

ReSAGPAPR WG NEWSLETTER

Published by the Working Group on Remediation for
Soil and Groundwater Pollution of Asian and Pacific Region

Volume 5, Issue 1
December, 2015

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Member Countries :



Australia



India



Indonesia



Japan



Korea



Malaysia



New Zealand



Philippines



Sri Lanka



R.O.C.(Taiwan)



Thailand



Vietnam

Message from the Chairman of ReSAGPAPR WG

Prof. Zueng-Sang Chen (陳尊賢)



Chairman

Working Group on the Remediation of Soil and Groundwater Pollution of Asian and Pacific Region (WG ReSAGPAPR) (2011-2016)
Distinguished Professor of pedology and soil environmental quality
Department of Agricultural Chemistry
National Taiwan University

Zueng-Sang Chen is the Distinguished Professor of pedology and soil environmental quality (2007 to now), Department of Agricultural Chemistry (DAC) of National Taiwan University (NTU). He primarily studied the soil genesis, soil environmental quality, the behavior and bioavailability of heavy metals in the soil-crop system, and using the phytoremediation on metals-contaminated sites.

Dear Steering committee members and guests of ReSAGPAPR

At the end of 2015, I wish you have a Merry Christmas and Happy New Year in 2016.

In 2015, Working Group on the Remediation of Soil and Groundwater Pollution of Asian and Pacific Region (WG ReSAGPAPR) has organizing 6th steering committee meeting on Dec 7 at Taipei and 2015 International Workshop: Contaminated Groundwater Characterization & Monitoring on December 8-9 and study tour on December 10 at Taichung city, central Taiwan. You can visit the website of the working group of WG ReSAGPAPR to get all the information and Proceedings of the 2015 International Workshop: Contaminated Groundwater Characterization & Monitoring (<http://www.resagpac.org/>).

I wanted to mention the **key conclusions** from the 6th steering committee meeting of the WG ReSAGPAPR on Dec 7, 2015 and listed as the followings:

- Taiwan EPA and ReSAGPAPR organized a **one week training course on the remediation of soil and groundwater pollution on March 21-28, 2016**, held at Taipei city. Taiwan EPA will offer one free participant for whole training course, including round-trip economic air-ticket, accommodation and all cost of training cost from each country member of ReSAGPAPR.
- Each steering committee member should contact and invite the DG to attend the **2016 DG Summit meeting, 2016 International conference on the Remediation and Management of Soil and Groundwater Contaminated Sites and 2016 Environmental Exhibition**, to be held in October or November, 2016, at Taipei city, Taiwan.
- ReSAGPAPR Working Group can **revise "some terms of the Statement"** signed in September, 2014, to be

accepted to sign this Statement by all the DG of 12 country members. The final revised contents can be noticed before the DR summit meeting held in 2016. The country member comments should be sent back to chairman before March 31, 2016.

- The Working Group of ReSAGPAPR can support the cost up to **two activities held in two countries each year**. All the local cost of the activities should be supported by the local country member. The major concerned topic of the activity (Mini-workshop, forum or seminar) should be proposed by the DG each country. The proposal topics of the program on workshop, forum or training courses in 2-3 days should be sent back to the chairman before January 31, 2016.
- The steering committee member of each country should **revise “all the committee members of three committees of ReSAGPAPR Working Group** based on the working position and achievement of all the members and also provide the new members to the chairman of working group before 29 February, 2016.
- The **permanent contact person** of the steering committee member of each country should be established and revised every year to promote more effective communication between chairman and the steering committee member of each country. The proposal permanent contact person of the steering committee member of each country should be sent back to the chairman before January 31, 2016.
- To revise the website of working group of ReSAGPAPR and provide more items, especially including **new news**, exchange information from MOU between country members. Please provide one page of new news including the linkage local English websites to get more detail information on Act, management strategies and information to the chairman every half year, before 30 June and 31 December.
- To make a **“brief country report”** in each business meeting by at least 1 page including Tables, Figures and color pictures (A4 size, up to 5 pages) of WORD file in each country to promote more understanding on the achievement of country members. Please also provide 5 minutes ONLY (up to 10 minutes depend on the decision in every steering committee meeting) brief oral presentation of PPT files in each business meeting. The working group will edit this information into the Proceedings and input in the website of ReSAGPAPR WG.

Sincerely yours

Zueng-Sang Chen, PhD.

Chairman

Working Group on the Remediation of Soil and Groundwater Pollution of
Asian and Pacific Region (WG ReSAGPAPR) (2011-2016)

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c/o

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Introduction of 6th Business Meeting of ReSAGPAPR WG & 2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

A Series of activities were held on December 7 to 10, 2015, including 6th business meeting of Working Group on Remediation for Soil and Groundwater Pollution of Asian and Pacific Region (WG ReSAGPAPR), 2015 International Workshop: Contaminated Groundwater Characterization & Monitoring and a study tour.

Taiwan EPA invited the members of the ReSAGPAPR WG to attend these activities, and 5 country members participated (Australia, Korea, New Zealand, Taiwan and Thailand).

