Abstracts and Introduction of Speakers

---

1. Metrology – its Role in Quality of Life and Human Safety

Dr. Barry Inglis, President of the CIPM.

Abstract:

Quality of life is impacted by many factors including, health, air and water quality, energy production/availability, social environment, transport, food quality and more. Safety is impacted by built environment, occupational practices, societal regulation and many aspects of daily life. There are global and national infrastructure that seek to address many of these issues. This talk discusses the vital role that metrology plays in these infrastructures for the improvement of quality and safety of life.

Invited Speaker:

Dr Barry Inglis is the current President of the International Committee of Weights and Measures (CIPM). Prior to this appointment, Dr Inglis was the inaugural Chief Executive and Chief Metrologist of the National Measurement Institute, Australia until he retired in November 2007. In 2000, Dr Inglis was elected a Member of the CIPM, the governing body of the organisation of the Metre Convention, and in 2002 he was elected Vice-President of CIPM. In 2003 he was elected President of the CIPM Consultative Committee for Electricity and Magnetism (CCEM) and he was elected President of CIPM in October 2010.

Dr Inglis was involved in all aspects of the quality infrastructure in Australia. He was a Commissioner on the governing board of the National Standards Commission, the body responsible for legal metrology, and was also a member of the Council of Standards Australia, the national standards-writing body. From 2003 to 2011 he was Chair of the National Association of Testing Authorities (NATA), the national laboratory accreditation body.

Dr Inglis had a strong commitment to capacity building in developing economies. He was active in metrology issues in the Asia Pacific region over many years and was Regional Coordinator / Chairman of the Asia Pacific Metrology Programme from 1994 to 1999. In this capacity, he provided leadership for metrology in the Asia Pacific region and represented APMP in many forums. He had wide experience in the development of quality infrastructure (standards, quality assurance, accreditation and metrology) and performed many international consultancies in this area, including studies for the governments of Hong Kong, Singapore and South Africa.

2. NIMT's Eighteen Years of Experience and Our Way Forward

Professor Prayoon Shiowattana, Director of National Institute of Metrology (Thailand).

Abstract:

NIMT, the national metrology institute (NMI) of Thailand, was founded to support the country to surf the rough sea of economic crisis eighteen years ago. The institute has built on goodwill and support of experienced and advanced NMIs to become an active NMI

providing quality calibration and measurement relevant services with confidence. Facing new challenges of modern time namely globalisation, economic instability and food-energy-water insecurity, a new five-year national master plan on metrology development was drafted. The plan will give the direction for future development and will be a platform for Thailand's metrology community to cooperate. The plan identified and addressed five strategic issues: measurement capabilities and services needed to support new national growth engine, metrology as the technical pillar of national quality infrastructure (NQI), metrology to improve national productivity, metrology for quality culture and NIMT as capable and respectable NMI.

Invited Speaker:

Dr. Prayoon Shiowattana is the Director of National Institute of Metrology (Thailand) (NIMT). He received B.E for Electrical Engineering from University of Electro – Communication, Japan; M.E for Electrical Engineering from Osaka University, Japan; and Master of Science and Technology from University of New South Wales, Australia. He was the Director of National Institute of Metrology (Thailand) from 2002 to 2005, Executive Vice President of Bankthai Public Company Limited from 2005-2009. For the period from 2005 – 2011, he was at the same time the President of Technology Promotion Association (Thai-Japan), Vice Chairman of University Council, Thai-Nichi Institute of Technology and Vice President, In charge as CIO, and also in charge of Strategic Planning and Budgeting, Evaluation and Policy Studies, National Science and Technology Development Agency. Form 2006 to present, he is the Board Member of the Thai-Nichi Institute of Technology. In 2011, he was awarded the Japanese Honour "The Order of the Rising Sun, Gold Rays with Neck Ribbon".

3. Determination of environmental pollution caused by organic hazardous substances in Vietnam and the quality assurance during the analytical process correspondingly

Prof. Dr. Pham Hung Viet, VNU Key Laboratory of "Analytical Technology for Environmental Quality and Food Safety Control", VNU University of Science.

Abstract:

Study on persistent organic pollutant (POP) pollution in the environment received considerable attention in Vietnam since the 1990s focusing on organochlorinated pesticides like DDTs and PCBs. Historical pollution of DDTs and PCBs at the Ba Lat area, a major estuary of Red River in the period from 1960s to 2010 was reconstructed by investigation of these POPs in offshore sediment cores. The vertical depth profile and pattern of DDTs, PCBs showing the significant decrease after the middle of 1990s reflects the history of those usages in Vietnam, whereas the use of DDT was restricted in 1995 and in 2002, Vietnamese Government ratified the Stockholm Convention on POPs. Research on new POPs such as PBDE, PFOS and related compounds (PFCs) has been conducted in Vietnam in the last five years. The concentration of PBDEs in dust, air, soil and coastal sediment in Vietnam showed average value in comparison to those from other countries in the world. The most likely PBDE polluted places are spontaneous e-waste recycling sites. PFCs in surface water can be considered very low compared to other countries in the region. However, research reveals

several areas are potential sources of PFCs in the waste water of paper recycling, plastic recycling activities and municipal solid waste burial deposits.

Quality assurance during the analytical process in laboratory and inter-laboratory performance comparison has been conducted among the POP monitoring network of Vietnam.

