



Conseil économique  
et social

Distr.  
GÉNÉRALE

E/CN.17/1996/33  
17 avril 1996  
FRANÇAIS  
ORIGINAL : ANGLAIS

COMMISSION DU DÉVELOPPEMENT DURABLE  
Quatrième session  
18 avril-3 mai 1996  
Point 3 de l'ordre du jour provisoire\*

QUESTIONS INTERSECTORIELLES, L'ACCENT ÉTANT MIS  
SUR LES FACTEURS CRITIQUES DE LA DURABILITÉ

Note verbale datée du 8 avril 1996, adressée au Secrétariat  
par la Mission permanente des États-Unis d'Amérique auprès  
de l'Organisation des Nations Unies

Conformément à la résolution 49/112 de l'Assemblée générale concernant l'appui au Programme mondial d'éducation et d'observation pour la défense de l'environnement (programme GLOBE), le Gouvernement des États-Unis d'Amérique a l'honneur de présenter un rapport sur l'exécution de ce programme au Secrétariat responsable de la Commission du développement durable au sein du Département de la coordination des politiques et du développement durable (voir annexe).

Le programme GLOBE, qui fonctionne depuis un an, compte plus de 30 pays partenaires et permet à des milliers d'étudiants dans le monde de participer à des activités scientifiques et éducatives en matière d'environnement. L'aide du Secrétariat de l'ONU est sollicitée pour que le rapport ci-joint soit distribué aux membres de la Commission du développement durable afin qu'ils l'examinent à la quatrième session de la Commission.

\* E/CN.17/1996/1.





Annex

**Report to the Commission on Sustainable Development  
on the GLOBE Program**  
*(Global Learning and Observations to Benefit the Environment)*

The United Nations General Assembly Resolution 94/112 supporting the GLOBE Program invited Governments to "communicate...to the Commission on Sustainable Development...on their participation in the GLOBE Program." This report is in response to that invitation.

**Program Description**

The GLOBE Program is a hands-on, international environmental science and education program. The program is school-based, involving both primary and secondary schools. GLOBE brings together students, teachers, and scientists from around the world to enhance the collective awareness of individuals throughout the world concerning the environment, increase scientific understanding of the Earth, and help all students reach the highest standards in science and mathematics education.

Students at all GLOBE schools throughout the world make environmental measurements at or near their schools; report their observations to a GLOBE data processing center; receive and use vivid environmental images created from their data and data from other GLOBE schools around the world; and study the environment by relating their observations and the resulting environmental images to broader environmental topics. All GLOBE activities are conducted under the guidance of GLOBE-trained teachers.

The GLOBE initiative was announced on Earth Day 1994 by U.S. Vice President Al Gore, and the GLOBE Program was initiated on Earth Day 1995. To date, over 30 nations have formally joined the program and approximately 3,000 schools have been identified to participate. In less than one year of operation, over 150,000 elements of environmental data have already been reported. Additional countries are planning to become formal GLOBE partners in the near future and are in the process of negotiating GLOBE agreements with the U.S. Over 100 nations have expressed interest in participating. (List of participating and interested nations is attached.)

**U.S. Program**

Students at all levels (K-12) in over 2,000 schools in all 50 U.S. states, Puerto Rico and the Marianas Islands are participants in the GLOBE Program. U.S. schools join GLOBE by registering and sending a teacher to a GLOBE teacher training workshop. U.S. GLOBE teacher training workshops are held year-round to prepare teachers to supervise their students' GLOBE activities. The U.S. GLOBE Program is managed as an interagency program involving six U.S. Government agencies, led by the United States National Oceanic and Atmospheric Administration (NOAA). In addition, GLOBE is a public/private partnership involving the Foundation for Global Environmental Education, a private, non-profit foundation. This public/private collaboration seeks to increase private sector support for and involvement in the GLOBE Program, both in the U.S. and internationally.

### Partner Country Involvement

As of March 1996, 32 nations throughout the world had joined the GLOBE Program. International participation in GLOBE is conducted through bilateral agreements between the United States and its partner nations. In consultation with its international partners, the U.S. provides the program infrastructure, including development and maintenance of educational materials, scientific protocols and computer and communications systems. Each participating country manages the GLOBE Program in its schools, including ensuring that its schools have scientific instruments for taking GLOBE measurements, and wherever possible, that students have access to classroom computers and Internet communications. However, it is recognized that the diversity of technology accessible by schools worldwide may require, in some cases, that environmental measurements be reported via e-mail or in hardcopy. In the latter case, the nation's GLOBE Country Coordinator is responsible for reporting such schools' measurement data to the GLOBE data processing center via the Internet. In addition to government support, many countries have secured contributions from private corporations and non-profit organizations to provide their schools with the resources necessary to participate in GLOBE.

