EXECUTIVE SUMMARY (p. 1-10)

Overview

The GLOBE Working Groups met in conjunction with the 2023 GLOBE Annual Meeting in Denver, Colorado, for the 10th anniversary of the Working Groups, and the first one in-person since 2019. It had four sessions: before the Annual Meeting (virtually, on June 15), during it (in-person, on July 16 and 21), and afterward (virtually, September 6). In addition, they interacted with the larger community in various ways during the course of the Annual Meeting.

The overall objectives of the Working Group Meetings were to:
1. Celebrate 10th Anniversary of Working Groups and highlight accomplishments
2. Evaluate what's working and could be better in how the Working Groups operate now
3. Re-envision the future of the Working Groups to meet evolving needs of GLOBE

In line with these objectives, the agenda of the meetings took participants on a journey through:
1. The Past
2. The Present
3. The Future

The five Working Groups are:
- Diversity, Equity, Inclusion & Accessibility (DEIA)
- Education
- Evaluation
- Science
- Technology

The Working Groups met in an interwoven mix of sessions and formats, all together and separately, on the dates noted above. They also presented their annual reports to the larger GLOBE Annual Meeting on Monday, July 17, and gathered input from general members on Wednesday, July 19, about their vision for the future and priorities going forward. They developed priorities both within and across working groups.

The four most important cross-cutting themes that the Working Groups prioritized for the development of action plans were:
1. Communication
2. Protocols & Training
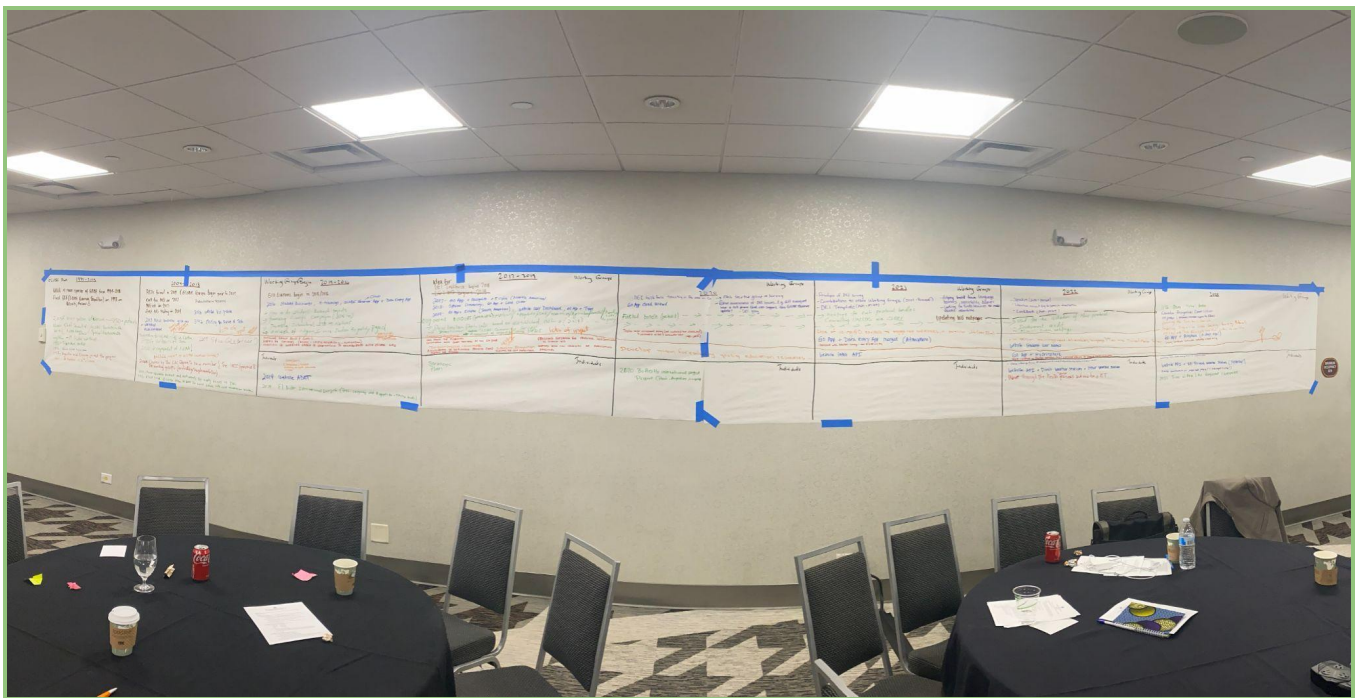3. Teachers & Alumni
4. Equitable Access

This Executive Summary goes through p. 10; Participant Feedback is on p. 11-17; and the Appendix of all information generated by the Working Groups is on p. 18-39.

The Pre-Meeting

Working Group chairs and selected additional representatives met online on July 6, 2023 to kick start the annual meeting work. Each group shared with each other a draft of their Annual Working Group Reports, in order to inform the other groups, get input and (later) refine the reports for presentation to all attendees at the Annual Meeting.
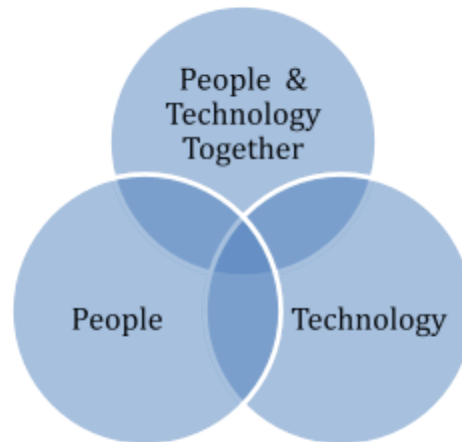
The Past

A timeline was created by all participants to document and celebrate the accomplishments of the first 10 years of Working Group activity. A picture is shown below, and the details have been transcribed in a period-by-period transcription, coded by color for each Working Group, in the Appendix.

The Present

The high-level summaries presented here were pulled from the presentations made by participants. Details of all the ideas generated are included in the Appendix.

What's Working Well?

People

We are building an environment that is respectful where everyone's voice is heard. Working Groups give voice to many people and the opportunity to grow. Everyone is growing. Experiences of members are shared, we listen to and learn from each other. The lessons learned are applied to improve —creating better engagement for teachers and students.

Technology

GLOBE.gov rocks! Continuous improvement on 60 Apps/Data Entry tools. Technology enabling Evaluation. Video improvements too.

People and Technology Together

Well-organized Working Group meetings, leveraging tech like jamboard and google, with significant outcomes and results over time. Good structure of Working Groups, each with a different focus. Regional representation is so important and valuable. Result is good connections between WG members from different regions. Promising practice of more collaboration across working groups.
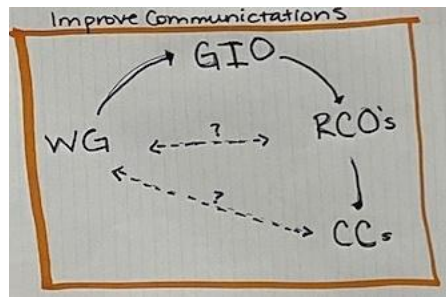
What Could Be Better

The longer list addressing this question reflects a few things, according to participants:
- What's working well is more obvious and easier to take for granted; lists like this almost always have 3-5x longer lists of what can be better
- We have the trust & comfort with each other so we can critically examine what we are doing
- Small doubts become more explicit, which is very beneficial—enabling the "fish to talk about the water"

Communication

Communication improvement opportunities would support the Working Groups' alignment not only with GIO, but also RCOs and their country coordinators, as depicted below.

