



Name: Ruth M. KUILAMU

Function: Country Coordinator

Organisation: Ministry of Education, Heritage & Arts

E-mail: ruth.kuilamu@govnet.gov.fj

Tel: 679) 322 0606

Skype: ruth.kuilamu

Website: <http://www.education.gov.fj/>

Cooperating organizations:

The Regional Environment Office (REO) of the US Embassy and the Environment Unit of the Ministry of Health have worked collaboratively with the Ministry of Education to facilitate workshops for teachers.

Participating schools:

This year (2018), a total of 44 schools (10 primary and 34 secondary) from the Western Division were selected as GLOBE schools to participate in a training workshop, and to implement activities.

Funding by:

Small Public Diplomacy (PD) Grants program of the US Embassy in Fiji.

GLOBE protocols used in country:

Hydrosphere (Mosquito) Protocol

Number of schools currently reporting data (2017):

None yet – teachers (from participating schools) information is pending, to be forwarded to Coordinator (Asia Pacific RCO) for registration first.

Description of the program in your country and recent activities in 2017-8:

A proposal from the Nadi Muslim Academy (NMA which supports a GLOBE school) was placed in October 2017 for funding to implement training in the Mosquito protocol in the Western Division, which has high instances of Zika and Dengue virus. A series of four (4) workshops under this funding began on 10th March, 2018 in Ba with 24 participants (schools); the second on 24th March in Lautoka with 24 participants (schools). Due to adverse weather conditions in Fiji, the 3rd workshop planned for 7th April had to be deferred indefinitely.

The workshops are co-facilitated by the Environmental Specialist from the REO, Country coordinator and a team of 5 teachers from NMA collaborate to implement workshop activities. At the workshop, teachers are provided with equipment/materials to carry out activities in the Mosquito protocol including collecting mosquito larvae, identifying the larva and taking basic measurements (temperature, clarity, etc) of the water bodies that the larvae are from.

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Further, the teachers are supported in planning programs to create awareness in their schools, and fight against Zika and vector borne diseases. An outcome of the workshop is a school cluster plan of how to these activities of awareness raising and mosquito larval sampling will take place.

Two workshops remain in the series for Nadi and Sigatoka, and these will resume in June when Term II begins in schools.

Pictorial of workshops



Korea



Name: **Sookyung Cho**

Function: Country Coordinator (CC)

Organization: KOFAC(Korea Foundation for the Advancement of Science & Creativity)

E-mail: chosk@kofac.re.kr

Tel: +82-2-559-3871

Website: www.kofac.re.kr

Participating schools: 20 schools in 2017

*33 schools are enrolled in GLOBE website

Funding by: Government (MSIT, Ministry of Science and ICT)

GLOBE protocols used in country:

- Atmosphere : wind speed, wind direction, air temperature, relative humidity, atmospheric pressure, precipitation, cloud, CO₂, O₂, COD
- Hydrosphere: Oxygen isotope(precipitation), pH(precipitation), temperature(sea, river), DO, pH, EC(electrical conductivity), alkalinity, nitrate, phosphate
- Soil : humidity, temperature
- Biosphere: mold

Number of schools currently reporting data (2016):10 schools

Description of the program in your country and recent activities in 2017:

- Recruitment of GLOBE schools of 2017('17.4~5)
- GLOBE teacher training workshop('17.5.19~20)
- GLOBE students inquiry camp('17.9)
- Contest of Final report and selecting best practices('17.12)
- Sharing best practices and award ceremony('17.12)
- Visiting GIO and excellent institutions in Colorado, U.S with the best GLOBE team members('18.1)

Maldives

Insert photo of CC

Name: Rifath Naeem
Function: Country Coordinator (CC)
Organisation: Environmental Protection Agency
E-mail: rifath.naeem@epa.gov.mv
Tel: +960 9889987
Skype: rifathnaeem
Website: www.epa.gov.mv



Name: Nashwa Ahmed Manik
Function: Assistant CC
Organisation: Environmental Protection Agency
E-mail: nashwa.ahmed@epa.gov.mv
Tel: +960 3335949
Skype:
Website: www.epa.gov.mv

Cooperating organizations:

Environmental Protection Agency
Ministry of Environment and Energy
Ministry of Education

Participating schools:

- Feydhoo School
- Irushaadhiyya School
- Hithadhoo School
- Addu High School
- Sharafuddin School
- SeenuAtolhuMadharusaa

Funding by:

- No funding at the moment for Globe Activities

GLOBE protocols used in country:

- Cloud protocol
- Soil protocol
-

Number of schools currently reporting data (2015):

- No Schools have started reporting yet

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Description of the program in your country and recent activities in 2018:

- No formal GLOBE Activities have been reported by any Schools to the Country Coordinator or Environmental Protection Agency. But GLOBE school did participate some of the activities on different occasions (but didn't report as GLOBE activities) listed below
 - Environmental day awareness activities
 - International Coastal Cleanup day Activities (with assistance from SACEP)
 - Participated in “ Farukoi Program “ an awareness program aimed for student's to be more awareness and involved with coral reef and marine environment
 - Schools prepared project proposals for Students National Environmental Symposium

Marshall Islands

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Name: **Lowell Alik**

Function: GLOBE Country Coordinator

E-mail: lowellalik@gmail.com

Tel: (692) 456-7054

Skype: lowellalik

Cooperating organizations:

Public School System

Wotje Atoll Yokwe Association

Participating schools:

Wotje Public Elementary School

Funding by:

None -

GLOBE protocols used in country:

None

Number of schools currently reporting data (2016):

None

Description of the program in your country and recent activities in 2017:

- GLOBE has not been very active lately in the Marshall Islands due to the restructuring of the school system for the public schools;
- The private school that continues to be a GLOBE School has been having issues with funding and has not been able to purchase instruments needed to carry out the GLOBE Protocols in their science classes;
- In 2017, the Wotje Public Elementary School became a GLOBE School;
- Wotje Public Elementary School has been carrying out activities that are similar to the GLOBE Protocols but will need instruments in order to fully partake and report the data for the protocols;
- New GLOBE Deputy Country Coordinator will be appointed in 2018;
- Training for GLOBE Schools and Teachers on Protocols is a need.







Komol tata!

MICRONESIA

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Name: **Quincy Lawrence**

Function: GLOBE Country Coordinator

Organisation: Micronesia

E-mail: quincy.lawrence@national.doe.fm

Tel: 691-320-2609/2647

Skype:

Website: www.national.doe.fm

Cooperating organizations: Pohnpei State Department of Education, Yap State Department of Education, Kosrae State Department of Education and Chuuk State Department of Education

Participating schools: 13 schools participating and 18 teachers trained in 2018.

Funding by: FSM National Government

GLOBE protocols used in country:

Teachers are trained in Atmosphere, Hydrology and Soil Protocols. With the limited supply of GLOBE materials, the teachers are implementing Atmosphere protocols in their schools.

Number of schools currently reporting data (2018):

There are 5 schools that are currently reporting data and we are expecting more reporting from 8 more schools.

Description of the program in your country and recent activities in 2018:

GLOBE Micronesia rejoined the GLOBE Program in 2015 when the GLOBE Country Coordinator attended his first Asia Pacific Country Coordinators meeting held in Taiwan. Thru three regional meetings and thru series of discussions and informal meetings with the GLOBE GIO Director and Asia Pacific Regional Coordinator and firm support from the GLOBE Program itself, GLOBE Micronesia has prepared and conducted its first in country GLOBE teacher training with the RCO conducting the trainings and assisted by GLOBE Country Coordinator, Assistant Coordinator and GLOBE Micronesia Team. The GLOBE Program visited

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Pohnpei, Micronesia on March 26th and conducted a two-day intensive training for 18 teachers plus one principal. The 18 teachers represented 13 out of 40 schools in Pohnpei State. The GLOBE Micronesia Team did follow up meeting/trainings with the GLOBE teachers basically to provide in assistance to the teachers to be able fully carry out their GLOBE responsibilities and to initiate implementation of the GLOBE in their schools. The GLOBE Team have visited three schools after the GLOBE Teacher Training and assisted the GLOBE teachers with issues implementing GLOBE in their schools. The GLOBE Team had conducted 1 follow up training for the GLOBE Teachers in filling out data entry forms and other details regarding their accounts and use of the GLOBE Website.

