

# ReSAGPAPR WG Newsletter

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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 Taiwan EPA



**Mr. Hung-Teh Tsai (蔡鴻德)**

**Steering Committee Member of WG ReSAGPAPR**

**Executive Secretary**

**Soil and Groundwater Remediation Fund Management Board**

**Environmental Protection Administration, Taiwan**

Mr. Hung-Teh Tsai received his M.S. from National Taiwan University. He is Technical Superintendent and Executive Secretary in Soil and Groundwater Remediation Fund Management Board (SGRFMB), Environmental Protection Administration, R.O.C.(Taiwan). He has more experience on Administration, Site Supervision and Management.

Distinguished invited Steering Committee members and delegates of working group, distinguished experts and guests from Asian and Pacific Region, Ladies and Gentlemen:

It is my great honor to welcome all of you at the program of the 5th business meeting of the Working Group on Remediation for Soil and Groundwater Pollution of Asian and Pacific Region (WG ReSAGPAPR). On behalf of Taiwan EPA, I would like to express my sincerely welcome all of you, including 12 country members of Steering Committee of government officers, some delegates from countries members of the working group and also include two experts from EPA of United States of America. Your attendance is highly appreciated.

Taiwan EPA welcome all 12 country members of the working groups to join this steering committee meeting to discuss many programs in next two years (2015-2016) of working group. In the last 3 years from 2011 to 2013, the working

group had organized many activities for the country members of the working group. In order to promote more benefits of the country members, the working group will organize 2014 international conference and environmental exhibition and also a summit meeting of all the Director General of country members in November 2014, also will organize different workshops or training courses in next two years.

Taiwan EPA and Korea Ministry of Environment (MOE) had signed the Memorandum of Understanding (MOU) on August 28, 2012, at Taipei. Both countries also have created a research funding (USD 100,000 per year for each country) to start the international research cooperation programs started from June, 2014. Taiwan EPA also hopes to create a new project to sign the MOU with Ministry of Environments of Thailand, Vietnam and Philippines in 2014 or the next half year of 2015.

Finally, I would like to express my grateful

thanks to all of you and also thanks the chairman of the working group, Prof. Zueng-Sang Chen and his service team for their strong supporting on this business meeting and coming workshop activities. I

also hope you have a very good time in Taipei and Taichung cities in next 5 days in Taiwan.

Thank you.





## Message from Chairman of WG ReSAGPAPR

### Opening Address on 5<sup>th</sup> Business Meeting of

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

09:30 - 09:40, August 18, 2014

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



#### Dr. Zueng-Sang Chen (陳尊賢)

#### Distinguished Professor of Department of Agriculture 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.

Distinguished invited steering Committee members and Service and communication committee members of working group, and distinguished experts and guests from Asian countries, USA, Australia, Sri Lanka, Ladies and Gentlemen: It is my great pleasure to say some words at the opening ceremony of the 5th business meeting of the Working Group on Remediation for Soil and Groundwater Pollution of Asian and Pacific Region (WG ReSAGPAPR). On behalf of the 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 and also include some experts from USEPA. Your participations are very welcome, and will contribute a great deal to the success future of our working group to maintain

our good environmental quality and human health in this region.

In the last (4th) business meeting of the working group held on June 24, 2013, at Taipei, Working Group approved some important issues for the activities in 2014. In the last business meeting of the working group, we also **approved 2 major items** to be followed, including (1) the topics of workshop and training course and communication types of the WG in 2013 and 2014 and (2) the visiting program organized by the WG in 2014. **Taiwan EPA and Korea Ministry of Environment had signed the Memorandum of Understanding (MOU)** on August 28, 2012, at Taipei. Both country also created a 50,000 US\$ to start the cooperation visiting programs on May 20-23, 2013, in Seoul, Korea. Taiwan EPA hope to sign the MOU after communication with Ministry of



Environments of Thailand and also with Vietnam in 2014 or 2015.

