GLOBE Trainer and Mentor Trainer Qualifications and Certification Process

The GLOBE Program has a long history of building the capacity of its community by certifying GLOBE Trainers and Mentor Trainers (formerly known as ‘Master Trainers’). The result is a vibrant, growing community with members who are equipped to accomplish the mission and strategic goals of GLOBE [1]. To accomplish this, it is important to have GLOBE Trainers leading GLOBE workshops who are knowledgeable in the GLOBE program with a firm understanding of protocols, procedures, quality of data being collected and recorded, and who can guide teachers how to implement GLOBE in their educational setting. These GLOBE Trainers must be able to educate as well as support teachers to ensure GLOBE protocols are properly being conducted.

Within this training process, 

**Candidate Trainers** are individuals seeking accreditation to be a formal GLOBE Trainer. They must provide documentation of their competency in four critical areas: (1) Science, (2) Education, (3) Adult Learning, and (4) Knowledge of GLOBE. Candidate Trainers will work with a Mentor Trainer to lead a GLOBE Workshop under the guidance and supervision of this Mentor Trainer. When this observation and assessment of the workshop is fully satisfied, the Mentor Trainer may or may not recommend certification to the specific GLOBE Country Coordinator. If certification is recommended by the Mentor Trainer and reviewed and endorsed by the Country Coordinator, the Country Coordinator will send all documentation to the GLOBE Education Working Group for final approval and certification as a GLOBE Trainer.

**Trainers** (and Mentor Trainers) are certified to train educators in various GLOBE scientific protocols, educational activities, and GLOBE science research process. GLOBE Trainers are the front-line ambassadors from GLOBE to faculty and teachers from elementary through university and the general public. GLOBE trainers work with their audiences to promote GLOBE and the many resources and opportunities available to enhance learning experiences. Trainings can range from introductory awareness sessions to in-depth protocol trainings to promote student investigations. It is *not* expected that Trainers should offer training for all protocols but should seek certification for protocols in which the Trainer is confident in both science content knowledge and understanding of the protocol.

**Mentor Trainers** (formerly known as Master Trainer) aid in advancing the community of Trainers by mentoring Candidate Trainers. It is not expected that all Trainers will want to become Mentor Trainers. Only those active Trainers with a passion for serving the GLOBE community by actively mentoring, observing, and assessing Candidate Trainers should seek this designation. Mentor Trainers should be scientifically competent to answer questions related to GLOBE protocols, encourage the use of GLOBE and other Earth system science resources, and eager to provide support and guidance to help Candidate Trainers become confident and competent to conduct their own GLOBE Trainings.

**Certification Process to Become a GLOBE Trainer**

**Step 1. Application & Qualifications Review**

All GLOBE Trainers should have knowledge, skills, and experiences in the critical areas of (1) Science, (2) Education, (3) Adult Learning, and (4) Knowledge of GLOBE. Applicants should review the necessary qualification criteria and the process for application submission found within the *Candidate Trainer Application and Qualification* pages (Appendix 1). Candidate Trainers should complete the form, attach all relevant documentation, and submit this to their
Country Coordinator via email. This information will be reviewed by the Country Coordinator and Regional Office for consideration. If a Candidate is found eligible, the application will be shared with the GLOBE Education Working Group who can assist in identifying a Mentor Trainer to work with the Candidate Trainer. Alternatively, the applicant may request for his/her preferred mentor trainer.

Step 2. Review by Mentor Trainer

In order to become fully certified as a Trainer, a Candidate must conduct a GLOBE workshop and be observed using one or more GLOBE protocols with workshop participants under the mentorship and guidance of a Mentor Trainer. The Mentor Trainer must observe the training in-person, virtually, or through video submission. This observation will help evaluate the Candidate Trainer’s effectiveness in skills related to 1) understanding the science behind the protocols, 2) understanding of education and learning, 3) teaching adult learners, and 4) communicating the mission of GLOBE.

