Sustainability Leadership

Class 5:
Part 1: Risk Assessment
Part 2: Foresight
Perspective

The Challenge of Degraded Environments: How Common Biases Impair Effective Policy

Alan Berger,¹ Case Brown,² Carolyn Kousky,³,* and Richard Zeckhauser⁴

Economic activity can damage natural systems and reduce the flow of ecosystem services. The harms can be substantial, as our case studies vividly illustrate. Most degraded landscapes have at least some potential to be reclaimed. However, uncertainty plagues decision making regarding degradation and reclamation, in relation to the extent of the damage, the success of reclamation, and how exposure will change in the future. We examine how a range of observed decision biases can lead to far-from-optimal policies regarding how much degradation to allow and when, as well as how and how much, to reclaim degraded sites. Despite our focus on degraded landscapes, we believe these are generic biases present in a wide range of risk situations. Our three case studies show these biases at work. The first two studies are of mining operations in the United States and Canada, and the third is of climate change.
Risk Analysis:
- Approach to develop foresight
- Assess potential of an event and its consequences
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Challenge:
- Include all possible types of events
- Understand the full spectrum a specific type of events
- Understand the possible consequences for the system and their impacts (cascading effects)
- Understand the possible events triggered by an event
Gaining a Better Understanding of How to Cope with Extreme Low Probability and High Impact Shock Events

And What About Sea Level Rise?
Questions for you:
1. In Simonetta (2016), the principles of “thermodynamics” are used as an example to explain cyclic “Collapse of Civilizations.” After studying https://www.grc.nasa.gov/WWW/K-12/airplane/thermo.html, discuss your interpretation of the article's main point. Do you agree with the analogy? Give an example.
THE OTHER SIDE OF THE GLOBAL CRISIS: ENTROPY AND THE COLLAPSE OF CIVILIZATIONS

By Jacopo Simonetta, originally published by Cassandra's legacy
March 7, 2016

When we discuss the impending crisis of our civilisation, we mainly look at the resources our economy need in a growing quantity. And we explain why the diminishing returns of resource exploitation pose a growing burden on the possibility of a further growing of the global economy. It is a very interesting topic, indeed, but here I suggest to turn 180 degrees around and take a look at the "other side," that is to what happens where the used resources are discarded.

Eventually, our society (as any other society in history) is a complex system, and there is a growing body of evidence that it has reached a point where it is unable to continue to grow indefinitely.
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1 In Simonetta (2016), the principles of “thermodynamics” are used as an example to explain cyclic “Collapse of Civilizations.” After studying https://www.grc.nasa.gov/WWW/K-12/airplane/thermo.html, discuss your interpretation of the article's main point. Do you agree with the analogy? Give an example.

2 Rusbridger (2015) raises the following questions: “Even when the overwhelming majority of scientists wave a big red flag in the air, they tend to be ignored. Is this new warning too similar to the last? Is it all too frightening to contemplate? Is a collective shrug of fatalism the only rational response?” How do Rusbridger's questions relate to biases and their impacts on risk perception? Discuss your point of view with an example.
Climate change: why the Guardian is putting threat to Earth front and centre

As global warming argument moves on to politics and business, Alan Rusbridger explains the thinking behind our major series on the climate crisis

Journalism tends to be a rear-view mirror. We prefer to deal with what has happened, not what lies ahead. We favour what is exceptional and in full view over what is ordinary and hidden.

Famously, as a tribe, we are more interested in the man who bites a dog than the other way round. But even when a dog does plant its teeth in a man, there is at
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3 How does Lewandowsky's (2016) message relate to the relevance of biases and their impacts on risk analysis?
Why is populism popular? A psychologist explains
Part 2: Foresight

Contents:
1 Introduction
2 Hazards
3 Vulnerabilities
4 Foresight
5 Decision-Making & Stakeholders
6 Options
7 Discussion, Summary, Recommendations
Background check in Falls Church:
- train + taxi/Uber
- needs to be done by June 2, 2017
Pickup/final part in Norfolk
Driver training

Pre-Internship project:
- based on literature
- assignment during the Sustainability Class
Part 4: Internship

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