### Networking Student-Scientists

The GLOBE Program promotes international communication, collaboration and understanding among young people throughout the world. Fundamental to the GLOBE Program is the sharing of student-generated environmental data and resulting global images among students and scientists. (Figure 1.) The complete archive of data reported by every GLOBE school is available on the World Wide Web, making the data from, for example, Belgium and the Netherlands, freely and publicly available to all GLOBE students and to the international science community.

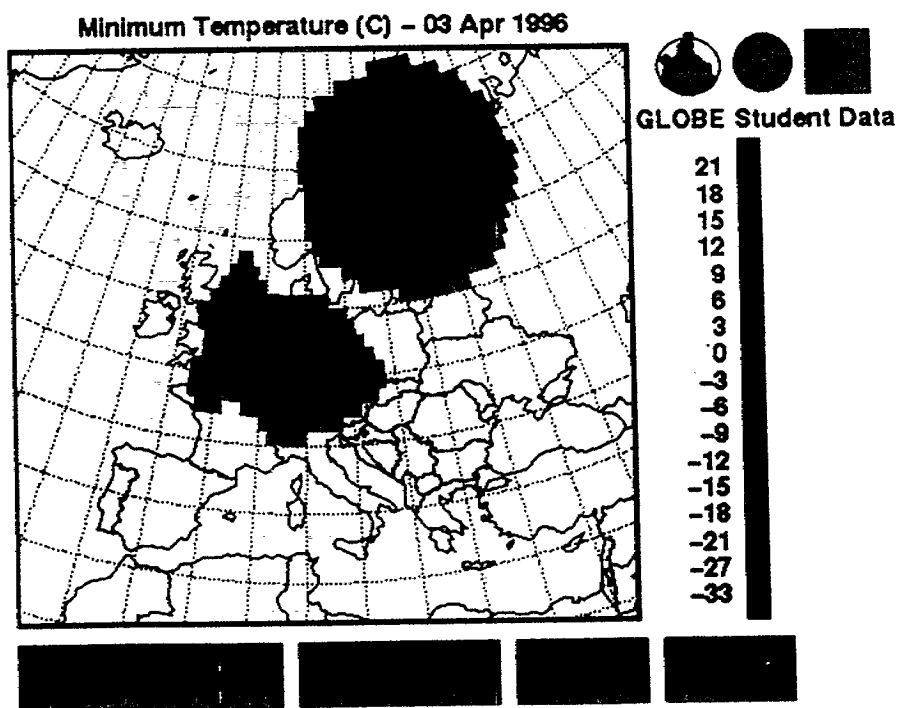


Figure 1

Contour maps are available for all regions providing enough daily measurements to perform the interpolation. Additional regions will be added as we receive enough daily measurements.

GLOBE provides the opportunity for students to learn about other countries involved in GLOBE. The GLOBE Country Pages on the Student Data Server provide a list of GLOBE schools in each country, information about the GLOBE Points of Contact and Country Coordinators, links to interesting World Wide Web sites about each country, and a gallery of images of each country. For example, Croatia's GLOBE Country Page links to two Web sites developed and maintained by Croatia about its history, culture, and geography. Additionally, if a country has developed its own GLOBE Homepage, it is made accessible by a link from that country's GLOBE Country Page. For example, Germany's GLOBE Homepage includes links to information about various GLOBE events in Germany, information about the sponsoring organization in Germany, and technical guidelines for German GLOBE schools.

Some countries have expanded on the networking nature of GLOBE. Australia, for example, has developed a communications mechanism for GLOBE teachers, called AUSGLOBE, which functions as a simple, informal way for teachers to share information and suggestions relating to GLOBE and for the Country Coordinator to provide updates to Australian GLOBE teachers. The GLOBE Country Coordinator for the Czech Republic has developed a newsletter to keep Czech GLOBE teachers apprised of new developments. Additionally, since many Czech teachers do not have access to the World Wide Web, many global images based on student-derived data are made available in the newsletter.

GLOBE offers an opportunity for international scientists to communicate with students about their research. The Scientist Corner on the GLOBE Student Data Server provides biographical information about each of the GLOBE Principal Investigator scientists and educators, focusing on their areas of research. Additionally, Principal Investigators and other guest researchers develop reports about their areas of study and how the GLOBE measurements contribute to their scientific investigations.

