THE GLOBE PROGRAM

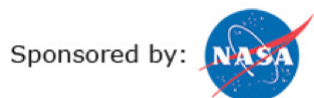# Strategic Plan

2018-2023

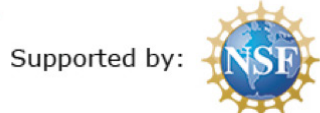Sponsored by: NASA Supported by: NSF NOAA DEPARTMENT OF STATE Implemented by: UCAR

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THE GLOBE PROGRAM

What is The GLOBE Program?

The Global Learning and Observations to Benefit the Environment (GLOBE) Program is an international hands-on environmental science and education program. Established in 1995, more than 30,000 GLOBE-trained teachers from over **30,000 GLOBE schools in 119 countries** have participated in the program to date as of January 2018. Citizen scientists called GLOBE Observers can now also collect data using a mobile app. As of January 2018, The GLOBE database contains almost **150 million measurements,** providing a unique resource for inquiry-based science projects.

GLOBE's Vision

is a worldwide community of students, teachers, scientists, and citizens working together to better understand, sustain, and improve Earth's environment at local, regional, and global scales.

GLOBE's Mission

is to increase awareness of individuals throughout the world about the global environment, contribute to increased scientific understanding of the Earth and support improved student achievement in science and mathematics.

GLOBE's Strategic Priorities

are to improve student understanding of environmental and Earth system science across the curriculum; contribute to scientific understanding of Earth as a system; build and sustain a global community of students, teachers, scientists and citizens; and engage the next generation of scientists and global citizens in activities to benefit the environment.

GLOBE encourages and supports students, teachers and scientists to collaborate on inquiry-based investigations of their local environment, sharing results in person and virtually through local, regional and international science symposia. GLOBE provides visualizations, maps and graphs presenting reported data. Raw data can also be downloaded to compare and contrast local and global environments.

The GLOBE Implementation Office supports the world-wide GLOBE network from offices at the University Corporation for Atmospheric Research (UCAR) in Boulder Colorado, with regional offices currently located in Argentina, India, Jordan, the Czech Republic, South Africa and the USA. GLOBE activities are steered by community-based GLOBE Working Groups (WGs) (Education, Evaluation, Science, Technology) and the US Partner Forum (USPF), which bring together representatives from GLOBE regions around the world.

Organizational Structure

The GLOBE Program is structured into four key parts: **GLOBE Program Office (GPO),
GLOBE Implementation Office (GIO), GLOBE Regions and Regional Coordination Offices (RCOs), and GLOBE
Partners.**

GLOBE Program Office (GPO)
The GLOBE Program Office creates the overall policies and strategic vision for the program. NASA hosts the
GPO, and the GLOBE Program Manager works with the other federal sponsors and supporters and the GIO to
direct GLOBE's strategic priorities. The GPO also manages the development and maintenance of the GLOBE
website and multiple databases.

GLOBE Implementation Office (GIO)
The GLOBE Implementation Office facilitates the work of GLOBE Partners and the wider GLOBE Community by
providing a range of services. These include:
• Providing educational materials to support the use of GLOBE resources in the classroom
• Reviewing and maintaining scientifically valid protocols for collecting data
• Advising and providing input on the development and maintenance of the GLOBE website and databases
• Providing communications materials (monthly newsletter, monthly community letter, sponsor reports, web
  content and government progress reports etc.) to ensure an informed worldwide community
• Communicating and celebrating partner achievements and activities
• Facilitating numerous field campaigns in regions and around the world
• Organizing with local partners the program's annual meetings and GLOBE Learning Expeditions
• Supporting GLOBE's Working Groups (Education, Evaluation, Science, Technology) and the
• US Partner Forum databases

