies that have been successfully implemented to achieve a successful and sustained program. Each country decides how to implement GLOBE to meet its own objectives, and the costs will depend on the strategies it pursues. Examples of successful CC activities in this phase are building a sustainable GLOBE community comprising scientists, community groups, etc.; organizing events such as GLOBE conferences, learning expeditions, student research competitions and teacher workshops; visiting GLOBE schools to assist teachers and students on their GLOBE activities; administration of a Website in the national language; and supporting and motivating GLOBE cooperation nationally, regionally and internationally.

Computers/Laptops/Electronic Notebooks and Internet connectivity: The costs vary from country to country and depend on the number of new devices and Internet connections in which the country wants to invest and how many are necessary to meet the country's implementation objectives. While it is highly desirable that each GLOBE school has a device with an Internet connection, it is also acceptable for a country to arrange to collect data in any way, so long as the CC sends, or arranges to send, the data to GLOBE through the Internet. In some countries, this has been facilitated through the ministries, U.S. Embassies, Peace Corps Volunteers, private businesses wishing to support GLOBE, or other such institutions or individuals. With the advent of the GLOBE apps, schools can now use various mobile devices to enter data.

Scientific instruments: The cost of scientific instruments varies greatly. The GLOBE Website provides specifications for the instruments required to take environmental measurements in the following scientific discipline areas: Atmosphere, Biosphere, Hydrosphere, and Pedosphere (Soil). It should also be emphasized that schools do not need to collect data in all of these areas but rather focus on the measurements that can most easily fit into either their curriculum, their local environmental concerns, or in the local or regional projects in which they are participating. Schools may choose to begin implementation of GLOBE by evaluating how GLOBE protocols and learning activities fit into their curriculum and/or other objectives. Therefore, schools may begin with a small subset of protocols thereby requiring fewer instruments. Schools may share certain equipment that does not need to be used on a daily basis (e.g. GPS units, soil augers, etc.). In some countries, for example the Czech Republic, schools can borrow equipment from the CC for a certain period of time for free. The GLOBE Program's portfolio of protocols also includes those that do not require taking measurements/doing observations with expensive instruments. There are a number of items that can be handmade or can be substituted with already available equipment. For some protocols, the school may need only simple tools such as rulers, or they can create their own tools according to the instructions in the GLOBE Teachers Guide (e.g. clinometer). To take the soil moisture measurements, a school could purchase a balance for weighing soil and an oven for drying it, or the school could use a balance and a drying oven already available at the school or at a nearby school or university. Thus, the difference in cost for GLOBE instruments between the least and the most expensive approach can be large.

Instruments necessary for classroom science instruction are often purchased within the country or the region. However, these local and regional instrument suppliers are not always

listed on the GLOBE Website. GLOBE has created Regional Equipment Suppliers pages where countries can have local or regional instrument suppliers listed. The instruments supplied by these instrument companies have not been evaluated by The GLOBE Program but rather have been recommended by GLOBE CCs in the region as having instruments that meet GLOBE specifications. To see regional lists of instrument suppliers, visit:

- **Africa:** <https://www.globe.gov/web/africa/home/globe-equipment-suppliers>
- **Asia and Pacific:** <https://www.globe.gov/web/asia-and-pacific/home/globe-equipment-suppliers>
- **Europe and Eurasia:** <https://www.globe.gov/web/europe-and-eurasia/home/globe-equipment-suppliers>
- **Latin America and Caribbean:** <https://www.globe.gov/web/latin-america-and-caribbean/home/globe-equipment-suppliers>
- **Near East and North Africa:** <https://www.globe.gov/web/near-east/home/globe-equipment-suppliers>
- **North America:** <https://www.globe.gov/web/north-america/home/globe-equipment-suppliers>