GLOBE fosters regional collaboration through International Training Workshops. Employing a train-the-trainer structure to prepare partner countries for GLOBE implementation, the week-long International Training Workshops bring together Country Coordinators and teachers from one or more regions to prepare them to implement GLOBE in their own countries. For example, the Russian Ministry of Education and the Ministry of Environmental Protection sponsored an International GLOBE Training Workshop for Country Coordinators and teachers from Russia, Kazakstan, Kyrgyzstan, and Moldova. This workshop laid the foundation for future partnerships among workshop participants. Other International Training Workshops have been held in Uruguay for participants from Uruguay, Bolivia, and Argentina; in Senegal for Senegalese and Beninese participants; in the Czech Republic for participants from throughout Europe, Asia and the Middle East; and in Miami, Florida, for participants from many countries including Turkey, China, El Salvador, and Egypt. As a result of these workshops, trainers were prepared to return to their countries to organize and run GLOBE training workshops for their teachers to enable them to supervise their students' GLOBE activities. Such teacher training workshops have been held in over a dozen countries, including Israel, Austria, Finland, and Norway. Several partners, including Greece, Tunisia, and Romania, have identified schools that will participate in the program and plan to attend international training workshops in the near future.

GLOBE also provides an information clearinghouse for interesting GLOBE events around the world. The GLOBE Bulletin on the Student Data Server alerts GLOBE students and teachers to new GLOBE features as well as to current GLOBE-related activities. For example, Argentine President Carlos Menem wrote a letter to all GLOBE students congratulating them for their involvement in the program. This letter was made available to GLOBE students using the GLOBE Bulletin. Additionally, when Irish President Mary Robinson visited Cabinteely Community School in Dublin for a GLOBE demonstration, a GLOBE Bulletin welcomed her to the school and to GLOBE. As new GLOBE partner countries join the program, for example Chad and Morocco, they are welcomed in the GLOBE Bulletin.

GLOBE provides recognition to its schools for exceptional accomplishments. GLOBE STARS recognizes individual schools for reporting data for the first time, for providing large numbers of observations, for doing interesting things in their GLOBE implementation, and for making the news. For example, GLOBE STARS highlighted Japan's 28 schools and Junior Eco Clubs which are reporting GLOBE data on a regular basis. The Junior Eco Clubs are national clubs with over 35,000 student members learning about environmental issues and are a unique aspect of Japan's GLOBE implementation. (Figure 2.) GLOBE STARS also highlighted the first African data reports from Benin. (Figure 3.)

## ★ ★ ★ GLOBE STARS

### GLOBE STARS in Japan



Japan officially joined the GLOBE program in 1995 and, to date, 21 schools have been identified to participate in GLOBE. In addition, many of the Japanese GLOBE students are part of a national environmental program for young people called Junior Eco Clubs. Over 35,000 students belong to Junior Eco Clubs. In these clubs, young people learn about their environment and how best to take care of it. Seven Junior Eco Clubs have joined GLOBE.



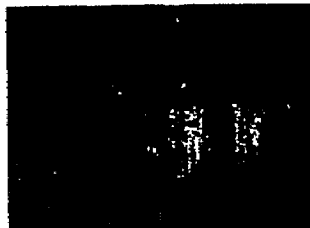
Figure 2



A newspaper in Japan, The Yamanashi Nichinichi Shibun, published a story about the GLOBE activities of students in the Yamanashi Prefecture, a region near Mt. Fuji. The students, featured in the article, are members of the Koufu Junior Eco Club, the Eco Club Oshino, and the Sudama Junior Eco Club. Students began their GLOBE activities by measuring air temperature and

water pH in a nearby river. They will be using GLOBEMail to compare their data with Japanese GLOBE students in Istabashi City (pictured here), Fukuoka City, and all over the world.

### GLOBE Stars in Benin



Congratulations to Benin, the first GLOBE country on the African continent to begin reporting data! Benin joined GLOBE in April 1995 when the Minister of Education, Mr. Karim Dramane, and then-United States Ambassador to Benin, the Honorable Ruth Davis, signed an agreement in a special ceremony in the capital city, Cotonou.

Beninese teachers, pictured here, were trained in the GLOBE measurements at an August 1995 workshop in Dakar, Senegal and have introduced GLOBE to their students at nine schools throughout this West African country.