Areas of communication that members feel they need help include: videos (e.g., tutorials for all spheres and protocols), money/resources, knowledge about programs, when updates will occur, people departing. Sustainability (and succession) requires more documentation, so when a new person comes in, they can step in and go. More frequent in-person meetings would help.

Sub-committees and Products

Subcommittees are needed, as are stronger regional programs. Materials are expensive and could be subsidized.

Decentralization

Another theme was overcoming the tendency to be America-centric; with 127 countries. Issues of equity also arise here.

Roles and Goals

Members expressed a desire for clarity on what we are mandated on, what we need approval from GIO, and what we can do on our own. Subcommittees add further complexity to the mix. Liaisons play an important role in communications from GIO, continuity of which helps. Also need to ensure WG efforts are communicated to RCOs. How to ensure that WG priorities move up to GIO and GPO priorities? Onboarding new members in July was a popular recommendation.

The Future

Dreams

Participants met in mixed groups to imagine together the future of GLOBE and these working groups. Questions posed were:
- What will the next 10 years of GLOBE call for (similar and different from the last 10 years)?
- What is the ideal future of WGs to meet GLOBE's evolving needs?
- How might WG's makeup or role change as a result?

The themes and highlights here are based on what presenters said in their 3-minute summaries of the dreams from each table. Full details of each group's brainstorming are provided in the Appendix.
- MORE!
  - o Countries and US partners, more active schools
  - o Integration across working groups (and earlier in the process)

- o   Cross-collaboration and connections between Working Groups
- o   Trainers/MTs
- o   GLEs
- o   In-person activities
- o   Appreciation and recognition of the community, especially teachers and students
- o   Student research
- o   Teacher trainings
- o   Projects
- o   Involvement of global alumni
- o   Succession planning – onboarding younger people
- o   Fundraising
- Building our togetherness, as a "family," representing the globe
- Connection, Coordination, Collaboration, Communication – across Working Groups like we're doing here – more in-person - central to our future success
- Possibility of a communication sub-committee
- Looking into the future landscape of education, what will be changing, and what WGs need to consider as a result
- Connecting everyone, all the students together, via technology (maybe even Starlink!)
- Re-invent our mission and overall goal for GLOBE to help people across the world to be "stewards for our environment" – providing a bigger purpose for why we collect data – and leveraging our huge into 127 countries with passionate people
- Reinstate the train-the-trainer workshops
- Equipment—building a comprehensive list of what's needed and seeking funding
- Alumni – involving and utilizing them more, as we are here
- Having a teacher representative on each WG, and more opportunity for teachers to share and publish their work – highlighting their amazing work
- Provide resources and access to events to groups that are underrepresented
- Incorporating AI, in a positive way, and watching out for potential biases
- Get clear on the role of the working groups, each of them, which ones are needed, and where there are overlaps where they should be collaborating
- Ensure institutional memory is preserved for sustainability
- Evolving from school-based to a community-based education model, connecting constituencies externally as much as internally
- Being a frontrunner in the use of new technology, be that AI, Big Data
- Become so well known that when governments, NGOs, scientists want to do a citizen scientist project, they come to GLOBE! Turn around the funding relationship, from asking for money to people coming to us (with resources) because they want to do a project.

- Integrate more the students and scientists
- GLOBE Rapid Response Teams in response to significant environmental events that students can go in and help collect data

Keep/Drop/Try

Based on the assessment of what's working well and not, as well as the aspirations embodied in the dreams summarized above, participants were asked to brainstorm (in their Working Groups), what to keep/drop/try. Then everyone prioritized the set of ideas that emerged from that brainstorming (see Appendix for full list and prioritized items by multI-vote). Finally, the facilitator grouped the prioritized items into seven cross-cutting themes, that were the basis for the formation of workstations on Friday (anchored by one host; others could rotate) to address three questions with respect to each theme, as follows:

Prioritized Topics

1. Communication
2. Protocols & Training
3. Teachers & Alumni
4. Equitable Access
5. Instrumentation
6. Climate Campaign
7. Age-Appropriate Materials

Questions to Address for Each Topic

- WHAT does this entail?
- WHY is it important?
- First/Next Steps

Since the ideas to respond to these questions are, by nature, detailed, they are not susceptible to theming. The report-outs from each group, as documented on the flip charts, are included on the last few pages of the Appendix to this report. AND the Post-Meeting began with that information as foundation for discussion by new breakout groups formed to further delineate the final version of the recommended top priorities, according to the structure shown below.

The Post-Meeting

Representatives of each Working Group met online on September 6, 2023 to build on the work during the Annual Meeting to identify and recommend top priority projects for the GLOBE Working Groups to undertake, both within each Working Group and across Working Groups.

For each priority (both within and across working groups), the members began to address (as time allowed) the following topics. The details of their answers to these questions about each priority are captured in this [Google Sheet](#) (a living document that will be modified as the work moves forward).

- **Purpose/Impact:** Why is this a top priority and what would be its impact?
- **Goals:** What are the specific goals you want to accomplish by working on this?
- **First Steps (as time allows)**: What will be your first steps to launch (or continue) this project?
- **Timeline (as time allows)**: Create an outline and approximate timeline for the completion of remaining steps to accomplish the goals of this priority project.

Within Working Groups

Priority projects proposed by each Working Group are as follows:

DEIA

1. Teacher and Alumni Recognition
2. Improving Language Resources
3. Data Sovereignty / Sovereignty of Culture

Education

1. Understanding Climate Change and mitigating Its impact
2. Updating Protocols in view of new instrumentation available
3. Interaction Between Teachers & Alumni with the Working Groups

Evaluation

1. Embed Evaluation Working Group Members into other Working Groups
2. Complete/Finalize Country Coordinator Survey Results

Science

1. IVSS and Scientist Involvement
2. Accessibility – Instrumentation, Language of Scientific Resources
3. Adaptation and Resilience

Technology

1. Improve Availability of GLOBE Data to all
2. Facilitate Instrument and Equipment Use
3. Enhance Student Participation and Data Collection

Across Working Groups

Based in part on their discussion during the Working Group Breakouts above, members voted for the top four cross-cutting priorities, to be (partially) fleshed out during their time together in this meeting. The top four recommended priorities across working groups (out of the original list of seven possibilities) are:

1. Protocols & Training
2. Teachers & Alumni
3. Communication
4. Equitable Access

New breakout groups were formed around these topics and members chose which one(s) they wanted to contribute ideas toward during the session. Under the headers below are the groups' view of the most important components to address for each cross-cutting priority.

