

ICCA-LRI and NIHS Workshop · Awaji Island, Japan · 2016 June 15-16

Meeting the Global Challenge of Applying New Scientific Methods to Improve Environmental and Human Health Risk Assessments

Workshop Co-Chairs:

Toshiyuki Katagi, Sumitomo Chemical

Hajime Kojima, National Institute of
Health Sciences, Japan



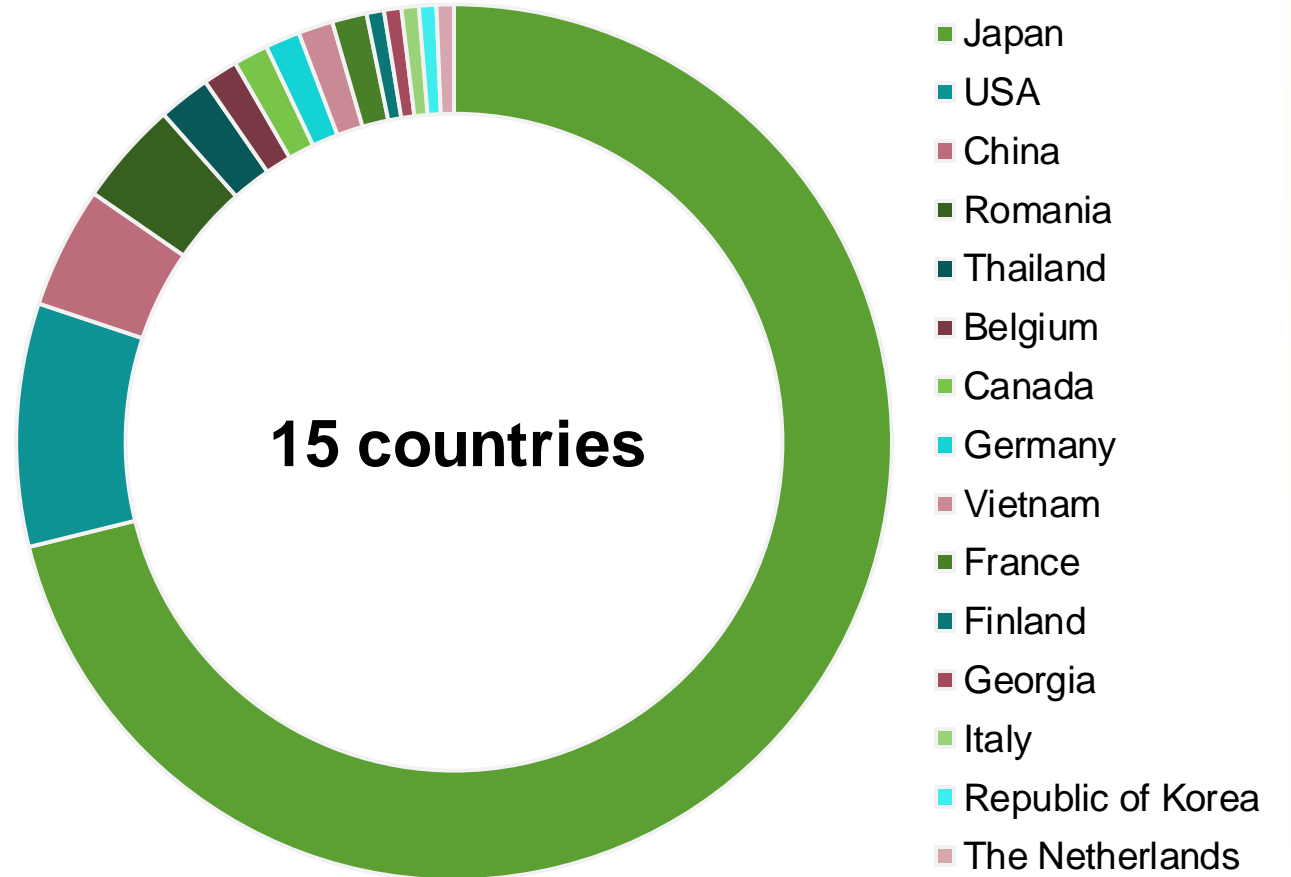
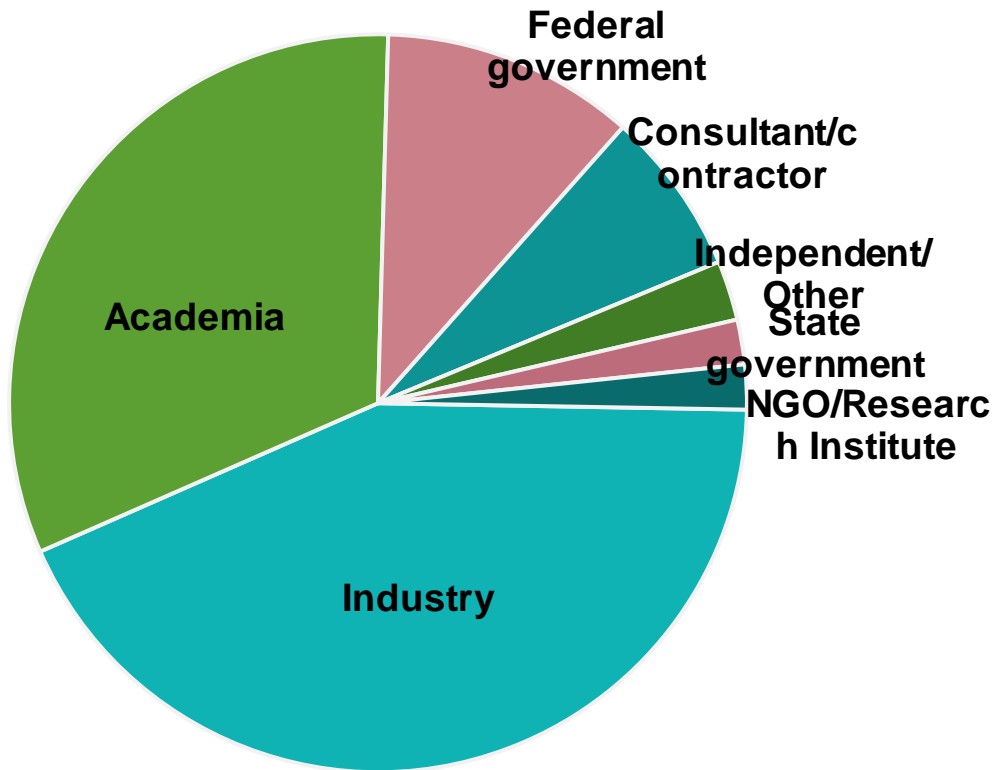
Organizing Committee

