

## IRGC 2011 Annual Event Conference



### *Learning from large-scale industrial accidents*

*When disasters can be opportunities for improving safety and risk governance*

Co-organised with



at the Forum Rolex Learning Center

**3 November 2011, 17:00**

Registration welcome on : [www.irgc.org](http://www.irgc.org)



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# Learning from large-scale industrial accidents

*When disasters can be opportunities for improving safety and risk governance*

It appears from the March 2011 Fukushima Dai-ichi accident in Japan and based on the many indirect and often far reaching consequences in other countries that:

- Capabilities for adaptive risk assessment to deal with large scale industrial accidents (for example those involving large releases of nuclear materials) need to be improved
- Decision-makers should be better able to understand and manage public risk perception
- Risk communication in situations of high uncertainty and emergency should be improved

Following the core meltdown at one of the reactors at the Three Mile Island (TMI) nuclear power station and the industrial accidents that occurred at chemical and pesticide plants in Seveso and Bhopal, risk managers made major progress in improving safety and risk governance. The TMI accident resulted in the creation of the Institute of Nuclear Power Operations (INPO) which has dramatically improved US nuclear power operations and safety. Bhopal and Seveso led to a wide range of changes and improvements in the chemical industry including the creation of the ICCA Responsible Care Initiative.

IRGC and EPFL are pleased to welcome expert speakers and panelists from Europe, Asia and the United States to discuss how we have learned from and built better risk governance institutions and processes in the wake of past disasters, with a view to elaborate recommendations for improving safety, communications and overall risk governance of highly risky industrial activities.

## Conference Programme

Moderation by **Prof. Granger Morgan**, Head, Department of Engineering and Public Policy, Carnegie Mellon University.

*Welcome remarks:*

- ▶ **Dr Charles Kleiber**, former State Secretary for Education and Research of the Swiss Federal Department of Home Affairs and Chairman of the Board, IRGC
- ▶ **Prof. Patrick Aebischer**, President, EPFL

*Speakers:*

- ▶ **Dr Takashi Sawada**, Science Council of Japan; Atomic Energy Society of Japan; Mitsubishi Heavy Industries: "Lessons learned from the Fukushima Daiichi accident"
- ▶ **Mr Jean-Pierre Sursock**, EPRI: "Lessons learned from accidents in the nuclear industry"
- ▶ **Dr Hans Wanner**, ENSI, Swiss Federal Nuclear Safety Inspectorate: "Lessons for Switzerland"
- ▶ **Mr Richard Gowland**, European Process Safety Center: "Lessons learned after disasters in the chemical industry"
- ▶ **Prof. V.-S. Arunachalam**, CSTEP, Bangalore: "Learning from failures: A Morality Tale in the Offing"

*Panel with speakers and members of the IRGC Scientific and Technical Council:*

- ▶ **Prof. Dr Wolfgang Kröger**, ETH Risk Center, Zurich; IRGC Founding Rector; former head of research in nuclear energy and safety at the Paul Scherrer Institut (PSI)
- ▶ **Prof. Xue Lan**, Tsinghua University, Beijing, Professor and Dean, School of Public Policy and Management
- ▶ **Prof. Dr Ortwin Renn**, Stuttgart University, Professor of environmental sociology
- ▶ **Dr Timothy Walker**, former UK Governor of IAEA and Chairman of the EBRD Nuclear Safety Account

A final contribution will be made by **Prof. Hans Björn Püttgen**, Professor and Director of the EPFL Energy Center.

## Biographies: Conference Speakers & Panellists



### Moderator: Granger Morgan

- Professor and Head of Department, Engineering and Public Policy, Carnegie Mellon University

- Research: problems in science, technology and public policy, including the development and demonstration of methods to characterise and treat uncertainty in quantitative policy analysis.
- Professor Morgan works on risk analysis, management and communication; on problems in climate change and moving to a low-carbon energy system, focused particularly on electric power; on improving health, safety, and environmental regulation; and on several other topics in technology and public policy.

### Speakers:



### Takashi Sawada

- Member of the Science Council of Japan, Vice President of the Atomic Energy Society of Japan, Senior Researcher in the Department of Nuclear Engineering and Management at the Faculty of Engineering, the University of Tokyo; Acting General Manager for the Nuclear Plant Engineering Division, Nuclear Energy Systems, Mitsubishi Heavy Industries, Ltd.

- Since 2001, Dr Sawada has been the Chief Engineer of the Nuclear Energy Systems Center of MHI.
- From 2007, he started his new career as the senior researcher at the University of Tokyo, Department of Nuclear Engineering and Management while working partly for MHI as the acting general manager of Nuclear Energy Systems.
- He served as the director of the Atomic Energy Society of Japan from 2003 and became the Vice President in June 2010.



### Jean-Pierre Sursock

- Senior Technical Advisor, Nuclear power sector, Electric Power Research Institute

- Senior representative of the EPRI Nuclear Power Sector in Europe. In this role, Dr Sursock is seeking and developing collaborative projects with European research organizations and leading the development of a strategy for the nuclear sector in Europe and the Middle East.
- Author or co-author of over 140 technical papers and reports in the areas of nuclear thermal-hydraulic, risk analyses, fire protection modelling, nuclear simulators Standards and High Energy Physics and Co-author of a Reference Technical Book: "Pressure Drop Technology for Design and Analysis".