Protocols & Training

- New Protocols
- Instrumentation
- Training materials (including E-Training and video tutorials)
- Teacher Guide Updates (including teacher/student research ideas)
- Linking New Protocols Campaign

Teachers & Alumni

- Teacher Recognition
- Alumni Engagement and Recognition

Communication

- Searchable Database of Resources – compilation and communication/distribution
- Communication Within and Between Working Groups
- Communication Between Working Groups and GPO, GIO, DIS, USPF, RCOs and CCs
- Communication to Different Audiences Tailored as to content, frequency and platform

Equitable Access

- Translation
- Select Low-Cost Protocols for use in countries with less funding
- GLOBE Programs in every region or climate (pilot supported by GLOBE)
- Support Development of Instruments that are accessible to students/teachers/citizen scientists who are visually impaired

-

Observations

We noted the following during the work sessions:

Positives

- There was a palpable feeling of a "GLOBE family" that many commented upon, rooted in camaraderie, mutual support, and the delight in coming together in person to re-connect and celebrate as well as plan
- Working group members were exceptionally well engaged throughout the week, clearly demonstrating their high level of commitment to this work
- Breakout groups (whether as Working Groups or a heterogeneous mix) took good advantage of their diversity, with attention paid to involving everyone
- High levels of productivity, as demonstrated by the extensive output documented herein

Challenges

- While helpful, the level of detail at times risked obscuring the bigger picture with a lot of specific ideas at the level of HOW.
- Within the Annual Meeting week, we did not have time to come to conclusions about what is most important to act upon within the priority action areas both within and across the Working Groups (to be addressed in the follow-up session).
- The future structure of the Working Groups has not yet been decided, though there was considerable, sometimes challenging discussion

Process Observations (Themes) from Participants

- Importance of collaboration across Working Groups
- Value of in-person meetings and the power of connection; want more often
- Wanted more time to work within own Working Group
- Desire for more frequent cross-group meetings

Recommendations and Next Steps

After Annual Meeting

1. Thank participants for their contributions and share this report with them in preparation for the final ½ day working group session online
2. Use the final meeting to reach conclusions about the structure of the Working Groups going forward and top priority projects to focus on in the next year, both within and across the Working Groups
3. Plan an agenda for that meeting that is supportive of that desired outcome, and engaging in an online environment

After Post-Meeting

1. GIO and GPO review the priorities proposed by the Working Groups (both within and across them), decide (and/or modify) the ones to move forward with, and communicate back to the Working Groups
2. GIO creates an umbrella document for this one that communicates those decisions and any other information they or GPO wish to communicate about the vision, context and way forward; and distributes that to the Working Groups and other interested stakeholders
3. GIO Liaisons support the Working Groups in pursuing the prioritized work *within* their groups
4. Champions are identified for each cross-cutting priority, a structure is created to pursue them (Task Forces?), and participation is invited from interested Working Group members and other stakeholders, ensuring representation from each WG.

PARTICIPANT FEEDBACK (p. 11-17)

This is a verbatim transcription of all feedback forms collected from participants at the conclusion of the Annual Meeting, organized by question.

What is one thing you are taking away from this session?

- Seeing all the people face to face, their passion and dedication to the GLOBE community
- Importance of cross-WG collaboration
- Allowing participants to brainstorm
- The sessions on looking back on the past, taking stock of the present and envisioning the future
- Willingness to engage and think open conversations
- Work on equitable access because GLOBE is a global program and everyone must participate fully in GLOBE
- The importance of input from each WG on any given task or objective
- In-person meetings are way more productive than zoom meetings; and we made more progress when we were in the same room, communication flowed better
- The need for greater cross-collaboration between & among WGs. The GLOBE Program needs to develop a "stakeholder communication plan" that will effectively disseminate or distribute the output of WGs to current stakeholders
- Knowledge on changes thought out GIO
- The WGs are doing incredible & important work, and that there needs to be better communication among WGs
- Better insight into the activities and plans of different WGs
- Great ideas to help the GLOBE community. Better understanding of community need
- The need to work in more across-the-board kind of arrangement
- Since we are GLOBE, one thing I am taking away form this session is the reunion and getting new connections with others around the globe
- The idea of other WG members. Ideas about WG to include traditional knowledge, improve the data library and the way that GLOBE could help to make decisions including important issues like climate
- Thinking a lot with idea and refine them for future decision making
- Education and equipment. Teachers and Alumni investment (raise and emphasize their voices). Steward engagement in GLOBE locally and internationally
- How important integration within WGs is
- The possibility to know, in-person, each member of the WGs and have the possibility to interact, give and receive some ideas/points of view, and learn new things
- It is so important to communicate and interact with all WGs
- A lot of learning, camaraderie and enthusiasm to contribute ideas to The GLOBE Program
- The good work all the time
- Diversity of needs & opinions
- The importance of participating in activities that make it possible to enrich the importance of The GLOBE Program in the regions and in my country. Thank you!

- We have so many worries and thoughts in common to share in our different regions, and when we come together they seem to be saying much similarities and common feelings that should be taken into account when writing the strategic plan
- WG members highly motivated to serve the GLOBE community
- Energy & commitment is high & dedication to helping the program
- GLOBE is a warm family. The love and warmth I experienced this week is very commendable
- GLOBE needs improvement in Central help for data, information and research

What do you think about the value of the time devoted to the GLOBE Working Groups led by GIO this week?

- Inspiring
- Well done
- Very valuable
- High
- Amazingly rewarding
- More than sufficient
- I think the time was sufficient
- Average
- One of the top in terms of productivity
- Worth the investment & allowed the possibility of having conversations (melting pot of ideas)
- It is worth it. You have the chance to express your views and also learn from others
- It is absolutely important 100% should be done twice a year and in person
- The personal connections i've had with colleagues, plus insight into climate action campaign
- Important to learn one time a year to get a chance for cross WG collaboration
- It's really important to have this time to 'grow ideas' together
- I think it was very valuable and I really appreciate that the former members of the Working Groups have been invited to share their experience and inputs to the actual members. That was rich
- WG time sufficient and well distributed during the 6 day meeting
- It is just enough given the time constraints due to the annual meeting but it would be done, perhaps, a week before the AM that would be much better
- Appropriate. But it would be great to have time allocated to a session per working group
- WGs, work and meetings are very important should dedicate more time to these meetings & time is carried from presentation time
- Every minute dedicated to group work is very valuable and enriching for the growth of GLOBE and its members
- It is really important to have time for sharing among the WGs, so it was great to have several sessions - highly valued time
- I think it is valuable, honor more w/in group discussion time would have been helpful
- Everyone was dedicated and passionate, trying to do things better for the future
- The time devoted by the Working Groups and all the various stakeholders to GLOBE this week has been very beneficial, I much say, it is a week well spent
- All the activities that were an important opportunities to interact & talk with all the WG members and show different considerations & comment with each WG with others

- Great, but more time for all members of one given WG together would've help even more
- Positive outcome but not done - hard to leave with work unfinished
- I think that it is necessary to have more time for WG work to enclose the idea and to operative the things that we learned
- The GIO is very important toward the GLOBE goals
- GIO receive all voices of different countries
- Great to have opening & closing session for WG

On a scale from 0 – 10, how did these sessions go for you? Why?

10 - Each session was packed with insightful knowledge and great networking and community bonding moments

10 - Everyone got a lot, directly put input on all the projects

10 - Excellent work all time

10 - There were very inspiring, full of contributions received and learning

10 - Each session is necessary to know more about this important place and work

10 - Stay engaged!

9 - Follow-up session are critical to make this meeting even more relevant and meaningful

9 - Clear instruction and expectation, expectation were met, great facilitation by the facilitator & highly engaged

9 - Not being the WG member in the sessions was very informative and inspiring. Sometimes it was difficult to follow all the information

9 - Engaging the WGs, brainstorming, well organized, time is always an issue

9 - We exchanged and pooled our ideas. We brought the ideas of the WGs together. We harmonized well for a plan of action

9 - No comment (6x)

8 - All the activities were well organized. Why I gave an 8, it is because it was not possible to assist to the diversity of the workshops organized because some of them were overlapping

8 - Same reason, more w/in group time would have been helpful - otherwise very good!