The GLOBE Micronesia Team intends to extend GLOBE Teacher Training to the other States in Micronesia but bear much constraints with regards funding of these activities. The FSM National Government has no budget allocated for GLOBE Program activities and therefore, the opportunity to extend the trainings to the other States in the country is not promising. The GLOBE Micronesia Team and the National Department of Education of the FSM National Government is soliciting support from GLOBE Program to provide funding assistance specific to travel accommodations and materials for implementing GLOBE protocols in the schools and conducting trainings at the different States. GLOBE Micronesia envision its teachers and schools to not only do GLOBE in the schools and local environments butto contribute science observations and investigations to the GLOBE International family so these scientific investigations can be used for a greater cause.

NEPAL



Name: YogendraChitrakar

Function: Country Coordinator

Organisation: Environmental Camps for Conservation Awareness

E-mail: yogendra@ecca.org.np

Tel: +977 15553870/5550452

Skype: yogendra.chitrakar

Website: www.ecca.org.np

Cooperating organizations:

- Environmental Camps for Conservation Awareness (ECCA)
- Program Implementing Schools

Participating schools:

1. YashodharaBaudha Secondary School, Thaina, Lalitpur
2. Prabhat Higher Secondary School, Tyagal, Lalitpur
3. Kitini Secondary School, Godavari, Lalitpur
4. Harisidhi Secondary School, Harisidhi, Lalitpur
5. Tri Ratna Cooperative School, Bungmati, Lalitpur
6. Jalpa Secondary School, Dhapakhel, Lalitpur
7. Shree Krishna Higher Secondary School, Dhapakhel, Lalitpur
8. Geeta Mata Higher Secondary School, Dallu, Kathmandu
9. JagatSundar Bona Guthi, Dallu, Kathmandu
10. Shree Mahendra Gram Secondary School, TikathaliLalitpur
11. MahendraAdarsha Secondary School, Suryabinayak, Bhaktapur
12. Kanya Co-Education Secondary School, TekhaPukhu, Bhaktapur
13. Mt. Kailash Sec School, Kathmandu
14. Shree Gothbhyanjyang H.S.S, Dalchoki, Lalitpur
15. Shree Kalidevi H.S.S, Malta, Lalitpur
16. Shree Bidhyadhishwori H.S.S, Ashrang, Lalitpur
17. Shree Bhagbhairab H.S.S, Kaleshwor, Lalitpur
18. Shree Bhagbhairab S.S, Malta, Lalitpur
19. Shree Mahankal H.S.S, Bhattendanda, Lalitpur
20. Shree Magargaun H.S.S, Sankhu, Lalitpur
21. Shree Janajagriti H.S.S, Ikudol, Lalitpur
22. *KaviSiromani Secondary School*
23. *SisuShakshar Basic School*
24. *Dhulabari Secondary School*
25. *Mechi Model Academy*

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Funding by:

- ECCA - Self Funding
- Partial program implementation support through various projects being implemented inschools from various donors

GLOBE protocols used in country:

- Atmospheric Investigation
- Hydrology
- Landcover

Number of schools currently reporting data (2017):

3 schools (Kabishiromani Secondary School, Dhulabari Secondary School and Mechi Model Secondary School) are continuously reporting data

Description of the program in your country and recent activities in 2017:

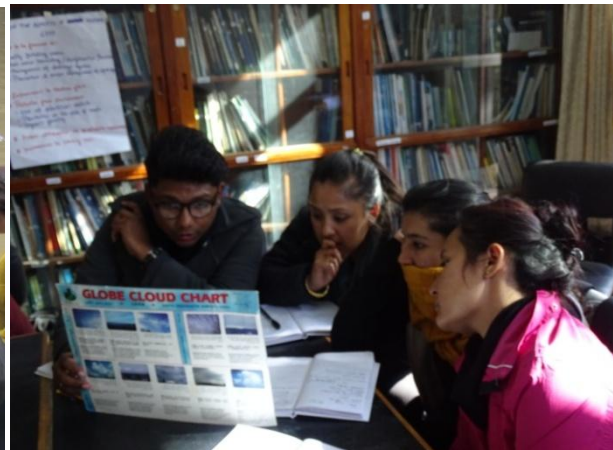
GLOBE Program in Nepal

In Nepal, GLOBE Program was launched in the year 2000 after an agreement signed between Nepalese Secretary of Education Mr. Jaya Ram Giri and U.S. Ambassador Mr. Ralph Frankon March 3, 2000 at a special ceremony held at the Ministry of Education in Kathmandu. The Ministry Council also approved this GLOBE program on May 22, 2000 (Jestha 9, 2059). Since then, ECCA has been assigned as the Country Coordinator for the GLOBE program. GLOBE program was launched in Nepal with the start of the International Workshop for the teachers and NGO members from October 18 to 25, 2000. ECCA has been implementing various trainings and workshops in different parts of Nepal by linking GLOBE concept with ECCA's regular programs.

Recent Activities (2017)

In 2017, we aimed to create a larger circle of youths who are more familiar with GLOBE and are also trained with GLOBE protocols. We were also able to spark interest of schools nationwide regarding the GLOBE program and opportunities within it.

1. GLOBE in Counselor Training Camps 2017



REPORT FOR 2017

- GLOBE program was introduced in two Counselor Training Camps held by ECCA in December 12- 15, 2017 and July 5-7, 2017
- 32 Nepalese youths took the training
- Focused topics: Climate change, theoretical discussions and practical on GLOBE Protocols (atmosphere, hydrology, landcover)

2. GLOBELearning Expedition 2017



- Environmental Camps for Conservation Awareness (ECCA) in coordination with Indian Environmental Society conducted GLOBE Learning Expedition from September 10 - 16, 2017
- 37 participants from 4 countries (Oman, Thailand, Nepal and India) participated. Students, teachers, country co-ordinators and trainers received an opportunity to conduct GLOBE protocols together in Pokhara, the City of Lakes.
- Hydrology protocol, soil study, cloud study were conducted during the program.

3. GLOBE in 4th National Child Club Conference



- ECCA organized 4th National Child Club Conference from June 4- 5, 2017
- 103 child club representatives took part in the conference.
- Participants were provided conceptual learning on climate change issues

REPORT FOR 2017

- GLOBE program and the protocols being used in Nepal was introduced to the participants to spark interest in the GLOBE program and science.

4. Training on Climate Learning



- Training on Climate Learning was held from May 17 – 18, 2017
- Nature clubs of 4 schools of Jhapa participated in the training
- Focused protocols were Atmospheric measurement and hydrology
- Devices for atmospheric protocol measurement were provided after which they are taking atmospheric data on a daily basis.

5. GLOBE Practical and Data Entry by Youths

Youths who are trained with GLOBE protocols are encouraged to take data on a daily basis at ECCA's meteorological station. They take atmospheric data and update them regularly at GLOBE website.

In 2017, 111 datas were taken by youths.



Challenges:

- Limited resources to equip schools with GLOBE Instruments
- Financial limitation to run sufficient activities
- Continuation of data entry by schools in GLOBE Website
- Less interest from government agencies' representatives
- Involvement of more organizations in GLOBE Program

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The Way Forward

- Develop proposals to generate sufficient funds for programs
- Increase the no. of trainings for Students, Teachers and Youths on GLOBE Protocols
- Organize orientation / interaction programs on GLOBE Program for Implementation for like-minded organizations
- Significantly increase the participation of Private Schools
- Organize sharing workshops for government representatives and stakeholders
- Integrate GLOBE Activities in various ongoing programs
- Develop short hands-on experimental manuals for students
- Develop monitoring mechanism for consistent data entry in GLOBE Website
- Follow-up activities In Schools to encourage Students on implementing GLOBE Protocols
 - One Day program
 - Excursion Visits to various Climate Learning Centers
 - Expeditions to various locations – e.g. ICIMOD

PALAU

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Name: Deborah Rebluud

Function:

Organisation: Ministry of Education

E-mail: debbienagata@palaumoe.net

Tel: (680)488-1004

Skype:

Website:

Cooperating organizations:

1. Ministry of Health
2. Ministry Natural Resources
3. Palau Conservation Society
4. Environmental Quality Protection Board
5. Palau International Coral Reef Center

Participating schools:

1. Palau High School
2. Meyuns Elementary School
3. Belau Modekngei High School

Funding by:

None -

GLOBE protocols used in country:

We have tried to do on-line training for teachers so they could do these protocols but seem to have difficulty.

