Dragons and Decisions:
Toward a Model of Unsustainable Behaviour

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The Problems

- Although part of climate change may be natural, human behaviour undoubtedly contributes to it.

- Unsustainable behaviour, however, is inarguably an anthropogenic problem.

What Causes This?

- In part, structural influences, e.g.,
  - Geophysical factors
  - Economic factors
  - Technological factors
- (And these really should not be overlooked)

Psychological Factors

- But we're more concerned with the psychological factors, broadly:

  --Intrapersonal factors (personality, values, attitudes, skill, aspirations, etc.)

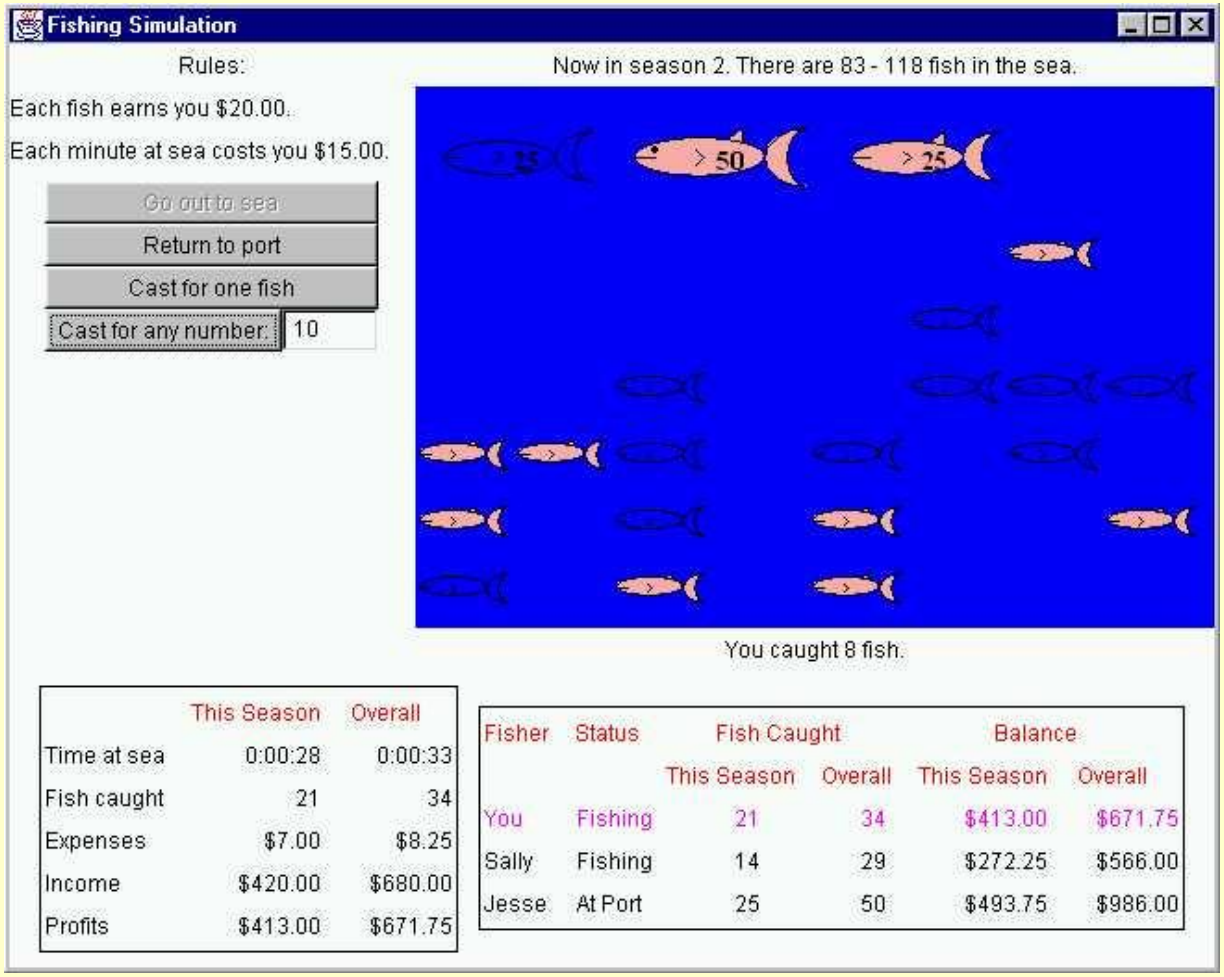
  --Interpersonal relations (social comparison, trust, friendship, etc.)