8 - Not what I expected but we do have ½ day more

8 - As I wrote before, it was very valuable to be in-person, discussing important topics; just wished we had more time to work with my WG

8 - Well coordinated and motivated conversations & agenda was very helpful in planning the discussions

7 - Somehow help to understand needS of WGs and change with other WGs

7 - Not enough, summarizing, not excellent moderation

7 - More time with groups in addition to mixed discussion

7 - Need clearly understanding of GLOBE in facilitators

7 - They were very useful but I think that it is necessary to have time to (and to prioritize), some outstanding ideas

7 - Fine, very helpful

7 - No comment

6 - I would like more time to share in our own Working Group to give some ideas and can support them in the tasks and roles they are developing and have to face in the future

6 - We should have more time to work within the groups. Lots of problems regarding sound and the guest that we were having virtually. Some aspect were intervene with the general assembly, of example the work with the rest of the community during breakfast isn't a good idea

On a scale of 0-10, what's your commitment level to the envisioned future of the Working Groups? Why?

10 - Important topics for the future of policy together

10 - Although hard to confirm with where we stopped

10 - I see a very bright future ahead and would want to be a part of the story when it is being written

10 - Fantastic envisioned - Very good proposal

10 – I'm happy to support the plan

10 - I feel passionate about helping make GLOBE a place for everyone

10 - I like GLOBE, I can work to do of the best science, knowledge and stewardship program

10 - I am totally committed to serve GLOBE in any way that it is considered necessary

10 - All my energy and desire to contribute to the program from my knowledge and my region

10 - Its' a huge level because we have a great responsibility to all the GLOBE community

10 - For the WGs there are important aspects of collaboration and focus on specific aspects that improves The GLOBE Program

10 - More challenges; more focus needed to reach in GLOBE vision authority to strategic plan

10 - No comment (5x)

9.5 - I feel highly connected

9 - For equity access we need to condense our WG in GLOBE. Presentation of different countries to help to take the specific reads of each continent

9 - Very much, I am committed taking science to larger community

9 - Hopeful for our future vision/ideas

9 - No comment

8 - No comment

8 - Not sure how to answer this - I am committed but the envisioned future is in development

8 - WGs can improve the scientific and educational quality of the program

8 - Dependent on the focus areas and how they align to the needs of my community

7 - Need to be realistic that WG are mostly made of of volunteers - need to be as efficient as possible

7 - I think the role and function of the Working Group I worked in are changing drastically, and should be considered a new group of people who are really matter and be specialized in the topic

What do you think the working group(s) most need to do next?

- Communication between groups —> talking strategic focus for a certain period. Communication with GIO
- More crossing collaborations work
- Communication with other working groups to achieve the vision of GLOBE program
- Collaborate more often
- Cross collaboration, but I think time is a limitation. Individual WGs needed more time to work in-person; now they do need to collaborate with other WGs!
- Cross-collaborate the functions of WG cuts across all WGs; and are independent/interrelated with each other
- Onboard more teachers and alumni to continue work on how to improve data collection leveraging student participation!!
- Re-think and re-distribute the role of each member in the group and the tasks and responsibilities according to their acknowledgment, skills and profession
- Work together not to like islands but assuming that it is necessary to have time or both things to stay together at the beginning ad at the end
- Narrow focus and increase depth of detailed focus on critical things → Prioritize and synthesize
- Meet once a month online. Two in-person meetings a year?
- Meet more often
- Meeting & communicate more
- Figure out how to manage cross-WG communication, communication w/ GIO
- Maintain the energy and desire to be able to fulfill the contribution received
- Continue working to try to implement the great idea, to appear in this annual meeting
- Each group will have specific tasks, but we need to have mechanisms for better communication among groups; Also we have a time sensitive climate challenge that we need to be involved with
- Advance the conversation to actionable activities
- Focus on WG objectives and actions needed
- Keep connecting - have groups from different WGs working together on specific topics/campaigns
- Do all the things while we discussed for the future
- Focus on what they voted to do in the future
- To collaborate more and also engage more to be able to achieve the great envisioned future
- Get together and digest what has been said during this week
- Discuss takeaway of this event, implement plans from this meeting
- Select one task among the other important one to be accomplished within the year
- Specific mission/ objectives for each one
- We need collaboration ideas of different WGs. We need a document on link to see the conclusion of the different groups
- Incorporating teacher alumni for your voices
- Include the input form the community

In support of this, what do you think the GIO most needs to do next?

- Listen the WG protocols, give feedback whether or not there are taken/not taken into account

- Take the inputs from the WGs session and work on it
- Revisit the WG
- Maintain joy and desire to achieve new goals
- More integration, more inclusion
- Facilitate WGs retreat
- Consider the staff & resource they can bring to support implementation of WG project, and functioning of WG
- Dedicate staff time and decision for WG liaison in the implementation of the action plans
- Find a new way of selection of the members that allows to have the proper people for each group
- Maybe to onboard more people from GLOBE different regions/ environments/ distance/ virtual work possibility
- Need to work on WG vision, mission, objective action in a SMART way
- Clearly align GIO/GPO/DIS work plans with WG planning
- Empower and resource more the Working Groups to better position them to fulfill their mandate
- Create and share link on common document WGs, more in person meeting WG
- Wondering how to work on internal session giving the possibility to know what other groups are working on
- Provide details on how they will support WGs with logistics (note taking, summaries)
- Develop stakeholder communication plan, clarify the objective, roles of WGs and align them with the strategic goals, directions & priorities of GIO and its stakeholders
- To align task between groups with GIO priorities, maybe they can work or manage a program like Trello to collaboratively manage the main yearly objectives and to know in real time how is the GLOBE evolution
- Better implementation & facilitated the connections between the WGs
- Summarize the presentations done today and make them into one content task list per work group
- Synthesize and reflect on all the internment and provided recommendation to the WGs
- Improve communication and listen more
- Communicating WG and other's topics proposed in this meeting
- Keep providing opportunities for exchanges of information and developing new ideas. Choose in cooperation with WGs the best ideas from this meeting and plan their implementation
- Established communication directly with each member of the office/CC to be clear
- Schedule 6 month meetings
- Promote a bi-annual in-person meetings

Any other comments?

- I like the idea of having in-person 2x a year for Work sessions - 1hr/month = 12 hour per year at most, 2 in-person even if 1 day = 16 hr a year
- There is need for more collaborative meetings - virtually or F-2-F
- Zoom is fine, in-person is better
- Fantastic work. I hope in the future of GLOBE
- Impressed and very satisfied for the distance traveled

- Translation keys documents in different languages for equity, GIO must create pilot schools for countries in difficulty to set up GLOBE (countries that lack of financing in africa of example)
- Working Group members in the various regions should be resourced to be able to be more functional in their respective regions
- Great, learning is good, networking is data. Of course, knowledge & understanding different perspectives. See motivation in volunteer in GLOBE community
- Conversation on major changes to Working Groups should stay internally at the group level before escalating to the general annual meeting
- More, more, more students, recognition across the board work. Excellent conductors of the work. I celebrate this effort of having us all together
- Need for GIO / NASA to consider the input of the WG in the prioritization of GLOBE work activities (in particular Tech WG)
- Thank you so much for this meeting and giving the opportunity to participate as a member of the WG
- Thank you! (3x)
- Thank you, thank you, thank you all!!
- Thanks for this great event and go on!!
- Thank you GIO!
- Thank you for this great and very inspiring time

APPENDIX (p. 18-39)