Teacher training: There are two potential costs in this category. First is the cost to send the CC (and/or other trainers if they so choose) to a GLOBE workshop. The cost for this depends on the workshop location. These workshops may be held in various regions of the world throughout the year and are organized by the RCOs or other CCs. Associated costs might include transportation, lodging, a registration fee (covering the costs associated with the local host and meals during the workshop), and meals outside of the workshop hours. Second is the cost to train at least one teacher in a face-to-face training from each school chosen by the country to participate in The GLOBE Program. Again, this cost varies depending upon the approach used and size of the country. Sometimes, the country includes GLOBE training in workshops that are already being provided to its teachers at a central location; this negates the need for additional travel to a separate GLOBE workshop and therefore reduces the training costs. CCs may decide to begin training teachers in a local area, thereby eliminating the need for lodging and meals outside of the workshop hours since local participants could travel home after the workshop. It is also possible to train teachers in a small subset of protocols in order to give them a “taste of GLOBE”—interested teachers could then return during a subsequent workshop. Some countries train teachers at their schools which would also eliminate transportation and external meal costs. Creativity and flexibility are two key ingredients in organizing a GLOBE workshop—participants, agenda, location—these are all areas that can be tailored to the specific situation.

Some RCOs have a dedicated pool of trainers who may be willing to travel to a country to train bigger groups. In this case, the cost of getting them to the country and in-country costs are the responsibility of the country.

[Training materials](#) are available on the GLOBE Website.

GLOBE also has online Protocol eTraining for teachers. CCs can incorporate Protocol eTraining into their training strategy for new teachers, and their existing GLOBE teachers

can expand their GLOBE protocol knowledge. Protocol eTraining can reduce the costs of training GLOBE teachers. Information on [Protocol eTraining](#) modules and assessment tests can be found in Section 4: Community Section.

During the COVID pandemic, CCs began organizing virtual online trainings, sometimes with RCO support, when it was not possible to meet face-to-face. In addition to using the Protocol eTraining modules, videos and interactive sessions were incorporated into the trainings. As we are slowly moving out of the COVID pandemic, we are beginning to see hybrid trainings where virtual elements are incorporated into the program. Utilizing virtual and hybrid trainings have helped reduce the cost of trainings.

6. Private Sector Support for GLOBE International Partners

To date, we have seen several different scenarios for private sector support of The GLOBE Program internationally: Grants, In-kind Contributions, Adopt-a-School Programs, Sole and Joint Sponsorship, Funding Teacher Training, Teacher/Student Support and Community Support. Following is a brief description of each with examples that have occurred over the lifetime of the program.

Grants: National, regional and global environmental and educational grants are available through a number of sources. When GIO and the RCOs learn about these grants, they inform the community as quickly as possible through various communications. For example, the Europe and Eurasia RCO sent the European Union (EU) Erasmus Plan funding announcement for cooperation in Europe to CCs and teachers in the region. The Africa RCO compiled and distributed a list of potential funders that could partner with GLOBE countries in the region. [YLACES](#) (Youth Learning as Citizen Environmental Scientists), based in the United States, offers awards, scholarships, grants, and support – all to assist and reward the implementation of inquiry-based, experiential science education where students do science and contribute to understanding of our environment through recognition and financial reward programs, and many YLACES grants have supported GLOBE activities worldwide. Grant calls do not need to be solely focused on science and environmental education. In some countries, CCs are successful in getting funding which has a different focus that GLOBE can complement. Some examples are international collaboration, development of ICT skills, support of underprivileged communities, active citizenship, English language skills development, cross-community cooperation, girls' empowerment, and health and sanitation.

In-kind Contributions: Companies have provided computer hardware and other equipment to schools to enable their participation in GLOBE. For example, AT&T donated computers to 10 GLOBE schools in Benin; DEC provided computers to several participating GLOBE schools in the Czech Republic; GBM, an IBM subsidiary, donated computers and Internet connections to GLOBE schools in El Salvador; Microsoft donated Internet connections for schools in Egypt; Huger Electronics provided automated weather stations to Germany's GLOBE schools; and Dynamic Network Technologies, an Internet provider in Chisinau, Moldova, provided Internet connectivity for all GLOBE schools for one year. Also, Bank Windhoek donated computers to several Namibian GLOBE schools with

UUNET Internet Africa, which provided a dedicated lease line for three years for the use by Namibian GLOBE schools.

Adopt-a-School Programs: Companies have provided all the support necessary for a school to participate in GLOBE, i.e., funding scientific equipment, computers, Internet connections and teacher training. For example, in Egypt, IBM Egypt and ORASCOM Foods (an Egyptian company) each adopted a school and, in addition, played a continuing “mentoring” role with the students. Ben & Jerry’s supported GLOBE schools in Israel. HSBC Bank (Malta) purchased equipment kits for individual schools.

