

# STUCK IN THE MUCK: COMPARING HOW AGENCIES AND LOCAL COMMUNITIES SEE BEACH MUCK IN THE GREAT LAKES

AVIK BASU, JASON DUVALL, JENNIFER CARMAN (UM)  
DONNA KASHIAN (WAYNE STATE UNIVERSITY)

END USER: BRETTON JOLDERSMA (MDEQ, MICHIGAN OFFICE  
OF THE GREAT LAKES)

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# BEACH MUCK IN BAY CITY

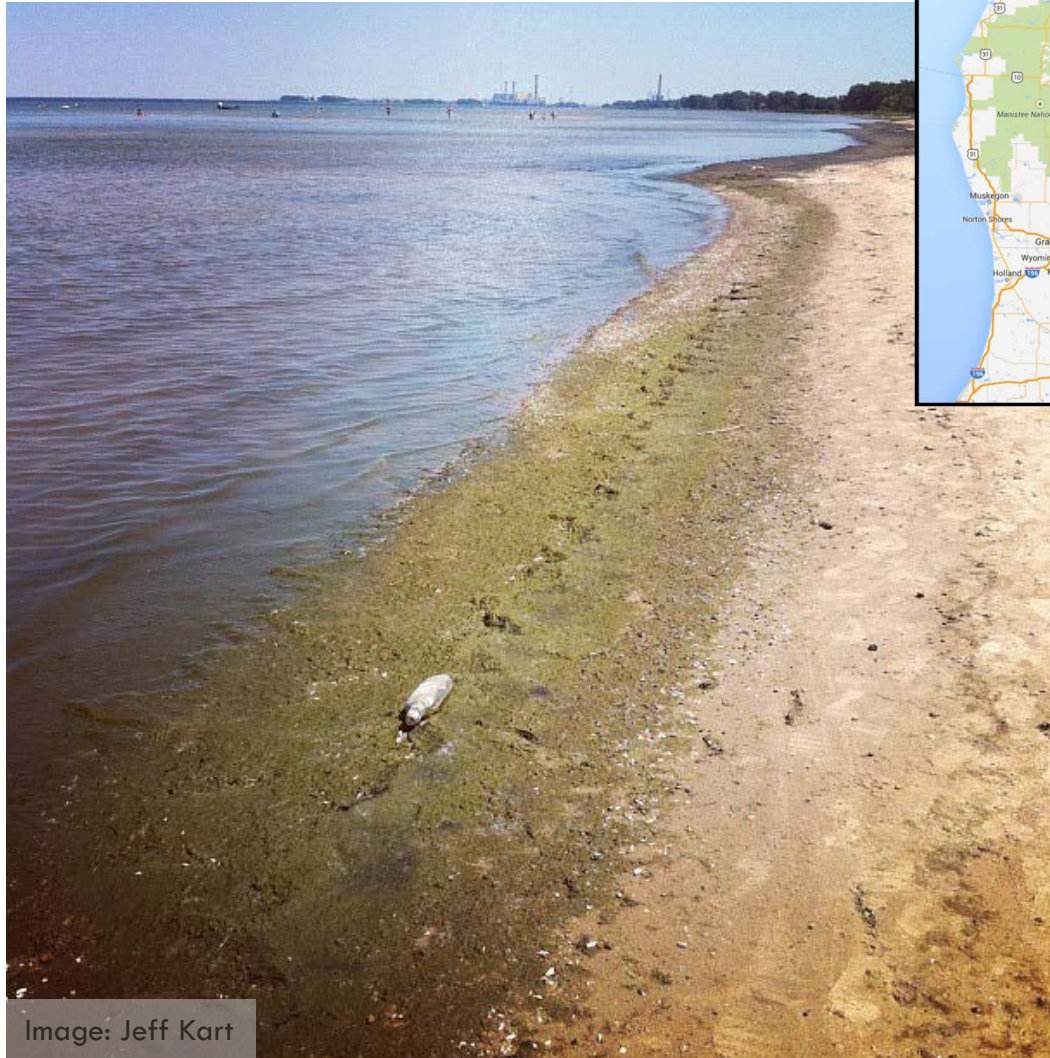
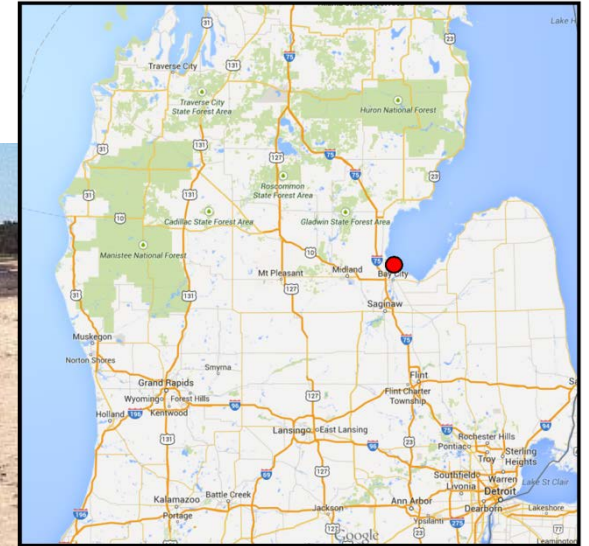


Image: Jeff Kart



# RESEARCH OBJECTIVES

Explore mental models of agencies and citizens

- Causes
- Aesthetic, Recreational, Economic Impacts
- Management Solutions

Highlight areas of agreement and disagreement

# METHODS

## How did we explore mental models?

- Conceptual Content Cognitive Mapping (3CM) Exercise
  - 11 Agency Reps & Great Lakes Researchers
  - 10 Citizens
- Co-Orientation Surveys
  - 31 Agency Reps & Great Lakes Researchers
  - 650 Citizens

# 3CM EXERCISE

Imagine someone you know recently heard about beach muck. Since you're familiar with the issue they are interested in getting your perspective. What things would you be likely to mention when discussing this issue?



CAUSES

fertilizer application

water temperature

aquatic plants, algae

agricultural run-off/fertilizer

stricter regulations (regarding run-off/fertilizer application)

leaking septic systems

invasive mussels

nutrient loading

nitrogen levels

water clarity

phosphorus levels

historical cycle

Zebra mussels (causes)

Phosphorous (causes)

Education (Info) OUTREACH

outreach/communication efforts

education about the bay

Economic IMPACTS

commercial pier

recreation

economic impacts

impacts on tourism

beach use

QUALITY OF LIFE

change in quality of life

health concerns

frustration among local residents

bad odor/foul smell

Beach use

Regulatory ISSUES / political response

complexity of problem

wetlands protection

preservation of natural resources

DNR/DEQ response to muck

park management

nearby land management practices

ACTION ITEMS FUTURE PLANS

muck filtering machine/device

disposal of muck

scientific research on muck

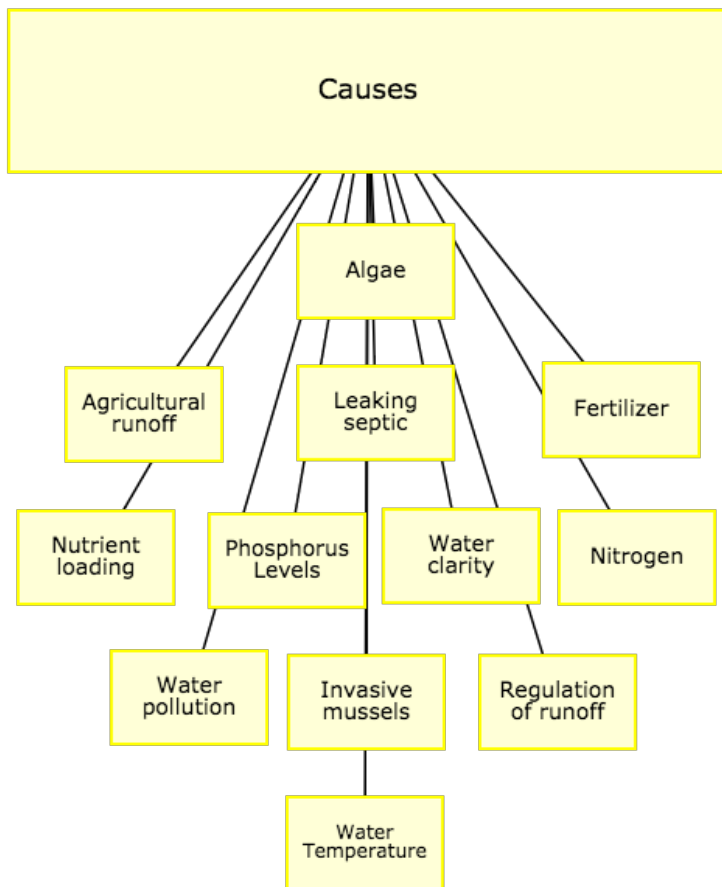
beach grooming

Do nothing / focus on something else (birding)