The Mentor Trainer will complete an observation of the candidate using the Candidate Trainer Workshop Observation Assessment Form (Appendix 2), and submit it to the Country Coordinator/Regional Coordination Office Reviewer for review and evaluation. If the Country Coordinator/Regional Coordination Office Reviewer agrees with the assessment, all information will be submitted to the GLOBE Education Working Group for final approval/disapproval. If the candidate does not meet approval and requires more experience/mentoring, the Country Coordinator/Regional Coordination Office Reviewer will be notified that the candidate must provide additional evidence or meet the requirements of the accreditation process when he/she is more prepared. This can be done with the same Mentor Trainer or another one. If the candidate does meet approval, the candidate and Country Coordinator/Regional Coordination Office Reviewer and the mentor trainer will be notified and Candidate Trainer’s status will be changed to Trainer in the GLOBE database by the Country Coordinator or Regional Office.

If the candidate does not meet approval, the applicant can re-apply once he/she has acquired evidence that they have met the previously unmet criteria based on a timeline that the Country Coordinator/Regional Coordination Office Reviewer and candidate agree on. If the candidate does not meet approval, he/she may file an appeal with the GIO within 3 calendar days of receiving the notice of disapproval. The GIO would then review the appeal and make a final decision and communicate the decision to candidate and regional office.

Additional Trainer Protocol Certification

Once certified, a Trainer may train in any of the particular protocol(s) in which he/she has been trained and feels comfortable. Trainers may learn about additional protocols through eTraining or by participating in a GLOBE workshop. Trainers and Candidate Trainers are strongly encouraged to participate in GLOBE workshops as a learner or assistant to other Trainers before training in additional protocol areas. It is not expected that Trainers offer training for all protocols. Trainers may seek additional certification for protocols in which the Trainer is confident in the science content knowledge and understanding of the protocol(s). Trainers are encouraged to update their My Page to identify the protocols in which the Trainer is interested and willing to provide GLOBE workshops.

Updated Protocols

All Trainers and Mentor Trainers must also be active and up to date with the latest version of the protocols. It is sometimes necessary to update protocols because of creation of apps and/or changes in data entry, instrumentation, or changes in science research. In this case, Trainers
and Mentor Trainers must be certified in the new version of the protocol by completing the particular protocol eTraining.

**Step 3. Active Status**

To retain active status, all Trainers must 1) complete a brief Trainer survey each year and 2) submit documentation every three years providing evidence of continued commitment to GLOBE through:

<table>
<thead>
<tr>
<th>1. GLOBE Training</th>
<th>• Conducting at least one protocol training every two years and it has been tracked through the GLOBE workshop database</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. GLOBE Community</td>
<td>Participation in at least one GLOBE community activity every two years that may include but not be limited to:</td>
</tr>
<tr>
<td></td>
<td>• Attending a GLOBE International, national, or regional meeting</td>
</tr>
<tr>
<td></td>
<td>• Serving as a reviewer for the International Virtual Science Symposium (IVSS), a Student Research Symposium (SRS), or a regional/country Science Fair</td>
</tr>
<tr>
<td></td>
<td>• Hosting a GLOBE GLE or SRS</td>
</tr>
<tr>
<td></td>
<td>• Conducting a GLOBE protocol or NASA mission related project</td>
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<tr>
<td></td>
<td>• Being an active member of the GISN, a GLOBE working group, or US Partner Forum</td>
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<tr>
<td></td>
<td>• Participating in a GLOBE Workshop</td>
</tr>
<tr>
<td></td>
<td>• Maintain updated GLOBE My Page</td>
</tr>
</tbody>
</table>

If a Trainer or Mentor Trainer lapses in “active status”, the Trainer or Mentor Trainer may submit a request to *return to active status* with related documentation to the Country Coordinator/Regional Coordination Office Reviewer for reconsideration.

**Mentor Trainer Certification**

GLOBE Mentor Trainers are experienced and active Trainers who aid in advancing the community of Trainers by mentoring Candidate Trainers. While Mentor Trainers provide a critical role in building the capacity of the community, it is not expected that all Trainers would wish to become Mentor Trainers. Only those active GLOBE Trainers with a passion for serving the GLOBE community by actively mentoring, observing, and assessing Candidate Trainers should seek this designation.