In this business (5th) meeting, Working Group will discuss some very important issues for the Working Group activities in 2014 and 2015, including the **international conference and exhibition, and also the summit meeting** of the Director General level in November, 2014. In order to promote the benefits of the country members, the working group wants to include more countries to join our working group. One representative governmental officer is also come here now.

Finally, I would like to express my grateful

thanks to Mr. Hung-Teh Tsai, 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 countries. I also hope you have a very good time in Taipei.

Thank you.

Chairman of the Working Group

Zueng-Sang Chen, Ph.D., signed on **August 18, 2014**



Handwritten signature of Zueng-Sang Chen in black ink.

Distinguished Professor of pedology and soil environmental quality  
Department of Agricultural Chemistry  
National Taiwan University, Taipei 10617, TAIWAN  
Email: [soilchen@ntu.edu.tw](mailto:soilchen@ntu.edu.tw)

## Program on August 18, 2014

### 5<sup>th</sup> Business Meeting of

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

Date: August 18, 2014

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

Time	Topics	Chairman / Speaker
09:00 – 09:30	Registration	
09:30 – 09:40	Opening Ceremony	<b>Prof. Zueng-Sang Chen</b> Chairman of WG ReSAGPAPR
09:40 – 09:50	Opening Ceremony: Executive Secretary of Soil and Groundwater Pollution Remediation Fund Management Board, Taiwan EPA (SAGPR/FMB)	<b>Mr. Hung-Teh Tsai</b> Executive Secretary SAGPR/FMB. Taiwan EPA
09:50 – 10:20	<b>Discussion Item 1:</b> <b>2014 international conference on the management strategies and remediation technologies on soil and groundwater pollution sites</b>	<b>Prof. Zueng-Sang Chen</b> Chairman of WG ReSAGPAPR
10:20 – 11:00	<b>Discussion Item 2:</b> <b>Summit Meeting of Director General Level or above to be held at Taipei on Nov 25, 2014</b>	<b>Prof. Zueng-Sang Chen</b> Chairman of WG ReSAGPAPR
11:00 – 11:20	Break	
11:20 – 12:00	<b>Discussion Item 3:</b> <b>Vote the Vice Chairman of the 3rd term (2015-2016) of the Working Group</b>	<b>Prof. Zueng-Sang Chen</b> Chairman of WG ReSAGPAPR
12:00 – 13:30	Lunch	
13:30 – 15:00	<b>Discussion Item 4:</b> <b>Working Group Activities to be held in 2015-2016</b>	<b>Prof. Zueng-Sang Chen</b> Chairman of WG ReSAGPAPR
15:00 – 15:10	Closing Ceremony	<b>Prof. Zueng-Sang Chen</b> Chairman of WG ReSAGPAPR

## Program on August 19, 2014

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils (1<sup>st</sup> Day)

Date: August 19, 2014

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

Time	Topics	Speaker
09:00 – 09:30	Registration	
09:30 – 09:45	Opening Remarks	Taiwan EPA
09:45 – 10:45	Introduction: Elements of a Successful Soil Sampling and Analysis Project	Stephen Dymant
10:45 – 11:00	BREAK	
11:00 – 12:00	The Nature of Soil Can Cause Data to be Misleading	Deana Crumbling
12:00 – 13:00	LUNCH	
13:00 – 13:45	What is Incremental Sampling?	Stephen Dymant
13:45 – 14:45	Incremental Sampling: Collecting a Representative Field Sample	Deana Crumbling
14:45 – 15:00	BREAK	
15:00 – 16:00	Incremental Sampling: Taking a Representative Subsample from the Field Sample	Stephen Dymant
16:00 – 17:00	Calculations Used with Incremental Sampling	Deana Crumbling
17:00 – 17:30	Resources and Tools for Incremental Sampling	Stephen Dymant
17:30 –	Day One Concludes	Taiwan EPA



## Program on August 20, 2014

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils (2<sup>nd</sup> Day)