Invited Speaker:

Prof. Dr. Pham Hung Viet is Director of VNU key laboratory of "Analytical Technology for Environmental Quality and Food Safety Control". He received his Diploma-Chemist in 1975 from Martin – Luther University, Halle Wittenberg (Germany) and his MSc and PhD in Chemistry at the Swiss Federal Institute of Technology Zurich (Switzerland) in 1987. As Director of CETASD, he manages relevant environmental pilot-projects supported by SDC (Switzerland), DANIDA (Denmark), NSF (USA) and among them he acted as National Project Coordinator in Vietnamese side of the Core University Program on Environmental Science and Technology for the Earth supported by the JSPS (Japan) from 1998 until 2008.

In the research field, Prof. Viet is deeply experienced in analysis of persistent organic pollutants (POPs) and endocrine disrupting chemicals (EDCs). His interest in research on assessment of contamination of ground and drinking water by heavy metals, especially in arsenic issues has been nurtured for a long time, and he and the other scientists have achieved quite some fruitful achievements. He has conducted research on flow injection analysis using electrochemical sensors and biosensors as detector for determination of environmentally relevant ions as well.

Regarding the teaching field, Prof. Viet has been the main supervisor and/or co-supervisor of 135 graduate students, 62 master students and 19 PhD students, visiting professor at the QUT, Brisbane – Australia (1995), Kumamoto University - Japan (2012), Advanced Institute of Science and Technology - Japan (2014).

4. NIST Programs to Address Next Generation Healthcare and Forensic Science Challenges

Dr. Willie E. May, U.S. Department of Commerce Under Secretary for Standards and Technology. Director of National Institute of Standards and Technology.

Abstract:

The U.S. National Institute of Standards and Technology (NIST) is a non-regulatory agency within the U.S. Department of Commerce with the unique mission within the U.S. Federal Government of "promoting U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance U.S. economic security and improve quality of life". NIST has one of -- if not the world's leading measurement science and technology programs. We are charged with working with industry to develop and deploy standards and technology to underpin U.S. technological innovation and have a ~$900 M intramural R&D program focused on issues such as: Fundamental Metrology; Advanced Communications; Advanced Manufacturing and Advanced Materials; Bioscience and Health; Cyber Physical Systems (the Internet-of-Things) and Smart Cities; Disaster Resilience; Forensic Science; Green House Gas

Measurements; Information Technology, Cybersecurity, and Quantum Information; Renewable Energy.

This presentation will acknowledge NIST's enduring commitment to fundamental research in measurement science and its application, but focus primarily on NIST's programs that address emerging societal issues in the areas of "Bioscience and Health" and "Forensic Science".

Invited Speaker:

On May 4, 2015, Congress confirmed **Dr. Willie E. May** as the 15th Director of the National Institute of Standards and Technology (NIST). He also serves as Under Secretary of Commerce for Standards and Technology. Dr. May had served as Acting NIST Director and Acting Under Secretary of Commerce for Standards and Technology since June 2014. Prior to that assignment, he was Associate Director for Laboratory Programs. Dr. May led NIST's research and measurement service programs in chemistry-related areas for more than 20 years. He is also Vice President of the International Committee on Weights and Measures (CIPM); President of the CIPM's Consultative Committee on Metrology in Chemistry and Biology; and an Executive Board Member for the Joint Committee on Traceability in Laboratory Medicine (JCTLM). He also serves on the External Advisory Boards for the UK's National Physical Laboratory (NPL) and Japan's National Institute of Advanced Industrial Science and Technology (NAIST). He has also received a lot of honors and awards for his devotion to the career.

5. Metrology in Food Safety: the challenges of quality assurance in Vietnam

Dr. Pham Anh Tuan, Lab. of Physico-Chemical Parameters and Reference Materials, VMI.

Abstract:

The rapid expansion of food industry and society service have created important food safety problems in Vietnam. With growing globalization, Vietnam ranks high for exports of various agricultural products and aquatic products, but they are only competitive on price and there are often rejected by importing countries led to limits export opportunities and impacts the health of the Vietnamese population.

Metrology in food safety is an interest area of science, industry and society, which addresses the challenge of traceable measurements of food constituents and contaminants in food matrices, by developing standardized procedures and suitable reference materials to insure full traceability of measurements to SI Units. This is one of the top priorities of the Vietnam government. Effective quality management for food metrology are vital to the food industry's competitiveness as well as social security. There is no doubt that quality of chemical measurement is an important issue in modern society influencing quality of life and border-crossing trade.

This presentation will cover the activities at Vietnam Metrology Institute on chemical metrology; the needs and the development areas in food metrology in Vietnam. There is a great need for internationally accepted quality assurance tools to ensure comparability of the monitoring results, traceability and measurement uncertainty to improve the quality of chemical measurement results and thus make them acceptable everywhere.

Invited Speaker:

Dr. Pham Anh Tuan is Deputy head of Laboratory of Physico – Chemical Parameters and Reference Materials, Vietnam Metrology Institute. He received his BSc in Chemistry from VNU University of Science (Vietnam) in 1993, his MSc in Materials Science from Hanoi University of Science and Technology - HUST (Vietnam) in 2000 and his Ph. D in Chemistry at Chungnam National University (Republic of Korea) in 2009.

He is responsible for establishing and maintaining the national measurement standards, research and development, technical training and consultancy in the field of Physico-Chemical Parameters and Reference Materials.

In the research field, he's interested in researching the preparation of certified reference materials, especially persistent organic pollutants. Recently, he's also interested in development of matrix CRM for food safety such as mycotoxin, veterinary drug residue.

He has 9 publications in internationally journals (7 ISI) and more than 20 published conference contributions.