Toshiyuki Katagi – Sumitomo Chemical Workshop Co-Chair		Hajime Kojima – National Institute of Health Sciences Workshop Co-Chair	
Robert Barter ExxonMobil Biomedical Sciences, Inc.	Kazumasa Hirata Osaka University	Carlo La Vecchia University of Milan	Kathleen Plotzke Dow Corning
Rick Becker American Chemistry Council (ACC)	Masamitsu Honma National Institute of Health Sciences (NIHS)	Stuart Marshall Unilever	Toru Takebayashi Keio University School of Medicine
Alexa Burr American Chemistry Council (ACC)	Bruno Hubesch European Chemical Industry Council (Cefic)	Tatsuya Mizukoshi Japan Chemical Industry Association (JCIA)	Ayako Takei ICaRuS Japan Limited
Stuart Cagen Shell Health Services	Paul Jean Dow Corning	Janet Mostowy Covestro	Hiroshi Yamamoto National Institute for Environmental Studies (NIES)
Yoshi Deguchi Sumitomo Chemical America	Yoshito Kumagai University of Tsukuba	Tatsuhiro Niino Mitsubishi Chemical Holdings Corporation	

Workshop Participation

Final registration count: **156**

7 sectors



Pre-Workshop Educational Courses

1. 'MeRAM' Multi-purpose **Ecological Risk Assessment** and Management Tool Workshop

Facilitator: Bin-Le Lin (AIST-MeRAM Development Project Leader), Kazuki Kurosawa (AIST-MeRAM Chief Engineer)

Provided an overview and demonstration of the National Institute of Advanced Industrial Science and Technology (AIST) MeRAM Tool, a free software for ecological risk assessment and chemical substances management. **Total Participants: 36**