Date: August 20, 2014

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

Time	Topics	Speaker
09:00 – 09:15	Quick Review of Yesterday's Material	Deana Crumbling
09:15 – 10:00	Introduction to X-Ray Fluorescence (XRF) Technology and XRF Quality Control	Stephen Dymont
10:00 – 10:30	Comparing Laboratory Metals Results to XRF Metals Results: Example Data Sets When Sampling Error Is and Is Not Controlled	Deana Crumbling
10:30 – 10:45	BREAK	
10:45 – 11:05	Composite Sampling to Detect Spatial Concentration Trends	Stephen Dymont
11:05 – 12:00	Combining Incremental Sampling with Field XRF Analysis to Determine the Concentration of a Decision Unit	Deana Crumbling
12:00 – 13:00	LUNCH	
13:00 – 13:30	Using XRF to Refine an Incremental Sampling Design	Stephen Dymont
13:30 – 14:00	Talk Through a Hypothetical Project: Planning & Design	Deana Crumbling
14:00 – 14:30	Talk Through a Hypothetical Project: Field Implementation	Stephen Dymont
14:30 – 15:00	Talk Through a Hypothetical Project: Decision Documentation	Deana Crumbling
15:00 – 15:15	BREAK	
15:15 – 15:30	Resources and Tools for XRF	Stephen Dymont
15:30 – 16:30	Introduction to High Resolution Site Characterization (HRSC)	Stephen Dymont
16:30 – 17:00	Questions and Discussion	Taiwan EPA
17:00 –	Workshop Ends	

## Minutes of 5<sup>th</sup> Business Meeting of WG ReSAGPAPR

### 5<sup>th</sup> Business Meeting of

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

09:30 - 15:10, August 18, 2014

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

Website for downloading the handbook of this meeting:

URL : <http://sqw.epa.gov.tw/resaq/Public/ShowMessage.aspx?id=82>

#### Present:

Dr. Zueng-Sang Chen (Chairman, Taiwan), Mr. Mark Hassam (Australia),  
Ms. Rebecca Hughes (Australia, on behalf of Mr. Andrew Pruszinski), Dr. Rashid Hasan (India)  
Mr. Sena Pradipta (Indonesia, on behalf of Mr. Achmad Gunawan), Dr. Masanori Kobayashi (Japan),  
Dr. Do-Hyung Kim (Korea, on behalf of Mr. Jungchul Park ), Ms. Minah KIM (Korea),  
Mr. Bruce Croucher (New Zealand),  
Ms. Maria Amber V. Hagada (Philippines, on behalf of Dr. Atty. Ernesto D. Adobo, Jr. )  
Mr. Hung-Teh Tsai (Taiwan), Dr. Hao-Chun Hung (Taiwan),  
Dr. Chayawee Wangcharoenrung (Thailand), Dr. Wimalin Klaewtanong (Thailand),  
Mrs. Nguyen Thi Thu Hong (Vietnam), Mrs. Nguyen Hoang Anh (Vietnam)

#### In Attendance:

Dr. Chih Huang (Taiwan), Mr. Zih-Sin Wang (Taiwan)

#### Absent:

Mr. Tuan Rusli Mohamed (Malaysia),  
Mr. K.A.D.I. Silva (Sri Lanka)



## Minutes of 5<sup>th</sup> Business Meeting of WG ReSAGPAPR continued

### Opening Ceremony at 09:30 - 09:50

1. The Chairman, Dr. Zueng-Sang Chen, introduced all the participants, including the Steering Committee members of WG, the Scientific Committee members of WG and the Service and Communication Committee members of WG.
2. The Chairman welcomed Mr. Hung-Teh Tsai, who is the technical super-intendant and executive secretary of Soil and Groundwater Remediation Fund Management Board of Taiwan EPA, and Dr. Hao-Chun Hung, who is the senior environmental technology specialist of Soil and Groundwater Remediation Fund Management Board of Taiwan EPA.
3. The Chairman delivered an opening address and welcomed all invited participants.