The Past

GLOBE Working Group Timeline: Celebration of Past Accomplishments

Green - Science

Orange - Education

Blue - Technology

Red - Evaluation

Brown - GIO/ Liaison group

Purple - DEI

1994-2003

- NOAA is main sponsor of GLOBE from 1994-2003. First GLE (GLOBE Learning Expedition in 1998 in Helsinki, Finland
- 2 NSF investigation solicitations -> 750 + protocols
- Dixon- Chief scientist, Becky - NOAA Knauss Fellow, Lynn - 1st GLOBE workshop; 1996 - Francis started
- 1995 - Argentina and Uruguay joined the program
- 1996 - Alaska GLOBE Program started
- 2001 - Regional GLE in Estonia

2004-2013

- RCOs formed in 2009 (GLOBE Europe begin prior to 2009)
- Call for Working groups in 2012
- Working Group in 2012
- Working Group established in 2013
- First Working Group Meeting in 2014
- 2012 website vis system
- 2012 meeting Re: future & tech
- 2013 New website globe.gov and workshop administration
- 2006 Transition to UCAR-GLE in Croatia ESSPs partnerships
- 2010 re-engagement of NOAA!
- 2013 First rural GLOBE rain in peru for rural schools with special training for teachers
- 2011 Chosen by the LAC Region to be a member of the IACC (previous to the wokring groups formation/implementation)
- 2012 Trainer/Master Trainer Boulder lead to lots of input that later lead to updating the 'process'
- e-LSEE project of GLOBE countries (Europe)

2014-2016

- GIO Liaisons begin in 2015/2016
- 2016 Student accounts, E-trainings, GLOBE Cloud Observer App & Data Entry App
- 2014 Website ADAT
- How to do student research projects
- Promoting scientific campaigns (El Nino)
- Promoting International STEM Network
- Evaluation of citizen science indoor air quality project
- 2014 El Nino international project (Peru, Uruguay and Argentina - Three levels)
- Defining Group Role + Goals
- Survey for teachers (needs - implementations - evaluation)
- Promotion of working groups & initiation to collaborate with other working groups
- 2014/2015 Elementary GLOBE meeting re-ignite elem GLOBE in USA

2017-2019

- Idea for taskforce begins 2018
- 2017 GLOBE Observer app & mosquito & Eclipse (North American)
- 2018 spheres community, GO App + Land Cover
- 2019 GO app + Eclipse (South American), Website user dashboard, GO App + Trees
- 2019 started Bundles (protocols) Urban/mosquito/soil/weather/agricultural/coastal/river & lakes/air quality
    - Deactivation Protocols based on established criteria
    - Deactivation GLOBE Community Survey
    - Assessment of air quality and using PM 2.5
- Community feedback, lots of input
- Update Training/Mentor Training

- Educator recognition, merger
- Translations page + elem GLOBE
- One pager for funders
- Interviewing with GLOBE teachers at the GIF (2012)
- 2017 Assessment of training process survey for alumni
- Surveys for GIF participants
- Provided Feedback for protocol sunsetting to science WG
- Worked with LIN chambers for publication repository

2020

- DEI task force -> meeting in Feb 2020 in Co
    - Fall started group -> survey
    - Raise awareness of DEI issues e.g. will everyone have a cell phone that can support this GLOBE Observer update?
    - DEI blog
- GO app cloud wizard
- Finished bundle (protocols)
- Butterfly international project (Peru, Argentina, Uruguay)
- Develop system for evaluating quality education resources

2021

- Analysis of DEI Survey
- Contribution to other Working Groups (2021-Present)
- DEI Template (2021 - Present)
- Helping breakdown language barriers, accessibility barries
- Looking for funds/ resources to make GLOBE affordable
- GO App + Data entry app merged
- Website intro API
- Webpage for each protocol bundle
- Connecting UNSDs with GLOBE
- Ease of using GO app/tools to engage new audiences, in particular LLL (over 55 years)
- Teacher needs assessment survey (not conducted but established by coordinator with DEI & Education WGs
- Assisted with Bhutan survey - new GLOBE country

2022

- Speakers (2022-Present)
- Literature review + English to spanish translation
- Cookbook (2022-Present)
- Website student user names
- GO app + Hydrosphere
- Change in Rubric for reviewing SRS student projects to include Indigenous knowledge system (with a team in Alaska)
- Website API + Davis weather station + other weather stations
- Used for the activation of new protocol

- Instrument audit
- Mission- Vision webpage
- In person training, deliverables, language. Ties into Trainer/Mentor-Trainer
- Even through the mentor trainer process and now be a Mentor-Trainer

2023

- IVSS theme protocol bundles
- Trees within LAC Regional campaign
- IVSS judges (problem/member support the efforts)
- Educator recognition conversation
- Science Camp including GLOBE Science - for Foster kids (mostly Alaska Natives)
- Develop questionnaire for judges before judging (a probe project to judge?)
- GO app + Biosphere (2 day ago!)
- Website API + 3D Printed weather stations (yesterday!)
- Updating the teacher's guide
- Indexing, organizing GLOBE Teaching, learning Materials working with tech accessibility committee, other subcommittee
- 2023 updated education
- Country coordinator evaluation activities + needs survey

The Present

What's working well?

People

- SRS
- Citizen Science
- Agents ofChange
- Experiences of members are shared and listened to by others
- Can grow in GLOBE
- the role division in the groups and the position rotation has been very positive, and gave chances to all to be voted and elected (2014-2019)
- Through evaluation & screening the training activities, presenting great improvement in the process
- Lesson Learned of what has happened to improve + for better engagement of teachers & students
- the representation of the different regions in the groups is regional as the community can feel they are represented and recog-uized. (2014-2019)
- Building an environment that is respectful with everyone's voice is heard
- Despite challenges (designation/ role) the group was able to produce good work but"
- WGs gave voices to many people!

Technology

- Important & necessary to promote 'Evaluation'
- Data entry GLOBE Gov ROCKS!
- 60 App/Data Entry continuous improvement

People & Technology Connection

- Monthly meetings (on average) work well
- Regional Representation (all continents)
- Some Collaborations between working groups.
- initial promising practice - collaboration w/ other WGs
- well organized WG meetings Good use of tech (jamboard & google) help make effective use of time
- International input to all Working Groups
- The diversity of the Working Groups, intersectionality of the group
- Structure of regional coordination
- This is not possible or negative. Maybe the alignment of efforts and specification of priorities have progressed, have a pause.
- Eval WG - considerable outcome/results over time
- The regional representation is so important and valuable
- Appreciate the diversity & international voices provided through WG process
- Interacting within the WG, but also looking into feedback from the community, one has the opportunity to identify areas of success, but also challenges and then work to address
- Like the ID of different focus:
    - Ed - Sci - Eval -DEI - Tech

What could be better?