We do a lot of science activities in all of the schools related to each of the protocols but we do not have funding for the materials and equipment for the protocols.

Number of schools currently reporting data (2016):

We only have the mosquito data that was entered while and during the training with scientist but after all of the smart phone we use couldn't work.

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Description of the program in your country and recent activities in 2017:

1. Palau Marine Pledge Week: Collaboration effort with interagency partners doing activities such as classroom presentation on Marine science, conducting marine science experiments with students.
2. Education Awareness Week including STEM Fair: Displaying all activities related to English, Math, Social Studies, Palauan, and Science to parents and communities. STEM Fair was conducted March 12-16, 2017.
3. Earth Day: March 22-23, 2017
4. Water Day: March 24, 2017

Taiwan



Name: Pay-Liam Lin

Function: Country Coordinator (CC)

Organisation: Dept. of Atmospheric Sciences, National Central University, Taiwan

E-mail: globe@pblap.atm.ncu.edu.tw

Tel: +886-3-4222574

Skype:

Website: <https://www.facebook.com/globe.taiwan/>

Name: Kuan-Ting Chen

Function: Assistant of CC

Organisation: Dept. of Atmospheric Sciences, National Central University, Taiwan

E-mail: globe@pblap.atm.ncu.edu.tw

Tel: +886-3-4222574

Skype:

Website: <https://www.facebook.com/globe.taiwan/>

Name: Shu-Wei Hsu

Function: Assistant of CC

Organisation: Dept. of Atmospheric Sciences, National Central University, Taiwan

E-mail: globe@pblap.atm.ncu.edu.tw

Tel: +886-3-4222574

Skype:

Website: <https://www.facebook.com/globe.taiwan/>

Cooperating organizations:

None

Participating schools:

1. The Affiliated Senior High School of National Taiwan Normal University
2. The Affiliated Jhongli Senior High School of National Central University
3. National Wu-Ling Senior High School
4. National Lo-Tung Senior High School
5. National Chia-Yi Girls' Senior High School
6. Kaohsiung Municipal Girls' Senior High School
7. New Taipei Municipal DanFeng High School
8. National Chutung Senior High School
9. National MiaoLi Senior High School
10. Yin-Pei Junior high school
11. Nan-Kwang Senior High School
12. National Feng-Shan Senior High School
13. New Taipei Municipal Jin-Shan High School
14. Keelung Municipal Anle Senior High School

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15. National Keelung Senior High School
16. Taipei Municipal Ming Lun High School
17. Taipei Municipal Zhongshan Girls High School
18. Taipei Municipal Jianguo High School
19. Fudan High School
20. National Hsinchu Senior High School
21. National Feng-yuan Senior High School
22. ST. Viator Catholic High School
23. Da-Dun Elementary School, Taichung City
24. National Taichung Girls' Senior High School
25. National Changhua Senior High School
26. National Hualien Girls' Senior High School
27. Houjia Junior High School
28. Kaohsiung Municipal Youchang Junior High School
29. The Affiliated High School of National Chung Hsing University
30. Taipei Yangming High School
31. Taipei Municipal Zhong-zheng Senior High School
32. Taipei Municipal Wan Fang Senior High School
33. Tainan Municipal North District Kaiyuan Elementary School
34. Taichung Municipal Focus Junior High School
35. National Magong High School
36. National Kinmen Senior High School
37. Mingdao High School
38. Liou-Guei Senior High School
39. Kaohsiung Municipal Cianjin Junior High School
40. Fu-Sing Elementary School
41. Taipei Municipal Ming Lun High School
42. Shihcheng Elementary School
43. Gangping Elementary School
44. Shun-Tien Junior High School
45. New Taipei Municipal New Taipei Senior High School
46. Banqiao Senior High School (S'COOL)
47. Tainan First Senior High School (S'COOL)
48. Taichung First Senior High School (S'COOL)
49. Taipei Municipal Ta Tung Senior High School (S'COOL)

Funding by:

Ministry of Science and Technology, Taiwan

GLOBE protocols used in country:

Digital Multi-Day Max-Min-Current Air, Soil Temperature, Barometric Pressure Protocol, Clouds Observations, Precipitation, Relative Humidity, Surface Temperature, Davis Weather Station, Water Temperature, Water pH, Transparencies, Alkalinities, Conductivities, Nitrates, Salinities, Dissolved Oxygens, GPS

Number of schools currently reporting data (2017):

27

Description of the program in your country and recent activities in 2017:

In the end of 2016, GLOBE Program Taiwan Office called for new schools to join GLOBE. In April 2017, we had 17 schools participating in GLOBE Program. After their participation, GLOBE Taiwan staff started to install shelters and help to set up their observation sites. Besides, in order to provide more data and teaching resources for our teachers and students, we also build 16 more Davis weather stations to enhance their scientific investigations. Moreover, in order to improve the teaching quality of our teachers, we not only offered instruments for our schools but also trained our teachers about the basic and advanced GLOBE protocols. During 29 April to 1 May 2017, GLOBE Taiwan Office hosted Train-the-Teacher Workshop. We

REPORT FOR 2017

invited Dr. Krisanadej Jaroensutasinee and Dr. Mullica Jaroensutasinee, master trainers from Thailand, to conduct the atmosphere and hydrology trainings. After the workshop, many teachers started to guide their students to do more observations about aerosol and water quality based on the surroundings around their schools.

GLOBE Taiwan Office encouraged our teachers and students to participate in international activities. During 31 January to 5 February 2017, there were 15 teachers and students from four schools joining GLOBE students exchange program in India. In addition, 9 projects from 5 GLOBE schools were submitted to 2017 GLOBE International Virtual Science Symposium. In order to offer more opportunities for our students to discuss their results of science investigation with others, we hosted GLOBE Asia-Pacific student festival during 10-14 July 2017 at Taipei. This event was part of HSP and ENIEP Fair / Exhibition, which was hosted by Ministry of Science and Technology, Taiwan. With the support of Asia-Pacific Regional Office, 34 GLOBE participants from India, Mongolia, the Philippines, and Thailand came to Taiwan. Dr. Tony Murphy were invited to give a video address during the opening ceremony. The GLOBE students' poster presentation section was one of highlights in this exhibition. We had eleven GLOBE student projects, two from Mongolia, two from Philippines, three from Thailand, and four from Taiwan. Teachers and students were all excited about sharing their results with GLOBE teams from other countries and people in Taiwan as well. They did benefit a lot from this event.

Currently, we have prepared and submitted the documents of the GLOBE agreement extension to our government. National Aeronautics and Space Administration (NASA), Taipei Economic and Cultural Representative Office in the U.S. (TECRO), American Institute in Taiwan (AIT) and Ministry of Science and Technology (MOST) are working on the administrative work now. We need GIO to monitor the process and ensure that the work of agreement extension is going on smoothly.