Mr. Hung-Teh Tsai (Taiwan)



Dr. Hao-Chun Hung (Taiwan)



**Minutes of 5<sup>th</sup> Business Meeting of WG ReSAGPAPR continued**



Dr. Rashid Hasan (India)



Ms. Minah Kim (Korea)



Dr. Do-Hyung Kim (Korea)



Dr. Chayawee Wangcharoenrung (Thailand)



Dr. Wimalin Klaewtanong (Thailand)



Ms. Maria Amber V. Hagada (Philippines)



Dr. Masanori Kobayashi (Japan)

Minutes of 5<sup>th</sup> Business Meeting of WG ReSAGPAPR continued



Mr. Sena Pradipta  
(Indonesia)



Mrs. Nguyen Hoang Anh  
(Vietnam)



Mrs. Nguyen Thi Thu Hong  
(Vietnam)



Mr. Mark Hassam  
(Australia)



Ms. Rebecca Hughes  
(Australia)



Mr. Bruce Croucher  
(New Zealand)



Mr. Zih-Sin Wang (Taiwan)



Dr. Chih Huang (Taiwan)

## Minutes of 5<sup>th</sup> Business Meeting of WG ReSAGPAPR continued

4. Mr. Hung-Teh Tsai extended welcome to all participants.

**Mr. Hung-Teh Tsai (蔡鴻德)**

Steering Committee Member of WG ReSAGPAPR

Executive Secretary

Soil and Groundwater Remediation Fund Management Board

Environmental Protection Administration, Taiwan



### Business Meeting at 09:50 - 12:00

#### Discussion Item 1: 2014 international conference on the management strategies and remediation technologies on soil and groundwater pollution sites

1. The chairman briefly introduced the activities to be held at Taipei on November 25 – December 1, including international conference, environmental exhibition and study tour of contamination site.
2. Dr. Hao-Chun Hung made more detailed introduction of international conference and environmental exhibition.
3. Taiwan EPA welcome all the country members to submit the abstracts including oral or poster and need more participants to attend the international conference.
4. Taiwan EPA welcome and will provide some booths for the environmental consultants from member countries to participate in the environmental exhibition.
5. Taiwan EPA will make advertising poster of the events and establish a website in order to forward the information about the events to related agencies or university in the country members of WG ReSAGPAPR.



#### Discussion Item 2: Summit Meeting of Director General Level or above to be held at Taipei on Nov 25, 2014

1. Working Group will organize some invited speakers to share their experience before the meeting.
2. Main themes of the summit meeting (1) – Experience sharing on establishing policies for soil and groundwater remediation and the impacts on the environment, economy and community.



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## Minutes of 5<sup>th</sup> Business Meeting of WG ReSAGPAPR continued

3. Main themes of the summit meeting (2) – Discussion on strengthen the cooperation among the member countries of the Working Group.
4. Main themes of the summit meeting (3) - Experience sharing on sustainable management strategies and good practice on the soil and groundwater contaminated sites.
5. Main themes of the summit meeting (4) – Experience sharing on creating or revising of acts or regulations on soil and groundwater remediation.
6. Main themes of the summit meeting (5) – Experience sharing on creating a special funding or seeking budgets for soil and groundwater remediation.

### Discussion Item 3: Vote the Vice Chairman of the 3rd term (2015-2016) of the Working Group

1. Korea was elected vice-chairman country of the third terms (2015 to 2016) of the Working Group of ReSAGPAPR.

### Business Meeting at 13:30 - 15:00

### Discussion Item 4: Working Group Activities to be held in 2015-2016

1. Topics of the activities to be held in 2015-2016 (1) – Management strategies of soil and groundwater contaminated sites.
2. Topics of the activities to be held in 2015-2016 (2) – Remediation technologies of soil and groundwater contaminated sites.
3. Topics of the activities to be held in 2015-2016 (3) – Environmental forensics.
4. Topics of the activities to be held in 2015-2016 (4) – Remediation of dioxin, PCB and DNAPL pollutants in soil and groundwater.
5. Topics of the activities to be held in 2015-2016 (5) – Health risk assessment and ecological risk assessment in the soil and groundwater contaminated sites.
6. Topics of the activities to be held in 2015-2016 (6) – Development of guideline or standards of different pollutants in the soil and groundwater contaminated sites.