All of the participants convened a one-day 6th Business Meeting in Taipei on December 7, and Prof. Zueng-Sang Chen was the chairman at this meeting. The main discussion items included 2016 training course in Taiwan, website revision of the ReSAGPAPR WG, and discussion topics of the Director General (DG) Summit Meeting, 2016. Besides, all of country members provided about 5 minutes of brief country report. The more details of the items, please search the page 14-17. In conclusion, the meeting brought to a successful close.

The International workshop, “2015 International Workshop: Contaminated Groundwater Characterization & Monitoring”, was held on December 8 to 9 in Taichung, Taiwan. Taiwan EPA invited 2 speakers, Mr. Edward Gilbert and Mr. Gregory Gervais, who are the experts in the U.S EPA in the field of contaminated groundwater. They delivered speeches to all participants to provide different technology and experience. Moreover, Taiwan EPA was also honored to invite Mr. Tzi-Chin Chang, the Deputy Minister of Taiwan EPA, to give us an opening address. The workshop topics included the difference between groundwater characterization and groundwater monitoring, the necessity of high resolution site characterization, the related analysis, skills, application of various tools, and many case studies... etc. About 200 people participated in the workshop, including experts come from industry, government and academia. According to a satisfaction survey after the workshop, more than 90% of the participants replied “positive” evaluation. They expressed the content of the workshop was very useful for their job or in his/her life, and if there will be a similar activity next time, they will attend and support it. If you want to get more information, please click our official website (<http://workshop.resagpac.org/>).

The participants visited an oil-leakage contaminated site at Chenergy Global Corporation in Taichung port on the morning of December 10. Taiwan EPA announced this site as a soil pollution control site on April 1, 2014 and as a groundwater pollution control site on March 13, 2015.

There was the cultural tour to Beipu on the afternoon of December 10. This is the place full of Hakka (客家) cultural (the Hakka is one of the main ethnic group). In Beipu, we walked around the old street and visited the Tzu-Tien temple (慈天宮), that is the X-rated historic site in Taiwan. This temple is filled with Chinese traditional design and history.



RESAG

Program of 6th Business Meeting of ReSAGPAPR WG on December 7, 2015**6th Business Meeting of****Working Group on Remediation for Soil and Groundwater Pollution of Asian and Pacific Region****Date: December 7, 2015****Venue: Meeting Room 203, Howard Civil Service International House, Taipei, Taiwan**

Time	Topic	Speaker
09:00-09:30	Registration	
09:30-09:35	Group Photo	
09:35-09:40	Opening Ceremony – WG chairman open address	Prof. Zueng-Sang Chen Chairman of ReSAGPAPR WG
09:40-10:00	Introduction of Steering Committee Members of WG and Delegates	Prof. Zueng-Sang Chen Chairman of ReSAGPAPR WG
10:00-11:00	Discussed Items 1. To open the proposed programs of 2016 ReSAGPAPR working Group to be held at Taiwan 2. To nominate the representative delegate to attend the “one week training course” on the remediation of soil and groundwater pollution, held on March, 2016, at Taipei 3. To nominate the discussion topics to be discussion in the Director General (DG) Summit Meeting in October to November, 2016, at Taipei	Prof. Zueng-Sang Chen Chairman of ReSAGPAPR WG
11:00-11:20	Coffee Break	
11:20-11:50	Discussed Items 4. To revise all the committee members of three committees of ReSAGPAPR Working Group and provide the new members to the chairman before 31 st January, 2016. 5. To revise the website of working group of ReSAGPAPR and provide more items, especially including activities and exchange information from MOU between country members. 6. To make a “brief country report” in each business meeting to promote more understanding on the achievement of country members, focus on the Act, management and remediation of soil and groundwater pollution in last one year.	Prof. Zueng-Sang Chen Chairman of ReSAGPAPR WG
11:50-12:50	12 members reporting – Country Reporting in 2014-2015	Prof. Zueng-Sang Chen Chairman of ReSAGPAPR WG
12:50-13:00	Closing Ceremony	Prof. Zueng-Sang Chen Chairman of ReSAGPAPR WG

Program of 2015 International Workshop on December 8, 2015**2015 International Workshop: Contaminated Groundwater Characterization & Monitoring (1st Day)****Date: December 8, 2015****Venue: International Conference Hall, National Library of Public Information,
Taichung City, Taiwan**

Time	Topic	Speaker
09:00 – 09:30	Registration	
09:30 – 10:00	Opening Remarks	Taiwan EPA / U.S. EPA
10:00 – 10:15	Course Introduction and Overview	Ed Gilbert, U.S. EPA
10:15 – 10:45	Background on High Resolution Site Characterization	Greg Gervais, U.S. EPA
10:45 – 11:00	<i>BREAK</i>	
11:00 – 11:30	High Resolution Site Characterization Implementation	Greg Gervais, U.S. EPA
11:30 – 12:00	Impacts of Subsurface Heterogeneity; Hydrogeology Review	Ed Gilbert, U.S. EPA
12:00 – 13:15	<i>LUNCH</i>	
13:15 – 14:00	Impacts of Subsurface Heterogeneity; Contaminant Fate and Transport Review	Ed Gilbert, U.S. EPA
14:00 – 14:30	Scale Appropriate Groundwater Sampling	Greg Gervais, U.S. EPA
14:30 – 15:00	<i>BREAK</i>	
15:00 – 15:45	Applicable Tools; Soil & Hydrostratigraphy	Ed Gilbert, U.S. EPA
15:45 – 16:45	Applicable Tools; Qualitative & Sampling	Ed Gilbert, U.S. EPA
16:45 – 17:00	Questions and Discussion	U.S. EPA Taiwan EPA
17:00	<i>DAY ONE CONCLUDES</i>	