  --Decision-making: the central issue

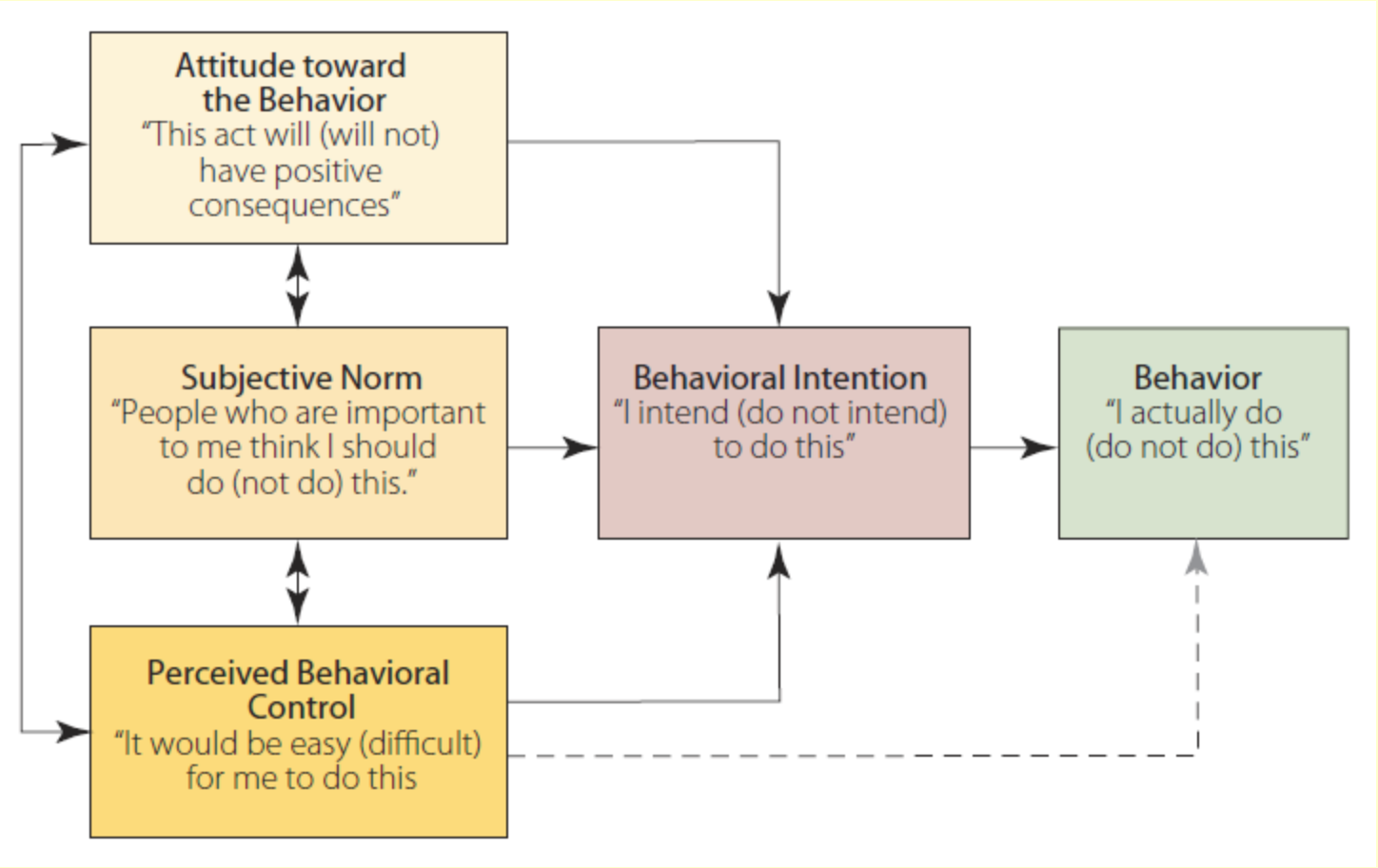
Social (or Resource) Dilemmas

- Any situation in which a person chooses between self-interest and the community interest (i.e., greed versus cooperation) when the resource in question is endangered
- The outcomes (after numerous choices) are:
  - greedy self benefits, if most others cooperate
  - self and others lose, if most fail to cooperate
  - self and others benefit, if most cooperate
- This applies to sustainability and climate-related choices made by each person or group

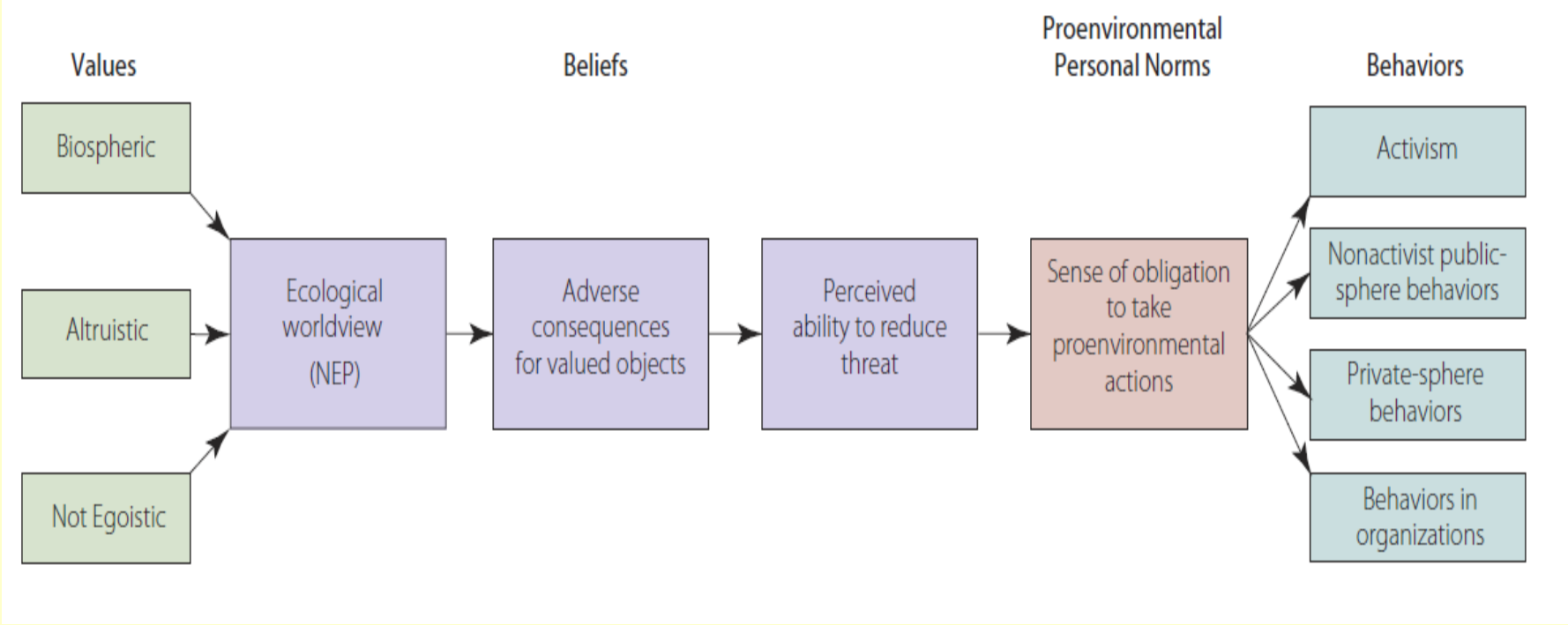
FISH 3.1:
A Resource Management Microworld



Ajzen's Theory of Planned Behaviour



Stern's VBN Model



What to Do?