Interesting Sidelights at 5<sup>th</sup> Business Meeting of WG ReSAGPAPR





# Interesting Sidelights at 5<sup>th</sup> Business Meeting of WG ReSAGPAPR continued





# Interesting Sidelights at 5<sup>th</sup> Business Meeting of WG ReSAGPAPR continued



## Interesting Sidelights

Lunch at Chinese Restaurant (北平稻香村) on August 18, 2014





## Interesting Sidelights

Welcome Dinner Party at Evergreen Laurel Hotel, Taichung (台中長榮桂冠酒店) on August 18, 2014



## Interesting Sidelights

Farewell Dinner Party at Howard Civil International House (福華文教會館) on August 22, 2014





## Interesting Sidelights

Farewell Dinner Party at Howard Civil International House (福華文教會館) on August 22, 2014



## Seminar Report – Opening Remarks

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

09:30 - 09:45, August 19, 2014

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

Distinguished USEPA speakers, Mr. Stephen Dymant and Ms. Deana Crumbling, Government officers and experts of the Steering and Scientific Committee Members of the Working Group on Remediation of Soil and Groundwater Pollution of Asian and Pacific Region (WG ReSAGPAPR), Ladies and Gentlemen:



It's my great pleasure at the opening ceremony of the "International Workshop on Incremental Sampling and Field X-Ray Fluorescence (XRF) for Metal Contamination in Soils" for the Asian and Pacific region. On behalf of the Taiwan EPA and Working Group of ReSAGPAPR, **I want to sincerely welcome all of you to come here, especially including two invited speakers from USEPA, Mr. Stephen Dymant and Ms. Deana Crumbling, government officers, steering committee members, and also scientific committee members of 12 countries of Working Group in Asian and Pacific region.** Your participations are very welcome and will make a great improvement on the technical sampling on the survey and evaluation of the soil and groundwater pollution sites and risk assessment of sites.

This workshop was organized by Taiwan EPA and USEPA. **The incremental sampling can be applied as a new sampling technology** to compare the composite or other sampling technologies of the soil contaminated sites. **Field portable X-Ray Fluorescence (XRF) instrument has been developed** as a fast screening technology applied in the field to save the sampling quality and time, and also save the laboratory analysis costs of the contaminated soils, especially for the heavy metals-contaminated sites.

This workshop will also **provide us how to combine this incremental sampling technology and XRF portable instruments in field to solve the problems** on the survey of soil contaminated by heavy metals of the sites. **The benefits of these technologies include** (1) the differences and goals between the incremental sampling method and composite sampling method, better design the sampling project, (2) more different design sampling types to be compared, (3) better survey quality control, (4) better survey results and save sampling cost, (5) more understanding the spatial variations of pollutants, (6) more understand the hot spots boundary, and (7) also different statistical types to compare the different sampling methods.

In Asian and Pacific region, we have many heavy metals contaminate sites in the rural soils and commercial and industrial parks during the industrialization in last few decades in Asian and Pacific region. We also have developed and learned some experiences on the soil sampling methods of the heavy metals-contaminated sites. **In the future, we need more accuracy, efficiency and cost-saving technologies** to understand the contamination status and make the health risk assessment of the contamination sites of Asian and Pacific region. We thank Two invited two experts from USEPA, Mr. Stephen Dymont and Ms. Deana Crumbling, can share their experience in next two days.

Ladies and Gentlemen, some countries have their soil survey technologies and experience of the soil contamination site in Asia and Pacific region. This workshop will **provide us the more science- and statistics-based approach methods to understand the status and the evaluation** of the soil contaminated sites. The workshop will also explain the advantages and limitations of the techniques and will highlight the incremental sampling technologies and XRF field determination for different application case studies. The **proposed contents of this workshop** includes an introduction to the technologies, some case studies, hands-on group exercises, and an open discussion regarding the application of sampling technologies and XRF field determination for some special sites.

