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The Future of Risk Analysis: Meeting the Challenges

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Risk Analysis: Key Trends & Challenges

- Globalization of technology, production, & trade
 - Consistent, shared and recognized risk analysis approaches across jurisdictions
- Role of science in ensuring public health & environmental protection
 - Increased public scrutiny and demand for transparency of decision making process
 - Structured approach for integrating science considerations with public perceptions, values, and societal preferences
- Technological development
 - New tools and methods to address knowledge gaps and unknown risks of new technologies
 - Adaptive and flexibly regulatory system



Global Risks: Products and Commodities

- Globalization of supply chain for health products, food, chemicals and consumer products across national borders
- Resulting impact of health & environmental risks far beyond localized areas of production:
 - Melamine adulterants in pet foods and dairy products
 - Unauthorized pharmaceutical adulterants/contaminants
 - Lead paint in toys
- Discrepancies in risk analysis decisions are potentially disruptive to global trade
 - Genetically modified crops for food and feed (World Trade Organization dispute resolution under TBT and SPS Agreements)



Global Risks: Pathogens and Pollutants

- Increasing mobility of people and commodities across borders, over long distances facilitate:
 - Rapid spread of human pathogens from epicentre of disease outbreak (e.g. H1N1 influenza, SARS, HIV, etc...)
 - Transport of plant and animal pathogens via movements of commodities, livestock, food, feed, soil, etc... (e.g. BSE in cattle)
 - Inadvertent introduction of invasive alien species (e.g. zebra mussels in ship ballast water)
- Movement of air and water pollutants across borders:
 - Global impacts of climate change
 - Ozone depleting CFCs, acid rain, phosphates from agricultural runoff, offshore oil spills, etc...



Governance of Global Risks

- Globalization of risks require increased cooperation in risk governance:
 - Mechanisms for rapid exchange of information across jurisdictions
 - Harmonization of technical standards and guidelines for risk assessments
 - Common approaches for gathering, assessing, and integrating scientific evidence in risk assessments
 - Common understandings of role of science in decision making processes and risk governance models to facilitate:
 - Coordination of rapid response to emergencies
 - Increased consistency in regulatory decisions



Science in Regulatory Decision Making

- Science is the foundation of risk assessment (RA) and subsequent risk management (RM) activities
- Overall strength of recommendations dependant on:
 - Strengths and weakness of multiple lines of evidence
 - Uncertainty and variability
- Risk governance and decision making involves the complex interaction between science and other elements:
 - Communication, public perceptions, ethics, values, and societal preference
 - Regulatory jurisdictions: some considered at RA, some at RM



Science and Regulatory Policy

- Scientific evidence can also inform decision making in regulatory policy
- Scientific advancements can be driver for (new) policy considerations
 - Application of Precautionary Principle
 - Personalized medicine:
 - Advancements in sequencing technology: lower costs driving commercialization of genetic testing and access by general public
 - bioethical and privacy considerations of access to personal genetic information



New Technologies & Unknown Risks

- Rapid technological development result in expanding array of new products and methods in research pipeline
- Unknown risks of new technologies require:
 - Baseline data to address knowledge gaps
 - New methods and approaches in risk assessment
 - Decision making in the absence of data on long term health effects
- Advances in new analytical methods :
 - Opportunities for improving existing risk assessment practices
 - Challenges to risk perception by public (e.g. detection of contaminants at ppt range: Relevance to risk assessment)



Future of Risk Analysis- Session Speakers

Globalization of risks require increased cooperation and consistency in risk governance across jurisdictions

- **Prof. Ortwin Renn**- Risk governance: Towards an integrative approach

Role of science in decision making process:

- **Prof. George Gray**- Improving the Utility of Risk Assessment

Innovation in science and technology:

- **Mr. Dirk Hudig**- Risk Assessment: Considerations for the Future
- **Prof. Geoffrey Smith**- The Need for New Risk Assessment Approaches: The Case of Biological Risks



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