(These are from various websites)

Yet We *Don't* Do (All) That We Should

Why not? This is the key question

Multiple barriers: Some are structural and some are behavioural. I call the latter…

The 13 Dragons of Non-Sustainability

"Man (sic) is not a rational animal,
he is a rationalizing animal."

Robert Heinlein in *Assignment in Eternity* (1953)

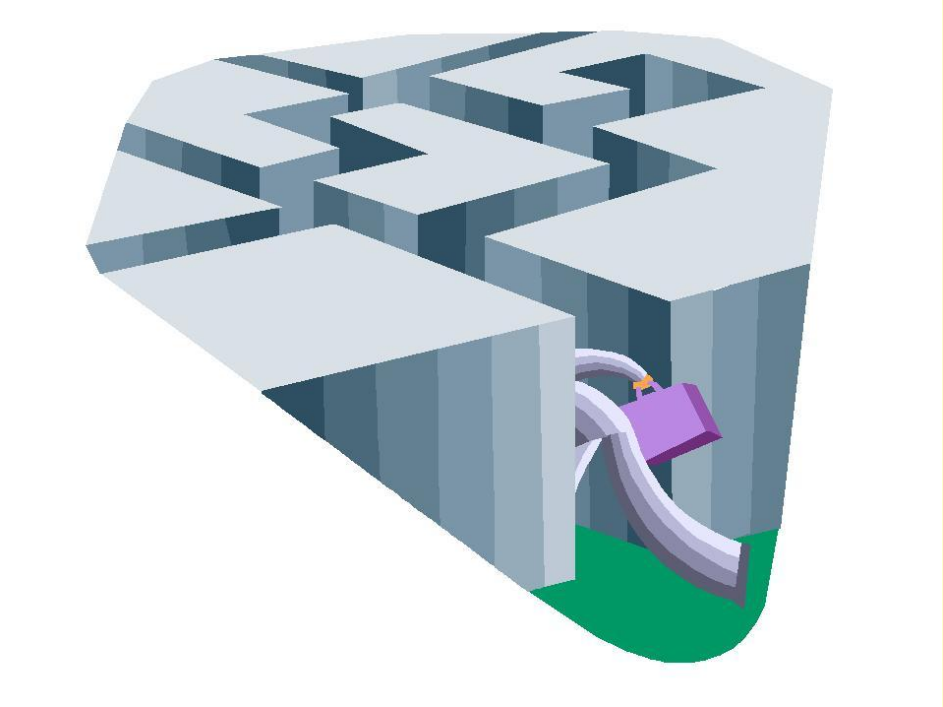
(Did you think Leon Festinger invented the idea?
Festinger, L. (1957). *A theory of cognitive dissonance*.
Stanford, CA: Stanford University Press.)

Dragon 1

- **Environmental Numbness**
  - **Pure ignorance**
  - **Tuning out; message overload**

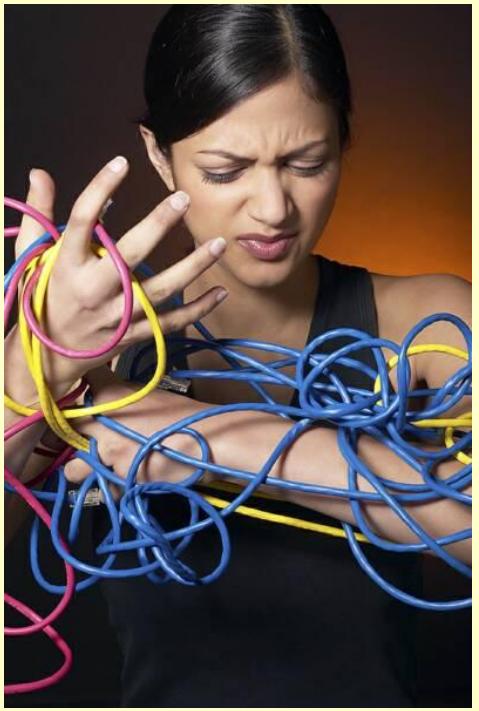
Dragon 2

- **Uncertainty**
  - **Scientific integrity**
  - **Lack of immediate salience**