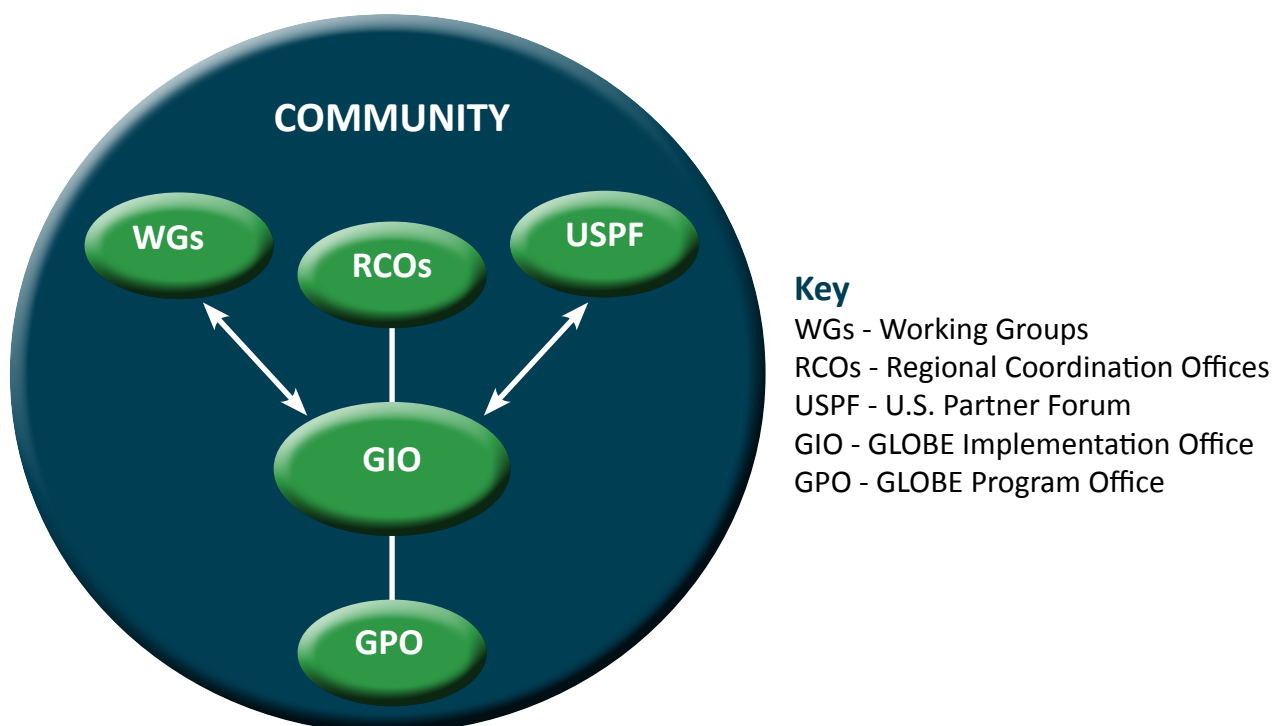## GLOBE Regions and Regional Coordination Offices (RCOs)

There are currently six GLOBE Regions: Africa, Asia and Pacific, Europe and Eurasia, Latin America and Caribbean, Near East and North Africa, and North America. Each region has a GLOBE Regional Coordination Office. (The GIO currently manages the North America region.) GLOBE Regional Coordination Offices are funded and overseen by the GIO with additional regional support. The Regional Coordination Offices provide support services for countries in their region, coordinate region-wide activities and projects, and communicate with both individual countries and with the GIO.

GLOBE Partners

GLOBE Partners include GLOBE Country Coordinators and organizations in states across the USA – with many states having multiple Partners. Internationally, governments have signed bilateral agreements with the U.S. Government indicating their commitment to the GLOBE Program. Each country has a Government Point of Contact and a Country Coordinator appointed by its Government. In the USA, partnerships are renewed on an annual basis, and they remain with the program as long as they demonstrate active implementation of the program. It is the role of all GLOBE Partners to recruit GLOBE Schools and both train and mentor teachers in using GLOBE observation protocols and implementing research projects. Once trained, GLOBE Teachers and their students are able to submit data to the GLOBE database and become part of the wider GLOBE Community. GLOBE Partners also have the opportunity to seek funding, develop new projects, participate in regional initiatives, and to communicate globally about their work.

The GLOBE Community includes all of the above, together with all GLOBE Schools, Teachers, Students, Scientists, Citizen Scientists (known as GLOBE Observers), and supporters world-wide.