GLOBE Program Taiwan Activities List of 2017

| Name of Activity | Date | Venue | Number of Participants |
|---|------------------|---|---|
| GLOBE Train-the-Trainer Workshop | 2017/12/17-23 | Burapha University, Chonburi Province, Thailand | Dr. Pay-Liam Lin, Taiwan Coordinator, attended this workshop as a trainer |
| GLOBE Train-the-Teacher Training | 2017/11/18 | National Central University | 36 teachers |
| 21 th GLOBE Annual Meeting | 2017/07/16-21 | New Haven, Connecticut, USA | 4 staff, 1 teacher and 4 students |
| 2017 GLOBE Asia-Pacific Science Festival (This event is also part of "MOST-A-Thon: HIGHSCOPE Rooting Locally · Connecting Globally · FORESEEING Future") | 2017/07/10-15 | Songshan Cultural and Creative Park, Taipei, Taiwan | 37 GLOBE participants from India, Mongolia, Philippines, Thailand, and Taiwan |
| 2017 GLOBE AP Regional Meeting | 2017/05/22-24 | Manila, Philippines | 2 staff |
| 2017 GLOBE Taiwan Train-the-Teacher Workshop | 2017/04/29-05/01 | National Central University, Taiwan | 33 teachers, 5 graduate students, 5 assistants, and 2 master trainers from Thailand |
| New GLOBE Schools Orientation | 2017/03/29 | National Central University, Taiwan | 27 teachers |
| Wetlands and Climate Change Workshop and Festival (GLOBE Students Exchange) in Bhubaneswar, India | 2017/01/31-02/05 | Bhubaneswar, Odisha, India (Hosted by GLOBE India, IES) | 4 teachers and 11 students from 4 GLOBE Taiwan schools |
| GLOBE Taiwan 2017 Annual Conference & Student Exhibition | 2017/01/24 | National Central University, Taiwan | 93 teachers and students from 15 schools |

Appendix – Photos
2017 GLOBE Asia-Pacific Science Festival



Dr. Tony Murphy gave a video address during the opening ceremony.



Group photo



Dr. Desh Bandhu, Dr. Pay-Liam Lin and GLOBE teachers



Students poster presentation

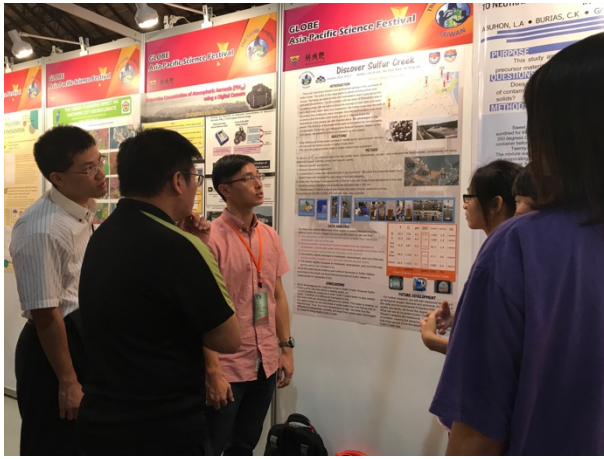


Taiwan MOST interviewed GLOBE Taiwan students.

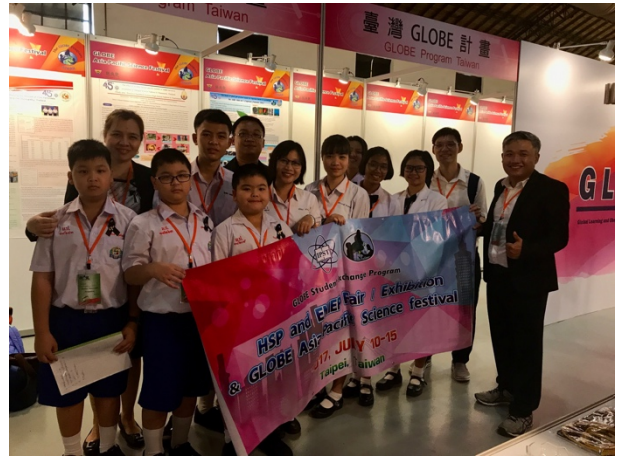


Dr. Liang-Gee Chen, minister of MOST, Dr. Desh Bandhu and Dr. Pay-Liam Lin took photo with the teacher and students from Philippines.

REPORT FOR 2017



GLOBE Teacher and students from Taiwan introduced their results to the public.



GLOBE Teachers and students from Thailand

New School Site Installation



Atmosphere site installation



Building a shelter



Davis weather station installation




Set up Davis weather station

REPORT FOR 2017

GLOBE Taiwan Train-the-Teacher Workshop



GLOBE STARS AND STEM STORIES— 2017 GLOBE Asia-Pacific Science Festival

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GLOBE Program Taiwan Hosts the GLOBE Asia-Pacific Science Festival

Sep 08, 2017



Between 10-15 July 2017, teachers and students from GLOBE Asia and Pacific region countries were invited by GLOBE Taiwan to share their GLOBE science investigations and projects in Taipei during the GLOBE Asia-Pacific Science Festival.

With the support of Dr. Desh Bandhu, who is the Asia and Pacific Regional Coordinator, 34 GLOBE participants from India, Mongolia, the Philippines, and Thailand came to Taiwan (11 of which were GLOBE Taiwan teachers and students).

Through the planning and invitation of Taiwan Country Coordinator Dr. Pay-Liam Lin, GLOBE Director Dr. Tony Murphy gave a video address during the opening ceremony.



"Tony's address really helped to encourage the teachers and students," said Kuan-Ting Chen, who is the assistant GLOBE Taiwan Country Coordinator.

The science festival was also part of "MOST-A-Thon: HIGHSCOPE Rooting Locally, Connecting Globally -- FORESEEING the Future," which is an annual exhibition of the High Scope Program and FORESEEING Program. These two programs, funded by the Taiwan Ministry of Science and Technology (MOST), focus on science, technology, engineering and mathematics (STEM) education. These participants were university professors and high school teachers who developed teaching modules and put their teaching plans into practice. Therefore, many teaching



Report for 2017 Country - Sri Lanka

01. Name : DamayanthiBalasuriya
Function : Co-Country Coordinator, Sri Lanka
Organization : Ministry of Education
E-mail : damayanthibalasuriya@yahoo.com
Tel : 0094112177379/ 0094718138392



02. Name : Tuder Senarathne
Function : Co-Country Coordinator, Sri Lanka
Organization : North Western provincial Department of Education
E-mail : senat631@gmail.com
Tel : 0094711551729



Cooperating Organizations:

- Ministry of Education
- National Institute of Education
- Nine Provincial Departments of Education
- Central Environmental Authority
- University of Ruhuna, Sri Lanka
- University of Kelaniya

Participating Schools:

- 109 schools - active
- 30 schools - pending

Funded by:

- Ministry of Education Sri Lanka

GLOBE protocols used in the country:

- Atmospheric protocols
 - Cloud protocols
 - Cloud type and contrail type protocol
 - Cloud cover and contrail cover protocol
 - Precipitation protocol
 - Rainfall protocol
 - Precipitation pH protocol
 - Maximum, minimum and current temperature protocol
 - Relative Humidity (RH) protocol
 - Optional barometric pressure protocol
- Hydrology protocols – all

- Soil protocols – all
- Land cover and Biology protocols
- Land cover sample site protocol
- Biometry and manual mapping protocols

Number of schools currently reporting data:

- 31 schools in 2016/17 and only 2 schools reporting data in past 3 months in 2018

Description of the programme in Sri Lanka and recent activities in 2017

- **Protocol Training for new teachers**
 - Atmosphere and Hydrology
 - Soil
 - Land cover / Biology

- **Refresher training**



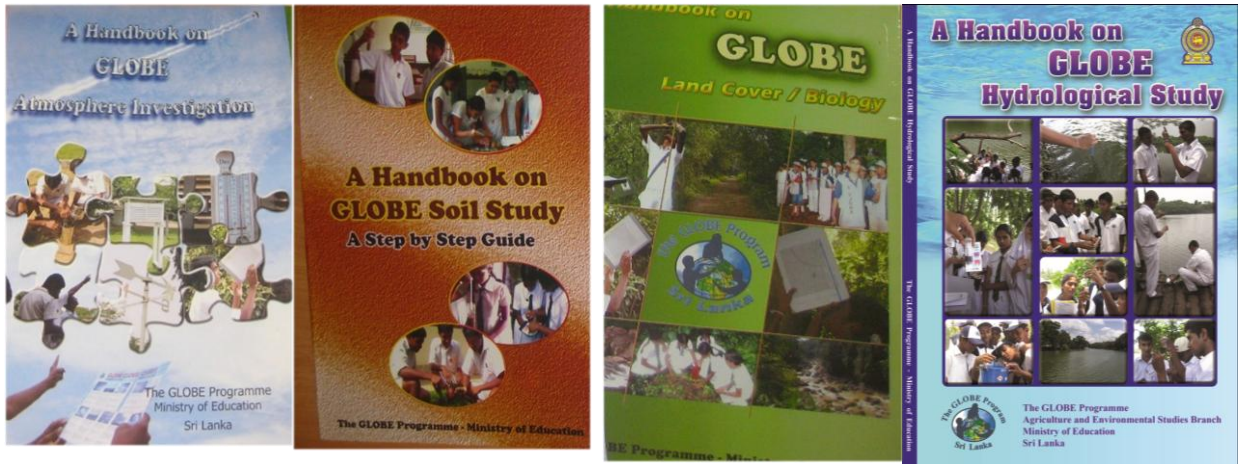
- **Special Events**

- Water day - 2017
- Training on GLOBE protocols under sustainable development schools programme - ‘ Eco Go Beyond ’ in Mas fabric Park