2. The Endocrine System: Global Perspectives on Testing Methods and Evaluation of **Endocrine Activity**

Facilitator: Ellen Mihaich (Environmental and Regulatory Resources, LLC) and Rick Becker (ACC)

Addressed key issues related to endocrine system evaluation and regulatory requirements around the world, including screens and tests to identify endocrine activity (such as the USEPA Endocrine Disruptor Screening Program) and global regulatory drivers (including REACH). **Total Participants: 30**

3. Application of the Weight of Evidence (WoE) Methodology for **Assessing PBT and POPs**

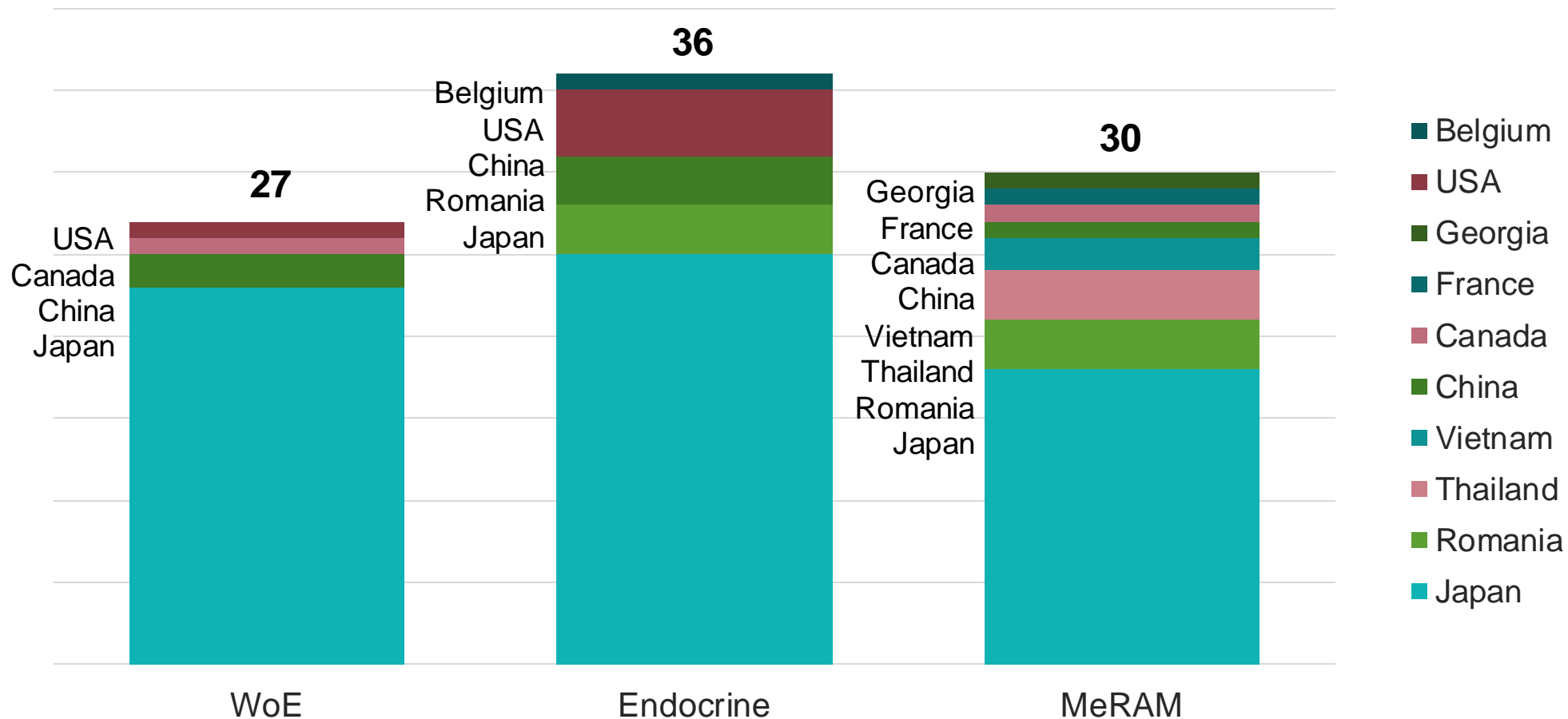
Facilitator: Keith Solomon (Professor Emeritus at the University of Guelph)

Provided a “hands-on” experience on how to use the weight of evidence (WoE) methodology; a transparent framework to evaluate the strength and relevance of studies used in assessments of persistent organic pollutants (POPs) and persistent, bioaccumulative, and toxic (PBT) substances. **Total Participants: 27**



Global Participation in Educational Courses

Total Participants: **93** (~60% of all workshop registrants!)