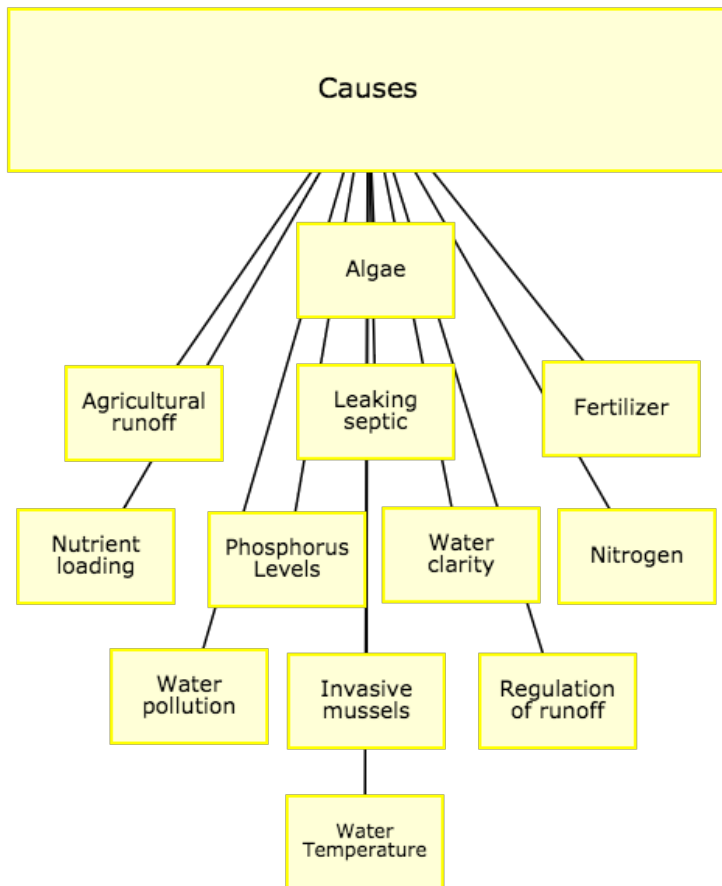
# MAPS: CAUSES

## CITIZENS

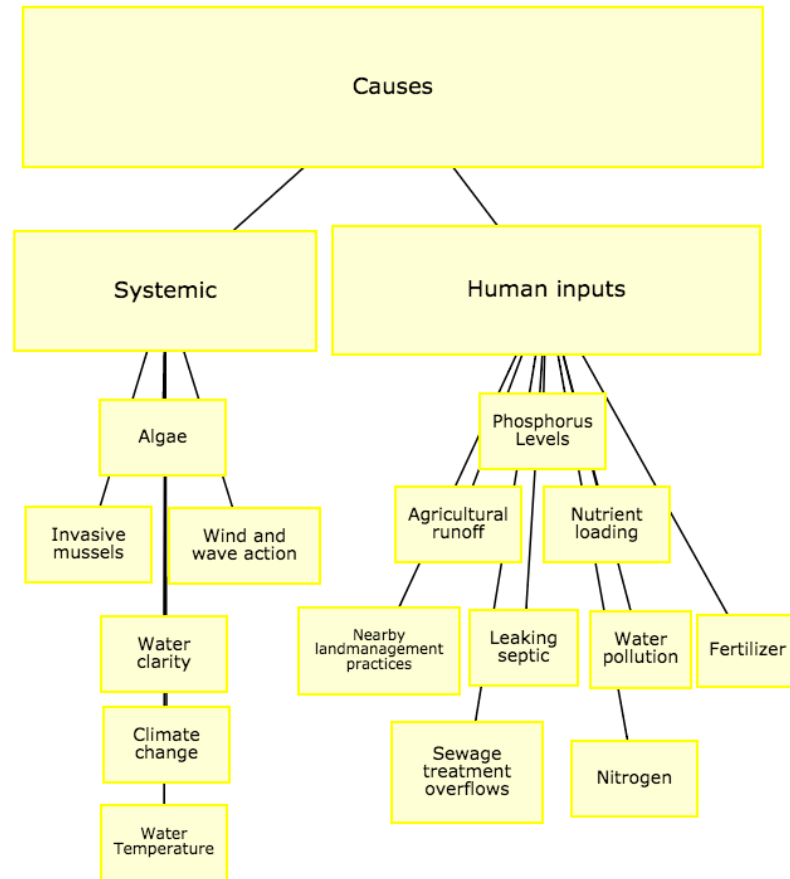


# MAPS: CAUSES

## CITIZENS



## AGENCIES





# CO-ORIENTATION SURVEY

## Causes and Impacts

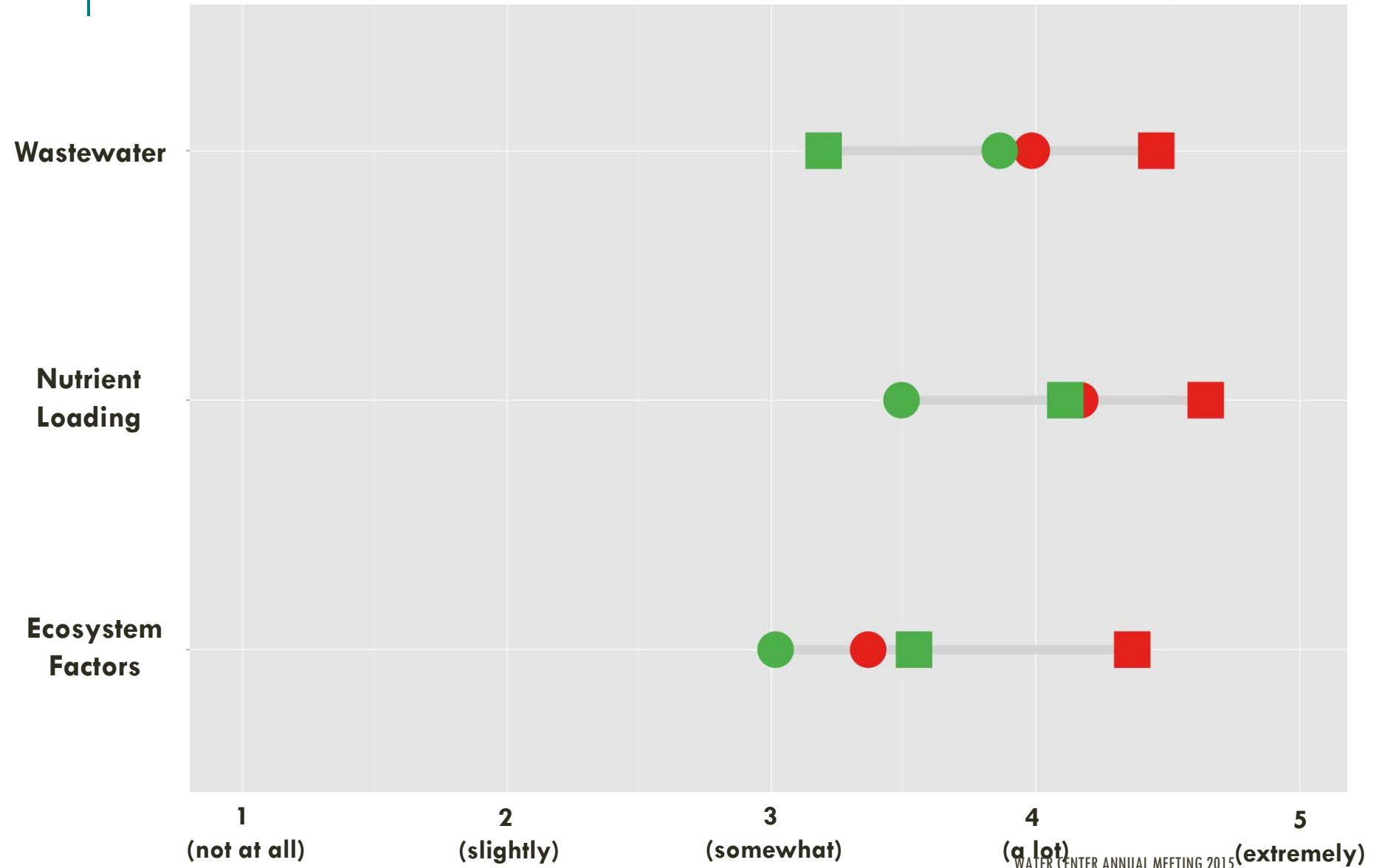
- What do you think?
- What does other group think?

# CO-ORIENTATION SURVEY

|                     |     | ACTUAL AGREEMENT   |                   |
|---------------------|-----|--------------------|-------------------|
|                     |     | NO                 | YES               |
| PERCEIVED AGREEMENT | NO  | TRUE<br>CONFLICT   | FALSE<br>CONFLICT |
|                     | YES | FALSE<br>CONSENSUS | TRUE<br>CONSENSUS |