Sole and Joint Sponsorship: Companies decide they want to make a broader investment in the country’s GLOBE efforts by becoming a sole or joint sponsor of the program for a defined period of time. Alcoa supported GLOBE Europe and Eurasia activities for several years. Unilever, KPMG, Panasonic and IKEA were partners of GLOBE Czech Republic for a couple of years, each supporting GLOBE activities in general including national coordination of the program.

Funding Teacher Training: Companies provide funding and in-kind support for GLOBE Teacher Training Workshops and other events in their region. For example, Mobil Oil provided support for a GLOBE Training Workshop in Kazakhstan, including computer hardware, communications and networking capabilities, and scientific instruments. In addition, Central Asian Business Systems, a subsidiary of IBM, lent computers for use during the Kazakhstan International Training Workshop, as did Mercantile (an online service provider) in Kathmandu, Nepal. Teacher training workshops were also supported in South Africa by PetroSA and M&R Development Enterprise.

Teacher/Student Support: The SAS and Coca-Cola Environmental Foundation contributed over \$5,000 for GLOBE school-to-school collaboration between Norway and Estonia. An Oman oil company sponsored teachers and students from Oman to attend the Mount Kilimanjaro Learning Xpedition on September 24 to October 1, 2015. PetroSA, AVK Valves, M+R Development Enterprise and the service provider, Big Expeditions, also provided support to Kilimanjaro Xpeditions including support for local learners.

Community Support: Science and/or mathematics teacher organizations, either national or regional, as well as community organizations such as Rotary Clubs (www.rotary.org) and Lions Clubs (www.lionsclubs.org), are often looking for ways to support youth and/or education in their communities. For example, GLOBE Argentina signed a regional Memorandum of Understanding with Rotary. Other examples of Rotary support are:

- Nepal’s Environmental Camps from Conservation Awareness received support from the Rotary Club of Ballarat Inc and Rotary Club of Patan
- Rotary International granted funds for the development of the GLOBE Niger Classroom Guide and the GLOBE Teacher Workshop in 2007. (<http://www.globe.gov/news-events/globe-stars/starsdetail/10157/2007-niger-teacher-workshop>)

- The Rotary Club of East Port of Spain supported Trinidad and Tobago to add Emergency Care and Disaster Preparedness to Program Training (<http://www.globe.gov/news-events/globe-stars/starsdetail/10157/2010-trinidad-and-tobago-emergency-care>)
- The Israeli CC received an award from Rotary for his GLOBE work: <http://www.globe.gov/web/guest/news-events/globe-news/newsdetail/globe/rotary-club-honors-globe-project-national-coordinator-in-israel>

Additionally, Embassy spousal groups and American Chambers of Commerce may be interested in supporting GLOBE activities—whether at the country level or in support of a particular school.

7. Organizations Involved in GLOBE Activities

Many Governmental and Non-Governmental Organizations (NGOs) have provided support for GLOBE activities in countries throughout the world where GLOBE meets program objectives for the host country. Below are examples.

U.S. Embassies have provided small grants and other forms of support. These have included direct financial support for organizing trainings/equipment and national student competitions and contests, organizational support (for example, translations, interpretation), and diplomatic support including highlighting the program activities in a country (school visits, supporting of the Program launch, recognizing the most active schools, etc.). In 2018, the U.S. State Department, NASA, GIO and YLACES began collaborating on the GLOBE Plus Post initiative that provides U.S. Embassies the opportunity to submit proposals for additional support for GLOBE activities in their host country. Since the start of the initiative, there have been over 20 GLOBE Plus Posts. Contact the GLOBE International Coordinator (globeint.coord@gmail.com) for the GLOBE Point of Contact in the U.S. Embassy in your country.

[The U.S. Peace Corps](#) staff and volunteers in Benin, the Czech Republic, Kazakhstan, Niger, Republic of Macedonia, Peru, Romania, the Russian Far East, and many other countries where Peace Corps Volunteers have served or are serving, have assisted in the implementation of the program both nationally by supporting the CC in implementing the program and locally by working with teachers in individual schools.

In 2016, [NASA and the Peace Corps signed a Letter of Intent](#) to strengthen this collaboration.

