

**INCORPORATING CLIMATE CHANGE IN DECISION SUPPORT TOOLS –
A COGNITIVE REASONING APPROACH**

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ABSTRACT: The high degree of variability and uncertainty associated with climate data drives the outcome of many of our decision tools, especially those that scale climate change information down to evaluate impacts on local or site-specific conditions. This creates challenges for those building models to assist with the decision making process. In this presentation, the question is asked: "How should we deal with uncertainty inherent in climate change data for everyday decision making?" Typical decision-making methods are introduced, followed by a summary of decision support tools and how these incorporate climate change. The purely rational approach to decision-support modeling with climate change is challenged in this presentation.

We know so preciously little of many relevant aspects of the future that we do not have data to feed into the encompassing models that formed the rationalist ideals of the 1960's. But we can still have simple, robust decision procedures that will substantially improve on our decisions while feeding only on meager or deficient data. The effects of climate change on our water supply are widely understood to be significant, but the results of a "no regrets" decision approach could result in expensive or even incorrect design decisions. The most important effect of climatic change for water systems will be to greatly increase the overall uncertainty managers face. Sources of uncertainty are presented. Current methods of downscaling and dealing with uncertainty are also presented. Some drawbacks to downscaling have been experienced in application but solutions are offered. Injection of human approaches, such as iteration, reaction, and "wait and see" are suggested as ideas to be incorporated into our "rational" computer models in order to create more of a cognitive reasoning approach.