Communication

- Communication
- Working group update emails
- want tech updates messaging system
- We need documentation
- More Collaboration or coordination between Evaluation Working Groups ad G10 Evaluation
- better communication between RED and WGS
- How to better share connections. with other organizations (linkages) outside of GLOBE?
- How to support facilitate 'Elevation' as a program wide focus that drives all operations?
- Support / facilitate How to better collaboration between WGs?
- Maintaining continuity between GIO liaisons and the working group tasks
- Renewal & continuity of projects New & Outgoing WG members
- Integrate evaluation at the lower levels of the program complementation
- Collaborate w/ other WGs
- better coordination between all groups
- Collaboration between working groups has been proposed from our WG but not has been listened frequently or accepted our collaboration (2014-2019)
- Better Support working with different working groups
- more time and opportunities to work with other WG
- need more GIO feed back
- improve collaboration Mother groups
- More explicit discussion of evaluation reports or findings with the Community.
- Cross-Collaboration with other WG Can be improved. After identifying where that could happen
- Help needed

- needs dedicated project Manager for identified tasks
- The recruitment process needs to be revisited for the group. Requirements prior experience/understand! of the program.
- For volunteers, projects for the group take a of alone collaboration with other groups
- VIDEO Tutorials for all spheres + Protocols
- GLOBE Alumni Can be reached out with innovative engagement so they can share their expertise the involved.
- There is not alignment between what the group. is supposed to do and how members one selected
- more in person meetings 2x a year
- There is no clean role or mission for the group-volunteer group Cannot replace evaluation capacity
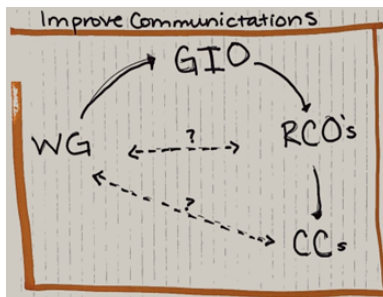
Sub-committee & products

- Stronger regional programs
- Teachers Guide can be divided by protocols + levels so it can be easy to read & use
- Need more in person events!
- sub-committee needed
- GIO must work closely with RCO ie-Africa
- implementation of our work
- TOO MANY SURVEYS
- Cost of materials $ $
- Access to ordering materials delays
- Are evaluation products Used?
- the evaluation areas of work were identified by the group. Not weaved into other activities or GLOBE priorities
- work with the technology group to work on Pop-up windows in app to notify about surveys or help the group needs to perform. Stion another Suggestion group!

Decentralization

- Some GLOBE left Countries are behind. No actions to solve their struggle
- America centric
- Decentralize more bi model will be better
- U.S. so barge one country Coordinator is too much for 1 person
- Create a data entry system to report critical criteria to evaluate GLOBE
- Highlight the evaluation critical criteria to be understandable for every one

Roles & Goals

-
- "Communicate WG's efforts to RCol
- Turnovers GIO/ NASA
- Liaisons need updates
- WG priorities moved up to GIO priorities
- Onboard new members at July meeting with TIME ingroup
- How does GIO ensure that the liaisons are able to inform all in proscan of updates?

- Ylaces need more info
- Pace of change for new ideas
- Is Eval WG being disregarded by being an individual WG?
- Yearly goals defined for each WG
- Timeline from GlO for WG projects
- Give $ to country coordinator
- Timeline (lag) between GIO assigned tasks and flow between different working groups when developing products
- WG actions was not part of the GIO integrated action plan with timeline
- Clear mandale on scope, timelion coordination of tacks w/ other WG
- Better Definition of scope of working groups (Clear mandate)
- Need to strategically annually review goals of WGs
- Our goals (in the WG) were not clear enough from the beginning and the group was not considered as relevant as others (2014-2019)
- Align WG goals with GLOBE Strategic Plan
- New members brought into WG during in person annual meeting
- Students should be considered as possible evaluators of how teachers and traders 22 BAR performing (2014-2019).
- Evaluation should be considered a major objective by the GIO and NASA, and such outsider evaluation are not the best
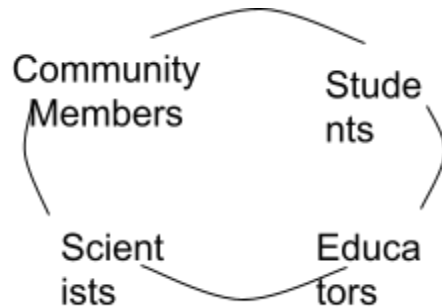
The Future

Imagine 2023 - Dreams (Mixed Groups)

Table A

1) Bigger more countries and US partners, more active schools
   - More MT - 4 for each sphere
     - More interaction
     - Cross collaboration of training teams
   - X-country interactions & <u>human connection</u>
   - Difficulties scales of collaboration & partnership
     - SDG's
       - Student
       - Educators
       - Scientist
       - Community membersLess US-centric
   - Reflect current events & science topics

2) More integration between Working Groups them & earlier in the process

   - Communication Working Group?
   - Easy access to instruments & data & mobile
     - Regular updating
   - Recognition of GLOBE educators
   - GLOBE data is used for scientific research
   - More GLE's
   - System to share local implementation
     - Model across community for broader implementations
   - Scholarship for students & educators equitable opportunities
   -
   - Better communication between Working Group, RCO's & x-collaboration
   - Project coordinator of a project
   - More big meeting of all members
   - Hearing more from educators

3) Extra ideas and comments

   - More
     - Countries
     - Us P
     - Schools
     - X-collaboration
     - trainer/MT
     - GLEs
   - Communication
     - Up-down & left-right sharing of ideas

- In-person Working Groups
- Model @ different scales to SDGS

- Easiest & important & prestigious to participate
    - Industries, economic, instruments, data, mobile
- CUtting edge topics

Table B

- More in person activities
- Connect w/ starlink/ increase (cont. to) technology for the students
- Focus more on the students -> Look at the benefits for the student (for example - student presence)
    - Training not for the students, the focus is on leaders; thus how to create more connections with students from start to finish
    - Take advantage of hybrid learning for GLOBE to speak directly with students
- Utility of data & connections of data to other NASA mission, ect.
- Keep the structure of Working Groups with Regional Composition
    - Need new ways to collect data
- Share Working Group beyond Annual Meeting
- Working Group mix - compile, analyze, harmonize the decisions of the different groups (UNITS)
- Make a vision that is high -> ex. Impose GLOBE around the globe into education; meet more presence of GLOBE internationality
- Improve training session -> The whole process
    - "How to teach w/ GLOBE" -> integration
- More collaboration and coordination between Working Group's
    - Final product changing education landscape
    - Course
    - Webinar
    - Highlights
    - SM
- Communication working Group?

Table C

Next 10 Years:

- Broaden scope/support for citizen scientist
- Use of AI
- Shift from Western-centric protocols
- Growing Network of participants in depth & breadth
- Shift from protocols to GLOBE-designated initiatives
- Better integration into schools worldwide
- Teacher led Model vs 'app-led'?
    - Peer/Near-Peer mentorship
    - App more accessible/ less requirements on teachers
    - Education on hands-on science still necessary
- Stronger & more obvious connections to professional science (eg. NASA & other international science organizations)
    - Better utilization of GISN
- Environmental Justice/ Climate strategy/ Grow 'environmentally stewards'

Future Working Groups

- Grow evaluation capacity in every GLOBE Region
- Create a Working Group to support citizen scientist
- Consider shift form 'topic-focused' (eg. Tech, Eval) to Project-focused - and extend this to GIO Organization
- (Don't change the goal - change the plan)

Table D

Dream

- Reinstate Train the Trainer workshop (fund them)
- Organize funding for equipment
- Comprehensive list of GLOBE equipment (cost and accuracy)
- Alumni involvement in Working Groups
- Replicate the African Model for reintegration of alumni
- Teacher representative in Working Groups

Ideal Future

- More communication between Working Groups
- Teachers share/ publish their work more

Table E

1) High quality support, including active involvement of scientist, for educator & students
    - Connections
    - Relevance
    - Mutual benefits