The [GLOBE/Peace Corps Alignment document](#) outlines some of the ways Peace Corps can and is using GLOBE, as well as how GLOBE science protocols align to the Peace Corps.

Peace Corps

[Contact the Peace Corps](#) via the U.S. Embassy in-country

Website: www.peacecorps.gov

The U.S. Agency for International Development (USAID) has also helped to implement GLOBE in countries where USAID has perceived GLOBE as being consistent with its goals for the country. For example, USAID in Benin helped organize and conduct teacher-training workshops, funded translation of the GLOBE CCs Guide into French and provided Internet

ready computers at the USAID office for GLOBE student data transmission. USAID provided facilities for International GLOBE Training Workshops, including computers and Internet connections. Finally, USAID funded the Beninese GLOBE CCs participation in GLOBE annual conferences from 1997–2001, funded Beninese GLOBE teachers’ participation in GLOBE training workshops in other African countries (e.g. Senegal) and funded the Beninese CC and two students’ participation in GLOBE’s first international student-teacher conference, the GLOBE Learning Expedition, in Helsinki, Finland, in July 1998.

USAID’s GREENCom provided staff support and training for the GLOBE CC and teachers in Jordan and Russia. USAID’s Leland Initiative, which worked to bring the Internet to Sub-Saharan Africa, used GLOBE as a direct application of Internet technology and worked together with GLOBE on training workshops in Sub-Saharan Africa. USAID’s United States–Asia Environmental Partnership (US–AEP) program also provided support in some GLOBE countries to implement GLOBE and promote environmental awareness.

In 2019, SERVIR West Africa organized a Train-the-Trainer session on GLOBE Hydrosphere protocols. Also in 2019, GLOBE participated in a regional scientific cooperation meeting at the invitation of the USAID Middle East Regional Cooperation Program which organized the meeting for researchers in the region.

The USAID has program sectors that align with GLOBE’s programmatic activities and science protocols. Some of the ways USAID can and is using GLOBE are listed in this [alignment document](#).

USAID—U.S. Agency for International Development
Contact the USAID Office via the U.S. Embassy in-country.
Web site: www.info.usaid.gov/about/

The United Nations has various programs that have cooperated with GLOBE and GLOBE CCs. In December 1994, the United Nations General Assembly passed a resolution encouraging all nations to participate and all UN organizations to support GLOBE activities around the world. Since that time, The GLOBE Program established formal relationships with the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Environmental Programme (UNEP), and the United Nations High Commissioner for Refugees (UNHCR) to engage in mutually beneficial activities.

The GLOBE Program and the United Nations Environmental Programme (UNEP) agreed to cooperate on environmental education and training and the collection of environmental data. Through this partnership, GLOBE and UNEP shared educational materials and promoted collaboration of UNEP regional offices with GLOBE countries in their regions. In addition to being a general resource for environmental education, UNEP provided GLOBE CCs access to their networks of scientists. This led to GLOBE/UNEP collaborative activities in Poland and Kenya. Building on this initial collaboration, NASA and UNEP signed an agreement in 2019 to work together on the promotion and implementation of GLOBE and UNEP activities including cooperation on environmental education and training, citizen science and the collection and distribution of environmental data. Information on the collaboration is detailed on the [UNEP section](#) of the GLOBE Website.

UNESCO and GLOBE cooperated on a pilot initiative to monitor [World Heritage Sites](#).

UNHCR used GLOBE as a vehicle for environmental education in refugee camps in Africa, and supported GLOBE in Kenya and Senegal in camps as well as in schools neighboring the refugee camps and in urban schools with high refugee populations.

EcoSchools, run by the Foundation for Environmental Education, and GLOBE are collaborating on the integration of the two programs in schools. Information on how the programs are aligned and case studies of how schools have integrated the program are detailed on the [GLOBE Website](#). In addition, EcoSchool National Operators in Ireland and Malta are GLOBE CCs, and the Slovenian EcoSchool National Operator is involved in the implementation of GLOBE in schools.

The World Meteorological Organization (WMO) collaborates with GLOBE on common goals, including increasing environmental awareness throughout the world, developing scientific understanding of the global environment, and supporting achievement in science and mathematics education around the world. In 2007, the World Meteorological Organization and the National Aeronautics and Space Administration (NASA) agreed upon Terms of Reference to allow the commencement of GLOBE and WMO collaboration on common goals. These goals include increasing environmental awareness throughout the world, developing scientific understanding of the global environment, and supporting achievement in science and mathematics education around the world.