Dragon 3

- **Lack of Perceived (Behavioral) Control**
  - **Personal**
  - **Societal**



Dragon 4

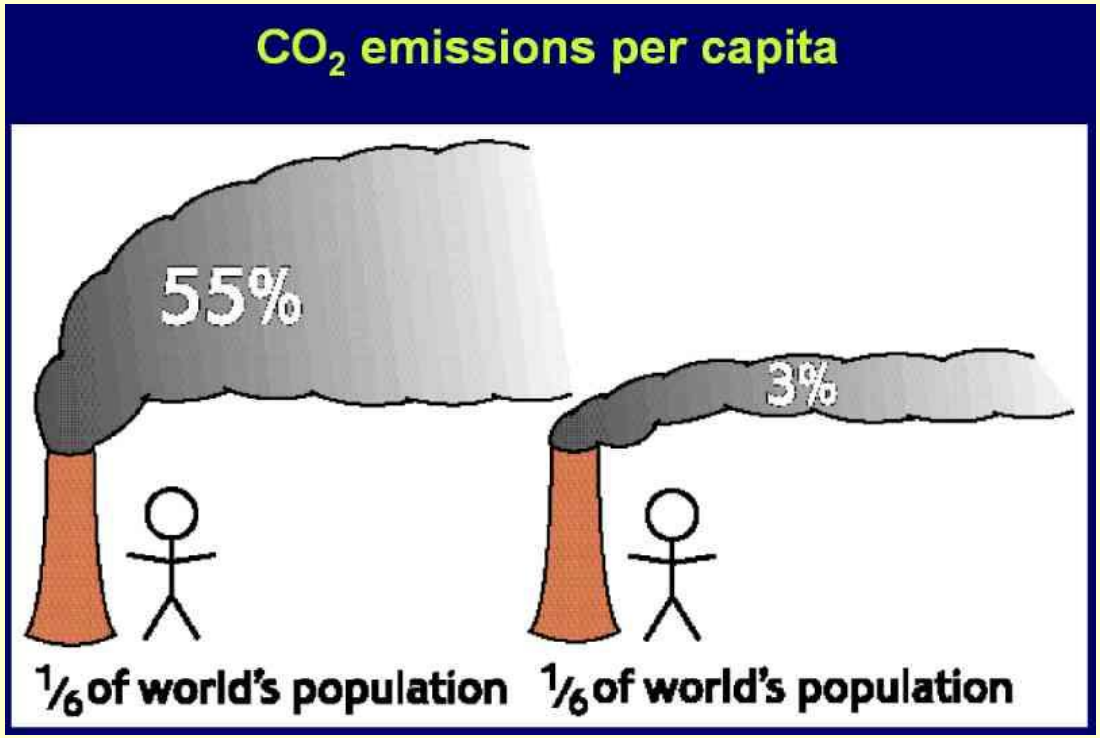
- **Denial**
  - **20 percent**
  - **Vocal group**

Dragon 5

- **Conflicting Goals and Aspirations**
  - **Getting ahead**
  - **Health**
  - **Safety**
  - **…etc.**

Dragon 6

- **Social Norms, Equity, and Felt Justice**
  - **My peers…**
  - **It's industry**
  - **Not fair!**



Dragon 7

- **Reactance**
  - **Lack of trust**
  - **You'll never make me!**

Dragon 8

- **(Lack of) Identification with One's Community**

  It's not my nest

  ***You* take care of it**

Dragon 9

- **Tokenism**
  - **I already recycle,**
  - **I changed the lightbulbs,**
  - **I'm done**

Dragon 10

- **Habit**
  - **The flywheel of society**
  - **Behavioural momentum**

Dragon 11

- **Perceived Risks**
  - **Psychosocial**
  - **Financial**
  - **Functional**
  - **Physical**
  - **Time**

Dragon 12

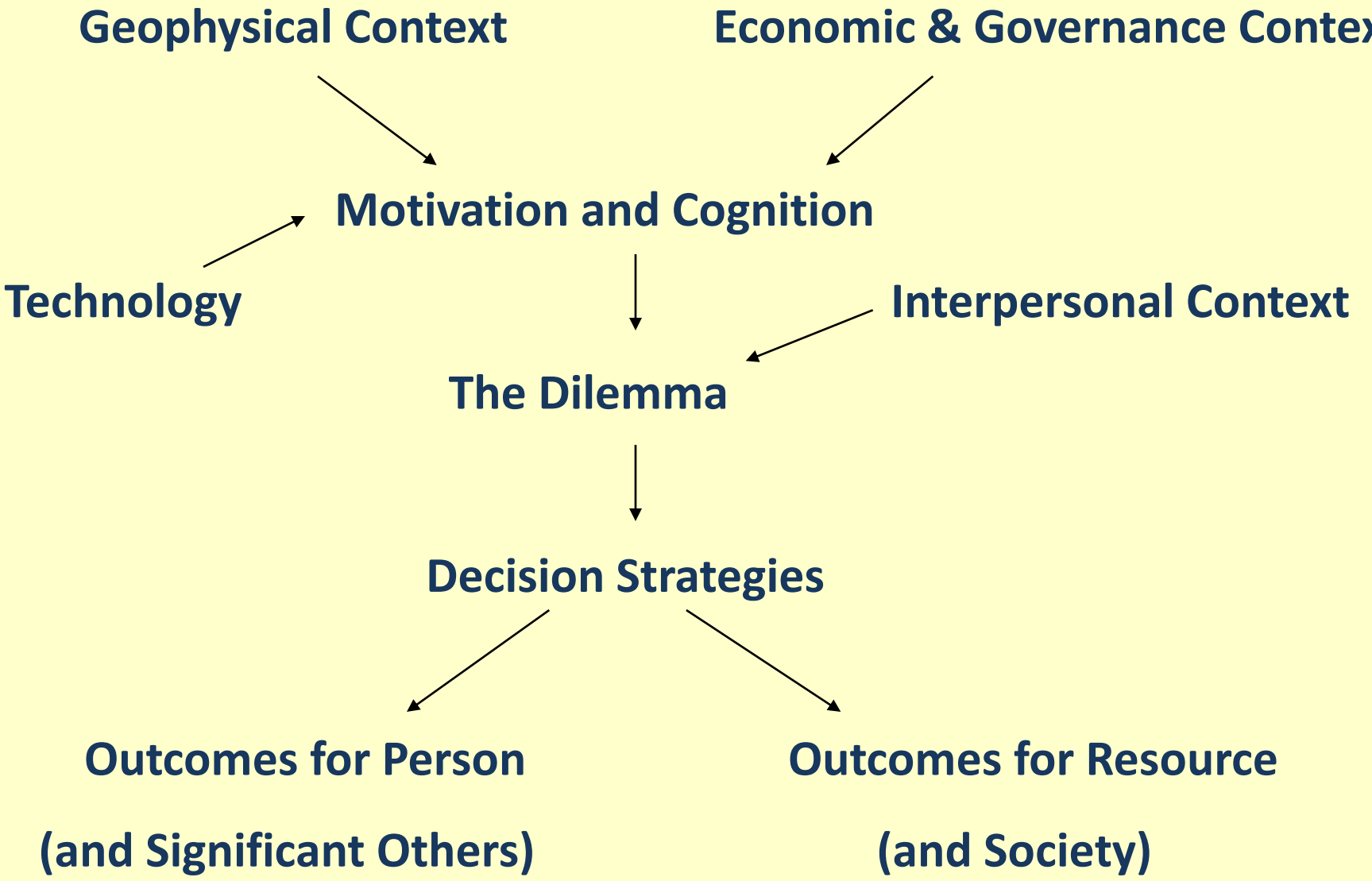
- **Divine Determinism**
  - **Mother Nature**
  - **Father God**