- **Students’ activities/ programmes**



- **Distribution of Stepwise Guides for Teachers to carryout GLOBE protocols**



- Provide Financial assistance to establish 11 weather stations in schools
- Provide GLOBE equipment to 30 schools

JAPAN

Name: **Dr. Toshihiko HIGUCHI**
Function: Country Coordinator CC
Organization: Tokyo Gakugei University (Professor)
E-mail: globejpn@ml.u-gakugei.ac.jp
Tel: 81-42-42-329-7664
Website: <http://fsifee.u-gakugei.ac.jp/globe/>

Name: **Dr. Tomoyo F. KOYANAGI**
Function: Assistant CC Secretary General of GLOBE Japan Center
Organization: Tokyo Gakugei University (Senior Assistant Professor)
E-mail: globejpn@ml.u-gakugei.ac.jp
Tel: 81-42-42-329-7664
Website: <http://fsifee.u-gakugei.ac.jp/globe/>

Cooperating organizations:

Ministry of Education, Culture, Sports, Science and Technology (MEXT)

Participating schools:

■ Supported by MEXT

- Elementary School
Nagatadai Elementary School,
Renkouzi Elementary School,
- Junior and Senior High School
Nanzan Girls' Junior&Senior High School,
Saint Joseph Joshi Gakuen
- High School
Hokkaido Kamikawa Senior High School
Tokyo Gakugei University Senior High School,
Hachiman Technical High School,
Ikuta High School,
Seta Technical High School,
Kyoto Kaiyou High School,
Prefectural Ayabe High School (East Branch),
Kasumi High School,
Uwajima Fishery High School,
Jyoto High School, Kikuchi High School

■ Others

- Elementary School
Tachikawa Daihachi Elementry School
- Junior High School
Shimizuokitsu Junior High School

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- Junior and Senior High School
MIHO Institute of Aesthetics

- High School
Meikei High School
Mizuho Nogei High School
Kanagawa Prefectural Mukainooka Technical High School
(Evening Classes, Integrated Course)
Toyama Prefectural Toyama Chubu Senior High School

Funding by:

Ministry of Education, Culture, Sports, Science and Technology (MEXT)

GLOBE protocols used in country:

Atmosphere (Cloud, Temperature, Barometric pressure, Relative Humidity etc)
Hydrology (Water Transparency, Water Temperature, Dissolved Oxygen, Salinity, Electrical Conductivity etc)
Pedosphere (Soil Characterization)
Phenology (Budburst, Green-up, Green-down)

Number of schools currently reporting data (2017):

15 schools supported by MEXT
- 2 Elementary Schools, 2 Junior High Schools and 13 High Schools.
(2 Schools are Junior and Senior High Schools)

Description of the program in our country and recent activities in 2017:

1. GLOBE teachers Conference

The GLOBE teachers Conference was held on 23 - 24 August 2017 at Tokyo Gakugei University. Teachers from 22 GLOBE schools took part in this event. GLOBE staff teachers gave them lectures on the GLOBE protocols (Atmosphere, Hydrosphere, Pedosphere, Earth as a System, Biology). GLOBE staff taught them how to enter data into the GLOBE database.

2. School Visit

The staff teachers of GLOBE Japan Center visited the GLOBE schools. They investigated the observation sites and gave the GLOBE teachers some advice.

2017

23 October Hokkaido Kamikawa Senior High School
17 November Jyoto High School

2018

16 February Meikei High School
27 February Renkouzi Elementary School.
09 March MIHO Institute of Aesthetics

We put the articles and the photos on our website.

http://fsifee.u-gakugei.ac.jp/globe/work/12_visit.photo.html

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Cloud observation at Renkouzi Elementary school

3. School Meeting

GLOBE Japan Center set up the GLOBE school meetings.

2017

17 November Jyoto High School and Kikuchi High School.(Teachers only)

02 December Nanzan Girls' High School and Saint Jeseph Joshi Gakuen (Students and teachers)

The students shared the results of their research activities and realized how other school students were involved in GLOBE. They were encouraged to continue their daily observations and measurements at the meeting.

The teachers of Jyoto High School and Kikuchi High School, both of them are new GLOBE teachers, discussed about their observation protocols and observation sites. GLOBE staff teacher gave them some advices.

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Atmosphere observation site at Saint Joseph Joshi Gakuen Junior and Senior High School



Hydrosphere observation site at Jyoto High School



Thailand

Name: Dr. Pornpun Waitayangkoon

Function: President of IPST

Organisation: The Institute for the Promotion of Teaching Science and Technology (IPST)

E-mail: pwait@ipst.ac.th

Tel: +662 3924021

Skype: -

Website: <http://globethailand.ipst.ac.th>

Cooperating organizations:

Universities GLOBE Network:

Thaksin University, Walailak University, Prince of Songkla University Surat Thani Campus, Loei Rajabhat University, Burapha University, Srinakharinwirot University, Kasetsart University Kamphaengsaen Campus, Sirindhorn International Institute of Technology of Thammasat University, Mae Fah Luang University, Suratthani Rajabhat University and Rajamangala University of Technology Isan

Participating schools:

In 2017, there were 56 schools.

The total of schools were 630 schools and 810 teachers

Funding by:

The Institute for the Promotion of Teaching Science and Technology (IPST), Ministry of Education

GLOBE protocols used in country:

Soil, Hydrology, Atmosphere and Land Cover protocol

Number of schools currently reporting data (2016):

In 2016, there were 289 observations

In 2017, there were 707 observations

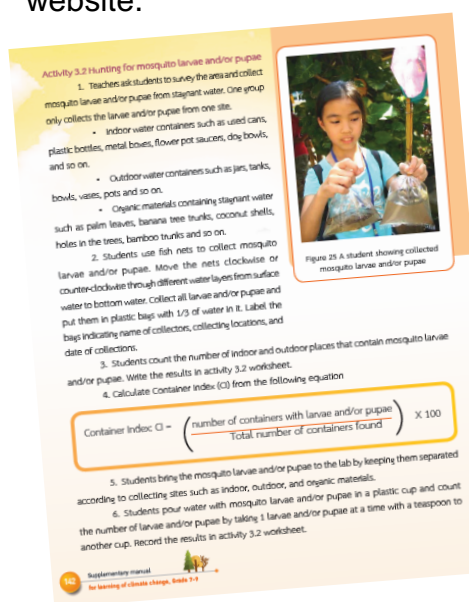
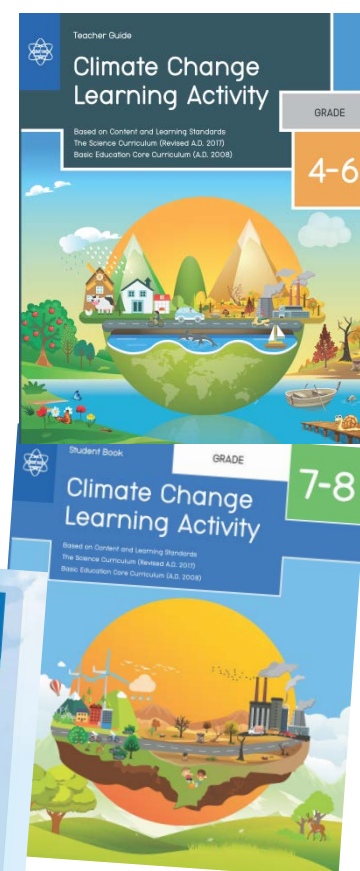
There were 299,172 total observations

Description of the program in your country and recent activities in 2017:

1. Climate Change Supplementary Materials Development

IPST had developed the climate change supplementary into school in English version for upper primary level (Grade 4-6) and Lower secondary level (Grade 7-9). These activities aim at giving the students practical experience in Climate Change education such as Weather and Climate, Impact, Mitigation and Adaptation of Climate Change. To increase students' awareness of sustained natural resource and environmental conservation, the learning activities have been designed to motivate them to continue their exploration, investigation and search for knowledge.