Program of 2015 International Workshop on December 9, 2015**2015 International Workshop: Contaminated Groundwater Characterization & Monitoring (2nd Day)****Date: December 9, 2015****Venue: International Conference Hall, National Library of Public Information,
Taichung City, Taiwan**

Time	Topic	Speaker
08:30 – 09:00	Registration	
09:00 – 09:15	Quick Review of Yesterday's Material	Ed Gilbert, U.S. EPA
09:15 – 10:00	Multilevel Groundwater Monitoring Systems	Ed Gilbert, U.S. EPA
10:00 – 10:45	Case Study	Ed Gilbert, U.S. EPA
10:45 – 11:00	<i>BREAK</i>	
11:00 – 12:00	Data Use, Management, and Visualization	Greg Gervais, U.S. EPA
12:00 – 12:30	Case Studies	Greg Gervais, U.S. EPA
12:30 – 13:45	<i>LUNCH</i>	
13:45 – 14:15	Tidal Influence on NAPL & Aqueous Phase	Ed Gilbert, U.S. EPA
14:15 – 15:00	Groundwater Monitoring	Ed Gilbert, U.S. EPA
15:00 – 15:15	<i>BREAK</i>	
15:15 – 16:00	Groundwater Monitoring, Cont.	Greg Gervais, U.S. EPA
16:00 – 16:30	Case Study	Greg Gervais, U.S. EPA
16:30 – 17:00	Questions and Discussion	U.S. EPA Taiwan EPA
17:00	<i>WORKSHOP CONCLUDES</i>	

Minutes of 6th Business Meeting of ReSAGPAPR WG

6th Business Meeting of

Working Group on Remediation for Soil and Groundwater Pollution of Asian and Pacific Region

09:30 - 13:00, December 7, 2015

Meeting Room 203, Howard Civil Service International House, Taipei, Taiwan

Present:

Prof. Zueng-Sang Chen (Chairman, Taiwan), Mr. Andrew Pruszinski (Australia),
Mr. Bon-Sam Koo (Korea), Mr. Bruce Croucher (New Zealand),
Mr. Nien-Ho Ma (Taiwan), Dr. Chayawee Wangcharoenrung (Thailand),

In Attendance:

Mrs. Minah Kim (Korea), Dr. Hao-Chun Hung (Taiwan),
Mr. Meng-Ju Tsai (Taiwan)

Absent:

Dr. Rashid Hasan (India), Mr. Ade Palguna Ruteka (Indonesia)
Dr. Masanori Kobayashi (Japan), Mr. Tuan Rusli Mohamed (Malaysia),
Dr. Atty. Ernesto D. Adobo, Jr. (Philippines), Mr. K.A.D.I. Silva (Sri Lanka)
Mrs. Nguyen Mai Hanh (Vietnam)



ReSAGPAPR WG members
communicate with other participants
at the early break.

Minutes of 6th Business Meeting of ReSAGPAPR WG *(continued)*

Opening Ceremony at 09:35 - 10:00

1. The Chairman, Prof. Zueng-Sang Chen, deliver the opening address.
2. The Chairman introduced the Steering Committee members of the WG attending the meeting.

The Representative of Taiwan



Mr. Nien-Ho Ma (馬念和)

**Steering Committee Member of
ReSAGPAPR WG**

Executive Secretary

**Soil and Groundwater Remediation
Fund Management Board
Environmental Protection
Administration, Taiwan**

Mr. Nien Ho Ma received his M.S. degree of Civil and Environmental Engineering from the Utah State University of USA. Currently he serves as the Executive Secretary of the Soil and Groundwater Remediation Fund Management Board, Environmental Protection Administration, R.O.C. (Taiwan). Executive Secretary Ma has extensive experience on water quality protection, resources recycling, and contaminated site management.

Minutes of 6th Business Meeting of ReSAGPAPR WG *(continued)* **- Opening address**

December 7, 2015, Taipei city, Taiwan, 09:35-09:40

Distinguished Professor Zueng-Sang Chen

Chairman

Working Group on Remediation for Soil and Groundwater Pollution of Asian and Pacific Region (WG ReSAGPAPR)

Distinguished invited steering Committee members of working group, distinguished experts and guests from Asian and Pacific region, Ladies and Gentlemen:

It is my great pleasure to say some words at the opening ceremony of the 6th business meeting of the Working Group on Remediation for Soil and Groundwater Pollution of Asian and Pacific Region (WG ReSAGPAPR). On behalf of working group of ReSAGPAPR and Taiwan EPA, I would like to extend my sincerely welcome all of you, including 12 country members of Steering Committee of government officers, some delegates from countries members of this working group. Your participations are very welcome, and will contribute a great deal to the successful future of our working group to maintain our good environmental quality and human health in this region.