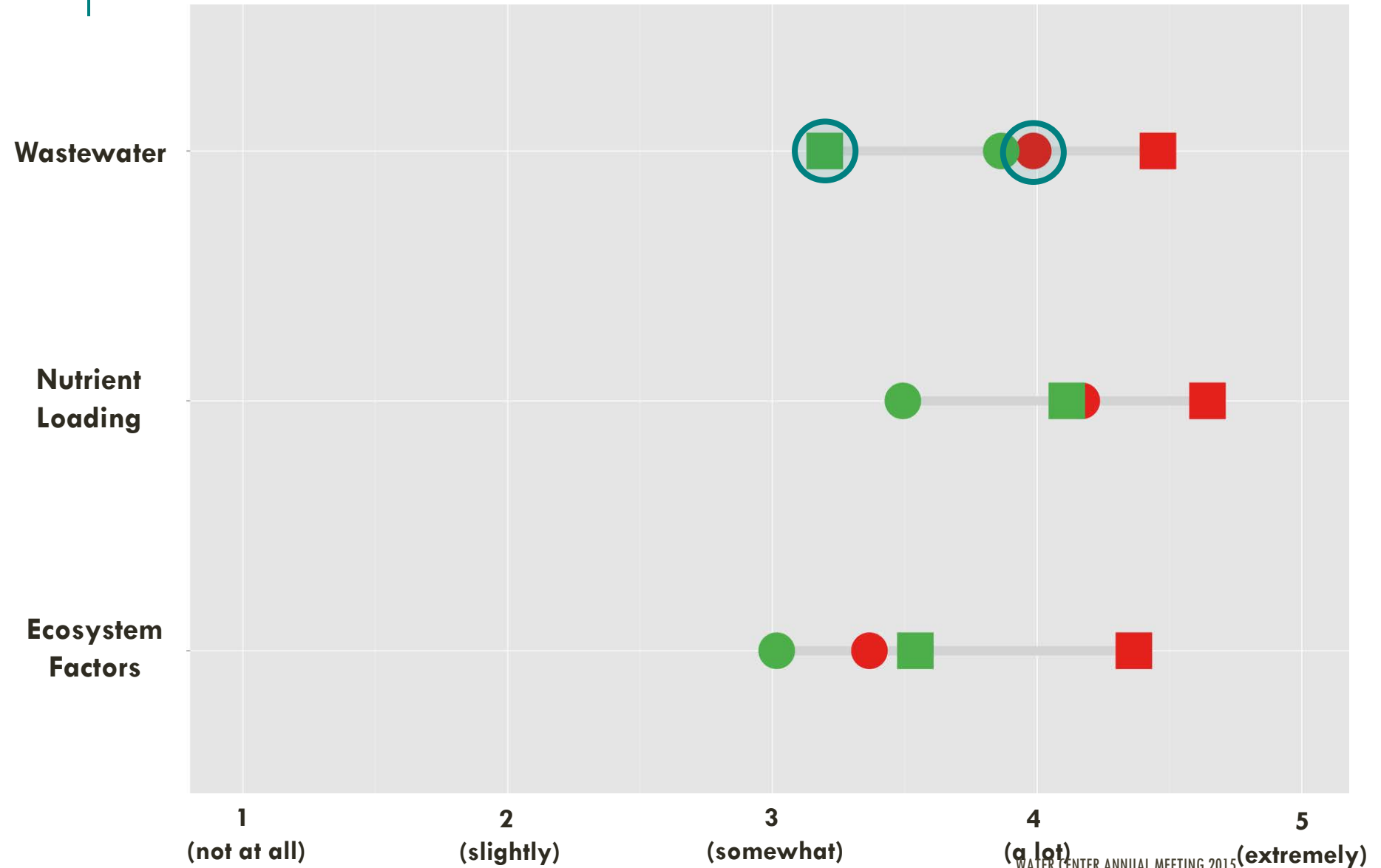
# CAUSES OF MUCK

- Citizens
- Agencies' view of Citizens
- Agencies
- Citizens' view of Agencies



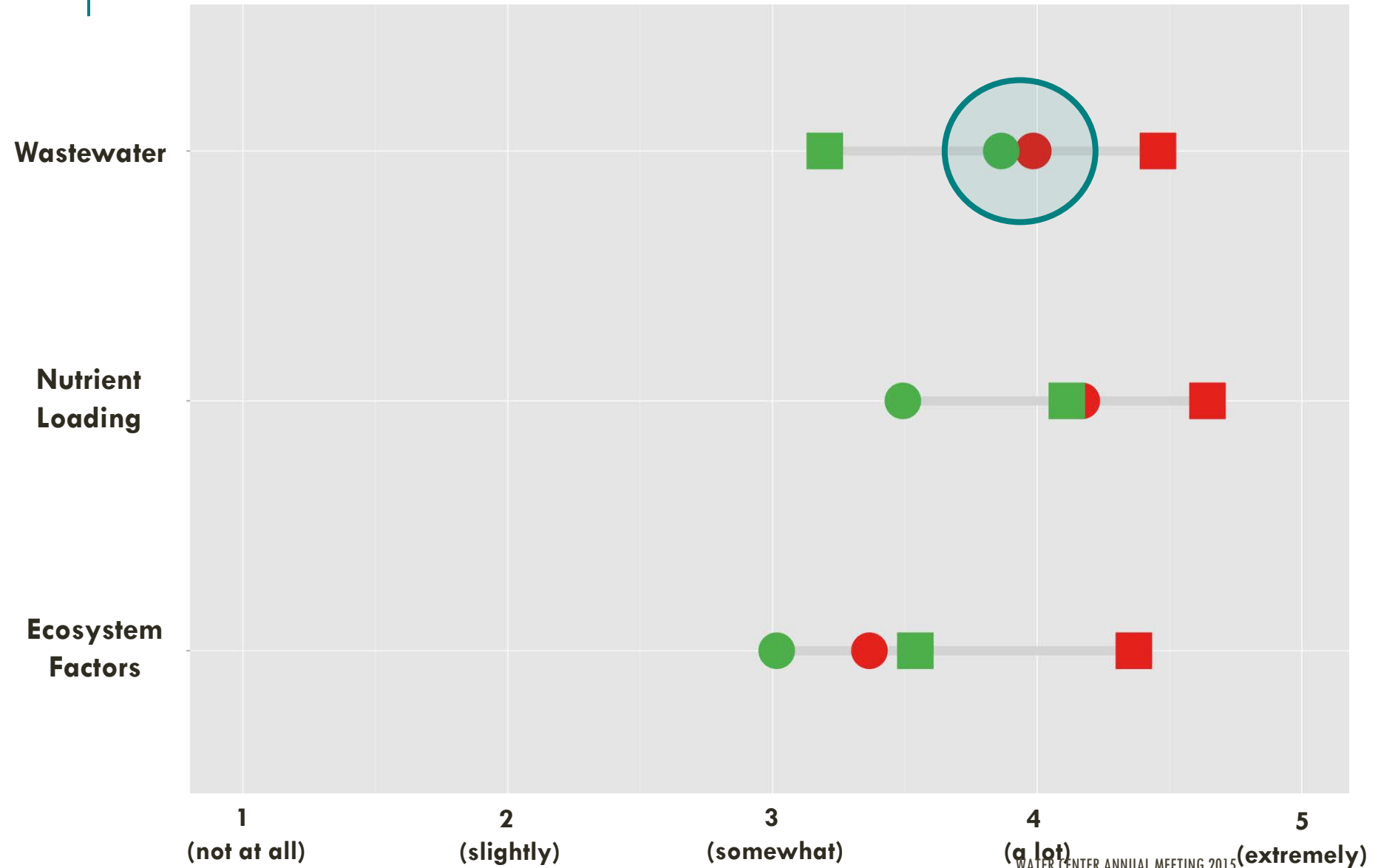
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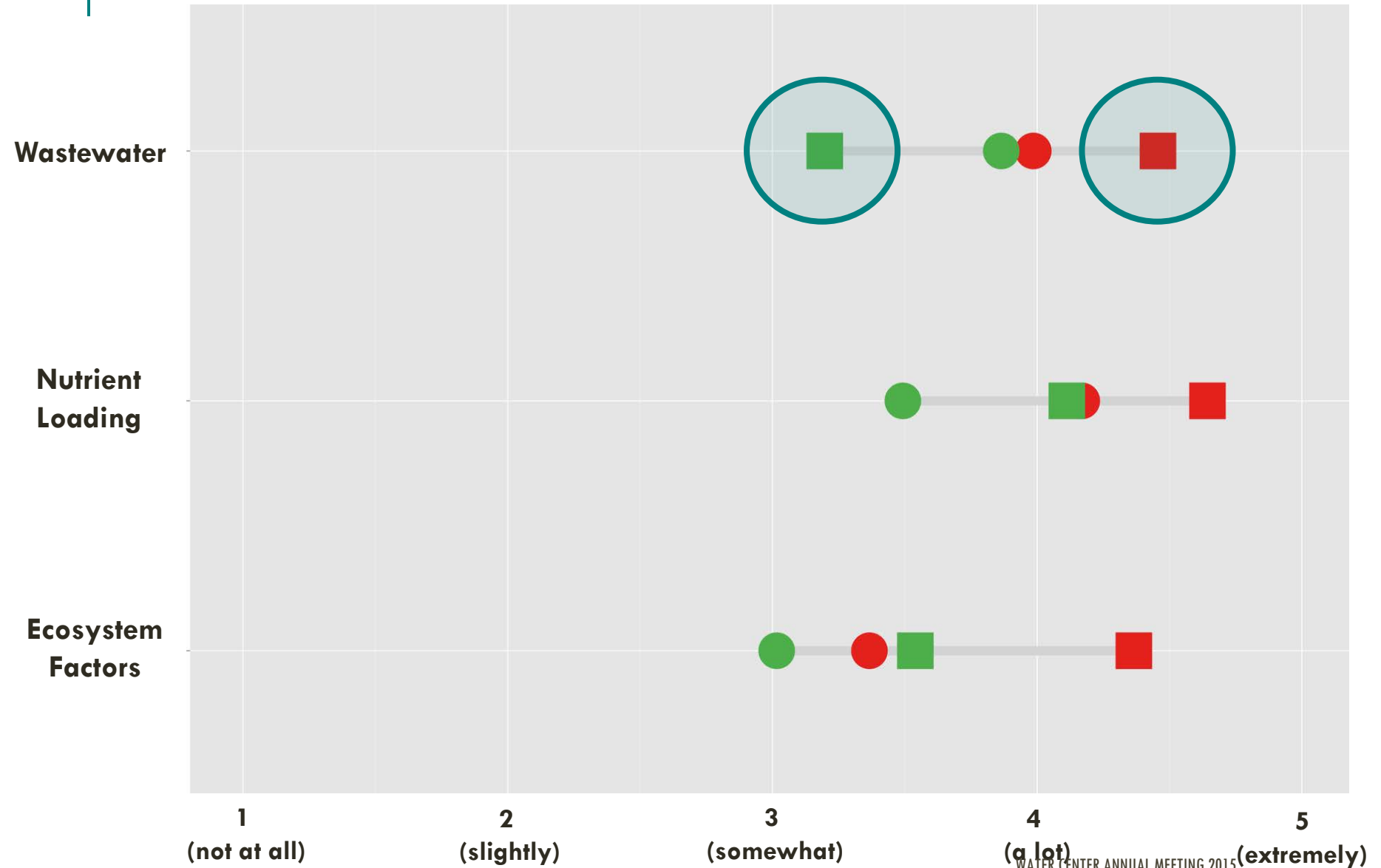
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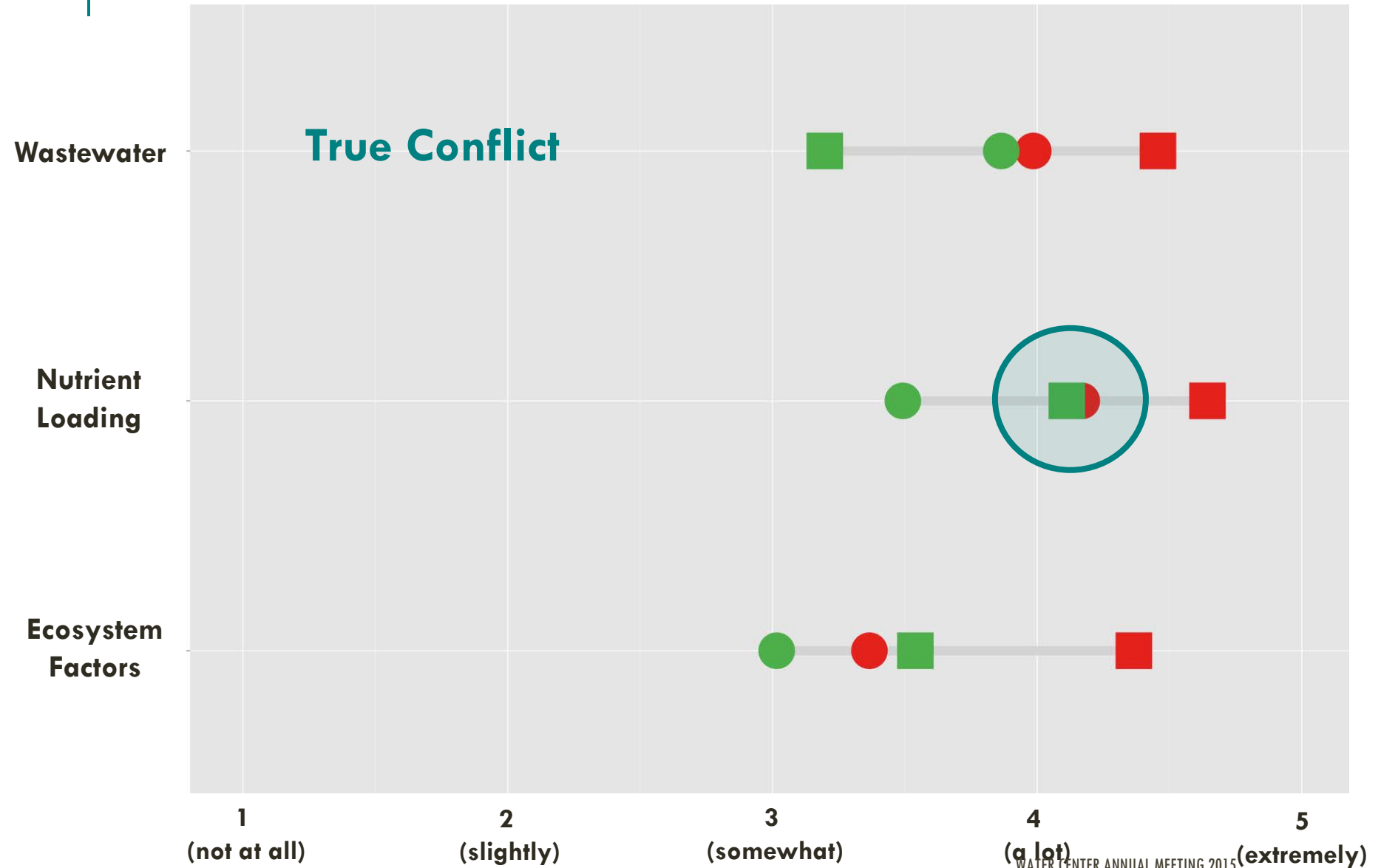