Dragon 13

- **Optimism Bias**
  - **Known to exist for:**
    - **Health**
    - **Intelligence**
    - **Attractiveness…**
  - **Environment, too**

Maybe the existing models are too simple, so…

The Simple Form of the Model

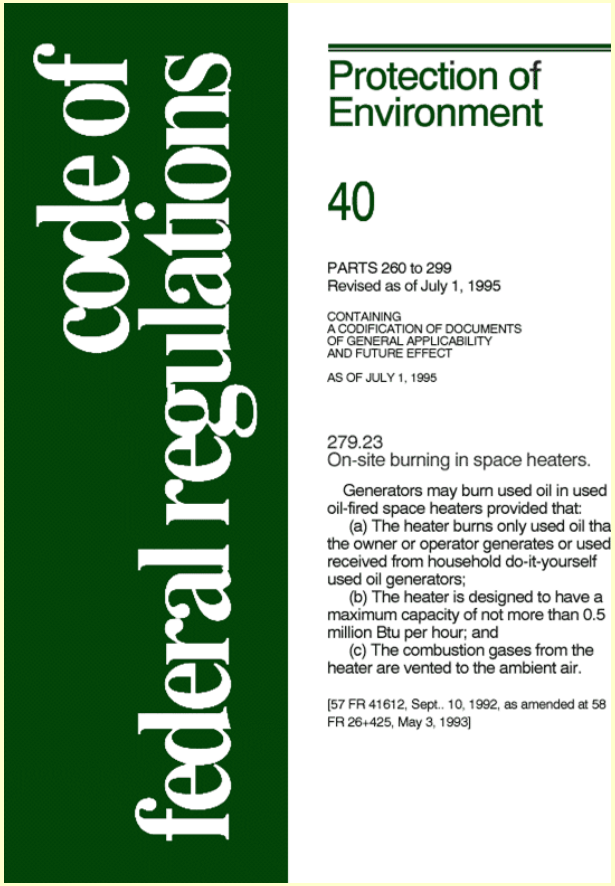


Geophysical Context

- Amount and uncertainty of the resource
- Regeneration rate and uncertainty
- Ambient conditions (e.g., weather, extraction difficulty)
- Disaster

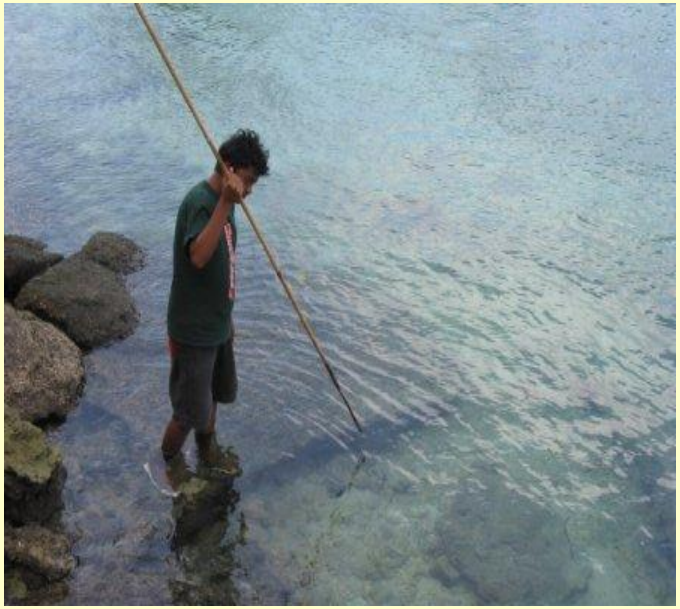
Economic & Governance Influences

- Harvest limits, permits, policies
- Distribution of catch or donations
- Price, operational costs
- Order of harvest decisions
- Communication rules
- Territorialization, tenure
- Fines, taxes, incentives, rewards
- Economic boom-and-bust cycle



Technological Influences

- From spears to factory boats
- From axes to chain saws to giant snippers
- From puddles of oil to tar-sand technology and off-shore platforms



Decision-Maker Influences

- Individual or group decides
- Values: social, environmental, other
- Goals, aspirations, shadow of the future
- Intelligence, experience, skill
- Needs (financial, other)
- Perceived equity
- Assessment of others
- Perceived risk, safety
- Self-presentation, desirability
- General uncertainty, confusion
- Internalized cultural mores