In the last (5th) business meeting of the working group held on August 18, 2014, at Taipei, Working Group approved two important issues for the activities in next two years, including (1) the topics of workshop, training course and communication types of the WG in 2015 and 2016, and (2) the Director General Summit Meeting held on Nov 25, 2014, sign the statement after the DG meeting and also decide the 2nd DG meeting will be held at Taipei in 2016.

Taiwan EPA and Korea Ministry of Environment had signed the Memorandum of Understanding (MOU) on August 1, 2012, at Taipei. Both country also created a 90,000 US\$ to start two cooperation research projects in 2014 to 2015.

In this business (6th) meeting, Working Group will discuss some very important issues for the Working Group activities in 2016, including the international conference and exhibition, and also the summit meeting of the Director General level in October to November in 2016 on how to promote more activities in the future, including workshop, symposium and training course depend on the comments from the Director Generals of country members of Working Group. The other important issues are how to promote more functions of the Scientific Committee members and Service and Communication Committee members of the working Group to promote more technology transfer and cooperation program.

Finally, I would like to express my grateful thanks to Mr. Nan-Ho MA, who is the technical super-intendant and executive secretary of the Soil and Groundwater Remediation Fund Management Board of Taiwan EPA and also thank his government officers of the Fund management Board for their strong support for this business meeting in the first two terms of our WG.

I also thank all of you to here to promote our activities of the WG for good environmental quality and health life in the Asian and Pacific Region. I also hope you have a very good time in Taipei and Taichung in next three days.

Thank you.



Distinguished Professor Zueng-Sang Chen
Chairman of ReSAGPAPR WG (2011-2016)

Minutes of 6th Business Meeting of ReSAGPAPR WG *(continued)*

- Participants



Mr. Andrew Pruszinski
(Australia)



Mr. Bon-Sam Koo
(Korea)



Ms. Minah Kim
(Korea)



Mr. Bruce Croucher
(New Zealand)



Dr. Chayawee Wangcharoenrung
(Thailand)



Dr. Hao-Chun Hung
(Taiwan)

Minutes of 6th Business Meeting of ReSAGPAPR WG *(continued)*

Business Meeting at 10:00 - 11:50

Discussion Item 1

To open the proposed programs of 2016 ReSAGPAPR working Group to be held at Taiwan

1. March, 2016 at Taipei. Training course on the remediation of soil and groundwater pollution.
2. May to July, 2016. International workshop on Containment system for groundwater pollution. Two speakers will be invited from USEPA.
3. October to November, 2016. International conference, International Exhibition, and Director General (DG) Summit Meeting

Conclusion

1. Each country member of ReSAGPAPR WG should strongly support to attend these three important activities to be held at Taiwan in 2016.
2. Each steering committee member should contact and invite the DG to attend the DG Summit meeting in 2016.
3. Each country can invite other interesting scientists to attend this international workshop by self-payments. Taiwan EPA can help to arrange hotel and meals for the participants and provide free charge of the transportation service.

Discussion Item 2

To nominate the representative delegate to attend the “one week training course” on the remediation of soil and groundwater pollution, held on March, 2016, at Taipei

Conclusion

1. Each country member of ReSAGPAPR WG should nominate ONLY ONE technical governmental officer to the chairman before January 31, 2016. Taiwan EPA can offer all the cost including round-trip ticket, accommodation and transportation during stay at Taiwan.
2. Taiwan EPA can accept up to 5 persons by self-payments of each country member. Total self-payment persons are setup to maximum 15.
3. Taiwan EPA will also accept the Taiwan local people up to 5 persons from the environmental consultant companies to attend this training courses and promote more communication and discussion.



Minutes of 6th Business Meeting of ReSAGPAPR WG *(continued)*

Discussion Item 3

To nominate the discussion topics to be discussion in the Director General (DG) Summit Meeting in October to November, 2016, at Taipei

Conclusion

1. ReSAGPAPR Working Group can revise “some terms of the Statement” signed in September, 2014, to be accepted to sign this Statement by all the DG of 12 country members. The final revised contents can be noticed before the DR summit meeting held in 2016. The country member comments should be sent back to chairman before March 31, 2016.
2. How to promote more activities in the future to be organized by Working Group of ReSAG based on the Statement of DG summit meeting held in September, 2014, based on three pillars and 3 Action Plants.
3. The Working Group of ReSAGPAPR can support the cost up to two activities held in two countries each year. All the local cost of the activities should be supported by the local country member. The major concerned topic of the activity (Mini-workshop, forum or seminar) should be proposed by the DG each country.
4. The chairman of Working Group of ReSAGPAPR can cooperate with the steering Committee member to design the program of workshop, forum or training courses in 2-3 days by inviting 3-4 experts from other country.
5. The proposal topics of the program on workshop, forum or training courses in 2-3 days should be sent back to the chairman before January 31, 2016.

Discussion Item 4

To revise all the committee members of three committees of ReSAGPAPR Working Group and provide the new members to the chairman before 31st January, 2016.