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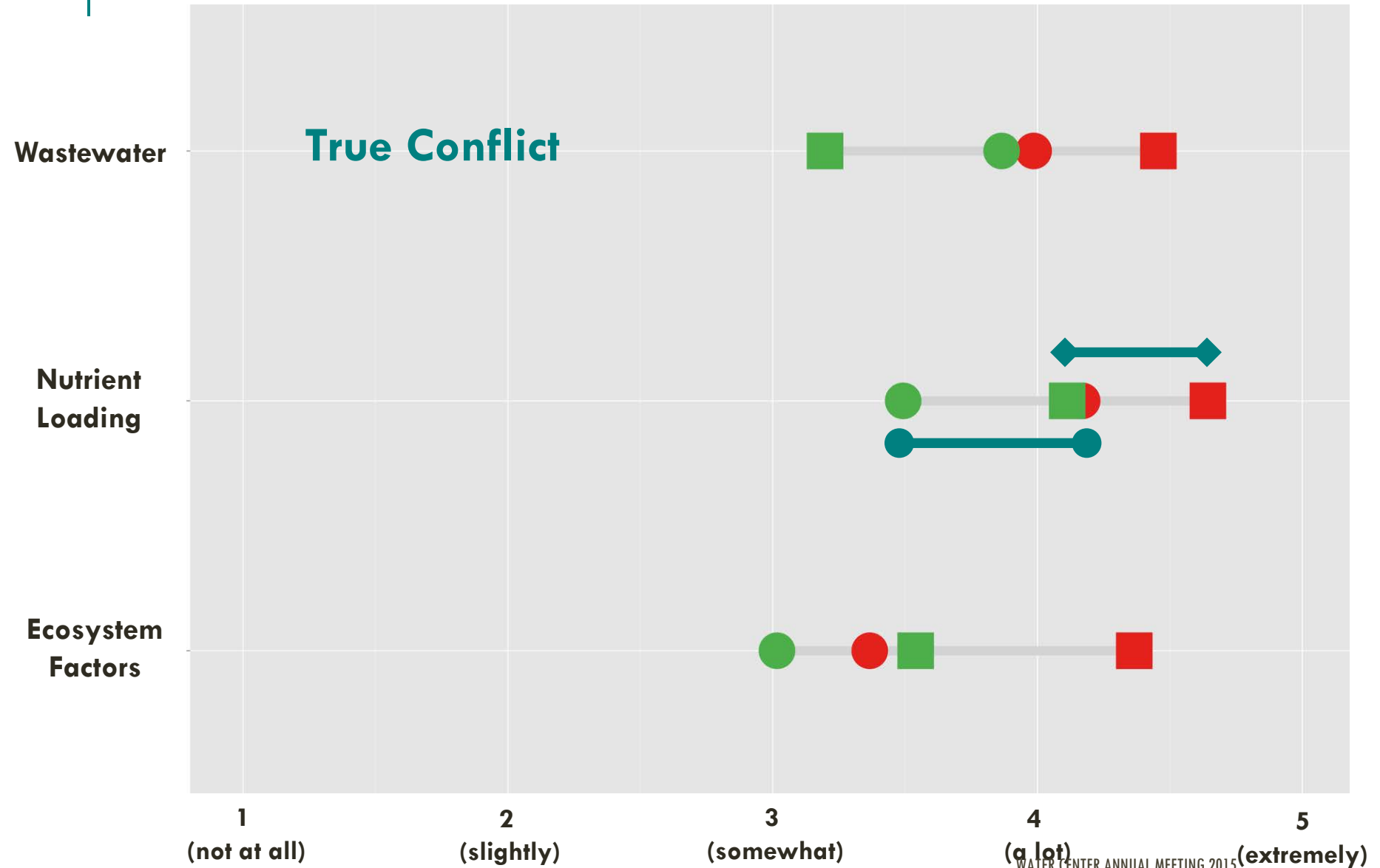
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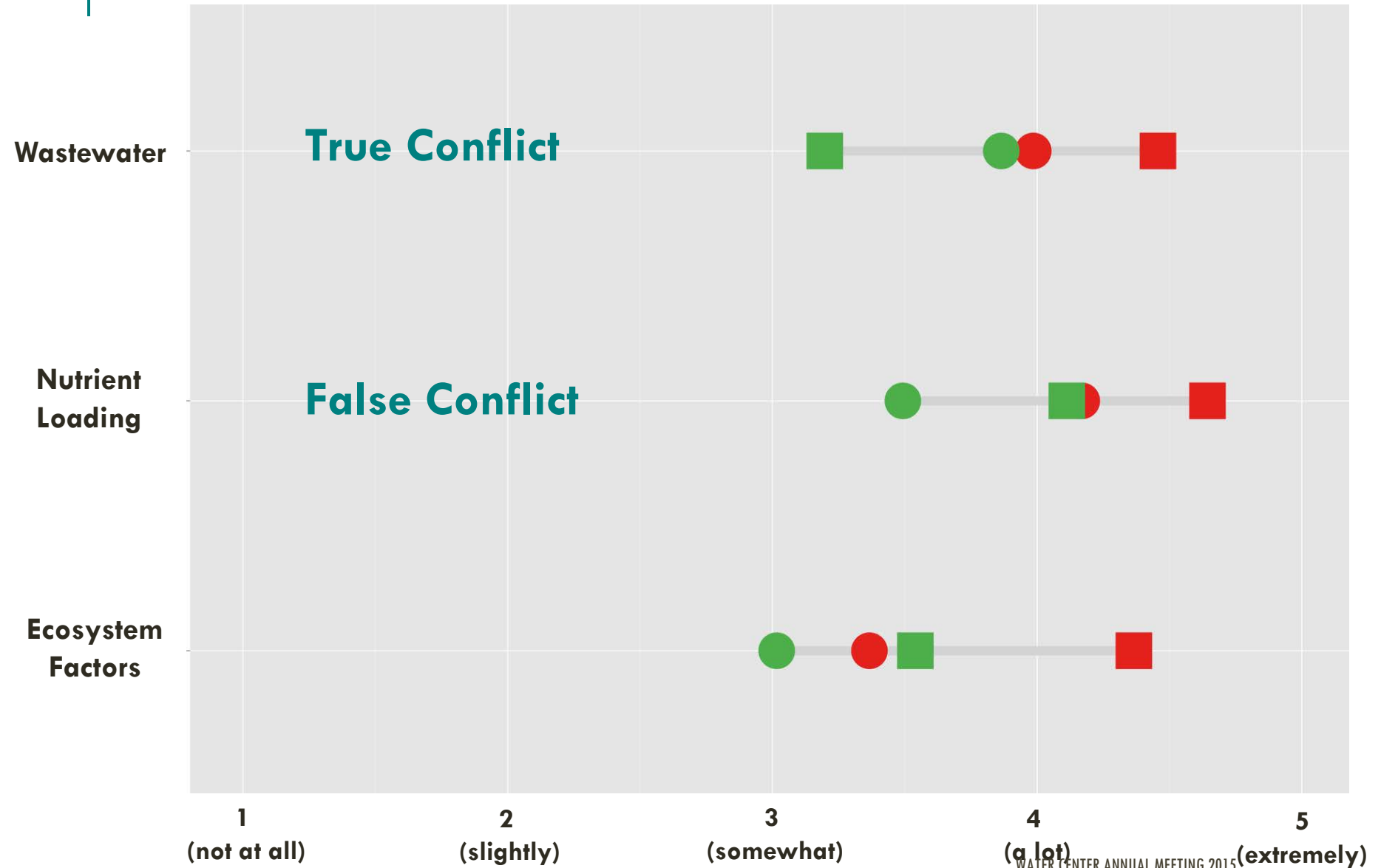
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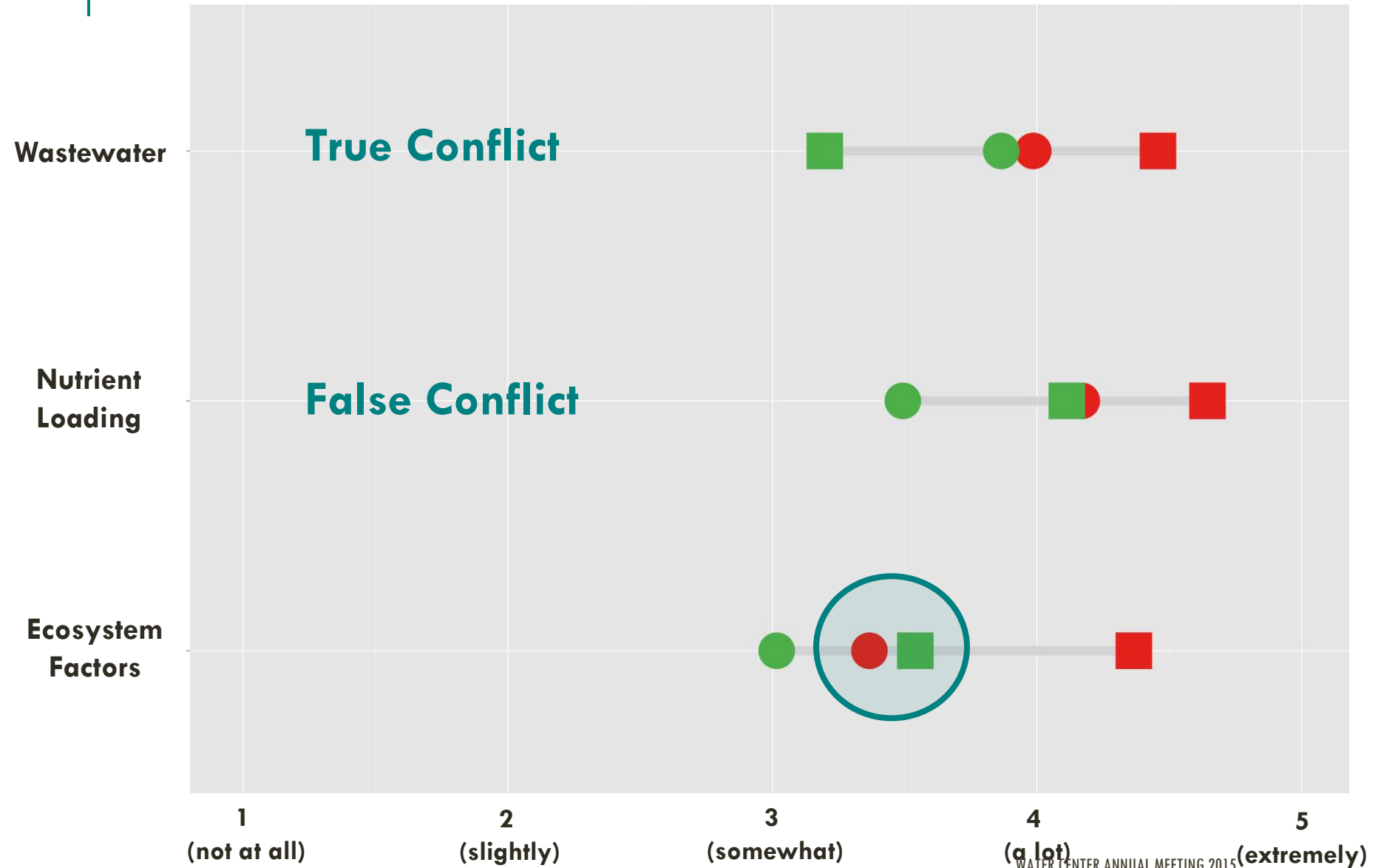