GLOBE also has established both formal and informal relationships with NGOs to support and promote each other's activities where the programs' goals overlap. Current collaborating organizations can be found at: <http://www.globe.gov/globe-community/collaborating-organizations>.

8. GLOBE Best Practices

Based on feedback from CCs, GLOBE has identified six areas of successful implementation in the following categories: Curriculum Integration, Data Reporting, Regional Collaboration, Working with Scientists, Securing Private Sector/Foundation Support and School Selection/Recruiting Schools. While some of the examples below are no longer current, the following information illustrates examples of successful implementation strategies in these areas throughout the history of GLOBE.

Curriculum integration to accepted standards in each country:

Keys to success: Providing teachers the tools and information needed to integrate GLOBE into required teaching material; sharing with teachers how GLOBE can also fit into non science courses, such as social studies, foreign languages, etc., and sharing success stories so that others can follow schools' successful integration examples; using GLOBE for cross-cultural communication/learning; making GLOBE materials available to as many teachers as possible; and clearly outlining exactly where GLOBE fits into the curriculum.

Belgium—GLOBE is explicitly mentioned as compulsory for geography in grades 9 and 10.

Colombia—Since 2018, the Ministry of Science, Technology and Innovation has integrated the GLOBE Program with the Ondas program’s research route as a valuable tool to promote children and adolescents’ interest in research and the development of attitudes and skills that allow them to actively participate in a culture of science, technology and innovation. Ondas is a research training program aimed at children and adolescents, which through the articulation with the GLOBE Program seeks to strengthen the line of research in natural sciences.

Croatia—Measurements, observations and GLOBE protocols are introduced in elementary school Science and Geography subjects as well as the scientific research process and GLOBE methodology. GLOBE activities are also part of the cross-curricular Sustainable Development subject (elementary and secondary schools)

Czech Republic—Schools in the Czech Republic use GLOBE to integrate and connect various aspects of their curricula, mostly in Science, Geography and Environmental Education. GLOBE is used to promote communications among schools both nationally and internationally. Each teacher matches GLOBE materials with his or her school/subject curriculum. GLOBE Czech Republic includes tips for curriculum integration into the Czech version of the GLOBE Teacher’s Guide.

Finland—GLOBE supports the Finnish goals of hand-on science and analysis, the teaching of foreign languages and cooperative learning. The national curriculum in Finland is decentralized, which allows GLOBE schools flexibility on how they incorporate GLOBE materials.

Japan—In order to improve school retention, GLOBE Japan took steps to better assist their teachers in intergrading GLOBE into their curricula. Successful examples of integrating GLOBE into different curricular subjects are widely disseminated. Teachers are also encouraged to utilize the newly implemented “Period for Integrated Study,” a flexible period devoted to the inquiry process and to problem-based learning, for implementing GLOBE in their classroom. Successful examples of such implementation are also made available to all GLOBE teachers. Efforts are made to encourage teachers to engage their students in research projects that utilize GLOBE data.

Finally, in an effort to reduce the barrier the English language poses to many Japanese schools, the GLOBE Teachers Guide, as well as the GLOBE data entry and data visualizations web pages, have been translated into Japanese.

Jordan—Friends of the Environment (FOE) established “GLOBE ROOMS” in GLOBE schools where teachers and students kept their GLOBE materials. Teachers of various disciplines used the materials in GLOBE ROOMS to highlight aspects of their curriculum. For example, chemistry teachers used GLOBE because they can apply it to their local environments. Students find the hands-on GLOBE materials more meaningful than only reading about science in textbooks.

North Macedonia—GLOBE protocols were introduced as compulsory for biology in 7th grade.

Nepal—The Nepalese found that GLOBE protocols positively correlated with the science and environmental books of their schools’ level four and higher. Nepal’s implementing

agency, Environmental Camps For Conservation Awareness (ECCA), made a chart showing exactly where and how the correlations work so that schools and teachers quickly understood how GLOBE fits into the curriculum.