Figure 1: The GLOBE Program Organizational Structure

Key
WGs - Working Groups
RCOs - Regional Coordination Offices
USPF - U.S. Partner Forum
GIO - GLOBE Implementation Office
GPO - GLOBE Program Office

Operational Structure

The GLOBE Program operational structure, carried out by the GLOBE Implementation Office, has three distinct levels: **Primary Activities, Support Infrastructure, and Underpinning Operations.**

Primary Activities of The GLOBE Program

Education
- Developing and supporting activities for teachers and trainers, inquiry-focused and based on Earth system science and Science Technology, Engineering and Mathematics (STEM) educational needs.
- Communicating with teachers, sharing best practices and providing tools to facilitate student learning and collaboration with the broader GLOBE community.
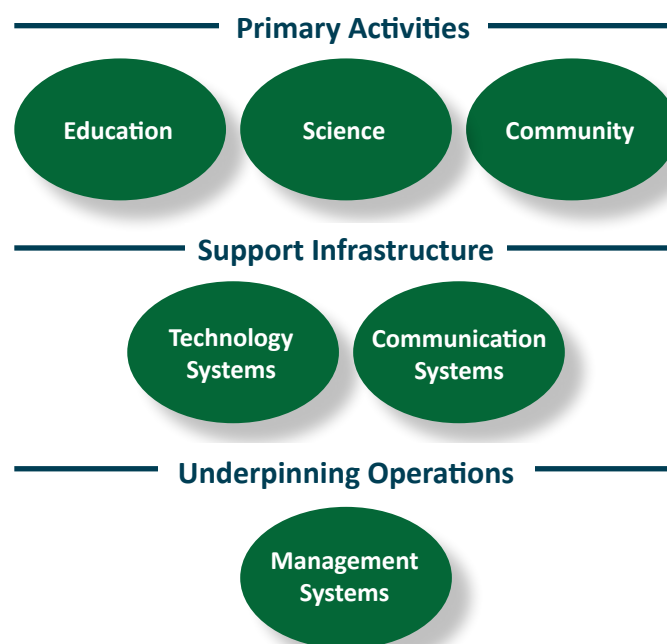
Science
- Recruiting STEM professionals engaged in relevant research to the GLOBE International Science, Technology Engineering, Mathematics (STEM) Network (GISN), coordinating STEM activities and educational links.
- Communicating with STEM professionals, sharing best practices in science and providing information to schools.
- Engaging the GISN in research that draws on GLOBE data.

Community
- Recruiting and supporting GLOBE Partners, sharing best practices between and among Country Coordinators and U.S. Partners and through this network providing a framework for training and supporting teachers in all countries with GLOBE schools.
- Managing GLOBE Regional Offices in order to facilitate activities conducted by GLOBE partners.
- Fostering relationships with Collaborating Organizations to meet the program's mission.
- Facilitating data collection entry and analysis by GLOBE Observers.

Figure 2: The GLOBE Program Operational Structure

Primary Activities

Education Science Community

Support Infrastructure

Technology Systems Communication Systems

Underpinning Operations

Management Systems

Support Infrastructure

Technology Systems
- Developing and delivering a state of the art website to inspire and engage the GLOBE community.
- Creating an on-line database of GLOBE measurements.
- Providing support for e-learning, input and visualizations of GLOBE student and Citizen Scientist data.

Communication Systems
- Providing regular communications to all GLOBE schools, scientists and partners, and other interested citizen including media outlets.

Underpinning Operations

Management Systems
- Maximizing the efficiency and effectiveness of all GLOBE activities.
- Ensuring adequate monitoring, review and evaluation; and enabling continuous improvement in services.

Goals and Performance Measures

In 2018, GLOBE's original vision remains just as important and relevant as it was in 1995 - a worldwide community of students, teachers, scientists and citizen scientists working together to better understand, sustain, and improve the Earth's environment at local, regional, and global scales. During the period 2018-2023, there will be many opportunities for The GLOBE Program to realize this vision.

