

Project 9: Risk Assessment Support and Training

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Relevancy to Risk Assessment and Project Goals

The development/maintenance of essential software, the development of tools for human health risk assessment, and training contained within this project is focused on the needs of Agency, federal partners as well as stakeholders of the program. This project contains two tasks, 1) Development and Maintenance of Essential Software and Support Tools and 2) Development and Application of Risk Assessment Training. The software, tools and training characterized in this project provide critical support to many disciplines (e.g., library science, dose-response, exposure assessment, etc.) within risk assessment and provide the following:

- Critical tools for risk assessment
- Development of new tools as the field of risk assessment evolves
- Improve chemical risk assessment nationally and internationally
- Technical information for specific areas of risk assessment (e.g., exposure)
- Tools that enhance transparency in scientific decisions
- Support peer-review activities
- Facilitate and contribute to capacity building
- Increase efficiency for risk assessment activities
- Promote best practices and the harmonization of methodologies
- Communication of human health risk assessments developed within HHRA

Background

Project Description: This project focuses on a collection of efforts to develop and maintain tools and training that are essential to the development of human health assessment and many of the research products developed under the HHRA program. These efforts include the development and on-going maintenance of HHRA databases, models (or tools), and websites. The list of applicable websites, models and database, includes but is not limited to the following:

- Benchmark Dose Software (BMDS) Modeling website and training system,
- Data Management and Visualization Tool (DMVT),
- Ecological Risk Assessment Support Center (ERASC) website,
- EPA's-Expo-Box Website (EPA-Expo-Box) and database,
- Exposure Model for Soil-Organic Fate and Transport (EMSOFT) Modeling Website,
- Health and Environmental Research Online (HERO) database,
- Integrated Science Assessments (ISA) Websites and database,
- Integrated Risk Information System (IRIS) Website and database,
- Risk Assessment (Risk) Web Portal which is founded on the National Center for Environmental Assessments – collection of human health risk assessment websites and databases and the Risk Assessment Forum Guidelines.

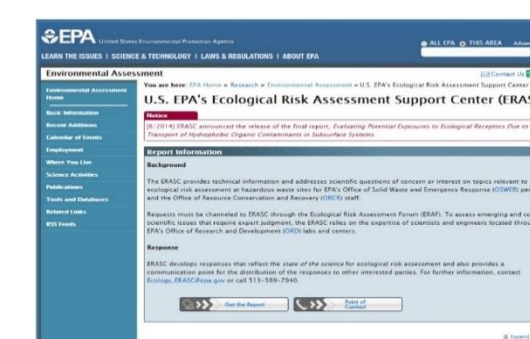
Risk assessment training provides support to our partners, stakeholders, and HHRA staff including more consistent application of state of the art methods in assessments developed by EPA and others. These efforts contribute to effective communication in the area of risk assessment. Overall, this will improve the performance, quality, and transparency of risk assessments produced by EPA and others.

Methods/Approach

Tools and Information for Developing Human Health Risk Assessments

The HHRA program supports developing methods and technologies to facilitate risk assessments across the Agency, federal partners, and stakeholders.

- Benchmark Dose Software (BMDS) Modeling website and training system: <http://www.epa.gov/ncea/bmnds/>
- Ecological Risk Assessment Support Center (ERASC) website: <http://www.epa.gov/earsc/>
- EPA's-Expo-Box Website (EXPO-Box) and database: <http://www.epa.gov/expobox/>
- Health and Environmental Research Online (HERO) website and database: <http://hero.epa.gov/>
- Exposure Model for Soil-Organic Fate and Transport (EMSOFT) Modeling Website: <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=241704>



Implementation of Risk Assessment Training

Numerous approaches are currently being implemented to increase efficiency and decrease resource needs. These approaches include:

- Online training courses through SkillPort and expansion of existing on-line training courses: <http://www.epa.gov/ncea/bmnds/training/index.html>; <http://epa.gov/risk/expobox/tutorials.htm>; new additions coming soon
- Partnering with groups across the Agency and outside organizations. For example a collaborative effort with the Interstate Technology and Regulatory Council (ITRC) was just completed and training is available: http://www.itrcweb.org/Documents/TeamResources_OutreachMaterials/ITRC-2015-Classes-010615.pdf
- Training materials have been used within the Agency to groups within the Region 5, Office of Chemical Safety and Protection (OCSPP), Office of Children's Health and Protection (OCHP), Office of Water (OW), and ORD.
- International training efforts have included scientific organizations in the following locations: Saudi Arabia (2012, 2013, 2014), Thailand (2012), Australia (2013), Dubai (2013), Switzerland (2014), Chile (2014), Ghana (2011), Egypt (2008, 2012), South Africa (2009), and Romania (2014).

Anticipated Products

Short-term (FY16 – FY17)

- BMDS products include the development of new software (e.g., Model Averaging, Nested Models, Bayesian probabilistic approaches), updating existing software (e.g., Windows Version of Cat-Reg, Lognormal Data Distribution for all continuous models, fixing user-reported errors), and training
- Data visualization tools to enhance analysis and generate graphical representations of dose/response/duration relationships for risk assessments
- Staged-implementation of risk assessment tools (e.g., systematic review) within the HERO database
- Development and release of risk assessment training courses on SkillPort
- Updates, operation and maintenance for databases and websites: HERO, IRIS, ISA, EXPO-Box, STSC/ERASC
- Provide training support for HHRA's partners in national and international organizations (*as requested and based upon current resources*); current efforts include Collaboration with World Health Organization (WHO): Leadership role in the planning team for WHO Global Chemical Risk Assessment Network.

Long-term (FY18 – FY19)

- Staged-implementation of risk assessment tools (e.g., data extraction of methods and results, citation mapping, text mining) within the HERO database
- Updates and maintenance for HERO, IRIS, ISA, Risk, EXPO-Box, and ERASC websites and/or databases
- Facilitate partnerships across risk assessment organizations to increase training capacity
- In collaboration with Agency partners, increase the availability to training resources to stakeholders

Impact

Short-term (FY16 – FY17)

Short-term products provide critical support for the development of human health risk assessments within the HHRA program and numerous organizations within and outside of EPA, demonstrating EPA leadership in risk methods development and applications. The HHRA program focuses its efforts on the development and maintenance of future and existing tools with the highest benefit and efficiency for risk assessors and decision makers. The majority of the products have websites associated with the effort. Indirectly, website hits and downloads indicate the need for the products characterized.

- BMDS- 51K Page views/ 3.7K Downloads
- HERO- 23K Page Views per Month
- IRIS- 1.5 M page views/ 5.8K Downloads
- Risk Portal- 403K page views/ 6.7K Downloads

Short-term training products highlighted within this project are prioritized to provide training resources to HHRA staff and partners. Efforts within the Agency may increase consensus and communication on the most effective use of current state-of-the-science in the area of risk assessment.

Long-term (FY18 – FY19)

Products highlighted within this project highlight critical needs for risk assessment although development or implementation may be resource intensive. Tools and training will provide high value and require sustained investment to meet the needs of future risk assessments. Support and maintenance of websites is both a short and long-term investment.