Concurrent Session Descriptions

1. **New Approaches for Weight-of-Evidence Decision Making for PBT Chemicals and POPs Compared to Criteria-Based Approaches**

Chairs: Hiroshi Yamamoto (National Institute for Environmental Studies), Kathy Plotzke (Dow Corning)

Reviewed the front line of approaches used by academia, government, and industry to evaluate PBT chemicals and POPs, and considered new evaluation methods, including combined exposure and effect and ecotoxicological assessments. **Total Participants: 47**

2. **Emerging Environmental Issues: Case Studies and Solutions Catalyzed by International Cooperation**

Chairs: Kazumasa Hirata (Osaka University), Trinh Van Tuyen (Vietnam Academy of Science and Technology)

Introduced several emerging environmental issues (such as microplastics, e-waste, wastewater), and discussed how cooperation between international parties could solve the issue, as well as the kind of research necessary for future decision-making. **Total Participants: 38**

3. **Challenges in Read-Across and Building Confidence for Use in Decision Making**

Chairs: Ayako Takei (ICaRuS Japan Limited), Rick Becker (American Chemistry Council)

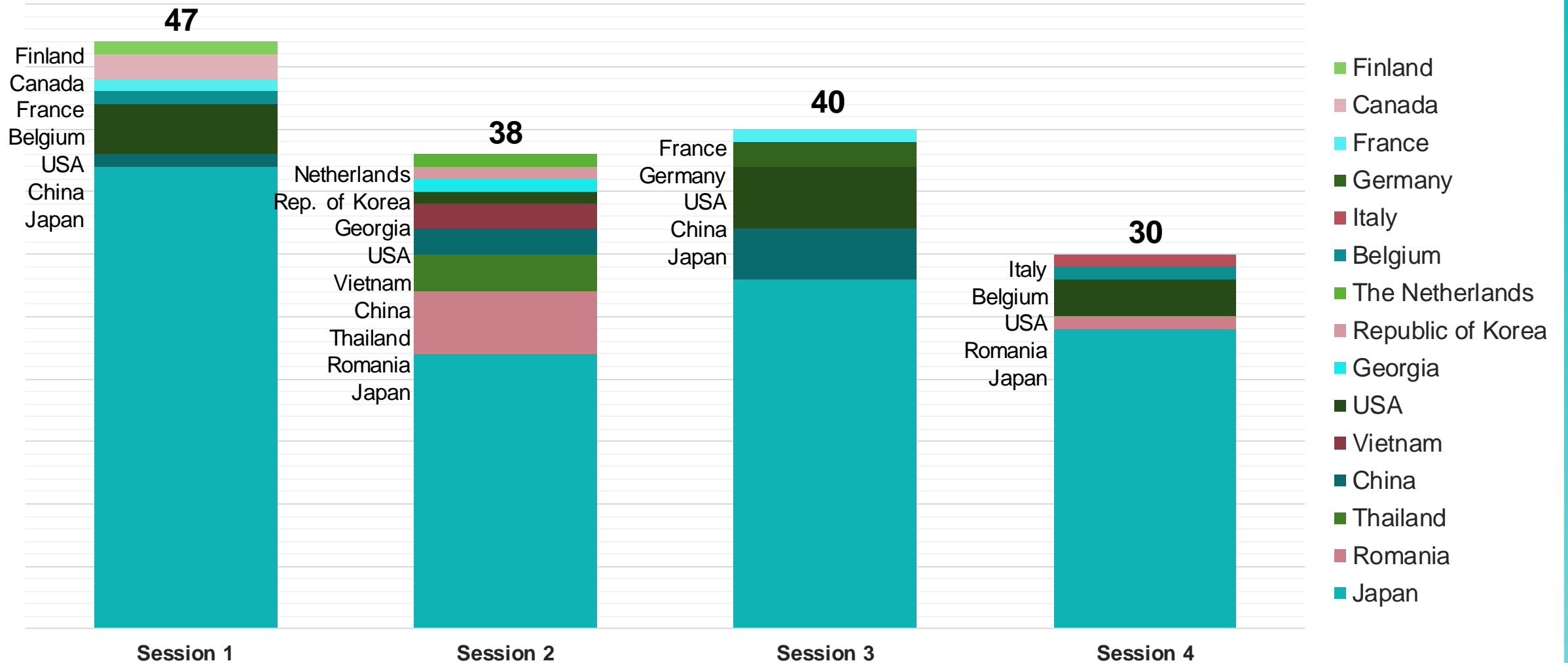
Provided an overview of read-across, explained its value for filling data gaps in categories of chemicals, and reviewed twenty-first century advances made to support read-across, as well as future challenges to overcome for its use in regulatory decisions. **Total Participants: 40**