GLOBE Education Goals and Performance Measures

Focus Area	Goal	Performance Measures	Baseline Numbers	Performance Target
Materials and Resources	EG1. GLOBE materials and educational resources are accessible and useful to the GLOBE Community in diverse environments.	❑ Percent of GLOBE Community members reporting that they access GLOBE materials and educational resources often; ❑ GLOBE Community members rating on the usefulness of GLOBE materials and resources *Data Sources:* ❑ Annual GLOBE Community Survey ❑ Data analytics of users accessing GLOBE materials and educational resources	Currently use often[1]: 49% GLOBE website 28% Science Data entry 19% Data Visualizations [1]From 2016 Annual GLOBE Community survey data results (Q29)	By end of 2022: **60%** GLOBE website **35%** Science Data entry **25%** Data Visualizations Mean value of **3.0 or higher** on 4 point scale of usefulness of GLOBE materials and resources by end of 2022
Professional Development	EG2. GLOBE's capacity to deliver high quality professional learning experiences (trainings) has increased	❑ Number of GLOBE trainers available by region ❑ Number of e-trained teachers available ❑ Number of teacher training workshops held per year ❑ Trainees' rating of quality of workshop *Data Sources:* ❑ GLOBE Training database ❑ Annual GLOBE Community Survey	Current GLOBE trainers[2]: 42 Africa 142 Asia and Pacific 201 Europe and Eurasia 133 LAC 73 NENA 649 North America Current # of Workshops Held[3]: 101 Africa 297 Asia and Pacific 622 Europe and Eurasia 244 LAC 88 NENA 3997 North America [2]From GLOBE Impact and metrics, 10-31-2017 https://www.globe.gov/about/impact-and-metrics [3]Same as above	By end of 2022: **46** Africa **156** Asia and Pacific **221** Europe and Eurasia **146** LAC **80** NENA ***713*** North America By end of 2022: **111** Africa **320** Asia and Pacific **650** Europe and Eurasia **268** LAC **96** NENA **4200** North America **10%** increase in the number of e-trained teachers by end of 2022 Mean value of **3.0 or higher** on 4 point scale of quality of teacher training workshop by end of 2022

GLOBE Education Goals and Performance Measures

Focus Area	Goal	Performance Measures	Baseline Numbers	Performance Target
Student Investigations	EG3. Students develop high quality STEM investigations of Earth systems phenomena from a local to global scale perspective	❑ Number of students developing STEM investigations ❑ Average score of rating of student investigations using IVSS rubrics *Data Sources:* ❑ GLOBE Database ❑ Annual GLOBE Community Survey	Currently # of student projects[4]: 10 Africa 85 Asia and Pacific 108 Europe and Eurasia 36 LAC 159 NENA 240 North America [4]From GLOBE Impact and metrics, 10-31-2017 https://www.globe.gov/about/impact-and-metrics	By end of 2022: **15** Africa **93** Asia and Pacific **118** Europe and Eurasia **45** LAC **170** NENA **265** North America Mean value of **3.0 or higher** on 4 point scale of quality of student investigations (IVSS rubric) by end of 2022
Evaluation	EG4. Information on GLOBE's educational impact is regularly shared by the community *Identified as priority goals by GLOBE Sponsors*	❑ Number of articles, publications, or presentations shared on the GLOBE website indicating GLOBE's educational impact *Data Sources:* ❑ GLOBE website and webpages ❑ Annual GLOBE Community Survey		**10%** increase in the number of articles, publications, or presentations shared on the GLOBE website indicating GLOBE's educational impact by end of 2022

GLOBE Science Goals and Performance Measures

Focus Area	Goal	Performance Measures	Baseline Numbers	Performance Target
Scientist Participation	SG1. Increase participation and collaboration of scientists and STEM professionals with the GLOBE Community	❑ Percent of scientist participation or collaboration of scientists and STEM professionals with the GLOBE Community *Data Sources:* ❑ Annual GLOBE Community Survey ❑ Measures of collaboration ❑ Attendance of scientists and STEM professionals at GLOBE Community events, including GO events	Scientist participation or collaboration activities[1]: 23% Assisted with student related GLOBE project 23% Partnered with GLOBE teacher or school 4% Used GLOBE data research 18% Other means of participation [1]From 2016 Annual GLOBE Community survey results (Q49)	By end of 2022: **30%** Assisted with student-related GLOBE project **30%** Partnered with GLOBE teacher or school **10%** Used GLOBE data in research **25%** Other means of participation
Science Data	SG2. Increase the comprehensiveness (i.e. number, consistency, and geographical distribution) of the data in the GLOBE database for science and research	❑ Comprehensiveness score of GLOBE data entries by region (based on number, consistency and geographical distribution) in the GLOBE database for science and research *Data Sources:* ❑ Composite scoring for data comprehensive-ness ❑ Individual count of number of data submitted to database ❑ Individual count of consistency (repeat submissions on monthly basis) ❑ Individual count of number of unique locations submitting data ❑ GLOBE Observer data entry counts	Comprehensiveness score of GLOBE data entries by region (to be calculated based on 2017 data)	**10%** increase in the region-based comprehensiveness score (i.e. number, consistency and geographical distribution) of data entries in the GLOBE database for science and research by end of 2022of quality of teacher training workshop by end of 2022