Philippines—GLOBE Philippines developed [GLOBE EduShare Program](#), a moodle® based online learning management system to serve as an online learning platform for GLOBE protocols and to convert GLOBE protocols into modules or modular form for easy integration into school curricula.

Data Reporting:

Keys to success: Having more than one GLOBE trained teacher in each GLOBE school; getting support of school administrations by including them in GLOBE conferences and workshops; holding refresher workshops for previously trained teachers; visiting GLOBE schools and helping them enter data for the first time; promote use of The GLOBE Program app, GLOBE Observer by GLOBE students and citizen scientists.

Argentina – Incorporates use of The GLOBE Program app, GLOBE Observer into its school implementation activities to increase data reporting and awareness of the program. The Country Coordinator conducts teacher workshops on using the mosquito habitat mapper tool to detect larvae breeding sites and organized a contest on cloud observations using the app in collaboration with the U.S. Embassy. GLOBE Argentina plans to continue promoting the use of the app by students and citizen scientists.

Benin and Ghana—The Beninese and Ghanaian CCs traveled around their respective countries visiting GLOBE schools, meeting with school administrators to secure their support for the Program and helping teachers build confidence and overcome any challenges or insecurities they have with data reporting. Refresher workshops were held on specific topics. Most schools have more than one GLOBE teacher so that they can support each other with implementation.

Croatia—Croatia was the first country to invite school administrators/principals to participate in GLOBE workshops and meetings. This approach secured support from many of these administrators, which helped ensure that GLOBE teachers were given what they needed to incorporate GLOBE into their lessons. It also helped secure financial resources for the school to support the Program.

Czech Republic, Estonia, Malta, Slovak Republic and other countries— invite local scientists to their workshops so that teachers can understand the importance of student data for scientific research.

Paraguay—As part of a citizen science program, tackling the virtual education problem during the COVID-19 pandemic, Paraguay created free subscription boxes delivered to numerous institutions nationwide. The GLOBE Program’s app, GLOBE Observer and cloud protocol are part of the subscription box items delivered to students with low or no internet

connectivity across the country enabling them to conduct GLOBE activities despite having no internet connection.

Uruguay—In Uruguay, the CC visits the schools in order to support GLOBE teachers (and new teachers who have required it) to introduce the Program in the school, help them with the use of instruments, show them how to take measurements properly, register data in the data sheets and teach them options to enter data and how to do it. The CC also provides instruments by lending them to the teachers for research projects or for a campaign and refreshes them on protocols and learning activities to understand certain topics.

Regional Collaboration:

Keys to success: Regional Partners working together to reach common goals; having a self identified “lead” country in the region that reaches out to neighboring countries with ideas for collaboration; developing a regionally relevant theme; holding regional conferences and workshops.

Regional Boards – GLOBE Partners in Europe created the European Country Coordinator Committee in 1996 to encourage regional collaboration among Partners throughout Europe. Since that time, GLOBE Europe—the first regional GLOBE Board—was formed. It has enabled partners in the region to exchange information and ideas about GLOBE activities throughout the region, plan regional collaboration and events, and develop proposals for funding for regional activities.

Country-to-country partnerships—For example, Israel and Malta have been collaborating on common projects based on GLOBE, involving students and teachers not only for scientific collaboration but also for intercultural learning and friendship development.

Joint Regional Campaigns/ Projects/ Challenges/ Competitions—organized either by RCO or a CC as a strong leader. The common topic is the most important key to success – such as Phenology Campaign, Air Pollution Campaigns, Water Bodies Challenge, etc.

African Region—Mt. Kilimanjaro Expeditions were organized several times since 2009 for students, teachers, scientists and alumni from all GLOBE regions who have participated in person or virtually. Participants engaged in taking GLOBE measurements and learning about the many independent ecosystems within the six biomes on the mountain: [Alpine Desert](#), [Cultivated Areas](#), [Heath Zone](#), [Moorland](#), [Rain Forest](#), and the [Summit](#) as they climbed to the summit and back. The [last Mt. Kilimanjaro Expedition](#) was organized in 2015.