4. **Enhancing Integration of Mechanistic Understanding in Epidemiology to Better Determine Causality**

Chairs: Yoshito Kumagai (University of Tsukuba), Bruno Hubesch (European Chemical Industry Council)

Addressed how to enhance the integration between epidemiology and toxicology in order to unravel the mystery of causality between chemical exposure and occurrence of disease. **Total Participants: 30**

Global Participation in Concurrent Sessions



Concurrent Session Recommendations

Session 1: New Approaches for WoE Decision Making for PBT Chemicals and POPs Compared to Criteria-Based Approaches

- There is a **need for global policy changes to redefine PBT and POPs concerns** and identify and agree upon protection goals.
- **ICCA-LRI can help** develop new methods for assessing chemicals/other substances that may exhibit PBT/POP properties under real life conditions.

Session 2: Emerging Environmental Issues: Case Studies and Solutions Catalyzed by International Cooperation

- Three types of emerging environmental issues: old (e.g., toxic heavy metal pollution), new (e.g., plastic debris), and complex (e.g., E-waste).
- **ICCA-LRI can help** create collaborations among countries to transfer technologies, produce innovative methods for control and detection of pollutants, and enhance expertise through training and research activities.

Session 3: Challenges in Read-Across and Building Confidence for Use in Decision Making

- Widely recognized that there is uncertainty and variability in read-across; **consensus approaches to quantitatively address these are urgently needed**.
- **ICCA-LRI is uniquely positioned** to catalyze collaborations for improving read-across approaches and for enhancing training in read across methods, including creating a web-based and multi-lingual repository of training materials, with regional focus as needed.

Session 4: Enhancing Integration of Mechanistic Understanding in Epidemiology to Better Determine Causality

- Integrating observationally-based epidemiology with mechanistically-based toxicology (termed “epitox”) has the potential to improve the scientific basis of determining causality between the nature, magnitude, frequency and duration of chemical exposures and potential occurrence of disease.
- **There are many ways ICCA-LRI can address this** in future research, including providing support for combined expertise/collaborative studies and organizing epitox workshops.

Workshop Conclusion: Are We Ready to Meet the Global Challenges?

- **Global interaction and cooperation**, paradigm shift away from traditional toxicity testing, and toward **new technologies** for data collection, analysis, and interpretation.
Bring together scientists, regulators, industry, and public in order to disseminate **new information and knowledge**, and encourage the use and integration of **new methodologies and technologies** for better risk assessments. **Success of ICCA-LRI as an international catalyst**
- Bringing in **training programs to developing countries**, train these scientists in new technologies.
Importance of supporting the education of the next generation of environmental scientists, toxicologists and epidemiologists.
- The approaches the three LRI programs employ to select technologies and research areas. Each **LRI program has regional goals and strategic plans**, increasingly **global responsibilities and opportunities** of ICCA-LRI should be considered. Tools and technologies to complete at a regional level and still have global applications, if they are adequately supported and promoted through collaborations, education and outreach.
- **Balancing global research needs with budget limits and regional priorities**, as well as with country-specific concerns and regional policy terrains.