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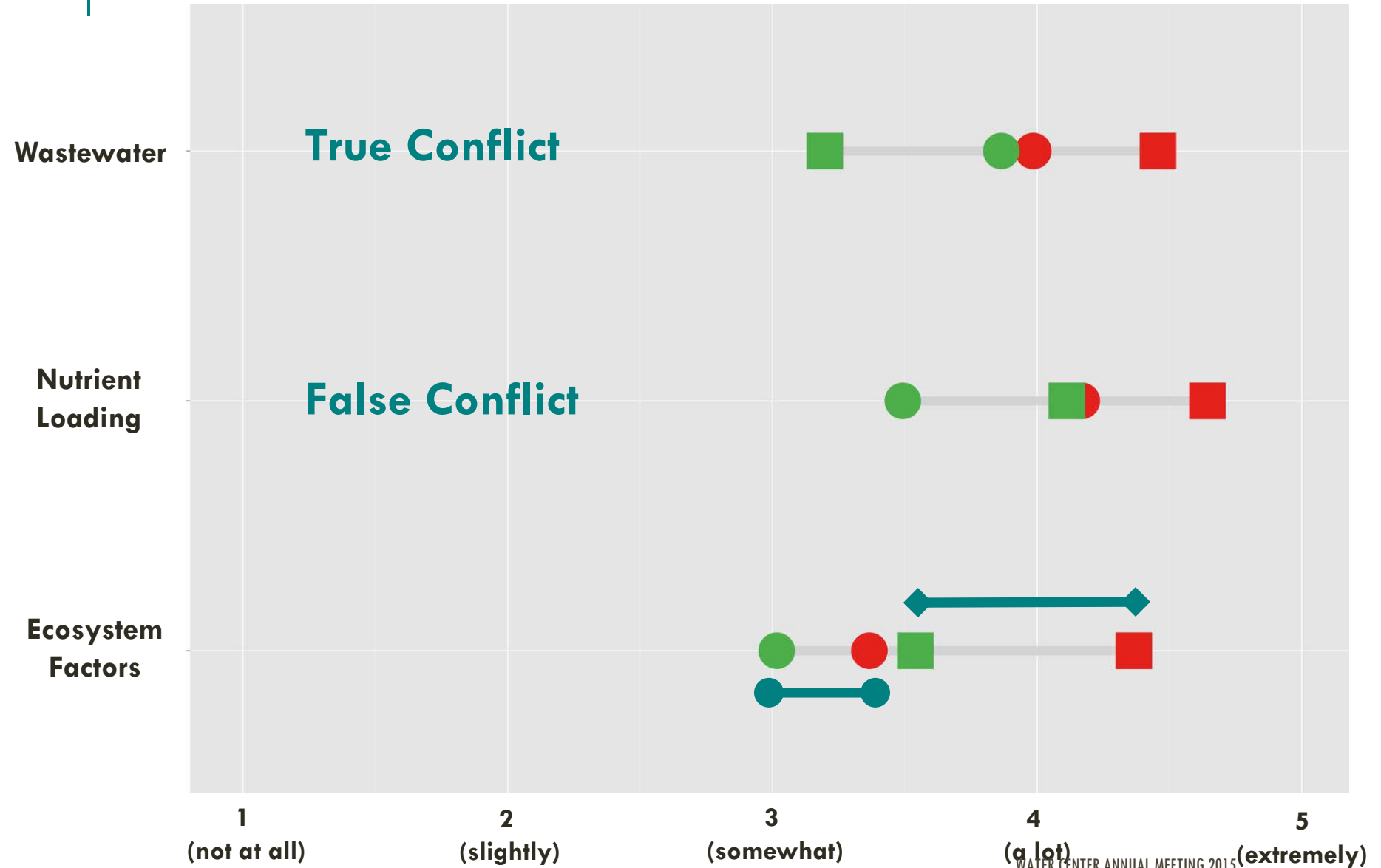
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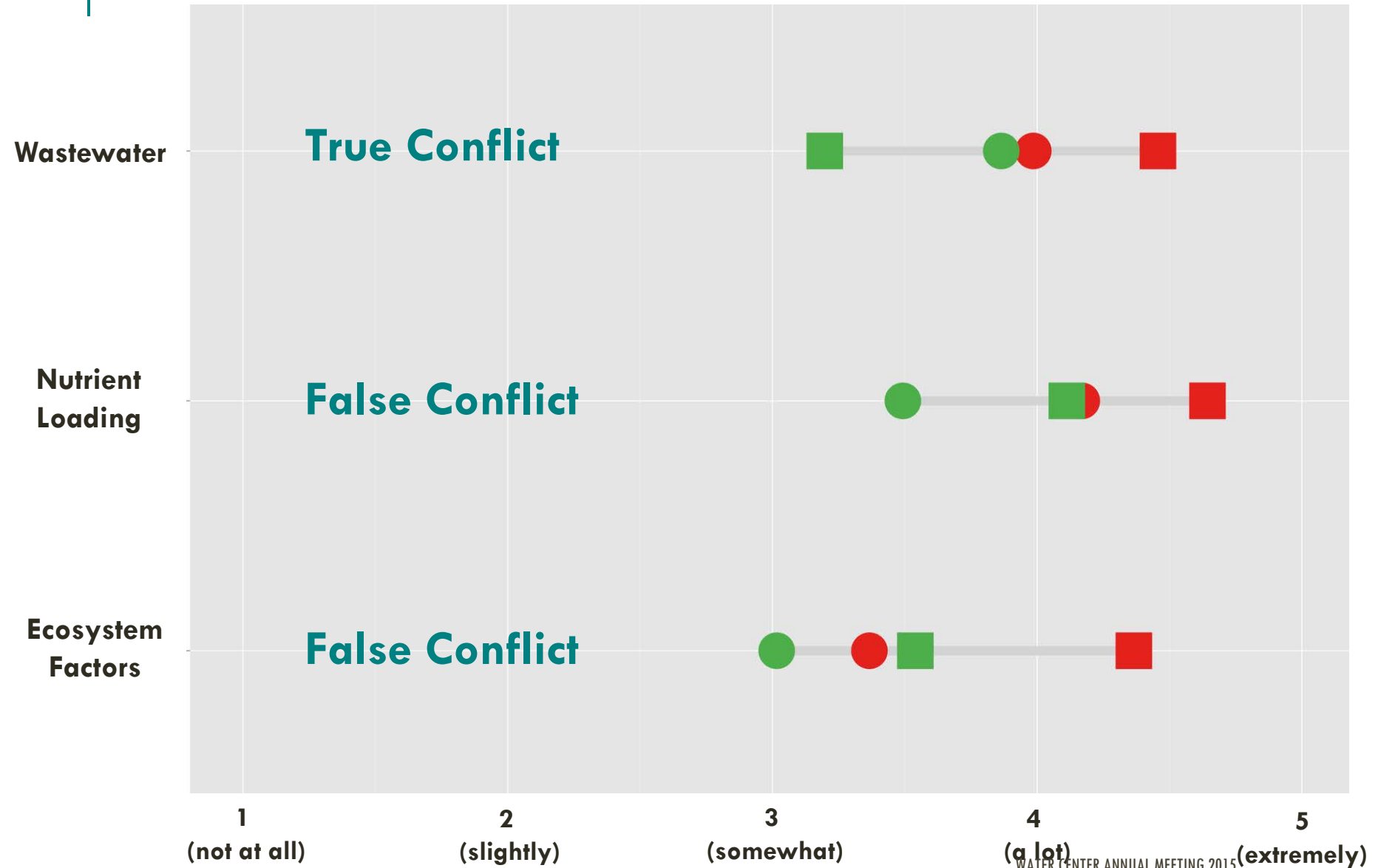
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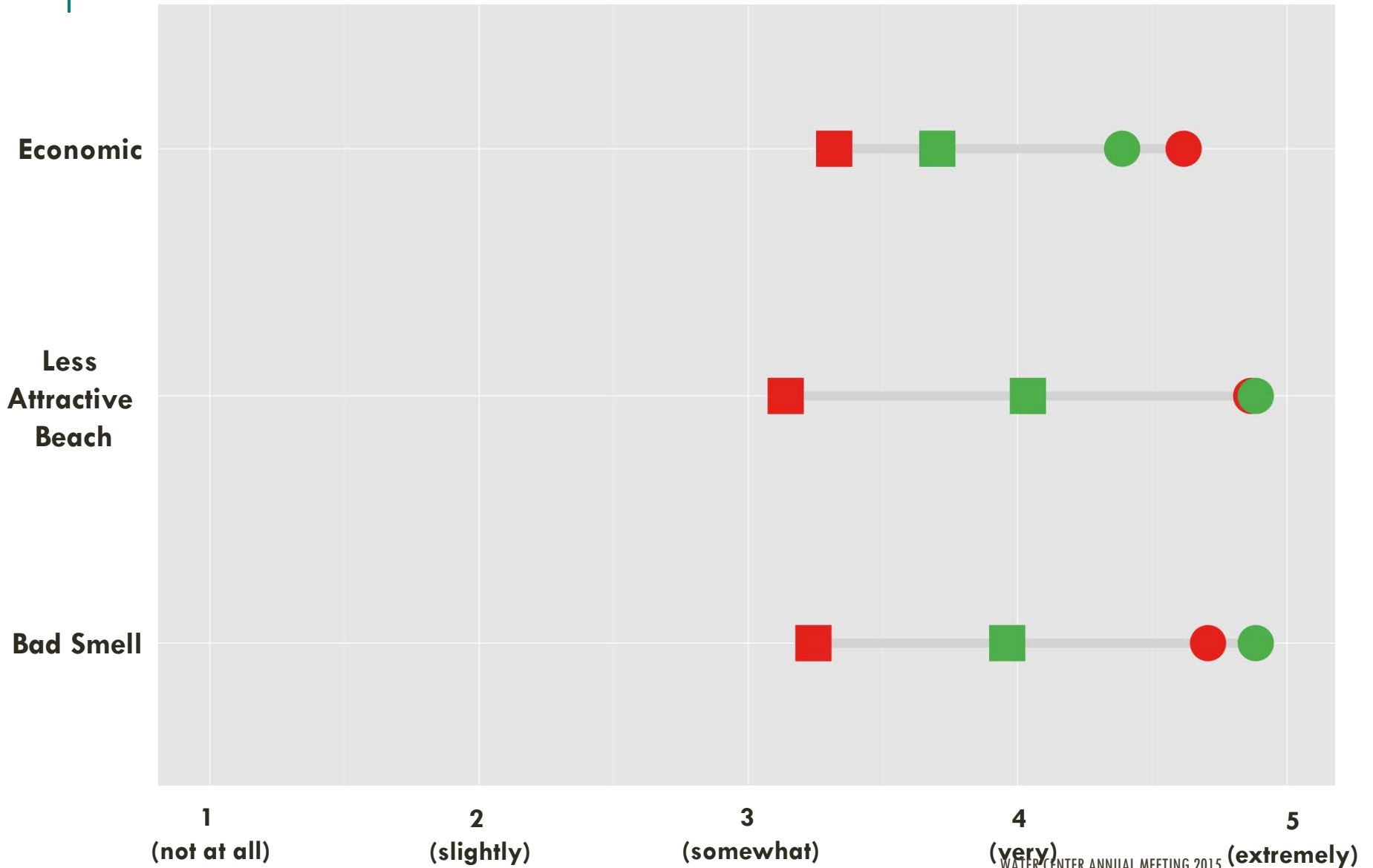
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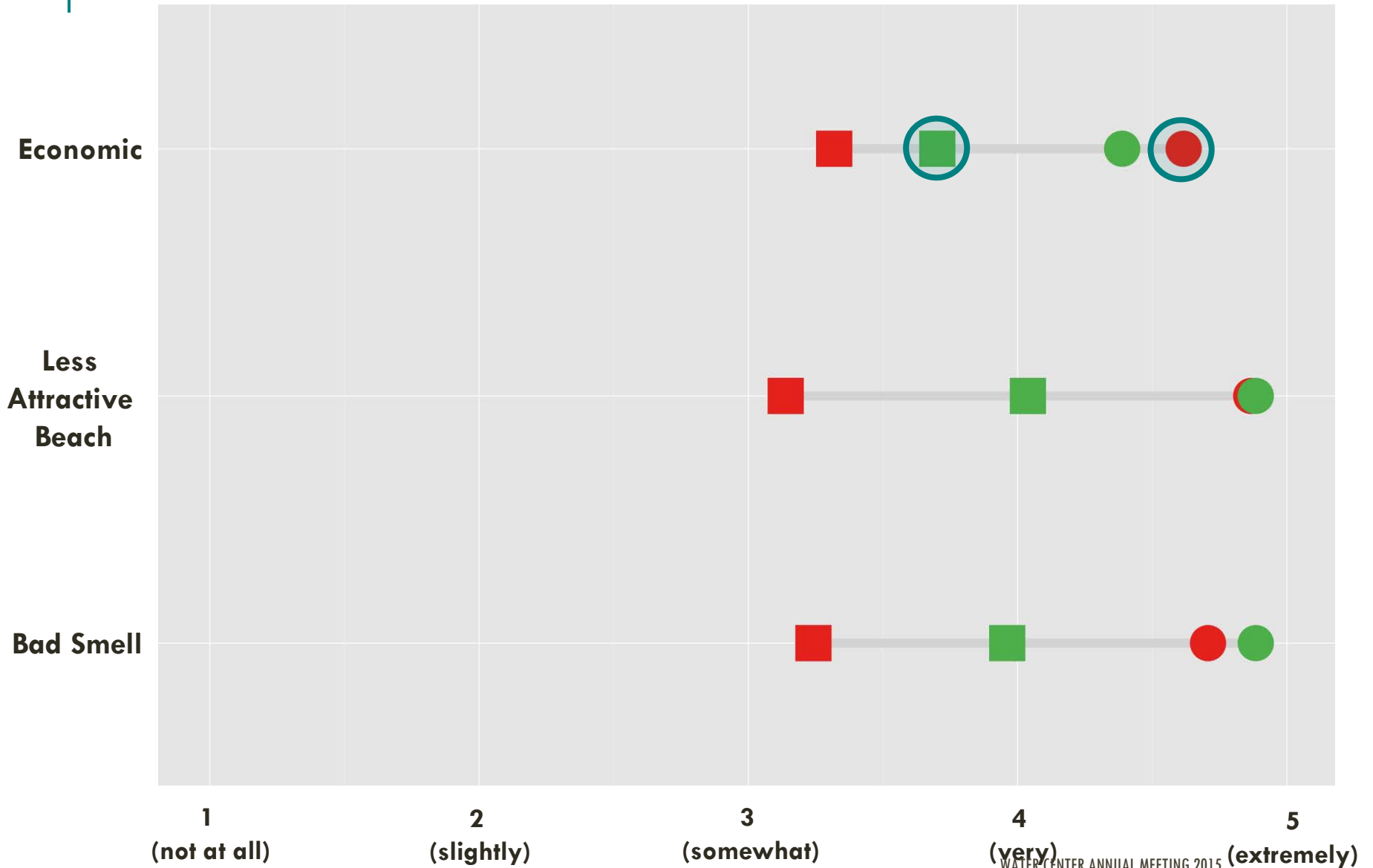
# IMPACTS OF MUCK