Students began making observations in December 1995. The first Beninese school to report data, Ecole Primaire Mandina/A, was assisted by the Office of the Mayor of Parakou and the United States Peace Corps.

The Ministry of Education is continuing to oversee development and expansion of the GLOBE program in Benin under the leadership of Mr. Aliyou Bello.



Figure 3

## **GLOBE Science**

GLOBE students around the world take environmental measurements in the following research areas: Atmosphere/Climate, Hydrology and Soils, and Biology/Land Cover. Following is a list of the initial core GLOBE environmental measurements and the scientific instruments required to make these measurements. As the GLOBE Program evolves, additional measurements will be added to this core list and optional measurements will also be added.

### **Atmosphere/Climate**

Air Temperature	Max/Min Thermometer
Precipitation	Rain Gauge
Cloud Cover/Type	Cloud Charts

### **Hydrology/Soils**

Water pH	pH Paper, pH Pen, or pH Meter
Water Temperature	Thermometer
Soil Moisture	Gypsum Block Sensors and Soil Moisture Meter

### **Biology/Land Cover**

Habitat Study	Compass and Measuring Tape
Tree Height	Clinometer
Tree Canopy	Densiometer
Tree Diameter	Diameter Tape
Species Identification	Dichotomous Keys

The long-term GLOBE science measurements and their accompanying educational activities are designed and developed by nine teams comprised of scientists and educators. The nine Principal Investigator teams are encouraged to include scientists and educators from other countries. In addition, it is anticipated that international scientists will be Principal Investigators for GLOBE measurements expected to be added in the future.

It is important to recognize that real science takes time to develop. GLOBE data has been collected and reported for only one year. However, teams of scientists are already working with the GLOBE data, adding it to other sources of data, and formulating and testing new hypotheses about the environment. GLOBE scientists are confident that the scientific literature will very soon reflect worldwide GLOBE data as a major source of environmental information.

One hundred seventeen countries have expressed interest in GLOBE;  
32 countries have signed agreements and joined the Program

Africa (22)

Benin\*  
Botswana  
Cape Verde  
Chad\*  
Côte d'Ivoire  
Eritrea  
Ethiopia  
Gambia  
Ghana  
Guinea  
Kenya  
Mali  
Mauritania  
Namibia  
Nigeria  
Senegal\*  
South Africa  
Tanzania, United  
Republic of  
Togo  
Uganda  
Zambia  
Zimbabwe

Asia and the  
Pacific (22)

Australia\*  
Bangladesh  
Brunei Darussalam  
China\*  
Hong Kong  
India  
Indonesia  
Japan\*  
Korea, Republic of\*  
Lao People's Democratic  
Republic  
Malaysia  
Marshall Islands  
Micronesia (Federated  
States of)  
Mongolia  
Nepal  
New Zealand  
Pakistan  
Papua New Guinea  
Philippines  
Sri Lanka  
Taiwan Province of China  
Thailand

Central and South  
America (19)

Argentina\*  
Bahamas  
Barbados  
Bolivia\*  
Brazil  
Chile  
Costa Rica  
Dominican Republic  
Ecuador  
El Salvador\*  
Guatemala  
Honduras  
Nicaragua  
Panama  
Peru  
Suriname  
Trinidad and Tobago  
Uruguay\*  
Venezuela

Middle East and North  
Africa (10)

Egypt\*  
Israel\*  
Jordan  
Kuwait  
Morocco\*  
Oman  
Syrian Arab Republic  
Tunisia\*  
United Arab Emirates  
Yemen

North America (2)

Canada  
Mexico

Europe (42)

Armenia  
Austria\*  
Azerbaijan  
Belarus  
Belgium\*  
Bulgaria  
Croatia\*  
Cyprus  
Czech Republic\*  
Denmark  
Estonia  
Finland\*  
France  
Georgia  
Germany\*  
Greece\*  
Hungary  
Iceland  
Ireland\*  
Italy  
Kazakhstan\*  
Kyrgyzstan\*  
Latvia  
Lithuania  
Luxembourg  
Moldova\*  
Netherlands\*  
Norway\*  
Poland  
Portugal  
Romania\*  
Russian Federation\*  
Slovakia  
Slovenia  
Spain  
Sweden\*  
Switzerland  
Tajikistan  
Turkey\*  
Ukraine  
United Kingdom of Great  
Britain and Northern  
Ireland  
Uzbekistan

\* Signed GLOBE Agreement (revised 27 March 1996).