- Student/ scientist

Seamless collaboration between student/ scientist

- Resources
- Training
- Technology
- Science education GISN (Working Groups)

Encourage environmental inventions/ data collection to build community resilience to benefit the environment

2) We must continue to have active participation of working groups
    - More interaction between Working Groups
    - DEI @ core of all Work Groups
3) Combined Working Groups of two or more Working Groups on a topic of interesting/ or/ priority area
4) Alumni representation in each of the Working Groups

Table F

1) Community need & relevance defines GLOBE focus (protocols/ accessibility) and wrestling Data meaningful to the community
    - Stewardship
    - Pathways to Green jobs
    - AI
    - Big Data
    - Environmental science
    - GLOBE useful to planning for adaptations/ resilience
    - STEM/ Environmental ecosystem
    - Citizen scientists integrated
    - GLOBE can reduce inequalities
    - UNESCO
2) Multidisciplinary
- Availability to bring in experts
- Operationalize Working Groups collaborations
3) Co-define priorities & decisions

Table G

- Ten times # student research
- Teacher appreciation, rewarded for mentoring students
- RCOs involved in selection of Working Group members, close relationships
- Increased teacher training to reach more students
- GLOBE protocols an activities accessible to all
- Wider (non-northern hemisphere centric) vision
- Increased participation

- Increased student data collection/ research that shows government stat of environmental issues
- Relevancy by adapting to new technology quickly
- Value proposition of GLOBE to country
- Making GLOBE data usable to benefit countries
- Leveraging GLOBE community to collect new data, new protocols, as needed to solve new/ current issues
- Making GLOBE interesting to kids by integrating of other disciplines
- Working Groups need support to respond readily to new challenges
- Prioritization of role of Working Groups in decision-making process, more power in program management
- Increased teacher and student representation in Working Groups

Table H

1) GLOBE incorporating AI into its program
    - Be mindful for AI biases and other challenges
    - Volunteer model is not sustainable: compensate folks for the contribution while reserving this knowledge base
    - GLOBE must be integrated into the partner country curriculum
    - Actively show appreciation and recognition of its community (teachers, students, ect.)
    - Improve collaboration w/ other organizations (citizen science groups, NGOs, government agencies, for-profit organizations, ect.)
    - Growth w/ changes how students learn, and the tools that support learning/ training/ mentoring
2) All WGs know & understand the overarching strategic goals w/ concrete tactics to achieve goals
    - WG work load is appropriately manages with the program growth
    - The SOW of the Working Groups are clearly defined w/ outcomes, processes, documentation clearly recorded & shared to execute mission
    - Improved recruitment process in the WG, and in the roles of members
    - Better aligned the Working Group SOW and their actual practices
        - WG connect constituencies in the regions (school-based model will change)
    - Improved collaboration and communication of WG and GIO
    - Improved member modeling and mentoring for sustenance

Keep/Drop/Try (by Working Group)

Keep Priorities

Keep/Continue :	Tr
IVSS 🏳	28
in person meeting	22
GLEs 🏳	21
Bringing the WGs together	20
Students meetings--international student research symposia	19
Improve resources in different languages	17
Diverse International Representation	17

Try Priorities

Try/Start :	Tr
Better alignment of WG/DIS/GIO workplans	24
add alumni and teachers in working groups 🏳	21
Recognition of educators	21
Ensure that the WG priorities are incorporated into the relevant GIO group plan and budget	20
WG helping to create Strategic Plan	19
Promote GLOBE in more scientific international events	18
Expand YLACES and/or other similar organization to increase availability and accessibility of equipment around the world 🏳	18
Bi-annual Working Group In-person Meetings	18
Build capacity for evaluation across all regions	17
Language Ambassadors--translation	17
Communications working group	17

Community Input on Vision and Keep/Drop/Try Priorities

Note: Not all tables were filled; any participants at the ones missing from this list moved to merge with others.

Table 2

- Project vs. content specific WG
- More regular cross-communication
- Ed evaluation, DEI, Tech
- Facilitate Local, Regional, Global interpretation of terms & language
- Context for students/ all users to understand how their data collection is utilized
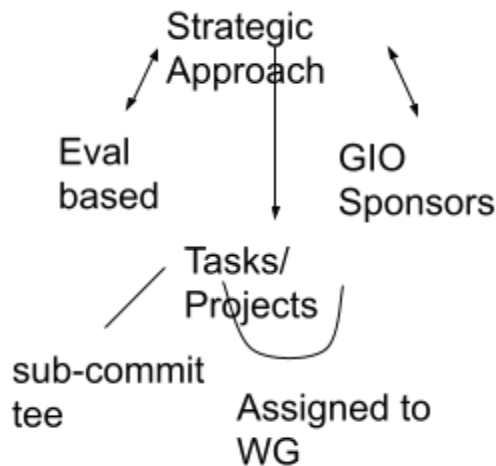

Table 3

- DEI WG vision of the future
    - Ensure that different cultural backgrounds, religious backgrounds, diet preferences are taken into account so that participants fully enjoy and experience the programs of the Annual Meeting

Table 4

- What is the pathway for continued engagement?
- Need more advanced protocols (for some tertiary level students)
    - Not all teachers have time/ expertise to develop extension tasks/ modify protocols to make them age/ level appropriate
- No pathway for alumni
- Importance of teacher recognition

Table 6

- Reconnection to science Identify protocols where student data could be high quality
- Alumni can support 'near-peer' outreach to youth and educators. As well as contribute to communications outward to the external constituents
- Older students can collect high quality data
- More support for cross-functional exchange among teachers and students
- Grap to combine indigenous ways of knowing and data collection
- Outreach scientist - Research funds -
    - Write "how to" reach scientist that partner/ CC can do to Get researchers
    - Need stories
- GLOBE teachers connect students, including under represented to GLOBE science and connect to bigger projects to bring local science protocols to GLOBE
    - Local SRS's
    - Start SRS's in other countries
- Communication can connect kids to GLE, SRS's and scientist and others w/ same issues/ concerns
- Green jobs and technical jobs
- Great ideas have comms and working groups (comms has been erratic(
    - New schools have a hard understanding what GLOBE is and how to be a part of it
    - There was always an intention for comms WG form the beginning
    - Bhutan would love to be part of the comms working group
    - In US. a teacher can contact GLOBE/GIO directly, but in other countries you would become an agent. They have to contact the country coordinator (diplomatic problem)

Table 7

- Comprehensive list of equipment (=/- accuracy/ $). Difficulty would be available in different countries.
- Photo library could help because links are updated.
- System for people from different regions to provide feedback about suppliers.
- Group solutions vs. individual solutions - somebody can ship materials: however that's very US centric
- Website is being updated; give about discoverability of page
- Feedback to DIS, DIY section/ 3D print
    - Submission process with contact information
- GLOBE (IVSS)builds resume because
    - Builds skills that can be demonstrated externally
- Open IVSS earlier so they can submit as a group and still have time to get feedback as a group
- Improve feedback for students in IVSS. SMEs without teaching experience (K-12) may have trouble to provide constructive feedback. Educators in WG could provide guidance on how to give feedback
- Students miss badges section. Then judges won't review project.