### Richard Gowland

- Technical Director, European Process Safety Centre

- Mr Gowland spent over 30 years with The Dow Chemical Company with spells in the US, UK and Netherlands and, latterly, was a core team member of global management of process safety for Dow.
- 2004-present time, leadership of European Process Safety Centre (Working with national and Europe level legislators, EPSC projects to improve best practice).
- 2008/9 Leadership of Process Safety Leadership Sub-Group on Guidance for Layer of Protection Analysis on fuel storage sites (Buncefield Investigation follow up).



### Hans Wanner

- Director General, Swiss Federal Nuclear Safety Inspectorate, ENSI

- Nuclear Energy Agency (NEA) of the OECD, Paris (1986-1992). Dr Wanner worked on the development of the international Chemical Thermodynamic Database (NEA-TDB), established quality standards for the data verification, and coordinated the critical review by international expert teams.
- MBT Environmental Engineering Ltd. (1992-1995). Managed projects in the field of deep geological disposal.
- Swiss Federal Nuclear Safety Inspectorate ENSI (1995-). Appointed Head of the Waste Management Division in 2007 and Director General of ENSI in 2010.



### V.S. Arunachalam

- Founder and Chairman, Centre for Science, Technology and Policy (CSTEP), Bangalore

- Distinguished Service Professor, Carnegie Mellon University; Honorary Professor of Engineering, University of Warwick.
- Dr Arunachalam's research includes: science and engineering of materials; building institutions and industries for harnessing technology and their safety.
- Scientific Advisor to the Defense Minister, Secretary, Defense Research and Development Organization, and Director, Defense Metallurgical Research Laboratories (1975-1992).
- Fellow of Royal Academy of Engineering, Past President and Fellow of Indian National Academy of Engineering (UK) and other leading national academies.

## Panellists (members of IRGC's Scientific and Technical Council):



### Wolfgang Kröger

- Founding Rector of IRGC; Managing Director, ETH Risk Center, Swiss Federal Institute of Technology (ETH) Zurich, Switzerland

- Formerly Director of the Laboratory for Safety Analysis at ETH Zurich (1990-2011).
- Head of research in nuclear energy and safety at the Paul Scherrer Institut (PSI), where he was also on the board of directors (1990 – 2003).



### Xue Lan

- Dean, School of Public Policy and Management, Tsinghua University, P.R. China

- Adjunct Professor at Carnegie Mellon University and Non-resident Senior Fellow of the Brookings Institution.
- Teaching and research interests include public policy analysis and management, science and technology policy, and crisis management.



### Ortwin Renn

- Professor and chair of environmental sociology and technology assessment, University of Stuttgart

- Director of DIALOGIK, a non-profit institute for communication and cooperation research and Director of the Interdisciplinary Research Unit on Risk, Sustainable Technology Development and Governance at the University of Stuttgart.
- He holds a Diploma in sociology, economics, and journalism, and a PhD in social psychology.



### Timothy Walker

- Chair, Accounting and Actuarial Discipline Board, Financial Reporting Council, UK

- Formerly Director General of the UK's Health and Safety Executive (2000-2005).
- Other posts held include: UK Governor of IAEA, Chairman of the EBRD Nuclear Safety Account, Home Office Director General for immigration and nationality; and Deputy Chairman of HM Customs and Excise.



### Concluding remarks: Hans Björn Püttgen

- Professor & Director, Energy Center and Chair of Energy Systems Management, EPFL

- Former professor and Vice President of the Electrical Engineering Faculty at the Georgia Institute of Technology, USA.
- Founder and former director of the National Electric Energy Test, Research and Application Center (NEETRAC).
- Former President and Director General of Georgia Tech Lorraine, the European campus of Georgia Tech, in Metz, France.
- President of the Power Engineering Society of IEEE, 2004 and 2005.

## About IRGC

[www.irgc.org](http://www.irgc.org)

The International Risk Governance Council (IRGC) is an independent organisation based in Switzerland whose purpose is to help improve the understanding and governance of emerging, systemic global risks. It does this by identifying and drawing on scientific knowledge and the understanding of experts in the public and private sectors to develop fact-based recommendations on risk governance for policymakers.

IRGC believes that improvements in risk governance are essential if we are to develop policies that minimise risks and maximise public trust and effectiveness in the processes and structures of risk-related decision-making. A particular concern of IRGC is that important societal opportunities resulting from new technologies are not lost through inadequate risk governance.

For more information or to download, free of charge, any of IRGC's publications on risk governance, please visit the IRGC website at [www.irgc.org](http://www.irgc.org)

## About EPFL

[www.epfl.ch](http://www.epfl.ch)

EPFL is Europe's most cosmopolitan technical university. It receives students, professors and staff from over 120 nationalities. With both a Swiss and international calling, it is therefore guided by a constant wish to open up; its missions of teaching, research and partnership impact various circles: universities and engineering schools, developing and emerging countries, secondary schools and gymnasiums, industry and economy, political circles and the general public.