Interpersonal Influences

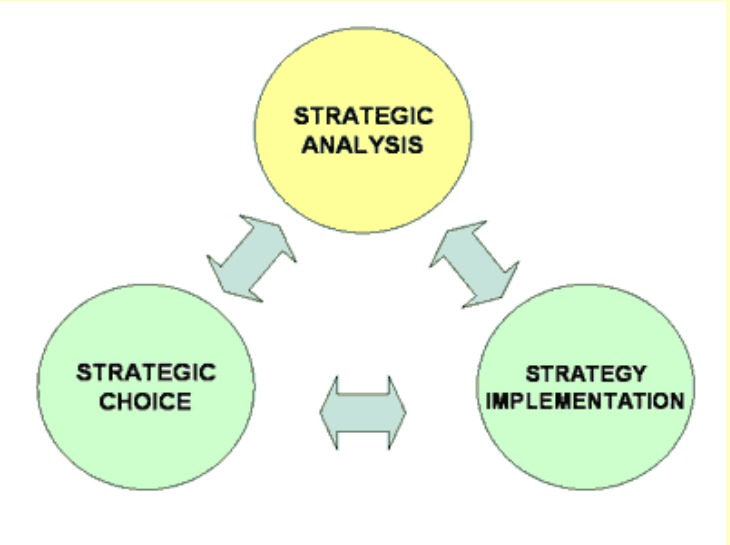
- Number of others, scale of groups
- Others' harvest or donation amounts
- Uncertainty about others' choices
- Others are trusted, liked, admired, or not
- Others are familiar or unknown
- Others' perceived skill or experience
- Others' similarity to self

Dilemma Awareness

- Aware (anxiety, fear)
- Not aware (ignorance)

Decision-Maker Strategies

- None (ignorance, confusion)
- Trial and error (testing system)
- Straight greed
- Aim toward equal outcomes
- Save the resource (take little or none)
- Donate from one's own holdings
- Influence others' choices
- Specific or generalized exchange arrangements



Decision-Maker Outcomes

- Satisfied, satisficed, not
- Emotional: pleased, angered, regret (at own actions), surprised (at others' self-interest), frustrated
- Financial: success or failure
- Social: reprobation, admiration

Environment Outcomes

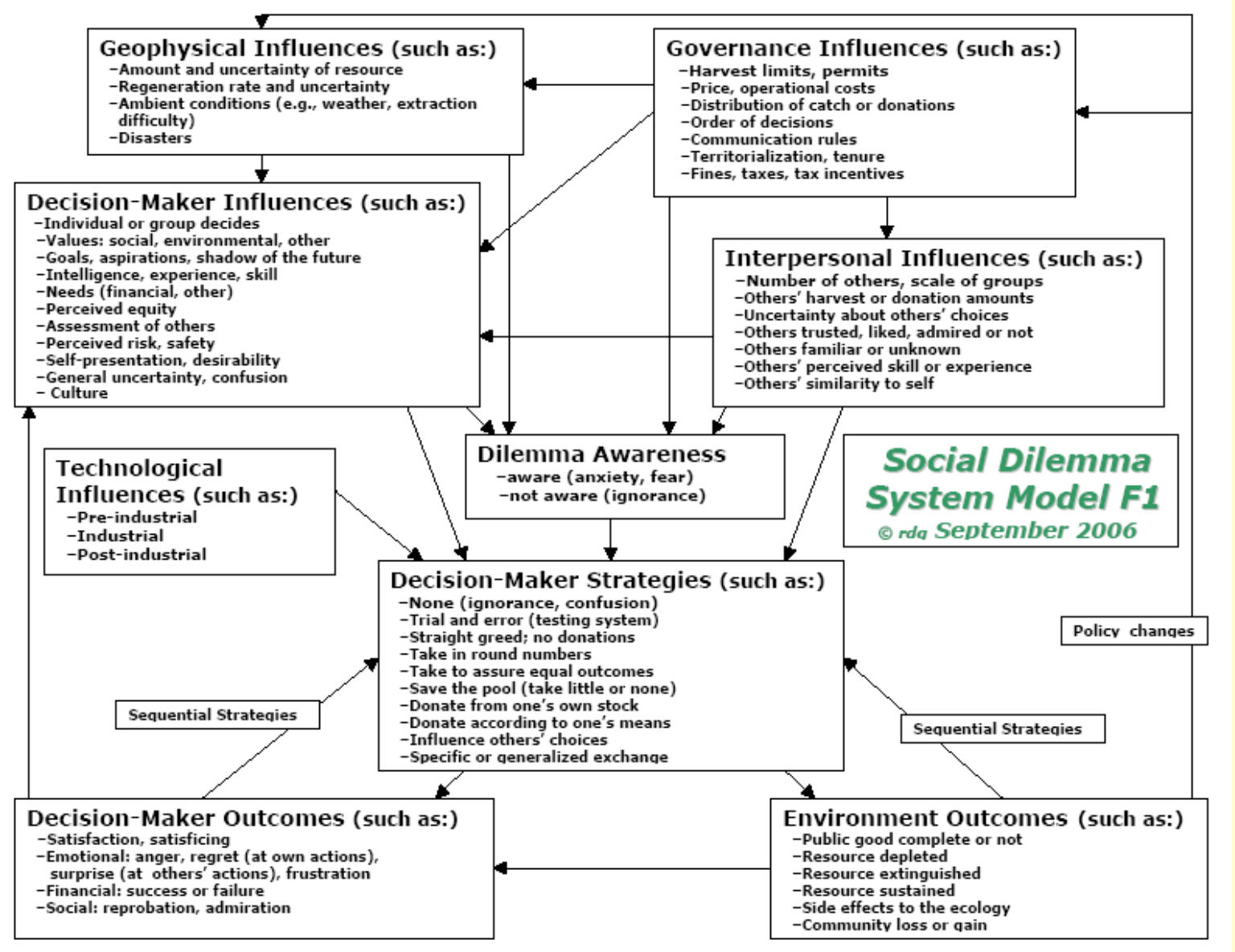
- Resource depleted
- Resource extinguished
- Resource sustained
- Side effects to the ecology