Soil sampling technology combining XRF field determination is one of the technologies for Taiwan EPA to promote it as a fast, efficiency and cost-saving technology for sustainable environment, because we do not have enough budgets, time or techniques for different status of the soil pollutants in our contaminated sites. We know that the



**risk-based approach survey and remediation techniques should be a very important direction** to be followed to develop different soil survey and remediation techniques for soil and groundwater contaminated sites, especially in the Asian and Pacific countries.

Finally, I would like to **express my sincerely thanks to two experts from USEPA**, Mr. Stephen Dymont and Ms. Deana Crumbling, 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.



## Seminar Report – Invited Speakers

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

August 19-20, 2014

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

Website for downloading the slide:

URL : <https://www.dropbox.com/sh/e4zecxooji9qmce/AADSIK3q8zrxHdwR4RUKRT9sa?dl=0>

### Ms. Deana Crumbling



Ms. Deana Crumbling is an Environmental Scientist in the U.S. Environmental Protection Agency's Superfund program. Since 1997 she has focused on the topics of dynamic work plans, field analysis and other analytical chemistry technologies, sampling designs and data uncertainty management. She has delivered hundreds of national and international conference presentations, classroom training courses and webinars.

Ms. Deana Crumbling's work at U.S. EPA involves using emerging technologies to speed up characterization of contaminated land while simultaneously documenting the scientific and statistical defensibility of cleanup decisions and lowering overall cleanup costs. She also participates in a range of cross-government collaborations to evaluate research products, disseminate information about the difficulties of obtaining reliable information from soil samples, and urge practitioners to adopt more efficient and effective procedures.

Before coming to EPA, Ms. Deana Crumbling worked for 2 years as a risk assessor for an environmental consulting firm, for 2 years as a lab and safety manager and adjunct faculty for a college, for 1 year as a science consultant for an environmental attorney, and 1 year in the Pennsylvania State Hazardous Site Cleanup Program.

Ms. Deana Crumbling worked for 20 years as a hospital-based clinical laboratory analyst and trainer. Deana was a team member in the ITRC Site Characterization and Monitoring Team from 2002 to 2004. She earned a bachelor's in biochemistry and a bachelor's in psychology from Lebanon Valley College in Lebanon, Pennsylvania, in 1989, and a master's in environmental science from Drexel University in Philadelphia, Pennsylvania, in 1997.

## Seminar Report – Invited Speakers continued

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

August 19-20, 2014

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

Website for downloading the slide:

URL : <https://www.dropbox.com/sh/e4zecxooji9qmce/AADSIK3q8zrxHdwR4RUKRT9sa?dl=0>

### Mr. Stephen Dymant



Mr. Stephen Dymant is a chemist with more than 18 years experience including 4 years in a commercial analytical laboratory and 8 years in environmental consulting. His accomplished and dynamic career experience in planning, developing, and implementing state of the art solutions for industry and environmental sites with complex remediation and compliance issues. He joined EPA in 2005 with a focus towards enhancing acceptance and use of emerging analytical technologies and sampling strategies.

His perspective draws upon years of practical laboratory and field experience to apply EPA's Triad approach at sites in Superfund, Brownfields, Resource Conservation and Recovery Act (RCRA), dioxin interim Preliminary Remediation Goal (iPRG), underground storage tanks, and state programs. He manage significant contracts with technical support contractors and interagency agreements with the U.S. Army Corps of Engineers, and Argonne National Laboratory.

Mr. Stephen Dymant's efforts have resulted in the development of numerous EPA case studies, profiles, and training courses that outline successful strategies for the use and understanding of collaborative data sets, adaptive quality control programs, and real time analytics. He holds a B.S. in Environmental Science/Toxicology from the University of Massachusetts at Amherst.

Mr. Stephen Dymant's innovative professional with proven ability to develop and implement field and laboratory analytical chemistry techniques, manage decision uncertainty, design sampling networks, provide statistical data analysis, and utilize project management strategies to facilitate significant cost savings and expedite site closure or redevelopment.