European Phenology Campaign—The GLOBE community in Europe has been engaged in the seasonal tree observations for several years now. Students observe the same tree species (budburst, leaf growth, leaf color change) and with the help of teachers, they share their observations on the online forum, through presentations on webinars etc. They collaborate with other schools from various countries. In 2021, there were 190 schools involved. The campaign led to substantial hike in data collection and school collaboration across Europe. The Website is active: <https://www.globe.gov/web/european-phenology-campaign/overview>

Argentina, Peru and Uruguay—Conducted a collaborative research study in 2014/15 using GLOBE protocols and data to investigate the impact of the El Nino Southern Oscillation (ENSO) on the three countries. This research involved three different levels of education teachers, trainers and CCs. In 2021, these countries organized the “Observation of Butterflies and Environmental Variables” campaign which took place September 1 – November 30. The campaign grew out of the “Citizen Science and Butterfly Monitoring” virtual workshop in summer 2021 with 108 participants from six LAC countries.

Argentina, Brazil and Paraguay—Conducted a triple border workshop within the framework of the [GLOBE Zika Education and Prevention Project](#) in 2018 to address the areas most affected by diseases transmitted by mosquitoes. As part of the second stage of the project, the Amazon Triple Border Workshop was held in Leticia, Amazonas in 2019 with the participation of students, teachers and community leaders from Colombia, Brazil and Peru.

Estonia—Organizes annual GLOBE Regional Learning Expeditions (GRLE) for students, teachers and scientists. In 2015, it was largely organized by GLOBE Alumni and was a celebration of GLOBE’s 20th anniversary. The 2022 GRLE marks the 25th anniversary of annual expeditions in Estonia.

India—Organized a GLOBE Citizens Conference in 2015 attended by participants from Thailand, Taiwan and India. Students made presentations on their GLOBE research activities and participated in field investigations and cultural visits.

Oman—Organized an international student environment GLOBE Camp in March 2015. Approximately 120 students from more than 30 schools from Oman, Saudi Arabia, Bahrain, Lebanon, United Arab Emirates, Jordan and Pakistan participated.

Taiwan Partnership—Organized GLOBE Science Festival for Asia Pacific Region in July 2017 in Taipei in collaboration with the American Institute in Taiwan. 34 GLOBE participants from India, Mongolia, the Philippines and Thailand attended, and eleven GLOBE student research projects were presented. Students also participated in field investigations and cultural visits.

Tanzania, Kenya and Uganda—GLOBE Africa developed a biannual Lake Victoria Learning Expedition that involved sites in these three Lake Victoria basin GLOBE countries. GLOBE students in Mwanza, Tanzania, Homa Bay (expedition basecamp) and St. William Osodo Secondary School, Kenya, and Entebbe, Uganda, performed hydrology studies. Lake Victoria is Africa’s largest lake, and the people of Tanzania, Kenya and Uganda rely on its waters for its huge fishing industry. But water pollution, over fishing and ecological destruction (through invasive species) are causing worries about its future. GLOBE students and citizen scientists in the region were able to contribute scientifically through data collection and research on the Lake. This effort has evolved into the [Water Bodies Collaboration](#) initiative which now involves schools from other GLOBE regions.

Working With Scientists:

Keys to success: Inviting university research scientists to help train at in-country teacher-training workshops; asking scientists to serve as mentors to GLOBE students and teachers; getting scientists involved in implementation of GLOBE.

Arctic POPs Project—Norwegian scientists from the Norwegian Institute of Atmospheric Research (NILU) designed a Persistent Organic Pollutants (POPs) protocol for GLOBE schools throughout the Arctic (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States). The measurements provided the environmental research community a useful data set covering new POP levels in the Arctic.

Czech Republic: The GLOBE Program in the Czech Republic established a Scientific Board in 1996. Eleven scientists and professionals from different natural sciences have joined the Board. The Board works with both teachers and students to interpret data and process the results. Scientists are also invited to co-train at GLOBE trainings.

Germany: Scientists from the University of Koln translated the protocol eTraining modules into German and used them for conducting lectures for their pre-service teacher trainings.

Poland: The GLOBE Program in Poland established an Advisory Board in September 1999. The main task of the board was to carry out lectures during workshops and to supervise content-related issues of the program. GLOBE Teachers and students address questions to the members of the board. The board worked on adjustment of the GLOBE program to the Polish curriculum.