Conclusion

1. The steering committee member of each country should revise “all the committee members of three committees of ReSAGPAPR Working Group based on the working position and achievement of all the members and also provide the new members to the chairman of working group before 29 February, 2016.
2. The steering committee member of each country can be changed every one or two years if the original steering committee member have changed the working position or not related to soil and groundwater pollution. Please notice the chairman after the steering committee member of country member was changed.
3. The permanent contact person of the steering committee member of each country should be established and revised every year to promote more effective communication between chairman and the steering committee member of each country. The proposal permanent contact person of the steering committee member of each country should be sent back to the chairman before January 31, 2016.

Minutes of 6th Business Meeting of ReSAGPAPR WG *(continued)*

Discussion Item 5

To revise the website of working group of ReSAGPAPR and provide more items, especially including activities and exchange information from MOU between country members.

Conclusion

1. To revise the website of working group of ReSAGPAPR and provide more items, especially including new news, exchange information from MOU between country members.
2. Taiwan-Korea MOU is a good example to show the activity and information of steering committee meeting, two forums per year, and two research cooperative projects per year, and also some study tours for visiting the contamination sites. The new items and exchange information will be posted in the website of ReSAGPAPR under agreement of two countries.
3. Please provide one page of new news including the linkage local English websites to get more detail information on Act, management strategies and information to the chairman every half year, before 30 June and 31 December.



Discussion Item 6

To make a “brief country report” in each business meeting to promote more understanding on the achievement of country members, focus on the Act, management and remediation of soil and groundwater pollution in last one year.

Conclusion

1. To make a “brief country report” in each business meeting by at least 1 page including Tables, Figures and color pictures (A4 size, up to 5 pages) of WORD file in each country to promote more understanding on the achievement of country members.
2. Please also provide 5 minutes ONLY (up to 10 minutes depend on the decision in every steering committee meeting) brief oral presentation of PPT files in each business meeting.
3. The working group will edit this information into the Proceedings and input in the website of ReSAGPAPR WG.

Minutes of 6th Business Meeting of ReSAGPAPR WG *(continued)*

Country Reporting at 10:00 - 11:50

Each member provided brief oral presentations about his/her own country

1. Australia: Mr. Andrew Pruszinski
2. Korea: Ms. Minah Kim
3. New Zealand: Mr. Bruce Croucher
4. Taiwan : Mr. Nien-Ho Ma
5. Thailand: Dr. Chayawee Wangcharoenrung

Country Report file (PDF): <http://www.resagpac.org/>

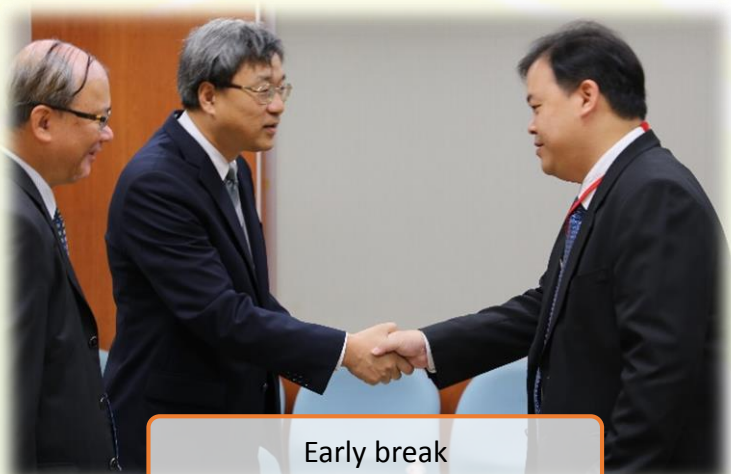
(Click the item “News”, enter the article “2015 6th Business Meeting of WG ReSAGPAPR- Country Report on Dec 7th” to download the files.)



Interesting Sidelights at 6th Business Meeting of ReSAGPAPR WG



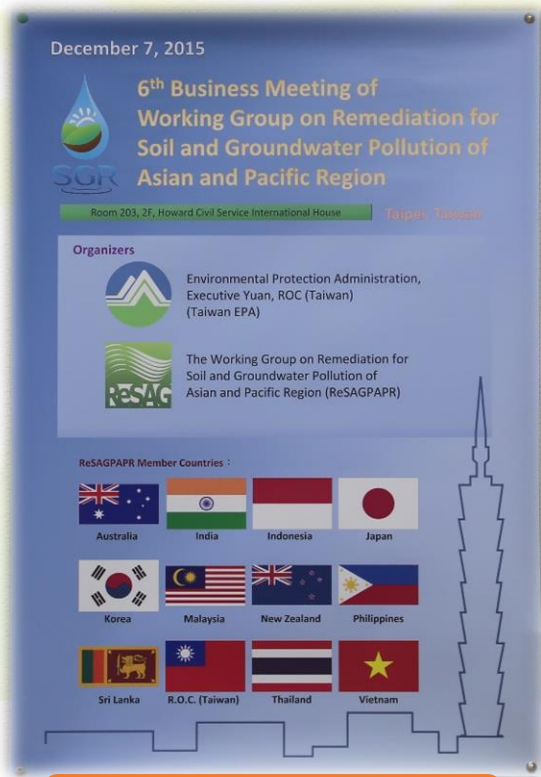
Group Photo of the 6th Business Meeting of ReSAGPAPR WG



