

Objectives and Climate Change with Case Study

Welcome back. Now we're going to talk about how to develop clear objectives in light of climate change. As scientists, we often come from this background of jumping to measure things, and to use those as our objectives because we're familiar with how to assess them, how to measure and detect changes in them.

But there are often objectives that are not as easy to measure or even articulate. And yet, if there are things that people care about in relation to a decision and those are left out, then all of the subsequent analysis-- the measurement of the cost, of the benefits, and the risks of these proposed actions-- they're incomplete. And the quality and the defensibility of the decision can be compromised.

So instead of steering away or shying away from values that are difficult to measure or articulate, an effective decision-making process provides both analytical techniques and an overall framework that allows them to be put on the table, alongside these more conventional objectives.

As you may have learned, developing objectives is not an exercise in archaeology, but in architecture. Often we're not unearthing something that has already been built and buried. But we're developing something that may not even be clear to the decision makers. They may have some idea about the foundation or some of the layout of the objectives-- some of the aspects. But maybe not all of them, and maybe not all the different perspectives of the people involved in the decision.

So climate change causes us to rethink our architectural design. To re-examine that blueprint. Are all the aspects still accounted for? Should any of them look different? Have the conditions changed from when those original objectives were developed? Maybe we're revisiting a standard-type decision that has been made before, and we feel like we already know what the objectives are. Well let's take a step back and think about if there's anything that needs to be modified about those objectives.

A good set of objectives-- this text, *Structured Decision Making* by Robin Gregory and Lee Failing, and others. It talks about what a good set of objectives entails. A good set of objectives should be complete. Meaning, no essential parts are missing-- no essential objectives, things that you care about-- they're all accounted for.

It should be concise, so nothing is unnecessary or ambiguous. And to make sure that there's no double accounting of objectives-- where you have two objectives that are really measuring the same thing. They should be sensitive, so the objectives are influenced by the alternatives under consideration.

It should be understandable to everyone involved in the decision process, speaking directly to the things that matter. And they should be independent, so that they contribute independently to the overall performance of an alternative. You don't need to know what's happening to one objective, in order to measure how important it is to the other objective.

So how do we develop a good set of objectives in light of climate change? What might that look like? Well, it could mean that you have a new strategic objective. Maybe it's something as simple as, address climate change in the decision processes.

Maybe it's a fundamental objective-- implementing actions that would be resilient to climate change. And then defining further what that means. Maybe it's a means objective. Do you care about resilience for the sake of resilience, or because of what process-- maybe it's the ecosystem process-- that it maintains. What are the things that you want to avoid? Think about this in light of climate change.

And don't label a concern as illegitimate just because it's hard to measure. Objectives should state the things that matter, whether or not we know how to measure it. We'll get to what we call measurable attributes-- the way to quantify or measure that. But initially, make sure that everything is out on the table. And that it's clear and consistent.

Then, when you get to developing the measurable attributes, we'll come back to the text. Because they have another list that helps us look at the important aspects of measurable attributes. They call them performance measures, but it's talking about the same thing.

They should be clear and concise. They should be unambiguous. And here, it's important to highlight that they report accurately and consistently on the relative differences in performance across alternatives-- including differences and the degree of uncertainty.

Now you may have "bling, bling, bling" going off right now, thinking about how to develop good performance measures that can capture the differences in degree of uncertainty. That might mean that you want to use some weighted indices or non-linear performance measures. And these can be more complex, and we'll talk about those later on. But thinking about developing these measurable attribute that account for the differences in degrees of uncertainty.

They should also be understandable. So you can already sense a tension here between some of the more complex methods, and making them easy to understand and communicate to the people involved in the decision. They should be direct and provide enough information, that you can accurately assess the trade-offs among those different alternatives.

They should be operational. They can readily be put into practice within the constraints of the planning process-- the timing, the budget, the expertise, the data at hand. So you can already see that there are some difficulties here between finding the perfect measurable attribute, and one that's operational within the timeframe and the resources available.

In summary, you want these measurable attributes to expose the trade-offs, including the trade-offs among different degrees of uncertainty-- specifically due to climate change. They should facilitate discussion about what matters among stakeholders and decision makers. They should clarify the objectives, generate responsive, creative alternatives.

You want them to enable comparison of the alternatives accurately and consistently. And you want them to communicate the rationale for, and improve the transparency of, your decisions.

These determine what people will talk about. What they'll have discussions about as part of natural resource management deliberations.

Now we're going to go back to our example. What are the objectives of the decision makers? Well, let's hear from Joshy. What are his concerns?

What do I care about? I care about my family having an income. And I want my son to have an income as well. But if I sell all my cattle, what is he going to do?

Jobs in the city are so temporary and uncertain, and I don't want him to be so far away. I care about the weather changes. There's much less grass now, and much more shrubs.

OK. We've taken a first stab at framing the decision. Now let's talk about objectives. What are Joshy's objectives? And if there are other decision makers, then what are their objectives? Think about fundamental means to [INAUDIBLE] some strategic objectives.

We already mentioned one. Depending on how you frame it, might be something like, optimizing his herd structure, the livestock, for their outputs over some time horizon. Not just current, but he's looking at future optimization for his son, as well.

We also have mentioned something about rangeland health. This could be framed multiple ways. It could be a fundamental objective, or maybe it's a means objective. In this case, if there's a improvement in rangeland health, then it would impact the herd quality.

It sounds like Joshy is concerned about the meadows and the rangeland health, primarily for the role that that plays in the yak health. So for this decision, we're going to simplify it, to have the one fundamental objective of optimizing the herd structure for the short-term and long-term income.