IPST invited Dr. Dev S. Niyogi, Professor of Agronomy and Indiana State Climatologist, reviewed the supplementary books. These materials will be distributed by IPST website.



2. Cooperation with Universities in Promoting Environmental Science Research Based on STEM Education Concept

IPST cooperates with universities in the GLOBE network to systematically multiply the results of environmental education so as to build GLOBE Thailand's cooperative academic network at both national and international level as well as to develop students' knowledge and competence in undertaking environmental science research within the context of STEM education. In this fiscal year 2017 (1 October 2016 - 30 September 2017), IPST provided operational budget for this purpose to Thaksin University, Walailak University, Prince of Songkla University Surat Thani Campus, Loei Rajabhat University, Burapha University, Srinakharinwirot University, Kasetsart University Kamphaengsaen Campus, Sirindhorn International Institute of Technology of Thammasat University, Mae Fah Luang University, Suratthani Rajabhat University and Rajamangala University of

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Technology Isan. In all, 72 schools took part in different activities organized by the universities as follows:

1. Thaksin University

Thaksin University arranged TSU Earth System Science Training: training Atmosphere, Soil, LandCover, Mosquito protocol and STEM education for 92 students and 21 teachers from 10 schools in Pattalung Province.



2. Walailak University

The two projects undertaken this year were;

1) Innovations and Inventions in water conservation workshop

The 4 teachers and 10 students from 4 schools developed Innovations and Inventions in water conservation by using STEM Education.



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2) Mosquito Workshop

The 5 teachers and 15 Students from 5 schools surveyed and collected mosquito larvae in their area to identify type of mosquito and data entry via mosquito data application.



3. Prince of Songkla University, Surat Thani Campus

PSU, Surat Thani Campus developed two projects are;

1) Study on environmental sciences in local agricultural crops.

The 12 students from 5 schools developed 5 researches to study local agricultural crops in Songkla Province by measure Soil, Hydrology, Atmosphere and Biology.



2) Innovations and Inventions in water conservation workshop

The 4 teachers and 12 students from 4 schools developed Innovations and Inventions in water conservation by using STEM Education.

4. Suratthani Rajabhat University

SRU conducted the project which aimed at supporting potential of GLOBE Alumni Thailand. Former GLOBE students opened LINE group and Facebook page to communicate among alumni. Activities in each region were also publicized and updates provided through online channel. GLOBE Alumni set up environmental science camp for 60 students to promote GLOBE protocol to new schools.



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5. Loei Rajabhat University

1) SRU arranged Earth system science training workshop for 16 students 2 teachers by collecting data on Soil, Hydrology, Atmosphere and Land Cover.



2) GLOBE STEM Activity in Pre-service Education

Establish GLOBE STEM Pre-service trained GLOBE Protocol Continuously for 30 teachers.



6. Burapha University

A collaborative environmental research development project cooperated among scientists and 6 teachers and 34 students from 5 schools and developed 6 researches.



7. Srinakharinwirot University

A training workshop on innovations and inventions in water conservation conducted with a view to apply Intel Galileo Board and environmental sensor such as temperature, humidity to monitor weather in school and create own database. The 20 students and 3 teachers developed 5 researches.



8. Kasetsart University Kamphaeng Saen Campus

The Kamphaeng Saen Campus of Kasetsart University implemented a soil science research development project base on joint collaboration between scientists and teachers and students. The 21 students from 4 schools developed soil science education researches within the context of STEM education.



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Furthermore, GLOBE Protocol workshop was held on with 214 students and 20 teachers from 5 schools



9. Sirindhorn International Institute of Technology - SIIT

SIIT conducted the project for the promotion of environmental learning through application of micro-controller and smart phone to monitor and control cloud Soil moisture sensor and humidity and temperature sensor. The 38 students and 7 teachers from 7 schools developed 6 researches.



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10. Mae Fah Luang University

Mae Fah Luang University developed Simple titration kit using natural identifiers and train the GLOBE Protocol. There were 11 students and 8 teachers from 5 schools involved in this project.



11. Rajamangala University of Technology Isan

Rajamangala University of Technology Isan trained Atmosphere, Soil, Land Cover, Mosquito protocol and STEM education for 12 students and 5 teachers from 5 schools.



3. Promotion of Environmental Science Research in Thailand

3.1 Meet GLOBE Earth Science Educator

IPST hosted the GLOBE Earth Science Educators meeting on 23 January, 2017 at Sukhum Srithanyaratana meeting room, IPST Administrative Building. Ms. Dorian M. Janney, Formal Education Specialist for Global Precipitation Measurement and Peter C. Falcon, Earth Science Outreach Coordinator shared their experience on NASA education mission with IPST staffs to inspire kids to investigate precipitation, observe cloud and interpret NASA satellite image. They also provided NASA resources link for Earth Science Education.



3.2 Special Talk

IPST arranged the special talk "Earth As a System: why should we do GLOBE?" by Dr. Dixon M. Butler on 19 December, 2017 at Chonradsadornumrung, Chonburi Province. There were 1,149 participants from 13 schools.



3.3 World Soil Day

IPST conducted the World Soil Day campaign on 5 December, 2017. There were 123 postcards from all regions of Thailand and 32 postcards were selected and awarded. The campaign aimed to celebrate the World Soil Day and continue our royal initiative of King Rama IX for soil conservation and improvement.



4. Thailand GLOBE Student Research Competition 2017

4.1 GLOBE Student Research Competition 2017

Environmental Science Research Competition 2017 was open to primary and secondary school students during 8 – 10 June 2017. There were 24 oral presentation and 40 poster presentation participating in this competition. The winners are as follows:

Oral Presentation awards:

Primary school category:

First prize: Montfort College Primary Section, Chiang Mai Province

Title: The Factors Affecting the Amount of Fine Particulate Matter (PM) in Chiang Mai Municipality

Second prize: Dara Academy, Chiang Mai Province

Title: Light pollution measurement in Chiang Mai Province by observing the brightness of Orion compare with apparent magnitude

Third prize: Jatukhamwittaya School, Nakhon Ratchasima Province

Title: The Effect of environmental parameters on the density of firefly at Ban Phrao, Don sub district, Pakthongchai district, Nakhon Ratchasima

Lower Secondary school category:

First prize: Princess Chulabhorn Science High School Nakhon Si Thammarat, Nakhon Si Thammarat Province

Title: The effect of weather factors and the number of *Aedes* larvae to Occurrence of Dengue fever in Nakhon Si Thammarat, Thailand. (Study Area : Princess Chulabhorn Science High School Nakhon Si Thammarat)

Second prize: Lampang Kalayanee School, Lampang Province

Title: Study of Drought Endurance Rice Varieties by Controlling Soil Temperature and the Change of Leaf Color

Third prize: Chum Phae Suksa School, Khon Kaen province

Title: Study of the Soil Depth and Optimal Condition for Growing Tabtim Chumpare Rice Variety Using Dry seeds

Higher Secondary school category:

First prize: Donchanwitthayakhom school, Kalasin province

Title: The study of plant pot product made by Legumes leaves to nursery the Bird Chili (*Capsicum frutescens* Linn.)