Early break



Meeting Room



The poster of the meeting

Interesting Sidelights at 6th Business Meeting of ReSAGPAPR WG

(continued)



Discussion at the meeting



During the meeting



Discussion at the meeting

Interesting Sidelights

Welcome Dinner Party at Evergreen Laurel Hotel, Taichung (臺中長榮桂冠酒店) on December 7, 2015



Interesting Sidelights

Farewell Dinner Party, hosted by Mr. Tzi-Chin Chang, Deputy Minister of Taiwan EPA, at Howard Civil International House, Taipei (福華文教會館) on December 10, 2015



International Workshop Report –Opening address

2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

December 8, 2015, Taichung city, Taiwan, 09:35-09:40 am

Mr. Tzi-Chin Chang - Deputy Minister, Taiwan EPA

Honorable guest, 2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

Distinguished USEPA speakers, Mr. Ed Gilbert and Mr. Greg Gervais, 10 Government officers and experts of the Steering Committee Members of the Working Group on Remediation of Soil and Groundwater Pollution of Asian and Pacific Region (**WG ReSAGPAPR**), 12 foreign participants from Ministry of Environment of Korea, Ladies and Gentlemen:



It's my great pleasure to say some words at the opening ceremony of the "International Workshop: Contaminated Groundwater Characterization & Monitoring" for the Asian and Pacific region. On behalf of the Taiwan EPA and Working Group of **ReSAGPAPR**, I want to sincerely welcome you to come here, especially including two invited distinguished speakers from USEPA, Mr. Ed Gilbert and Mr. Greg Gervais, some government officers and steering committee members of 12 countries of Working Group in Asian and Pacific region. Your participations are very welcome and will make a great technical improvement on the survey and monitoring of the groundwater pollution sites in this region.

This intensive workshop was organized by Taiwan EPA and USEPA. This workshop will focus on the groundwater sampling strategy, placement design, statistical data analysis and monitoring technology. The key points to establish this cost-effective technology to understand the situation of the groundwater pollution in the site will include sampling frequency appropriate in terms of temporal optimization and spatial coverage of the monitoring network appropriate, in terms of spatial optimization. Many important issues will be presented and to be discussed, such as:

- How to design good groundwater sampling strategies to detect the hot spots of pollution,
- How to characterize the pollution area and volume,
- How to perform the potential risk assessment,

- How to evaluate the temporal and spatial trends, and
- How to confirm the possible remediation technology for the site.

This workshop will also provide us many case studies to help us more understanding the following information, such as:

- Subsurface heterogeneity of hydrogeology,
- Contaminant fate and transport in the groundwater,
- Appropriate sampling scale of groundwater,
- Applicable tools for hydro-stratigraphy,
- Good monitoring system of groundwater, and
- Data use, management and analysis.

We have many groundwater contaminate sites in the commercial and industrial parks during the industrialization in last few decades in Asian and Pacific region. We have learned and developed some experiences on the sampling and monitoring methods of the contaminated groundwater sites. In the future, we need more accuracy, efficiency and cost-saving technologies to understand the status of contaminated groundwater, to identify the pollution sources and to make the health risk assessment of the contamination sites in this region. We thank two invited experts from USEPA can share their experience in next two days.

Ladies and Gentlemen, some countries have their survey and monitoring system and experience of the groundwater contamination sites in Asia and Pacific region. This workshop will provide us the more scientific and statistical approach methods to understand the dynamic status and make an evaluation of the groundwater contaminated sites.

Finally, I would like to express my sincerely thanks to two experts from USEPA and organizing committee members of this workshop for their efforts on this workshop. I hope all the local and foreign participants can enjoy this workshop and beautiful landscape, culture and foods of Taichung city in next two days.

Thank you.

International Workshop Report – Invited First Speaker

2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

December 8-9, 2015

International Conference Hall, National Library of Public Information, Taichung City, Taiwan

Mr. Edward Gilbert



Edward Gilbert is a Certified Professional Geologist with twenty years of professional experience in the characterization and remediation of contaminated soil and groundwater at hazardous waste sites. He has over fifteen years experience at the U.S. Environmental Protection Agency (U.S. EPA) managing, overseeing, directing, and participating in all aspects of environmental investigations involving the collection and analysis of soil, groundwater, sediment, surface

water, and geologic samples at Superfund sites. His work has also included groundwater monitoring well network design and installation; groundwater flow and contaminant transport modeling; remedial treatability/feasibility studies; treatment technologies' bench scale studies, field scale pilot studies, and full scale remedy implementation.

Mr. Gilbert has served as a national expert/advisor in environmental earth science and on technical issues concerning the assessment, treatment, and remediation of hazardous substance releases, oil spills, and hazardous waste sites throughout the United States. In his present position, he is involved in the evaluation and deployment of innovative remediation technologies for the cleanup of hazardous waste sites. He also provides training and direct hydrogeological technical support to U.S. EPA and state Remedial Project Managers.

Mr. Gilbert holds a Bachelor of Science in Earth Science from Southern Connecticut State University and a Master of Science in Geological Sciences from the University of Connecticut. He maintains certification as a Professional Geologist through the American Institute of Professional Geologists.