GLOBE Science Goals and Performance Measures

Focus Area	Goal	Performance Measures	Baseline Numbers	Performance Target
Science Publications	SG3. The number of publications and citations using or referencing GLOBE data has increased	❑ Number of publications and citations using or referencing GLOBE data *Data Sources:* ❑ Annual survey question on articles written, posters presented at annual meetings, conferences, etc. ❑ Citation analysis for mention of GLOBE database in literature		**10%** increase in the number of publications and citations using or referencing GLOBE data by end of 2022
Science Projects	SG4. Increase the number of projects focused on environmental awareness and contributing to environmental benefits *Identified as priority goal by GLOBE Sponsors*	❑ Percent of GLOBE teachers reporting student related projects connected to environmental benefits ❑ Number of student projects focused on environmental awareness and contributing to environmental benefits *Data Sources:* ❑ Annual GLOBE Community Survey ❑ GLOBE database	Current: 51% GLOBE teachers reported student-related projects related to environmental benefits in their school[2] [2]From 2016 Annual GLOBE Community survey results (Q43)	By end of 2022: **60%** of GLOBE teachers report student-related projects connected to environmental benefits in their school **10%** increase in the number of student projects focused on environmental awareness and contributing to environmental benefits by end of 2022

GLOBE Community Goals and Performance Measures

Focus Area	Goal	Performance Measures	Baseline Numbers	Performance Target
Community Growth	CG1. Expand the GLOBE community	❑ Number of new GLOBE members, including GO members ❑ Number of new members from unique geographical representations *Data Sources:* ❑ GLOBE database ❑ Annual GLOBE Community Survey		**10%** increase in the number of new GLOBE members by end of 2022 **10%** increase in the number of new members from unique geographical representations by end of 2022
Interactions and Collaboration	CG2. Increase interactions and collaborations among local, regional and international GLOBE communities through events and activities *Identified as priority goal by GLOBE Sponsors*	❑ Percent of GLOBE Community members participating in specific GLOBE events ❑ Percent increase in number of different subgroups participating in GLOBE events and activities at local, regional and international events/activities ❑ Percent of GLOBE Community members collaborating on projects ❑ Average score on measures of collaborations *Data Sources:* ❑ Annual GLOBE Community Survey ❑ Measures of collaborations (Frey, 2006) ❑ Event workshop evaluations, questionnaires ❑ Participant records for GLOBE campaigns, regional meetings, etc.	Current level of participation[1]: 84% participation in specific GLOBE events Collaboration on projects[2]: 30% Partners collaborating 21% Teachers collaborating 10% Scientists collaborating [1]From 2016 Annual GLOBE Community survey results (Q15) [2]From 2016 Annual GLOBE Community survey results (Q22)	By end of 2022: 94% participation in specific GLOBE events By end of 2022: **40%** GLOBE Partners **30%** GLOBE Teachers **15%** GLOBE Scientists

GLOBE Community Goals and Performance Measures

Focus Area	Goal	Performance Measures	Baseline Numbers	Performance Target
Geographic Representation	CG3. Increase the geographical representation of countries participating in GLOBE events	❑ Number of countries from different geographical regions participating in GLOBE events *Data Sources:* ❑ Annual GLOBE Community Survey ❑ Event workshop evaluations, questionnaires ❑ Participant records for GLOBE campaigns, regional meetings, etc.		**10%** increase in the number of different countries participating in GLOBE events by 2022

GLOBE Technology Goals and Performance Measures

Focus Area	Goal	Performance Measures	Baseline Numbers	Performance Target
Data Systems	TG1. The use of GLOBE data systems (data collection, data entry, visualizations, ADAT and retrieval) has increased *Identified as priority goal by GLOBE Sponsors*	☐ Percent of GLOBE Community members reporting "often" use of GLOBE data systems *Data Sources:* ☐ Annual GLOBE Community Survey ☐ Data analytics	"Often" use of the following data systems[1]: 23% Data Entry 28% Visualizations [1]From 2016 Annual GLOBE Community survey results (Q1)	By end of 2022: **30%** Data Entry **35%** Visualizations 10% Increase from the baseline value for ADAT use[2] [1]New performance not included in 2016 Annual GLOBE Community Survey
Website	TG2. The use of the GLOBE website to facilitate information exchange and collaboration has increased	☐ Percent of GLOBE Community members reporting the GLOBE website as "useful" in facilitating information exchange and collaboration *Data Sources:* ☐ Data analytics on GLOBE website use ☐ Web hit rates, page views ☐ Annual GLOBE Community Survey	Usefulness of GLOBE website for information exchange and collaboration[2]: 52% Communication with other community members [2]From 2016 Annual GLOBE Community survey results (Q3)	By end of 2022: **60%** Communication with other community members
Apps and Mobile Devices	TG3. Improve the relevance and capability of GLOBE apps and mobile-devices to better address the needs of the GLOBE community	☐ Average score rating the relevance of GLOBE apps and mobile devices in addressing GLOBE community members' needs 3 or higher on a 5-point scale ☐ Average score rating the capability of GLOBE apps and mobile devices in addressing GLOBE Community members' needs 3 or higher on a 5-point scale *Data Sources:* ☐ Annual GLOBE Community Survey		Mean value of **3.0 or higher on 4-point scale** of relevance of GLOBE apps and mobile devices by end of 2022 Mean value of **3.0 or higher on 4-point scale** of the capability of GLOBE apps and mobile devices to address GLOBE community members' needs by end of 2022