Second prize: Princess Chulabhorn Science High School Trang, Trang province

Title: Effects of Container Types and Water Qualities on the Density of *Aedes* Larvae in Trang Province, Thailand

Third prize: Triam Udom Suksa School, Bangkok

Title: Effects of Weather and Breeding sites on the Number of *Aedes* spp. and *Culex* spp. Larvae in Triam Udom Suksa School



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Poster Presentation awards:

Best Poster Presentation prize: Sa-Nguan Ying School, Suphan Buri province

Title: Study of Cracks and Physical Characteristics in Soil under Different Environmental Conditions”

Best Popular Vote Poster Presentation prize: Assumption College, Bangkok

Titled: Comparison of Vermicompost from Egg Shell and Soybean meal by measuring growth of Chinese broccoli”

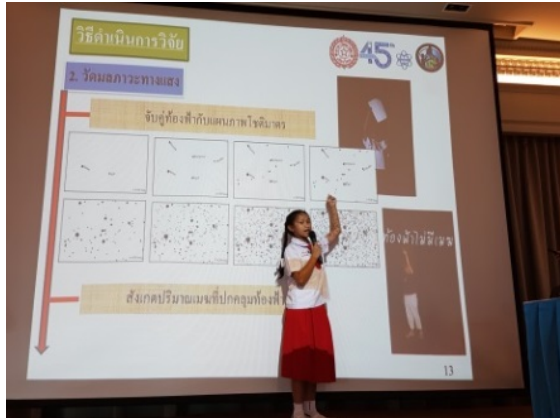
Consolation Poster Presentation Prize (2 awards):

Phanom Sarakham Phanom Adun Witthaya School, Chachoengsao Province

Title: Study of water quality using water treatment kit in small Dye industry in Chachoengsao Province

Bunyawat Witthayalai School, Lampang Province

Title: Weather Measurement and Weather Report via Blynk.





4.2 Thailand Junior Water Prize 2017 (TJWP2017)

IPST has signed 2th agreement of cooperation with Stockholm International Water Institute (SIWI) on 12 December 2017 to send the winner team in Thailand to Stockholm Junior Water Prize 2019-2021.

IPST organized the Thailand Junior Water Prize 2017 competition on 1 May 2017 with an objective to encourage students to learn about, care for, and conserve water resources. The winner was the research Titled “A Remote Water Quality Monitoring System in Bang Pood Canal and Chao Phraya River, Nonthaburi Province” from Suankularb Wittayalai Nonthaburi School, Nonthaburi province. In this year, IPST received the partial grant by Government Savings Bank, Metropolitan Waterworks Authority, Nestlé (Thai) Ltd. and Siam Piwat Co.,Ltd. The winner of TJWP2017 was invited to submit their innovative water conservation methods to Stockholm Junior Water Prize 2017, Sweden on 26 – 30 August, 2017.



5. Student Exchange Program

5.1 India – Thailand– Taiwan Student Exchange Program 2017 in India

Eleven students, teachers and scientists from St. Joseph Thiphawan school and Silacharaphiphat School took part in the India – Thailand– Taiwan Student Exchange Program on January 31 – February 4, 2017 at Bhubaneswar, India. The participants with opportunities to share and exchange experiences via presentation of their research.



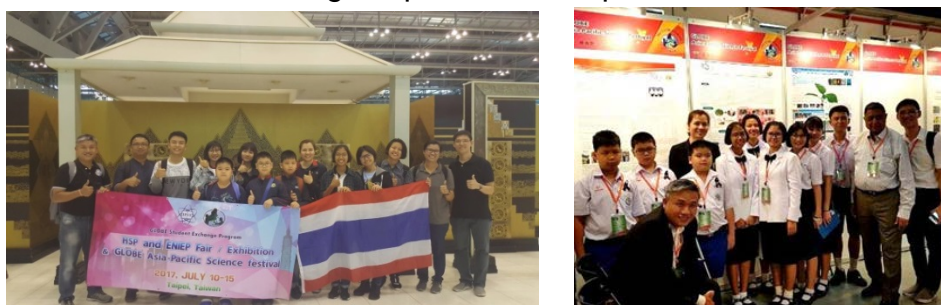
5.2 Sunburst Environment Programme 2017

The Sunburst Environment Programme 2017 was held from 12 November to 18 November. Five participants namely, Chayapol Huang, Intouch Pathanasap from Assumption College, Bangkok, Natacha Methan and Orthai Manatthaworn from St. Joseph Thiphawan School, Samut Prakarn. Mr. Charoensak Mueangkaew IPST attended this Programme. The students presented their research project “The Impact of human activities that affect the mangrove forest” in oral and poster presentation sessions.



5.3 Student Exchange Program 2017 in Taiwan

Fourteen students, teachers and scientists from Montfort College Primary Section, Princess Chulabhorn Science High School Nakhon Si Thammarat and Donchanwitthayakhom school took part in the GLOBE Asia-Pacific Science Festival on July 10 – 15, 2017 at Songshan Cultural and Creative Park, Taiwan. The participants with opportunities to share and exchange experiences via presentation of their research.



5.4 Regional GLOBE Learning Expedition

Ten students, teachers and scientists from Triam Udom Suksa school, Princess Chulabhorn Science High School Trang took part in Regional GLOBE Learning Expedition on September 10 – 16, 2017 at Pokhara, Kathmandu. The expedition is unique GLOBE activity which provided opportunity to the students and teachers to learn lake and mountain ecology.



6. GLOBE Annual Conference 2017

GLOBE Thailand joined the 21th GLOBE Annual Meeting on July 31 – 3 August, 2017 at New Haven, Connecticut, USA. There were 20 participants from Thailand, 2 GLOBE working group members, 3 IPST staffs, 5 teachers, and 10 students.



7. GLOBE Asia-Pacific Regional Meeting 2017

Two representatives from IPST attended the GLOBE Asia-Pacific Regional Meeting 2017 in Philippines from May 22-24, 2017. The meeting activities not only followed up the results from the Country coordinator from different countries but also explained the next-year strategy of GLOBE Implementation Office (GIO) so that the GLOBE Thailand could be able to improve its programs in accordance with GIO. In addition, Cornell Lewis, GIO introduced GLOBE Data Entry App, GLOBE Website and new features on Website and done mini GLOBE Protocol workshop.



8. GLOBE Train-The-Trainer Workshop 2017

IPST and Burapha university arranged the GLOBE Train-The-Trainer Workshop on December 17th – 23rd, 2017 at Burapha University, Chon Buri, Thailand. There were 42 participants from 13 school teachers, 22 university lecturers, 2 participants from National Science and Technology Development Agency, and 5 participants from IPST. There were special lecture “Overview of Earth as a System, a new perspective for GLOBE communities” and “Soil Moisture Active Passive (SMAP) GLOBE program” by Dr. Dixon Butler. GLOBE Thailand had the honor of welcoming Dr. Tony Murphy, Director of the GLOBE Implementation Office, Dr.Elena Sparrow, Education Outreach Director and Research Professor, University of Alaska Fairbanks, and Dr.Pay-Liam Lin, GLOBE Country Coordinator of Taiwan and National Central University, and 14 GLOBE Trainers from 3 countries (USA, Taiwan and Thailand).

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New Zealand



Name: Victoria Metcalf

Function: Country Coordinator (CC)

Organisation: Office of the Prime Minister's Chief Science Advisor

E-mail: Victoria.metcalf@pmcsa.org.nz

Tel: +64278094028

Skype: Victoria.metcalf

Website: www.pmcsa.org.nz

Cooperating organizations:

Office of the Prime Minister's Chief Science Advisor
(Ministry of Education)

Participating schools:

217 schools listed; 112 not yet reporting, 108 have reported in the past.

St Bernards School (active in 2016)

Opunake High School (last active in 2018; 14,500 observations)

- This has dropped from the 5 schools in the previous report

Funding by:

None at present. In the process of early discussions with the Ministry of Education about GLOBE support.

GLOBE protocols used in country:

A range covering Atmosphere, Hydrology, and Pedosphere protocols, with Atmosphere protocols the most used, followed by Hydrology.

Number of schools currently reporting data (2016):

St Bernards School (active in 2016) – only contributed 20 observations.

Opunake High School (last active in 2018; 14,500 observations)

Description of the program in your country and recent activities in 2017:

There are 217 schools listed in the GLOBE School status report and 67 teachers listed. 112 schools are not currently reporting, 108 schools have reported in the past, and only 1 school has reported in the last 3 months (2018). There have been 80,587 observations overall. <http://www.globe.gov/web/new-zealand>. There are 175 untrained observers (registered with the GLOBE Observer App).