International Workshop Report – Invited Second Speaker

2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

December 8-9, 2015

International Conference Hall, National Library of Public Information, Taichung City, Taiwan

Mr. Gregory Gervais



Gregory Gervais a licensed Professional Engineer with over 20 years of experience in the characterization, remediation and management of hazardous waste sites. He has been chief of the Technology Assessment Branch for the Superfund program within the U.S. Environmental Protection Agency (U.S. EPA) for five years. His branch is responsible for developing and disseminating usable cost and performance data for remedial

technologies, as well as advocating the prudent use of innovative technologies and techniques at hazardous waste sites. Current technology assessment projects within the branch include a review of commercialized technologies such as activated carbon amendments for in situ treatment of contaminated groundwater and treatment of high Heat of Combustion non-aqueous phase liquids through an in situ smoldering process. Technology development work by the branch includes collaboration with the U.S. EPA Office of Research and Development and the U.S. Navy for in situ treatment of polychlorinated biphenyls in sediments and pore water using a novel engineered nanoparticle.

Prior to his current role, Mr. Gervais served as deputy manager and senior environmental engineer for the U.S. Department of Commerce, National Oceanic and Atmospheric Administration's (NOAA's) Pribilof Islands Environmental Restoration Program in Seattle. He and his NOAA colleagues completed the characterization, remediation, and closure of nearly 100 soils, groundwater and sediments sites on two remote islands in Alaska's Bering Sea, including the design. Their efforts merited the U.S. Department of Commerce Gold and Bronze Medal Awards.

Mr. Gervais holds a Bachelor of Science in Chemical Engineering from the University of Washington, and is a licensed Professional Engineer by the State of Washington, registered as qualified in Environmental Engineering.

International Workshop Report – Question and Discussion

2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

December 8-9, 2015

International Conference Hall, National Library of Public Information, Taichung City, Taiwan



Dr. Chih Huang
InnoFusion Environmental Management Co. Ltd.



Mr. Edward Gilbert
Speaker



Prof. Zueng-Sang Chen
National Taiwan University



International Workshop Report – Question and Discussion *(continued)*

2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

December 8-9, 2015

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Mr. Gregory Gervais
Speaker



Dr. Tsai-Wen Chiang
Sinotech Environmental Technology, Ltd.



Prof. Dr. Shao-Hua Hsu
Feng Chia University



Dr. Hao-Chun Hung
Taiwan EPA

International Workshop Report – Question and Discussion *(continued)*

2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

December 8-9, 2015

International Conference Hall, National Library of Public Information, Taichung City, Taiwan



International Workshop Report –Interesting Sidelights

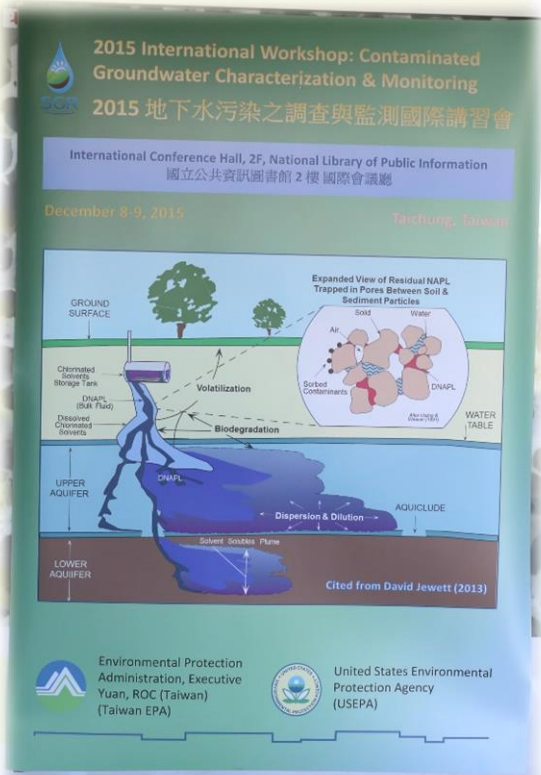
2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

December 8-9, 2015

International Conference Hall, National Library of Public Information, Taichung City, Taiwan



Location of the workshop



The poster of the workshop



Workshop Room



Group Photo of the speakers and foreign guests

International Workshop Report –Interesting Sidelights *(continued)*

2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

December 8-9, 2015

International Conference Hall, National Library of Public Information, Taichung City, Taiwan