GLOBE Communications Goals and Performance Measures

Focus Area	Goal	Performance Measures	Baseline Numbers	Performance Target
Communication Pathways	CMG1. Improve the communication pathways among the GLOBE community *Identified as priority goal by GLOBE Sponsors*	❑ Average score rating level of satisfaction with GLOBE communications ❑ Percent use of new communication networks among different GLOBE Community subgroups *Data Sources:* ❑ Annual GLOBE Community Survey ❑ GLOBE website monitoring		Mean value of **3.0 or higher** on 4-point scale of satisfaction by end of 2022 **10%** increase in the use of new communication networks among different GLOBE community subgroups by end of 2022
International Community	CMG2. Improve the communication of GLOBE events, activities and achievement from the international community	❑ Percent of GLOBE international community members providing information of key events, accomplishments in their regions on a consistent basis ❑ Percent of GLOBE Community members indicating awareness of events, achievements within the international community *Data Sources:* ❑ Annual GLOBE Community Survey ❑ GLOBE website monitoring	Current[1]: 47% of GLOBE Community members provided information to GIO on events and achievements [1]From 2016 Annual GLOBE Community survey results (Q16)	By end of 2022: **55%** of GLOBE Community members report that they provide information to GIO on events and achievements **10%** increase in the number of GLOBE community members reporting awareness of events, achievements within the international community
New Audiences	CMG3. Increase the promotion of GLOBE to new audiences	❑ Number of references to GLOBE by external audiences, media outlets, etc. ❑ Number of GLOBE materials, information packets, and downloads (by unique users, 1st time users) shared with new audiences *Data Sources:* ❑ Altmetrics citation analysis ❑ Annual GLOBE Community Survey		**10%** increase in the number of GLOBE materials, information packets, and downloads (by unique users, 1st time users) shared with new audiences by end of 2022

Thanks to our GLOBE Partners around the world...

Argentina	Costa Rica	Guinea	Luxembourg	Niger	South Africa
Australia	Croatia	Honduras	Macedonia	Nigeria	Spain
Austria	Cyprus	Hungary	Madagascar	Norway	Sri Lanka
Bahamas	Czech Republic	Iceland	Maldives	Oman	Suriname
Bahrain	Denmark	India	Mali	Pakistan	Sweden
Bangladesh	Dominican Republic	Ireland	Malta	Palau	Switzerland
Belgium	Ecuador	Israel	Marshall Islands	Panama	Taiwan Partnership
Benin	Egypt	Italy	Mauritania	Paraguay	Tanzania
Bermuda	El Salvador	Japan	Mauritius	Peru	Thailand
Bolivia	Estonia	Jordan	Mexico	Philippines	Trinidad and Tobago
Brazil	Ethiopia	Kazakhstan	Micronesia	Poland	Tunisia
Bulgaria	Fiji	Kenya	Moldova	Portugal	Turkey
Burkina Faso	Finland	Republic of Korea	Monaco	Qatar	Uganda
Cameroon	France	Kuwait	Mongolia	Romania	Ukraine
Canada	Gabon	Kyrgyz Republic	Montenegro	Russia	United Arab Emirates
Cape Verde	Gambia	Latvia	Morocco	Rwanda	United Kingdom
Chad	Germany	Lebanon	Namibia	Saudi Arabia	United States of America
Chile	Ghana	Liberia	Nepal	Senegal	Uruguay
Colombia	Greece	Liechtenstein	Netherlands	Serbia	Vietnam
Republic of the Congo	Guatemala	Lithuania	New Zealand	Seychelles	