Table 8

Keep

- IVSS
- GLE
- In-person meeting

Try

- Language ambassadors
- Build capacity for evaluation
- Bi-annual working group in-person meeting

Other notes from 8:

- Inclusion in WG -> educators, students & alumni
- Interaction between WG's & members of GLOBE (give update)
- WG survey
- WG member work equally and share the work
- Need communication group

Table 10

- More communication between WG
- More communication form DIS/ GIO/ GPO to WGs on status of projects or priorities
- More communication from WG to USPF and community
    - Remember to WG reps to send highlights
- Change to project based instead of focus based WGs

Table 11

- Stewardship controlling standards
    - Equipment
        - CES join 2024
        - Team expedition
        - supples
    - Educators & Alumni
        - Cheap energy
        - Cooling classrooms and school yards or workplaces
    - Under represented groups
        - Farmers
    - CBE Representation
        - Senegal agricultural collaborations
    - Communications
        - Collaboration projects
    - X Mission
        - Food supply chains
        - Tools

- Jobs innovation
    - Mentors
    - Land management
    - Water management
    - Energy management
- Innovation - Reflection - Listening
    - State ambassador
    - KIA Henry State Dept
    - USGS - geology
    - USDA agriculture

Table 12

- True of all WGs work should map directly to goals of KPI from strategic plan
- To redefine the role of the evaluation WG + determine the core information/ feedback that they need to collect & evaluate
- Keep IVSS is very important
- WGs need formatted mechanism to submit ideas to GIO/ GPO; institute regulate program reviews (similar to DIS reviews) to evaluate & prioritize WG proposed tasks/ projects; approved projects should be implemented with cross-WG team input/ feedback
- WG are doing work, making recommendations, providing products - but do not get implemented
- Yes to better communication! But what does that look like? A coms WG may not solve the issue
- Increase partners w/ NGOs & companies to support student investigations , $ investment, ect
- Comms WG could promote GLOBE at international events for the program
- Would comms WG help provide feedback to GIO coms team?
- Alignment to strategic plan
- Project based
- Collective impact
- All WG to provide feedback to DIS

Top Priority Action Areas - Deeper Dive into What/Why?

1. Communication (18)
2. Protocols & Training (18)
3. Teachers & Alumni (17)
4. Equitable Access (13)
5. Instrumentation (13)
6. Climate Campaign (12)
7. Age-Appropriate Materials (12)

Communication

What

- Flow chart - "chain of command" & accountability
    - GIO, GPO, WGs, DIS, RCOs → CCs
- Ticketing system → Dashboard, sortable/ searchable
    - Voting tool?
- Ideas from WGs → GIO, DIS ideas from all WGs, not just tech
    - Eg. teachers badges (recognition), educator
- Communication among WGs
    - Within WGs share documents early, jamboard, CWSE captioning, GIO note taking
- Down votes for new comms working group

Why?

- Coordination, accountability, inclusion, follow through, without it nothing works!
- It is the lifeblood of an organizations
- Language ambassadors & translations
- Language - multi-directional, multiple languages
- All levels - educators & students (when ready & suitable to share with community [educators, students, alumni, partners])
- Time, goals, mood, audience action/ motivation, clarity

Protocols & Training

Proposing new protocol

- Connected with all WG
- Data from different apps/ websites be visible/ retrievable in GLOBE website ["affiliated, apps, links"]
- Criteria & commitment in prospering the new protocol; project support based on engagement

Training

- Data interpretation for the classroom
- Treacht training, professional development
    - Including all details for teachers, trainers
    - More tools for teachers
    - Campaigns connected w/ protocols

Teachers & Alumni

What?

- Statin WGs and teacher participation
- Pathway for alumni engagement
- Alumni Task Force (support)
- Partners/ recruiters of other teachers/ schools
- Provide advice to the current Working Groups

- Help improve teachers/ school recognition
- Help improve student/ alumni documentation/ tracking
- Improve administration knowledge and support of teacher activities
- Inform the tools (including the curriculum) to support GLOBE implementation
- Help recruit and train others
- Peer mentors
- Collaborator for/ with underrepresented institution and teacher training

Why?

- Perspective of teachers
- Direction facilitator of GLOBE's implementation in schools
- Help to identify and advocate for teacher needs
- They are already supporting the WGs & RCOs & CCs
- Perspective of students
- Support alumni willingness to help
- Alumni supporters teachers, scientist and other program implementers
- Can be meteors and collaborators
- Be a voice for all students
- Advance the relevance of GLOBE
- Are technology natives - future-thinking

Equitable Access

- Create strategies that allow & support retention of students/ teachers participation
- Look at more regional difference in reporting to understand microscale differences/ achievements
- WG members known by RCOs, members in all GLOBE countries/ regions
    - Feel comfortable racing out to WG chairs, members & GIO liaisons
- Equity = everyone can participate fully in the program
- Help/ support all countries to receive equipment; more representation of countries in WGs
- Classify protocols based on cost
- GIO to create pilot/ virtual school in each country to sport GLOBE connections/ participation
- Translation of key documents
    - Mentor trainer documents
    - WG Terms
- More language option on app; setting to adjust language settings
- There is knowledge around the world that much be incorporated (two-way comms/ understanding & engagement)
    - Other teaching methodologies
    - Is there a system to create this openness and understanding → [cocreation & collaborative grants & research]
- Present activities/ Protocols for students w/ disabilities
- Equity in meeting; every voice is heard
    - Training for how to hold an equitable meeting
- Data implementation into the classroom; using the data more effectively to explain global differences & hemisphere differences; zone differences

- Creating data sets, etc. for analysis

Instrumentation/ Equipment

Ideas

- Comprehensive list → (cost, accuracy)(tool kit, partners, John, NOAA)
- Science & tech wGs help develop draft of websites
- DEIA + Ed WGs review draft website
- Website: by sphere include DIY + review (discussion board teachers could add supplier link), photo library, including min specs

Issue

- International sourcing
- Exchange system to address inequities
- Specs + testing + calibration + storage & maintenance
- Advisors for teachers on instruments
- Designated GIO instrument staff person
- Needs demarcation of roles (GIO, WGs)

Climate Campaign

Role of WG

- Material development
    - Science
        - Resources (Curators & Accessibility)
    - Pedagogy
- Data literacy
- Equity
    - DEI
        - Weaving
    - Differing abilities
    - Translation
- Goals/ deliverables for CC campaign

What needs to be done?

- SGD
- Updated TG
- GLOBE
- CC bundle
- Collaboration WG
- SME webinar/ blogs on climate change
    - Mentors
    - Across regions
- Student platforms
    - Videos

- Blog
- Collection tools
- Online student zone (Tech WG)
- Engage community
- Link to other campaigns
    - John waking
    - Trees
    - Mosquitos
    - VHI

Why it matters?

- Timely
    - Critical El Nino
- Impacts everyone
- DEI inequitable impact
- Science Facts
    - NASA/ NOAA partners
        - Visibility leverage existing resources
    - SME
- Intergenerational
    - Indigenous knowledge/ ways of knowing
- Hope
    - Preparedness
    - Resilience
    - Adaptation
    - Action
    - Curriculum
    - Agents of change
    - Stewards of environment
    - Indigenous knowledge/ ways of knowing
- CC new WG
    - Technical edu committee
        - Access WG

Age-Appropriate Materials

Role of Working Groups:

Science
- Content preparation with education WG

Tech
- Appropriate hosting integration for students

DEI
- Access…….

What - needs to be done
- Setting content on the lower committee levels and case by case higher made protocall

- Why protocol
- More self content
    - Content connected to tech
- From the …..

Why it matters
- GLOBE student center
- Student are tech-savvy (Tech)
- To serve various types of learners (multimodality)