

The XLRM Framework

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As part of this conference we invite you to participate in an experiment to use a new technology to develop a decision analysis model for exploring sustainability strategies for the Los Angeles region. A brief explanation of the inputs of this model follows. In the afternoon breakout sessions attendees will be invited to deliberate on the inputs for the components of the model.

As the first step in robust policy analysis, it is useful to formally capture the components of the problem. This framework for the analysis may be revised as our insight deepens, but a first go at listing all the things an analysis will involve provides a concrete starting point.

'XLRM' is an acronym for the four components of any decision problem. These four components are:

X – eXogenous uncertainty. These are the 'X' factors that confound our ability to predict the future with confidence, and the factors we cannot control which limit our planning to robustness and not optimality. We try to list values for all the X's we can envision. Examples of X's for development problems include:

- The rate of future economic growth that will occur absent any intervention
- The amount of additional pollution for each increment of future economic growth
- Natural calamities
- Global warming

L – Levers. These are the things that we, or the decision makers we advise, get to control. They are the switches on the dashboard, the knobs on the stereo. A *policy* is a collection of choices for all of the levers. We are focusing on near term levers that could be enacted in the immediate future and may be feasible in the near term. Examples of near term levers might include:

- Tax rates
- Emission regulations imposed on industrial polluters
- Priorities for public services funding
- Transportation and other infrastructure investment choices
- Smart growth planning policies
- Green technologies
- Public education about sustainability choices

R – Relationships. Relationships are the connections from specific choices about levers and specific values of uncertainties, to produce the measures or metrics. They provide the map from combinations of a policy and a future to an outcome. It is important to write down what we know about the way the world works. It is also important to acknowledge where important relationships are uncertain or controversial. A specific set of relationships can be called a model. Examples of relationships might include:

- Effect of varying tax rates on economic growth
- Impact of pollution on quality of life
- Effect of price on economic and environmental tradeoffs
- Effect of planning policies on housing availability
- Effect of policies on employment opportunities

M – Measures or Metrics. These are the aspects of the future that we care about. Or that someone cares about whose opinion matters. These are the ways we determine whether we like a given future once it happens. A collection of such measurements can be called an outcome. Examples of metrics might include:

- The distribution of economic wealth and poverty rates
- Quality of life, such as infant mortality, crime rates and pollution levels
- Depletion of critical resources, such as energy and water

XLRM provides an accounting system for writing down the things we need to take into consideration. In our experience it has provided a simple way of eliciting information, and sharpening our thinking. Note that these lists depend on the time scale, and upon who is the decision maker. A quantity that is an L for one person or agency may be an X for someone who must deal with whatever that person decides.

We invite you to participate in today's workshop by beginning a listing of the X's, L's, R's, and M's that are significant in the problems as they are discussed in the morning talks and panels.

In the afternoon there will be a broader presentation of the entire robust adaptive planning approach, for which XLRM lists are the first step.

After this discussion, we will gather in breakout groups of 8 to 10 people to produce aggregate lists for plenary discussion as the last part of today's conference. Each group will have a moderator and will agree on a timekeeper and recorder. After 40 minutes the recorder for each group will report to the plenary session on the group's deliberations.

We recognize that this is a limited amount of time to discuss many potential inputs. The organizers have compiled a tentative list of X factors you could consider. You may want to start with a quick discussion of this list and then proceed to the M components, L components, and finally the R components. Remember that several groups will be working on this so don't feel like you have to come up with every input for each component.

Following the conference the organizers will compile the lists of components for a decision analysis model for sustainability strategies and Email it to participants for further consideration. You will be invited to vote on the list and add to it. The results of this step will be compiled and reported to participants.

Feel free to keep these lists in your notebooks, or use the spaces provided on the following sheet.