The General Model

- **You could call it Bob's combined theory of planned behaviour, values, behaviors, norms, cognitive dissonance, self determination, moral disengagement, and ego protection as applied to sustainability inaction, that is,**

  The TPBVBNCDSDMDEPSI Model

General Model of Social Dilemmas



Our Recent Research in Environmental Risk Perception

- **Spatial bias**

  Assessments of environmental quality decrease as geographic distance from the perceiver increases. This spatial bias is congruent with comparative optimism findings from the risk literature :
  "I'm less at risk of whatever than you are."

- **Temporal bias**

  Do lay assessments of present conditions differ from their assessments of future conditions? This was examined in our 2009 study

These biases are important: they inhibit pro-environmental behaviour because of underestimated personal risk

The Environmental Futures Scale

Each of 20 items is responded to in six ways:

	Now: very bad (1), bad (2), acceptable (3), good (4), or very good (5)	Future (in 25 years): much worse(-2), worse (-1), no different (0), better (1), or much better (2)
My area (50 km)	_____	_____
My country	_____	_____
Globally	_____	_____

The EFS Items

1) The availability of fresh drinking water
2) The state of rivers and lakes
3) The degree of biodiversity (diversity of organisms)
4) The quality of air
5) The state of urban parks and green space
6) The state of forests and wilderness
7) The environmental impact of vehicle traffic
8) The effects of human population on the environment
9) The effects of greenhouse gases
10) The state of fisheries

continued…

The EFS items, continued

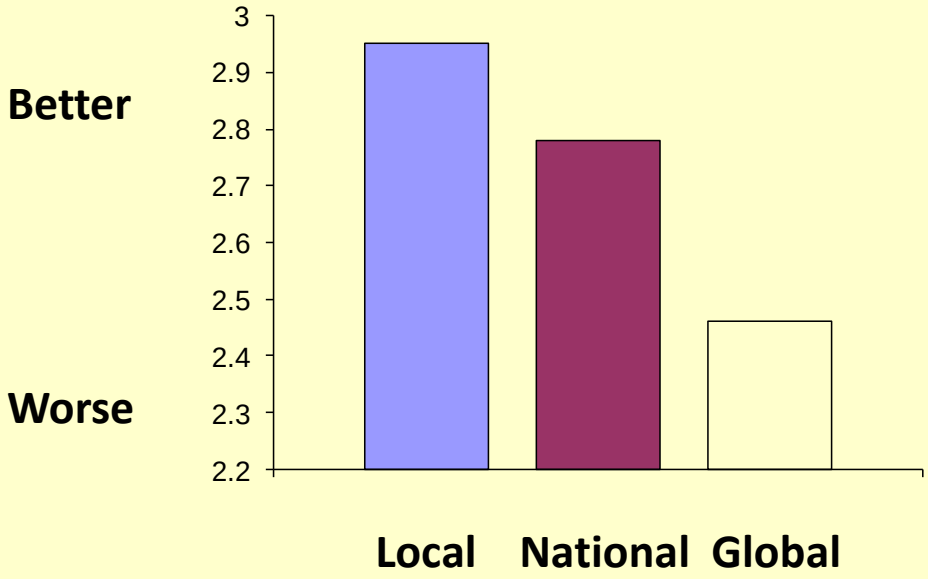
11) The aesthetic quality of the built environment
12) The management of garbage
13) The management of fibres or fumes from synthetic materials (e.g., asbestos, carpets, and plastics)
14) The management of radiation and nuclear waste
15) The quality of soil for agricultural purposes
16) The management of natural disasters
17) Visual pollution (e.g., billboards, ugly buildings, and litter)
18) The effect of pesticides and herbicides
19) The management of acid rain
20) The management of noise

18 Participating Countries

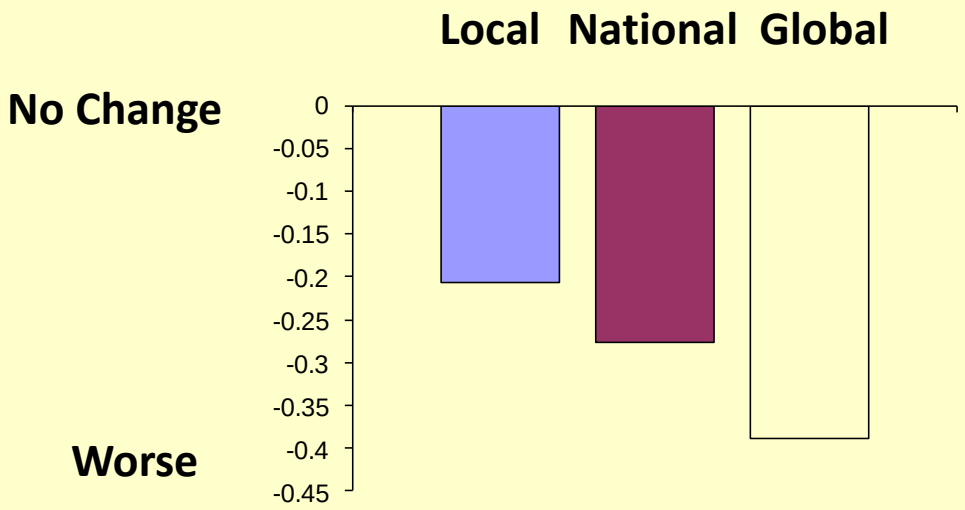
- Australia
- Brazil
- Canada
- England
- Finland
- France
- Germany
- India
- Italy
- Japan
- Mexico
- Netherlands
- Portugal
- Romania
- Russia
- Spain
- Sweden
- United States