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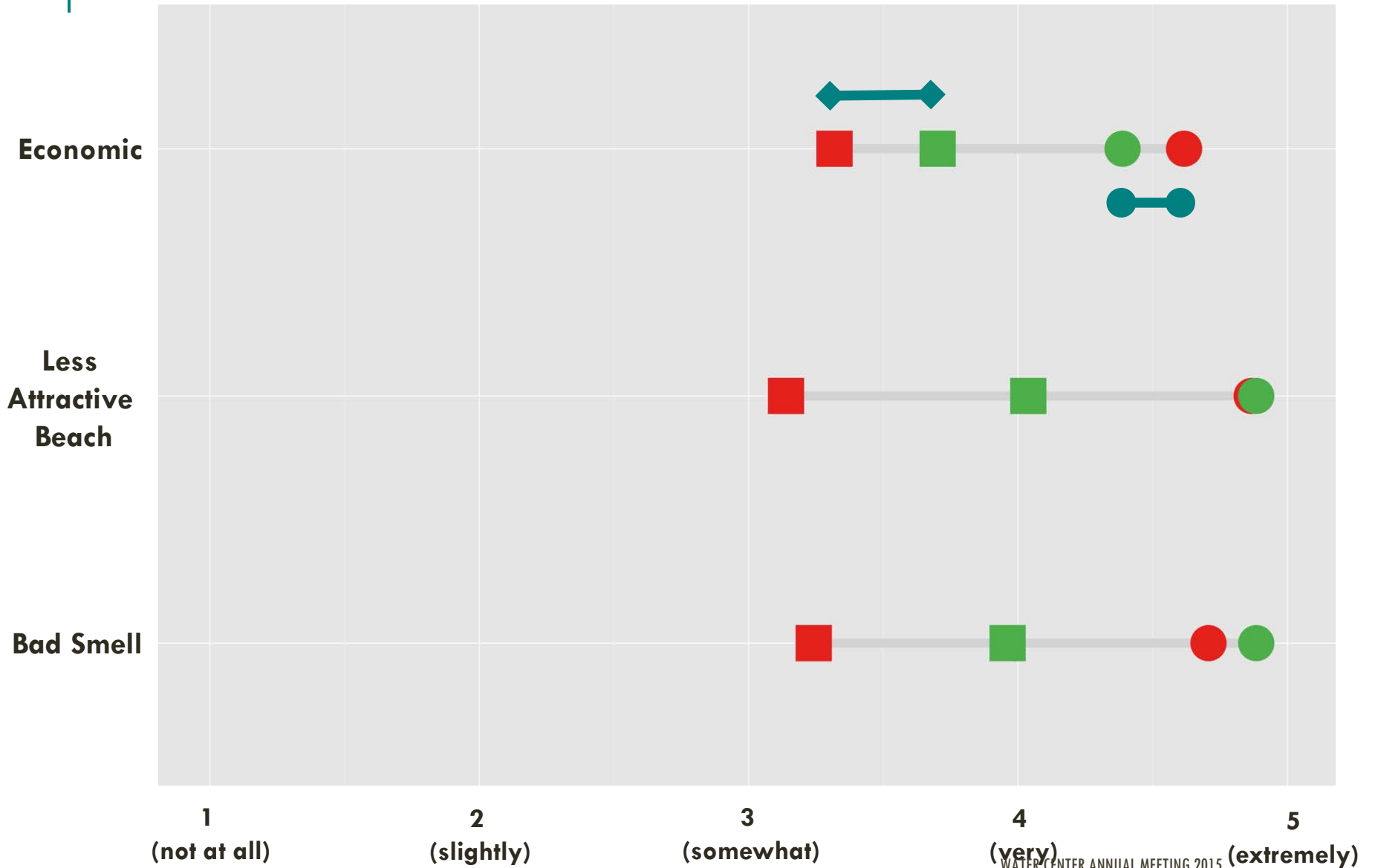
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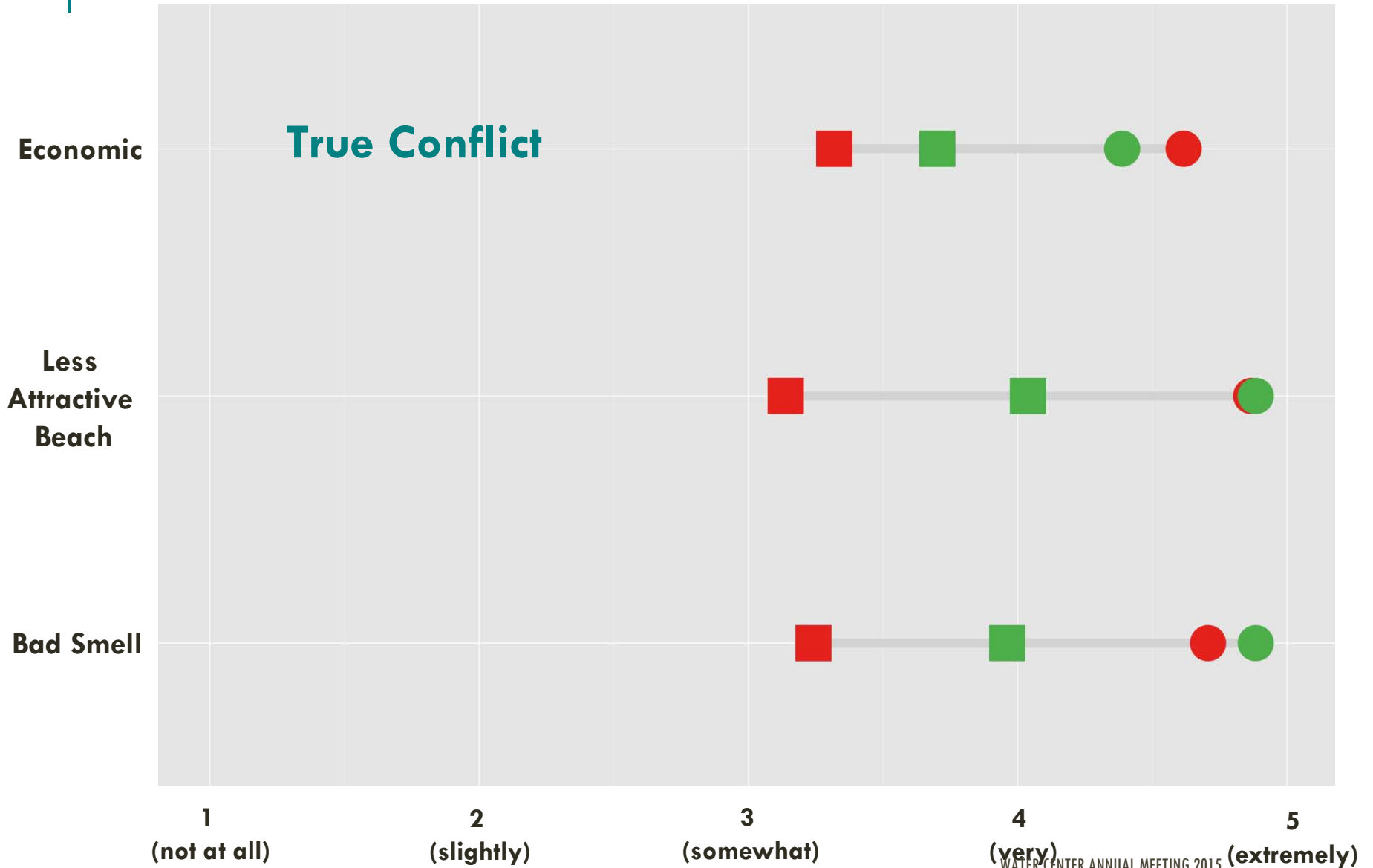
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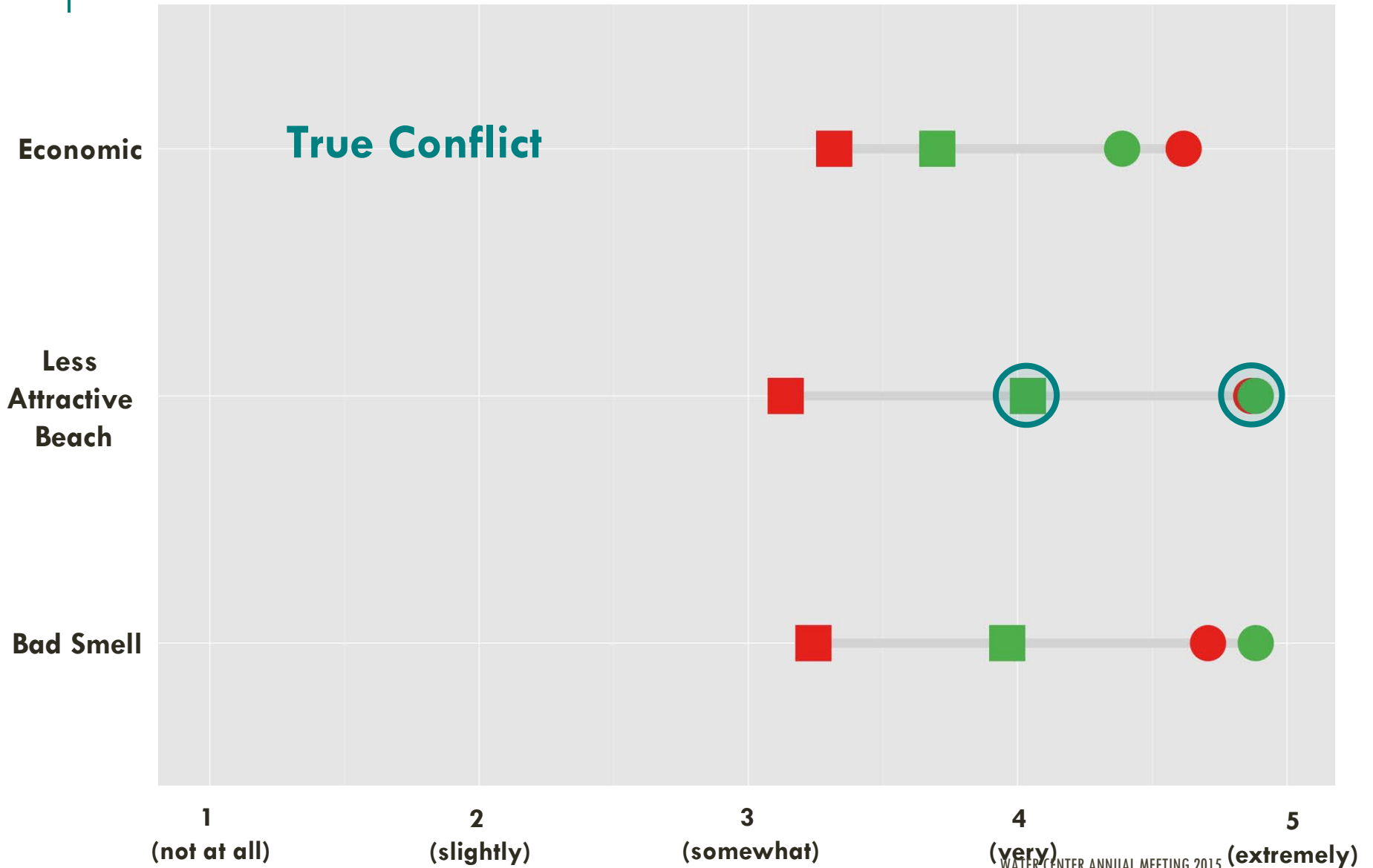
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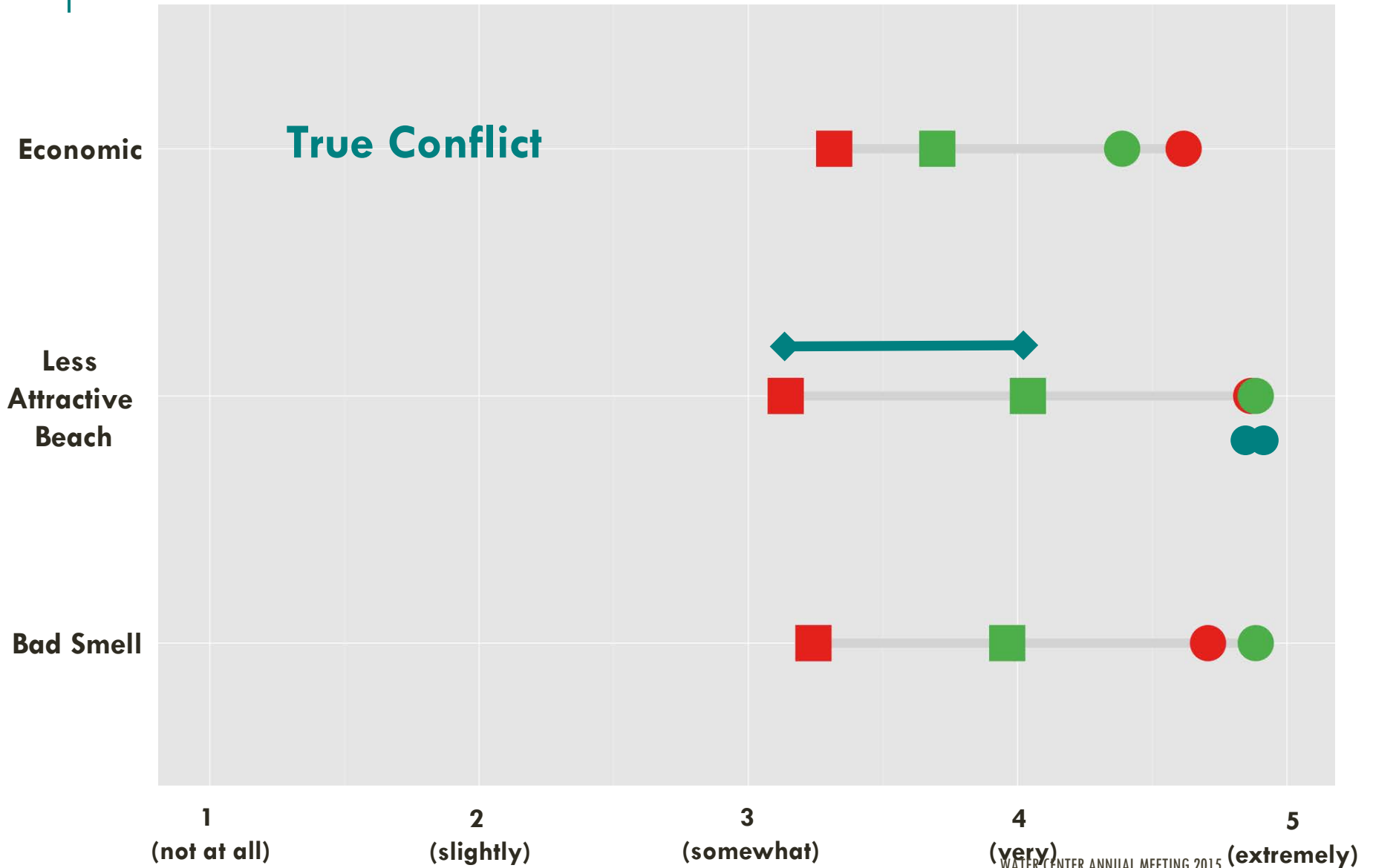