Mentor Trainers have substantially more experience in the same Trainer areas of (1) Science, (2) Education, (3) Adult Learning, and (4) Knowledge of GLOBE. Mentor Trainers serve as mentors for Candidate Trainers and, therefore, must have extensive knowledge and expertise in these four areas.

Trainers may qualify to become Mentor Trainers after two or more years of experience as an Active Trainer. Given the expectation that Mentor Trainers make themselves available to mentor and assess Candidate Trainers, it is important that Trainers who qualify for the status of Mentor Trainer complete and submit the *Mentor Trainer Application and Mentor Acknowledgment* (Appendix 3) documenting their expertise in GLOBE and acknowledging the expectation to serve as a mentor. If the Country Coordinator and Regional Office acknowledges the qualifications and evidence, all documentation will be provided to the GLOBE Education
Working Group for final review. If the Trainer does not meet approval and requires more experience/mentoring, the Country Coordinator/Regional Coordination Office Reviewer will be notified that the Mentor Trainer candidate must repeat the accreditation process when he/she is more prepared. If the candidate does meet approval, the candidate and Country Coordinator/Regional Coordination Office Reviewer will be notified and Candidate Trainer’s status will be changed to Mentor Trainer in the GLOBE database.

**Mentor Trainer Active Status**

Mentor Trainers must maintain Active Trainer Status by conducting Protocol training, participating in GLOBE community events, and serving as a mentor to Candidate Trainers. To maintain “active” status, every three years a Mentor Trainer must observe and assess Candidate Trainers at least once.

To maintain active status, all Mentor Trainers must 1) complete a brief Mentor Trainer survey each year and 2) submit documentation every three years providing evidence of continued commitment to GLOBE through:

| 1. GLOBE Training | Conducting at least one protocol training with candidate trainers each year tracked through the GLOBE workshop database  
| | Providing evidence of current depth of knowledge and related experience of new sphere protocols, web page changes, app usage, etc. |
| 2. GLOBE Community | Participation in at least one GLOBE community activity per year that may include but not be limited to:  
| | Attending a GLOBE International, national or regional meeting  
| | Being a reviewer for the International Virtual Science Symposium (IVSS)  
| | Hosting a GLOBE GLE or SRS  
| | Conducting a GLOBE protocol or NASA mission related project  
| | Being a member of the GISN, a GLOBE working group or US Partner Forum  
| | Other GLOBE community activity attested by Country Coordinator |
| 3. Mentorship of Trainer Candidates | Mentoring at least one Candidate Trainer during the documented time period (once every three years) |
4. Observation and Assessment of Candidate Trainer Workshops

Observing and assessing a Candidate Trainer during at least one Protocol training workshop led by a Candidate Trainer during the documented time period (once every three years)

Appendices:

Appendix 1: Candidate Trainer Application and Qualifications

Appendix 2: Candidate Trainer Workshop Observation Assessment Form

Appendix 3. Mentor Trainer Application and Mentor Acknowledgment

### Appendix 1: Candidate Trainer Application and Qualifications

**Trainer Candidate Applicant Name:**

**Contact information:**

**Summary of Evidence Needed to Qualify as Candidate Trainer**

<table>
<thead>
<tr>
<th>Trainer Candidate Critical Qualification Areas</th>
<th>Science</th>
<th>Education</th>
<th>Adult Learning</th>
<th>Understanding GLOBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and Skills to be Shown</td>
<td>Making Earth system/environmental science relevant to educators. Understanding of the protocol subject area and sphere content.</td>
<td>Pedagogical techniques for teaching children or youth in the classroom and in the field.</td>
<td>Techniques for teaching and engaging adults.</td>
<td>Active participation in GLOBE and an understanding of the GLOBE Program including its vision, mission, and values.</td>
</tr>
<tr>
<td>Critical Area (1) Science</td>
<td>Knowledge and skills to be shown regarding making Earth/environmental science relevant to educators. Understanding of the protocol subject areas and interrelated sphere content.</td>
<td></td>
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<tr>
<td>--------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence</td>
<td>Evidence: Documentation of understanding of GLOBE science content that may include but is not limited to:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|                          | ● Protocol Training Certificate  
                          | ● Degree  
                          | ● Certification  
                          | ● Coursework  
                          | ● Research Experience  
                          | ● Other  
                          | Describe evidence submitted (submit attachments as necessary): |
|                          | To be completed by Country Coordinator or Regional Coordination Office Reviewer:                                                                                                                   |
|                          | Sufficient Evidence? □Yes or □No                                                                                                           |
|                          | If no, what additional evidence is recommended?                                                                                             |
| Critical Area (2) Education | Knowledge and skills to be shown regarding pedagogical techniques for teaching children or youth in the classroom and in the field.                                                                 |
| Evidence                 | Evidence: Documentation of education experience that may include but is not limited to:                                                                                                             |
|                          | ● Experience School teaching  
                          | ● Experience Working at youth camps, and/or community-based organizations  
                          | ● Coursework  
                          | ● Other  
                          | Describe evidence submitted (submit attachments as necessary): |
|                          | To be completed Country Coordinator or Regional Coordination Office Reviewer:                                                                                                                        |
|                          | Sufficient Evidence? □Yes or □No                                                                                                           |
|                          | If no, what additional evidence is recommended?                                                                                             |
| Critical Area (3)  
Adult Learning | Knowledge and skills regarding techniques for teaching and engaging adults. |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Evidence: Documentation of adult learning experience that may include but is not limited to:</td>
</tr>
</tbody>
</table>
|                 |   ● Experience teaching adults  
|                 |   ● Coursework  
|                 |   ● Certification in adult learning  
|                 |   ● Other  
|                 | Describe evidence submitted (submit attachments as necessary): |

| To be completed Country Coordinator or Regional Coordination Office Reviewer: |
| Sufficient Evidence? □Yes or □No |
| If no, what additional evidence is recommended? |

| Critical Area (4)  
Understanding GLOBE | Active participation in GLOBE and an understanding of the GLOBE Program including its mission and values. |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Evidence: Documentation of active GLOBE participation that may include but is not limited to:</td>
</tr>
</tbody>
</table>
|                     |   ● Protocol certification from workshop or e-Training  
|                     |   ● Attendance at a GLOBE workshop (led by someone else),  
|                     |   ● Submitted data entry  
|                     |   ● Profile page created  
|                     |   ● News submitted online  
|                     |   ● Participation as a judge for IVSS  
|                     |   ● Participation in a GLOBE Annual International or Regional meeting  
|                     | **Candidates must have experience in at least 3 of 7 activities.** |

| To be completed by Country Coordinator or Regional Coordination Office Reviewer: |
| Sufficient Evidence? □Yes or □No |
| If no, what additional evidence is recommended? |
If evidence is sufficient, Country Coordinator or Regional Coordination Office Reviewer shall work with the new Candidate Trainer to identify a Mentor Trainer with whom to complete requirements. Suggested Mentor Trainer contact information:

Appendix 2. Candidate Trainer Workshop Observation Assessment Form (to be completed by Mentor Trainer)

Mentor Trainer: ________________________________

Candidate Trainer: ________________________________

Date: __________________ Workshop Location: __________________

Method of Observation (check all that apply): ____in-person, ____video review, ____ZOOM/Skype, ____other: __________________

List Protocols for which the Candidate Trainer is seeking certification:

<table>
<thead>
<tr>
<th>Demonstrated Ability (Describe Candidate’s performance with as much detail as possible.) Check one column</th>
<th>Proficient</th>
<th>Partially Proficient</th>
<th>Comments to become proficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>
1. Understanding and Correct Performance of Protocols:
- Knows all site requirements, frequency of measurements, correct fieldwork/sampling/laboratory techniques, correct use of instruments and instrument specifications in Teacher's Guide, calibration techniques.
- Awareness of common sources of error and how to address them.
- Implements all safety procedures (gloves, goggles, correct waste disposal).