Sample size: 3,330

Assessments of *Current Conditions*
(averaged across countries)



Anticipated *Future Change*
(averaged across countries)



10 Dragons, 1000 ON Residents

"I *would* do something about climate change, *but*…"
(responses to an open-ended question coded as…)

Dragon:	Percent (approx)
Perceived Behavioral Control	41
Uncertainty	10
Denial	6
Social Norms, Equity	15
Conflicting Goals	3
Habit	4
Environmental Numbness	2
Tokenism	4
Lack of Place Identification	3
Reactance	8
No "Dragon"	4

10 Dragons, UVic Students

"I have not engaged in this environmental action more because…"
(for each item, 1 = strongly disagree to 5 = strongly agree)

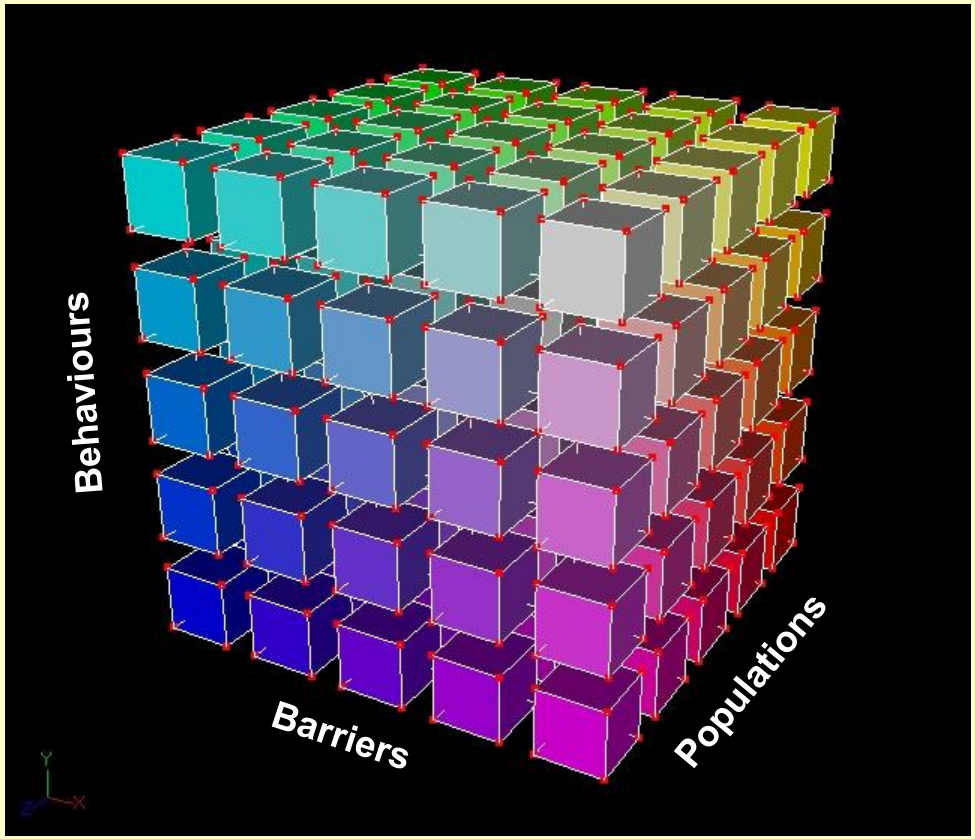
Dragon:	Mean
Perceived Behavioral Control	2.28
Uncertainty	1.89
Denial	1.84
Social Norms, Equity	2.96
Conflicting Goals	3.22
Habit	3.17
Environmental Numbness	2.89
Tokenism	1.89
Reactance	1.85

One Size (Solution) Does *Not* Fit All

- ***Which*** **unsustainable behaviour?**
  In terms of sectors: Energy, transport, goods, and food
- ***Which*** **segment of the population?**
  Traditional consumer segments—age, education, etc.
- ***Which*** **dragon (barrier)?**
  The 13 psychological barriers (although structural barriers also need attention)

An important challenge for effective policy…

To maximize adaptation and mitigation, policies and practices should be designed and targeted precisely



Different priorities for different folks

- **The dragons may reduce to three main factors:**
  Social Comparison, Problem Denial, and Other Priorities

- **Behaviour choices may reduce to four major domains:**
  Transport, Energy & Water, Products, and Food

How do different consumer segments respond?

Sample results…

- ***Products*** **are a higher priority than** ***Food*** **in for the** ***Problem Denial*** **demographic**
- ***Food*** **is a higher priority than** ***Transport*** **or** ***Energy & Water*** **for the** ***Social Comparison*** **folks**
- **Household** ***Energy & Water*** **are viewed as a higher priority than** ***Transport*** **for** ***Other Priorities*** **people**
- **Younger consumers think more about** ***Energy & Water*** **as a climate-change problem, and older consumers think more about** ***Food*** **as a climate-change problem.**

Thanks for your attention…

I wish to gratefully acknowledge the wonderful students who contributed importantly to the work described here:

Leila Scannell MSc, Christine Kormos BSc, Louise Comeau MA, Fabio Iglesias PhD, and Jaclyn Casler BSc

Questions now? Here I am…

Or questions later? rgifford@uvic.ca