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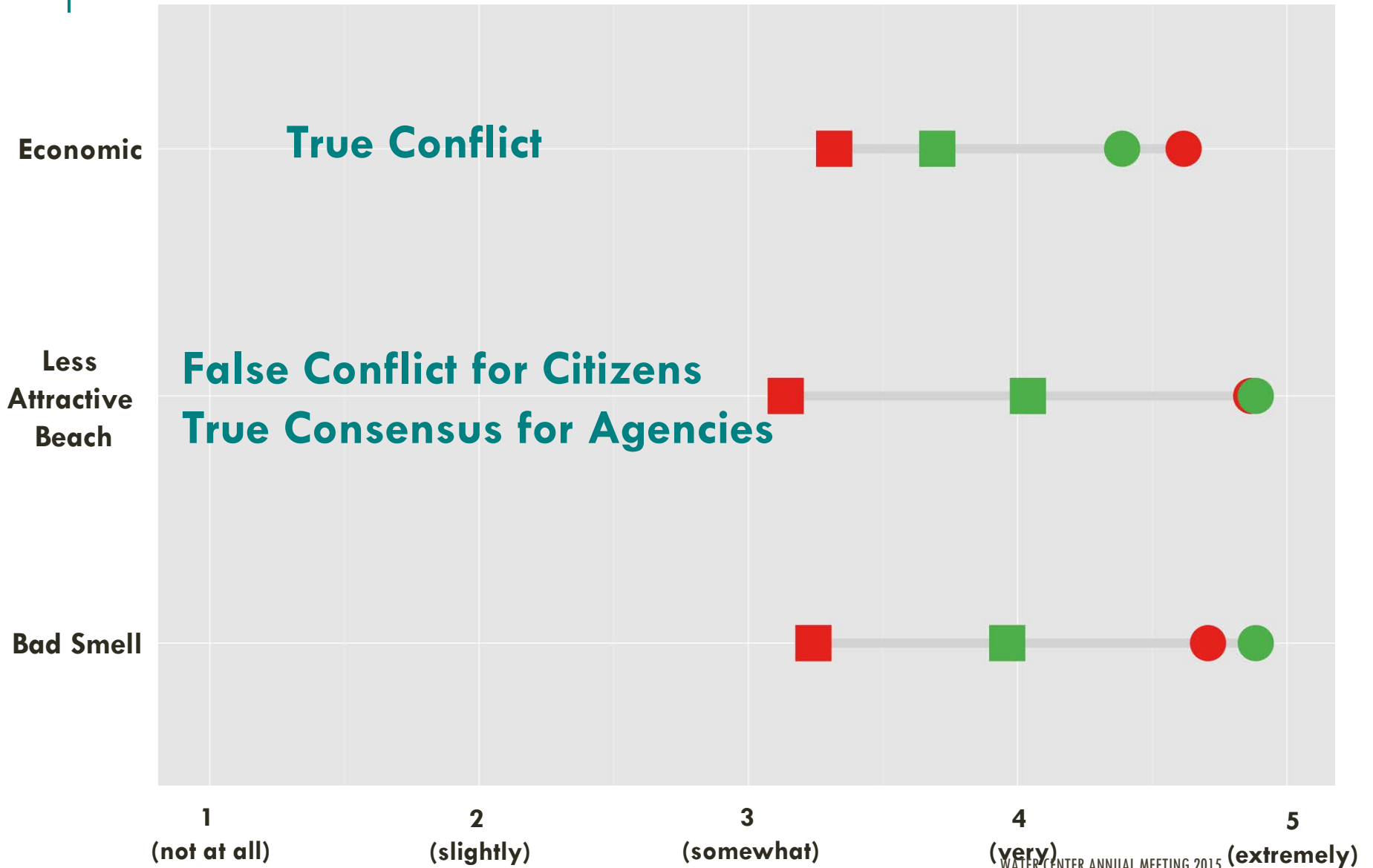
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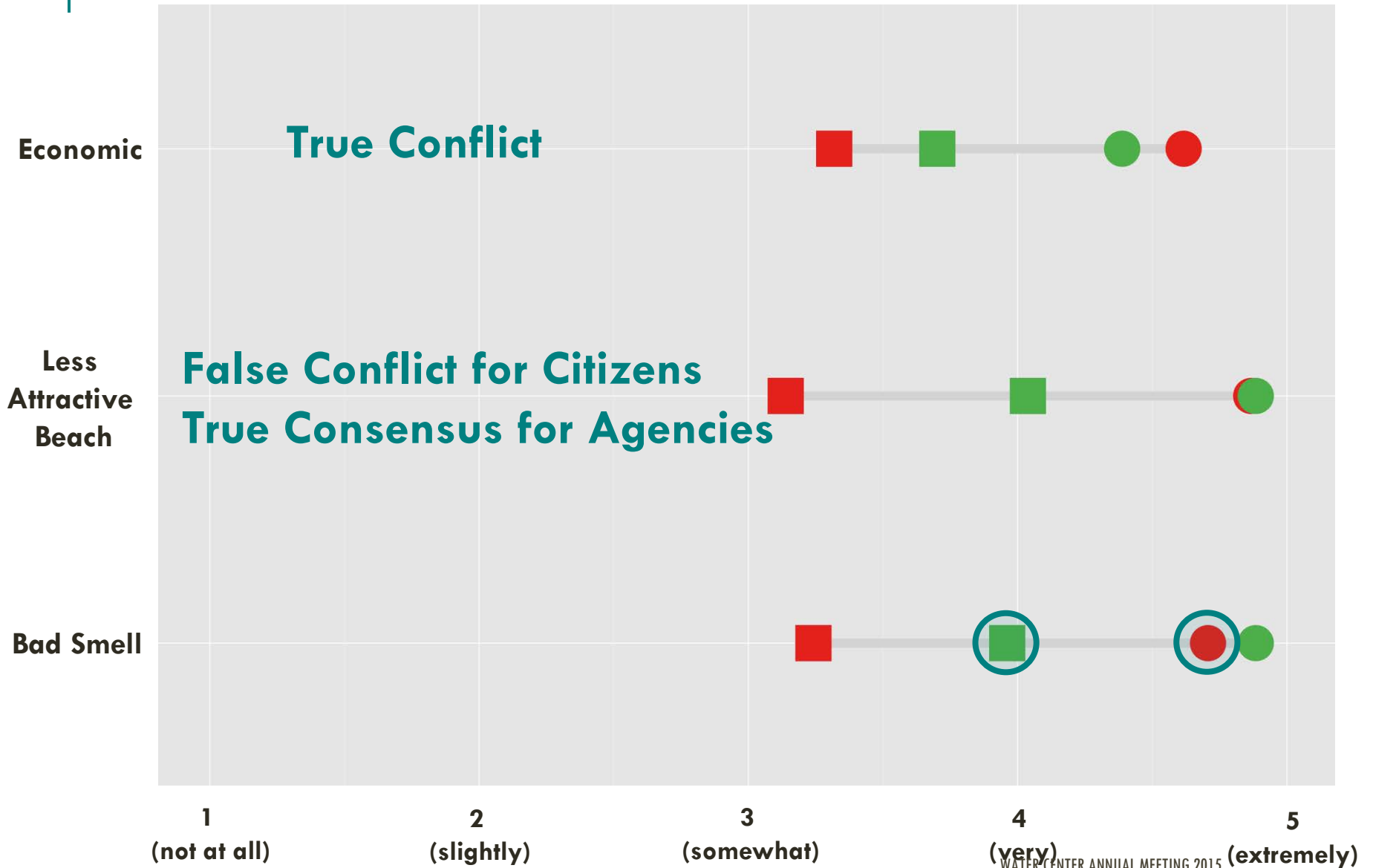
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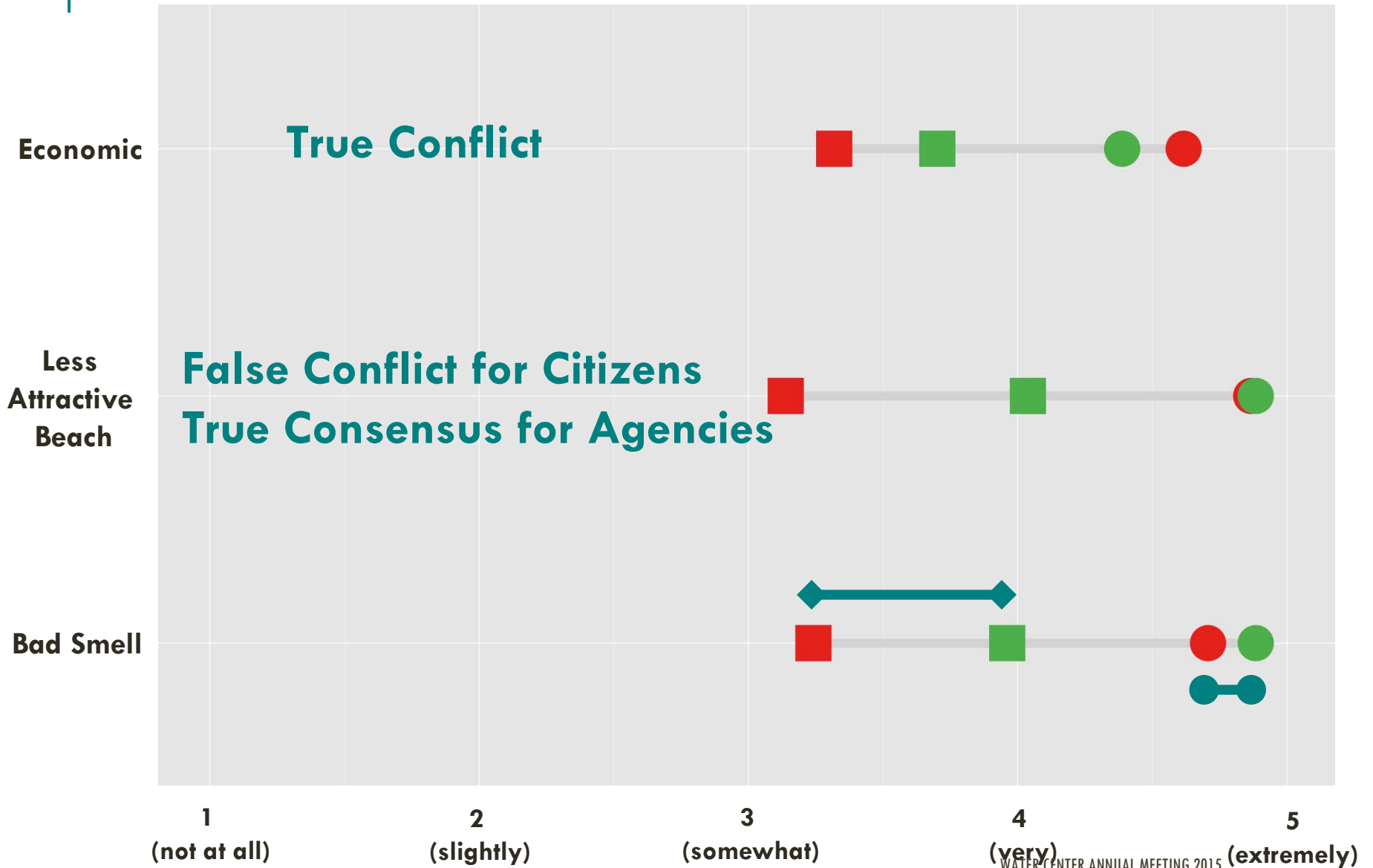
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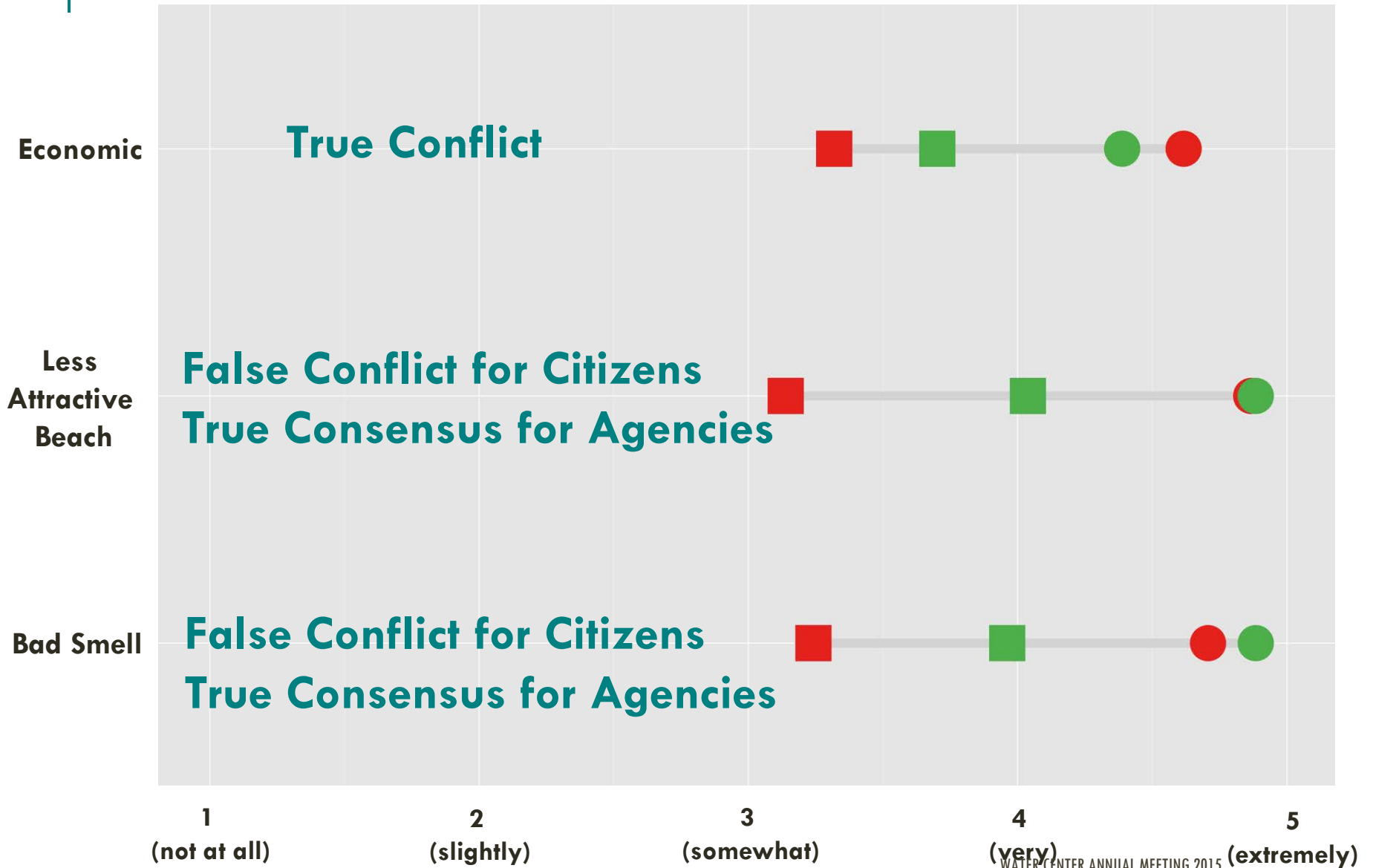
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# CO-ORIENTATION SURVEY