Thailand: Two schools in Thailand worked closely with NASA soil scientists on the GAPS modeling project. University science faculties are involved with GLOBE-Thailand and include GLOBE in their Teacher-Training Program. GLOBE Thailand conducted a workshop involving 10 GLOBE schools and local GLOBE scientists to share ideas about encouraging student research and student-scientist collaboration research.

Uruguay-Paraguay: Since the planning of the project about butterflies and the environmental variables described above, the CCs contacted some specialists in the region to engage them in the project. Biologists (entomologists) from Uruguay and Paraguay participated in webinars and provided information on the identification of species and have been a great support for the project and the teachers.

Securing Private Sector and/or Foundation Support:

Keys to success: Being proactive; inviting companies and foundations to GLOBE related events to see the program first-hand; developing relationships with decision makers in the organizations; finding matching support from government or other agencies; partnering with other GLOBE countries to strengthen proposals and resources; and to appeal to organizations that fund regional activities (Also see paragraph 6—*Private Sector Support for GLOBE International Partners*).

Cyprus—GLOBE in Cyprus is currently implemented under the auspices of the Cypriot Ministry of Education and Culture. While the Ministry provided funds for purchasing equipment for public schools that joined the Program, the GLOBE CC sought private sources of funding. He was successful in securing funds from the Cyprus Telecommunications Authority, a major private Internet provider for the country. The funds were used to support an international GLOBE Train-the-trainer Workshop for Europe and the Middle East held in Nicosia, Cyprus, in 2002.

India—GLOBE in India was successful in securing funds from the World Bank. The funds supported their initiative to train 800 schools in eight states throughout India.

Norway—The SAS and Coca-Cola Environmental Foundation contributed over \$5,000 for the GLOBE Arctic POPs Project.

GLOBE Europe—GLOBE CCs from the Czech Republic, Estonia, Holland, Norway, Poland and the United Kingdom were successful in securing a grant (Minerva) under the European Union's Socrates Education Programme. Minerva is aimed at open and distance learning, linking information and communication technologies in education. The Greek CC collaborated with five CCs in Europe to submit the proposal "PULCHRA: Science in the City: Building participatory Urban Learning Community Hubs through Research and Activation" to the European Union's Horizon 2020 call. The proposal was successful, and the project was launched in 2019.

School Selection/Recruiting Schools:

Keys to success: Competition, pilot programs, and geographic distribution. (See paragraph 6—*"School Selection and Support"*).

Greece—GLOBE schools in Greece initially were selected through a nation-wide competition. Objective criteria were set in order to best evaluate the proposals submitted by interested schools. The selection process identified 24 schools to reflect a wide geographic coverage of Greece. The schools selected represented all major levels of the Greek Education system (i.e., the primary, secondary levels, and the technical secondary level). Government funds were used to establish Internet access, and to purchase computers and equipment for all public schools. Private schools were responsible for their own expenses.

India—Prospective GLOBE schools were personally approached by the coordinating agencies with information about the GLOBE program. This was followed up with workshops for the Principals of these schools where detailed presentation about salient features of the program were made by the coordinating agencies. The benefits that were likely to be acquired by the schools were also explained to the Principals. Alternatively, the coordinating agencies sent detailed letters to the School Principals outlining the salient features of The GLOBE Program and invited them to join it. Once the schools expressed interest, they were enrolled in the program, and the Principals were advised to nominate one or more Teachers who were interested in conducting the scientific measurements and to co-ordinate this program in school.

United Kingdom—United Kingdom conducted a one-year pilot on GLOBE with about a dozen schools to determine if and how GLOBE fit into the curriculum before they decided to offer GLOBE to the participating UK schools.

9. Impact of The GLOBE Program

The international GLOBE network has grown to include representatives from 126 participating countries and 131 U.S. Partners coordinating GLOBE activities that are integrated into their local and regional communities. Due to their efforts, there are tens of thousands of GLOBE-trained teachers representing schools around the world. GLOBE students have contributed over 220 million measurements to the GLOBE database for use in their inquiry-based science projects.

The impact of GLOBE can be recorded in a number of different ways. The numbers of workshops and teachers trained, the data collected and entered by students and Citizen Scientists into the GLOBE databases, the number of students' and scientists' research reports, and the number of publications are all quantitative metrics. Qualitative examples of this impact include STAR and STEM Stories, videos including community member testimonials, and the variety of events where the community comes together to share their stories based on their activities and achievements.