

Use of MIRA and Logic Models in Region III – 3/10/11 SAB

Region III Vision: EPA Region III's vision for integrating science into decision making involves the integrated use of Multi-criteria Integrated Resource Assessment (MIRA) with logic models. Logic models are used to facilitate discussions with work teams or functional groups in order to determine which activities support which desired outcomes. Because resources are limited (i.e., not all activities/outcomes may be able to be accomplished), the outcomes (with their associated activities) must be prioritized. MIRA is used to facilitate discussions among managers and staff in order to prioritize those outcomes. At this time, Region III has used MIRA in several applications and has developed logic models in several program areas, such as for the air program. Further work is needed with logic models in order to utilize them in more methodological environmental planning.

MIRA Description: MIRA is an approach that provides a transparent means for stakeholders (including decision makers) to learn the relationship between the data and the decision options and provide a rationale for the final decision. MIRA organizes data, engages expert and non-expert stakeholders in different but integrated roles, and incorporates stakeholder values by facilitating discussion within context of the decision.

Logic Model Description: Region III uses a modified version of the Kellogg business logic model. These substantive modifications are needed to accommodate EPA mission and outcomes that are not financially motivated. More information can be found here:

<http://www.epa.gov/reg3esd1/data/logicmodel.htm>.

Case Studies: In 2004, EPA Region III used MIRA to evaluate 24 criteria (including air emissions, air quality data, pollution transport, etc.) for the determination of ozone nonattainment areas under the Clean Air Act. This was the first application of the use of MIRA in EPA decision making. Part of the MIRA process included engaging state and industry stakeholders during the construction of the nonattainment analysis. The result of using MIRA in the ozone nonattainment designation process was that Region III's designation decision was not challenged when it was announced.

In 2008, Region III used MIRA to evaluate its environmental programs across all media/pollutants for the purpose of allocating 2010 resources based on where the Region III environment was poorest or most vulnerable. Over 100 Region III senior managers and scientists participated in this 6 month analysis of regional environmental programs. The result was the creation of 5 priority area teams: 1) Healthy Air, 2) Healthy Waters, 3) Community Health, 4) Natural Infrastructure, and 5) Resource Conservation Challenge. Logic models were started for several programs with the intent to have senior managers link staff activities to resources and ACS commitments. Divisional sensitivities to budget allocations and lack of time derailed the logic model portion of the analysis. One of the more important results of the 2010 Budget case study is that senior managers learned where gaps in data, expertise, and

infrastructure exist. See <http://www.epa.gov/reg3esd1/data/mira.htm> a recent publication describing this case study and for more information.

More recent update on MIRA use: Currently, Region III is using MIRA to evaluate cumulative impacts, required under the Clean Water Act and NEPA, as part of the assessment of mountaintop removal activities. Region III has partnered with ORD-Athens in order to link integrated modeling (hydrology, ecological, soil, etc. in the FRAMES* framework) with decision analysis (MIRA). This is an important step toward building EPA capability for integrating science in decision making because it will allow outputs from predictive modeling to be inputs into decision analysis, giving Agency decision makers the capability to examine what-if scenarios using previously inaccessible modeling information.

*Framework for Risk Analysis in Multimedia Environmental Systems