2. Presentation and Delivery:
- Speaks loudly, clearly and is heard and understood by all participants.
- Maintains trainee focus on the ongoing activities and discussion.
- Listens to participants’ answers and shows s/he is listening (patient and waits until participants answer, listens to complete answer, asks follow-up questions).
- Creates classroom in which participants talk frequently, are enthusiastic/engaged.
- Uses both visual and verbal media in the classroom.
- Accommodation of multiple trainee languages and levels of fluency.

3. Uses Inquiry in Training:
- Asks questions that are open-ended and require participants to think.
- Places the protocols and their data in the context of an inquiry being conducted by the trainees.
- Provides suggestions of possible student individual or group investigations.
- Uses questioning as a tool to help participants use prior knowledge to reach new understandings.
- Sees her/his role during the lesson as a “moderator” or “coach” and not an authority figure.
- Guides participants to ask their own questions about the study site/region at which any fieldwork will be done.
- Guides participants to make predictions about the study site/region at which any fieldwork will be done, and asks them to explain predictions. (Explanations make the class process- and mechanism-oriented, instead of only information-oriented).
- Uses field observations as a tool to answer participant-owned questions.

4. Understands and Places Training in the Context of the Science Research Process
- Engages trainees through their observations of nature.
- Discusses questions that may be answered using the protocols and how to turn these into good, testable hypotheses.
- Ensures that each trainee does the steps required to take the data.
- Understands basic techniques for analyzing protocol data.
- Uses the GLOBE website, including visualizations, in data analysis.
- Has trainees discuss their results.

5. Data Recording, Reporting, Visualizing, and Downloading:
- Ensures that all participants have copies of all required GLOBE Data Sheets for their investigation.
- Ensures participants have viewed and read Data Sheets prior to going outdoors (refers to Data Sheets during each lesson and uses them to help each protocol).
- Makes sure all participants write observations on GLOBE Data Sheets during field/lab work.
- Guides participants to submit data by effective methods.
- Guides participants through the GLOBE visualization tools.
- Is up to date with online applications, mobile apps, and web pages.
- Clearly explains legends and axes labels of maps and graphs, data search parameters.
- Explains and has trainees explore data tables and download some data.
- Demonstrates use of spreadsheets and Google maps to manipulate and analyze data.
Overall Evaluation: Proficient or Partially Proficient

<table>
<thead>
<tr>
<th>Special Considerations (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write Summary Evaluation and Explanation of Recommendation on Back, if needed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommendation (Evaluator initials)</th>
<th>The Candidate needs to Improve in the following Protocols before certification:</th>
<th>Candidate is Certified in the Following Protocols:</th>
</tr>
</thead>
</table>

Appendix 3. Mentor Trainer Application and Mentor Acknowledgment

Name of Applicant wishing to become certified as Mentor Trainer:

Contact information:

Identify the Investigation Area(s) for which you wish to be considered a Mentor Trainer.

Circle: Atmosphere  Biosphere  Hydrosphere  Pedosphere

Documentation of Active Trainer evidence for at least three years for this sphere specific protocol area(s) that may include but not limited to workshop history, data entry, GLOBE presentations, mentoring or judging IVSS:
Complete the following statement and sign:

I ____________________________________ am applying for certification as a GLOBE Mentor Trainer. I understand that serving as a Mentor Trainer means I shall mentor 1 or more candidate trainers. I will work with my Country Coordinator and Region Office to ensure candidate Trainers receive the support needed to become certified GLOBE Trainers.

Signature:

Date:

<table>
<thead>
<tr>
<th>This row to be completed by Country Coordinator or Regional Coordination Office reviewer:</th>
<th>Sufficient Evidence?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes / No</td>
</tr>
<tr>
<td></td>
<td>If no, what additional evidence is recommended?</td>
</tr>
</tbody>
</table>