There are eight GLOBE trainers in New Zealand. Of these, four have logged in to GLOBE, including two in the past two years. Strong enthusiasm for lifting GLOBE's presence in New Zealand has come within the last year from four of these GLOBE trainers.

The first GLOBE Country Coordinator was John Lockley, Department of Mathematics, Science and Technology Education, School of Education, Waikato University in Hamilton. He actively developed GLOBE in New Zealand, aligning GLOBE with the national curriculum. Over 275 teachers in more than 215 schools were trained. The management of GLOBE was transitioned to the Royal Society in 2005 and there were three Country Coordinators from the Royal Society between 2005 and 2010, with none since. During that time, GLOBE activities in New Zealand were highlighted in two GLOBEStar features:

http://www.globe.gov/news-events/globe-stars?p_p_id=commonstarsportlet_WAR_globegovcmsportlet_INSTANCE_Z0Bz&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1

The aim remains to reinvigorate GLOBE activities and awareness of GLOBE in New Zealand. The elections and change of government last year and departure of key MoE staff have slowed progress down substantially. However, Murray Palmer (former coordinator) has expressed interest in becoming an assistant coordinator. Elise Smith, Andrew Innes, and Adie Leng (all trainers) also are incredibly enthusiastic about the benefits of GLOBE and wanting to see it increasing in profile again in New Zealand. And a meeting is scheduled with the MoE after the Hanoi GLOBE meeting to discuss a way forward for GLOBE.

Country

| | |
|----------------------|---|
| Name: | Ulziibayar Ragchaa |
| Function: | Country Coordinator (CC) |
| Organisation: | Mongolian National University of Education, School of Mathematics and Natural Sciences |
| E-mail: | ulziibayar@msue.edu.mn , ulziibayarr@yahoo.com |
| Tel: | 976-11-310156, 976-99311710 |
| Website: | www.msue.edu.mn |

Cooperating organizations:

MECCS
Institute of Teacher's professional development
Unit of project 'Sustainable education for development'

Participating schools:

West side: Khovd aimag, Buyant soum school, Zavkhan aimag, Aimag center school #3
East side: Selenge aimag, Mandal soum school #1, Baganuur Bolovsrol school
UB: Eco education center at NUM, Shine Erin school, Shine ekhlel
University: School of Natural science & Mathematics, MSUE

Funding by:

Globe Asia and Pacific Region
Swiss development for Agency
Ministry of Education Culture, Science and Sports

GLOBE protocols used in country:

Atmospheric protocol (basic)
Water pH protocol using a pH meter
Water transparency using a Secchi disk

Number of schools currently reporting data (2017):

Only, measuring, collect data, fill the data sheet

Description of the program in your country and recent activities in 2017:

1. Dr. Tony P. Murphy, director of GLOBE Implementation office visited Mongolia. During the visit, he met with representatives of the US Embassy in Ulaanbaatar, officials of MECSS and was interviewed by 'Mongol' TV. These events were important for introducing the GLOBE program and guiding our future cooperative relation.
2. Training for science teachers at MNUE and secondary schools was organized. Secondary school teachers professional development training content includes GLOBE program topics. Participants of the training were able to get hand information on the Globe Program, its main content, knowledge and skills on use of water, soil and air measurement and study techniques.
3. Within the Academy of Sciences, young researchers club has been initiated.
4. Two students and 1 teacher took part in 21st Globe Annual Meeting held on 30 July to 06 August, 2017 in Connecticut, USA. Another 2 students and 2 teachers were successfully participated at GLOBE meeting sponsored by Taiwan.
5. MECSS announced essay competition among secondary and high school students on the topic of 'Observation and measuring of air, water, cloud and soil' from 15 April to 15 May 2018.
6. University professors are involved in this project through giving advice and help to secondary school teachers and students.

Activities planned for 2018:

- Develop the GLOBE program at National level;
- Participate in 22nd Globe meeting to be held in Ireland (4 people);
- Connect the local participating schools into the internet;
- Prepare tools of GLOBE and provide some selecting schools;
- Help teachers in the program using the internet;



THE GLOBE PROGRAM



Vietnam Globe program

Annual report 2018

By Dr. Vu Anh TUAN
Country Coordinator

Contents

- Background information
- Activities in 2017 - 2018
- Future activities

Back ground information

- 2013: VNSC and Center for Education and Development organized workshop “GLOBE Program Introduction” to school teachers and students, research institutes and scientists around Hanoi;
- 2013 – 2015: VAST/VNSC contacted closely with NASA, Governmental Offices and Ministries of Vietnam to work on the Cooperation Agreement for GLOBE Program;
- On 14 Sept 2015 VAST received the official approval of the Government of Vietnam signing Cooperation Agreement for GLOBE Program;

Back ground information

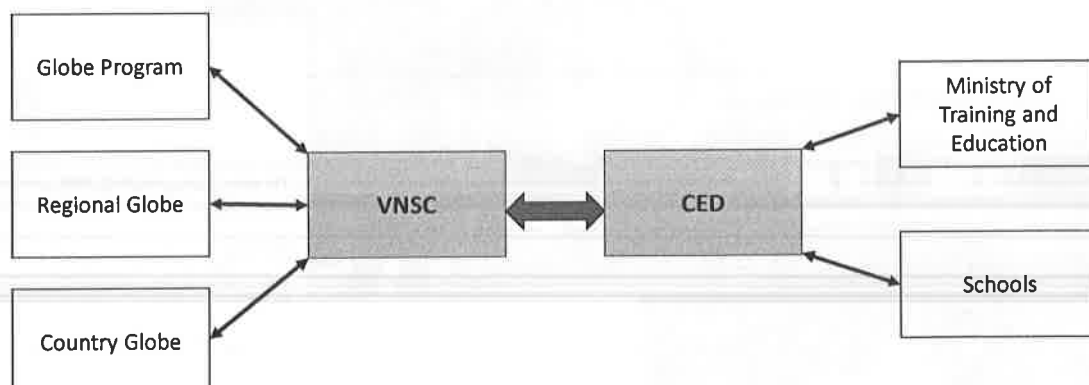
- VAST and NASA signed Globe Agreement on Dec. 9, 2015
- VAST appointed VNSC to implement GLOBE in Vietnam



Back ground information

- ❑ Make a 3-years plan for Vietnam in cooperation with Ministry of Science and Technology and Ministry of Education and Training (in accordance with Regional 3-years plan)
- ❑ 2016: Implement a pilot program in Hanoi
 - - Select school for pilot program
 - - Organizing workshops to introduce Globe program
 - - Train the trainers
 - - Implement activities
- ❑ 2017: Evaluation pilot program and officially run the Program in Hanoi
- ❑ 2018: Officially run the Program in Ho Chi Minh City

Back ground information



Activities in 2017 - 2018

- <http://globe.vn/>
- Facebook Globe Vietnam

You can find:

- Documents
- Guide
- To be Globe member



Activities in 2017 - 2018

- Training



Activities in 2017 - 2018

- Globe office @ VNSC
- Globe Vietnam group: including VNSC and CED staff
 - Ms. Linh (VNSC)
 - Ms. Yen (CED)

Activities in 2017 - 2018

- Out of 8 schools
 - 5 schools not yet reporting
 - 0 schools have reported in the past
 - 3 schools currently reporting (past 3 months)
- 44 teachers,
- 320 total observations
- Protocol: Atmosphere
 - Air Temperatures, Barometric Pressures, Cloud Observations, Relative Humidities

Activities in 2019

- Future activities

- Training 2019: Ho Chi Minh city
- More School involving (15)
- More School active (10)
- Officially start at Ho Chi Minh city
- Partly start at Nha Trang City
- More protocols
- **To be official activity of secondary school in Vietnam**

- Further

- Build up Globe community/ Globe network in Vietnam
- Globe Vietnam meeting/ Globe day in Vietnam
- Connect Globe activities with Educational activities at VNSC (museum, observatory, planetarium)