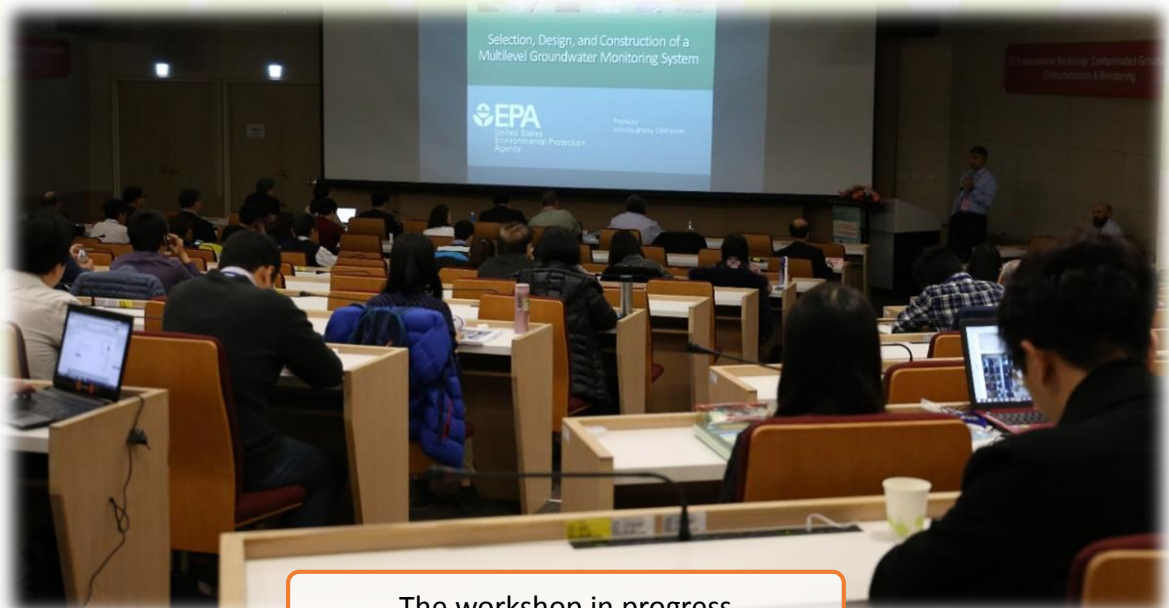
Registration time



Early break



During the workshop



The workshop in progress

International Workshop Report –Interesting Sidelights *(continued)*

2015 International Workshop: Contaminated Groundwater Characterization & Monitoring

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International Conference Hall, National Library of Public Information, Taichung City, Taiwan



Coffee break



Discussion during lunch time



Discussion during break time



Discussion during lunch time

Study Tour to Soil and Groundwater Contaminated Sites in Taiwan

Chenergy Global Corporation at Taichung & Cultural Visit at Beipu, Taiwan

Program on December 10, 2015

December 10, 2015 (Thursday)

08:20-08:30	Get on the bus at Hotel National
08:30-10:00	Travelling time by bus
10:00-11:30	Visit the Chenergy Global Corporation
11:30-13:00	Lunch
13:00-13:10	Get on the bus
13:10-14:30	Travelling time by bus
14:30-15:30	Visit Beipu
15:30-15:40	Get on the bus
15:40-17:00	Travelling time by bus
17:00-18:00	Arrival to Taipei and check in
18:00-20:00	Farewell dinner party

Study Tour to Soil and Groundwater Contaminated Sites in Taiwan

(continued)

December 10, 2015

Chenergy Global Corporation, Taichung, Taiwan



President
Chenergy Global Corporation



Early break



Site introduction



Site introduction

Study Tour to Soil and Groundwater Contaminated Sites in Taiwan

(continued)

December 10, 2015

Chenergy Global Corporation, Taichung, Taiwan



Exchange bussiness card



Discussion time



Discussion time



Discussion time

Study Tour to Soil and Groundwater Contaminated Sites in Taiwan

(continued)

December 10, 2015

Chenergy Global Corporation, Taichung, Taiwan



Site introduction by bus



Site introduction by bus



Discussion after the tour



Group Photo at the Chenergy Global Corporation

Study Tour to Soil and Groundwater Contaminated Sites in Taiwan

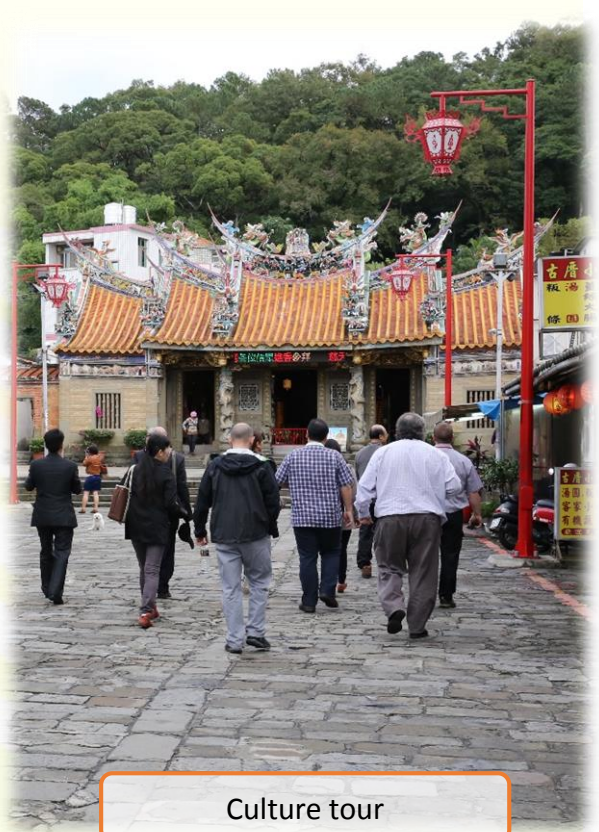
(continued)

December 10, 2015

Beipu, Hsinchu, Taiwan



Tzu-Tien temple



Culture tour



Taste the traditional local dessert



Group Photo at Beipu