## Seminar Report – Question and Discussion

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

August 19-20, 2014

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



Dr. Masanori Kobayashi  
Yokohama National University  
Japan



Speaker: Mr. Stephen Dymant  
USA EPA



Taiwan

## Seminar Report – Question and Discussion continued

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

August 19-20, 2014

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



Mr. Bruce Croucher  
Ministry for the Environment  
New Zealand



Speaker: Ms. Deana Crumbling  
USA EPA



Dr. Chih Huang (黃智)  
ERM - Taiwan



## Seminar Report – Question and Discussion continued

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

August 19-20, 2014

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



Dr. Hao-Chun Hung (洪豪駿)  
Taiwan EPA



Mr. Sena Pradipta  
Ministry of Environment  
Indonesia



Speaker: Mr. Stephen Dymant  
USA EPA



## Seminar Report – Question and Discussion continued

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

August 19-20, 2014

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



Mr. Mark Hassam  
Environment Protection Authority  
(South Australia)  
Australia



Speaker: Ms. Deana Crumbling  
USA EPA



Prof. Zueng-Sang Chen (陳尊賢)  
National Taiwan University  
Taiwan

## Seminar Report –Interesting Sidelights

**Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils**

August 19-20, 2014

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





## Seminar Report –Interesting Sidelights continued

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

August 19-20, 2014

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





## Seminar Report –Interesting Sidelights continued

### Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

August 19-20, 2014

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



## Study Tour to Soil and Groundwater Contaminated Sites in Northern Taiwan

–Taiwan VCM Corporation Toufen Plant, Miaoli, Taiwan  
Former Cathy Plastic Co. Zhunan Plant, Miaoli, Taiwan

Program on August 21, 2014

Time	Schedule
09:20-09:30	Get on the bus at <i>National Hotel</i>
09:30-10:10	Going to <i>Sanyi Wood Sculpture Museum</i>
10:10-11:40	<b>Visit Sanyi Wood Sculpture Museum</b>
11:40-12:00	Going to <i>Duo-Lun-Duo Restaurant</i>
12:00-13:40	<b>Lunch</b> at Duo-Lun-Duo Restaurant located at Sanyi, Miaoli
13:40-14:40	Going to briefing venue
14:40-15:40	<b>Brief Introduction to Soil and Groundwater Contaminated Sites located at Miaoli</b>
15:40-16:00	Going to <i>Taiwan VCM Corporation Toufen Plant</i>
16:00-16:40	<b>Field study</b> at Taiwan VCM Corporation Toufen Plant
16:40-16:50	Going to <i>Former Cathy Plastic Co. Zhunan Plant</i>
16:50-17:30	<b>Field study</b> at Former Cathy Plastic Co. Zhunan Plant
17:30-18:00	Going to Restaurant located at Gongguan, Miaoli
18:00-20:00	<b>Dinner</b>
20:00-22:00	Going back to <i>Howard Civil Service International House</i>

## Study Tour to Soil and Groundwater Contaminated Sites in Northern Taiwan continued

–Taiwan Metals Mining Corporation Site, Taipei, Taiwan

Program on August 22, 2014

Time	Schedule
08:00-08:10	Get on the bus at <b>Howard Civil Service International House</b>
08:10-09:00	Going to <b>Taiwan Metals Mining Corporation Site</b>
09:00-11:00	<b>Field study</b> at Taiwan Metals Mining Corporation Site
11:00-11:30	Going to <b>Yu-Di-Ling Seafood Restaurant</b>
11:30-13:00	<b>Lunch</b> at Yu-Di-Ling Seafood Restaurant located at KeeLung city
13:00-14:00	Going to <b>National Palace Museum</b>
14:30-17:00	<b>Visit National Palace Museum</b>
17:00-18:00	Going to Restaurant located at Taipei city
18:30-20:30	<b>Farewell Dinner Party</b>
20:30-21:00	Go back to <b>Howard Civil Service International House</b>



## Study Tour to Soil and Groundwater Contaminated Sites in Northern Taiwan continued

August 21, 2014

Taiwan VCM Corporation Toufen Plant Site

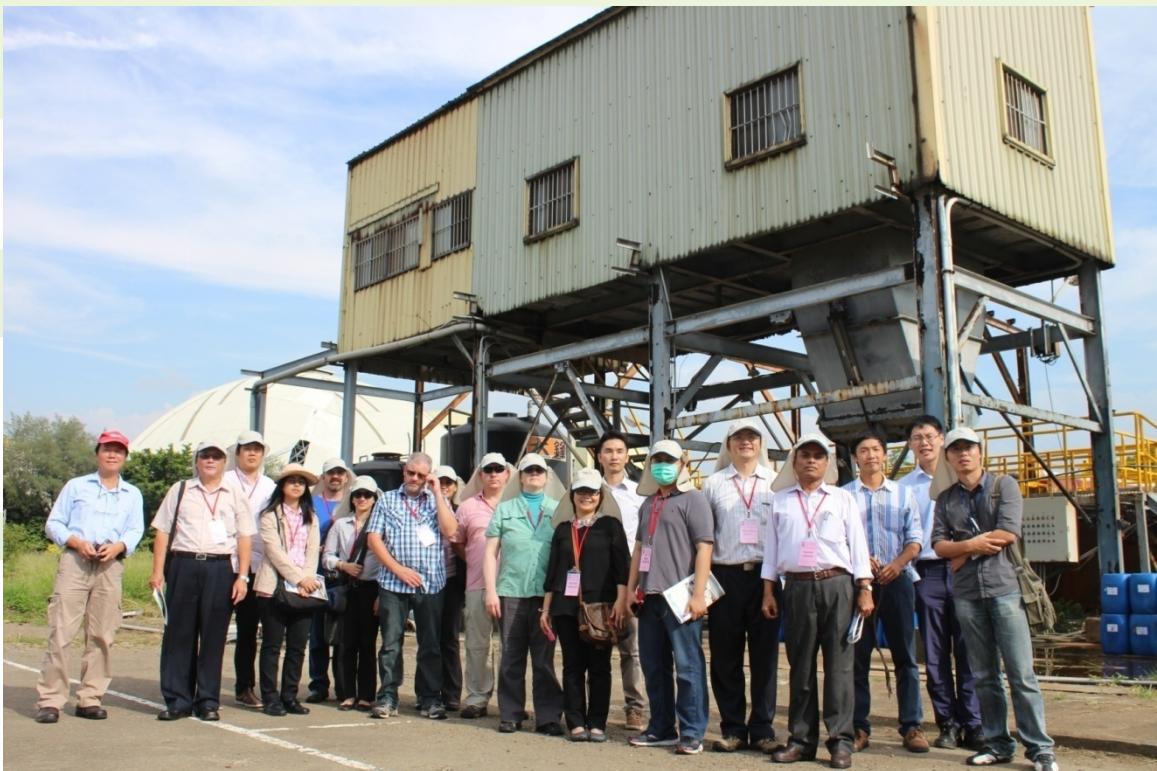




## Study Tour to Soil and Groundwater Contaminated Sites in Northern Taiwan continued

August 21, 2014

Taiwan VCM Corporation Toufen Plant Site





## Study Tour to Soil and Groundwater Contaminated Sites in Northern Taiwan continued

August 21, 2014

Former Cathy Plastic Co. Zhunan Plant





## Study Tour to Soil and Groundwater Contaminated Sites in Northern Taiwan continued

August 21, 2014

Former Cathy Plastic Co. Zhunan Plant





## Study Tour to Soil and Groundwater Contaminated Sites in Northern Taiwan continued

August 22, 2014

Taiwan Metals Mining Corporation Site





## Study Tour to Soil and Groundwater Contaminated Sites in Northern Taiwan continued

August 22, 2014

Taiwan Metals Mining Corporation Site