## Causes and Impacts

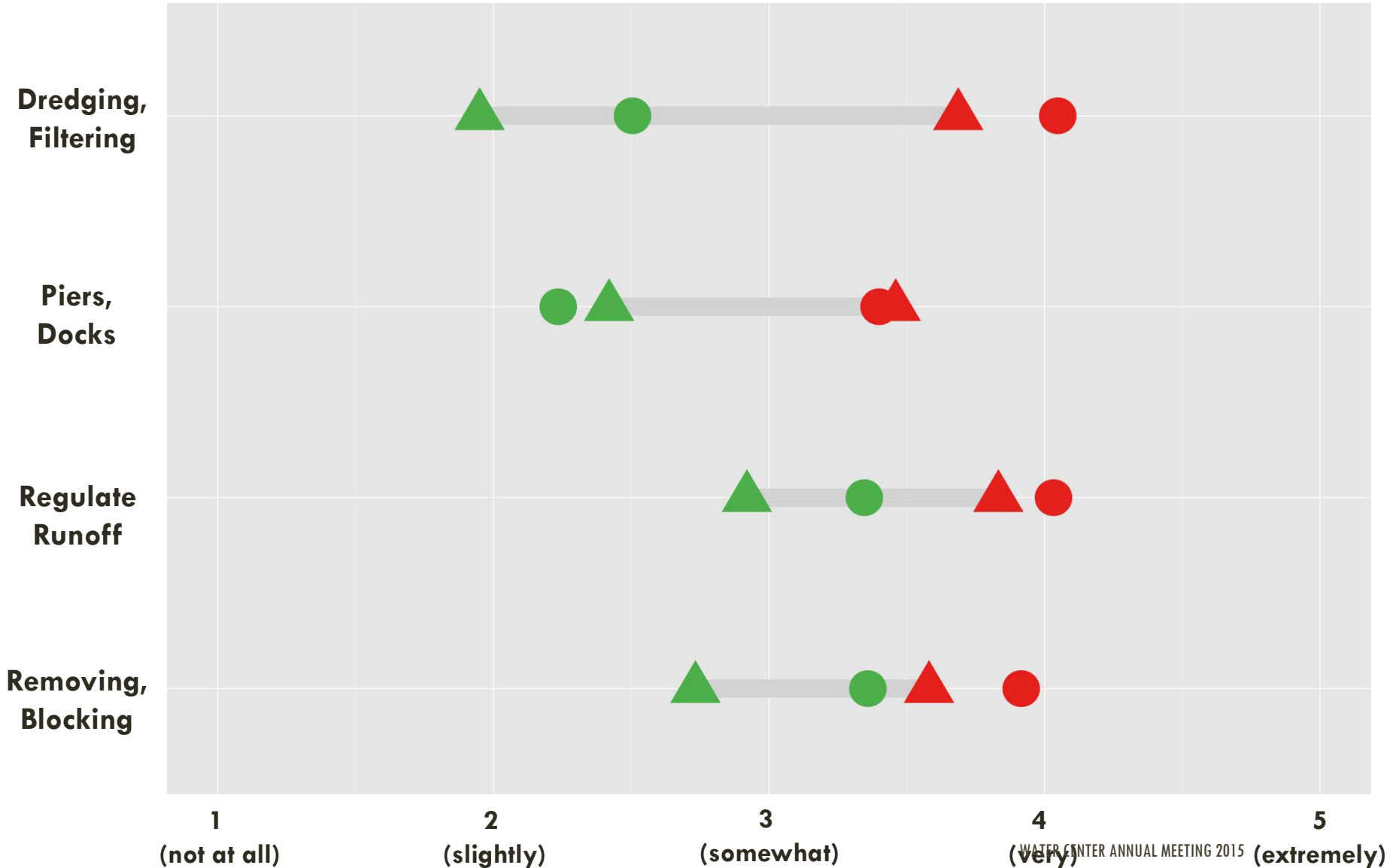
- What do you think?
- What do agencies/citizens think?

## Management strategies

- How effective?
- How practical?

# MANAGEMENT STRATEGIES

- Citizens Effective
- ▲ Citizens Practical
- Agencies Effective
- ▲ Agencies Practical

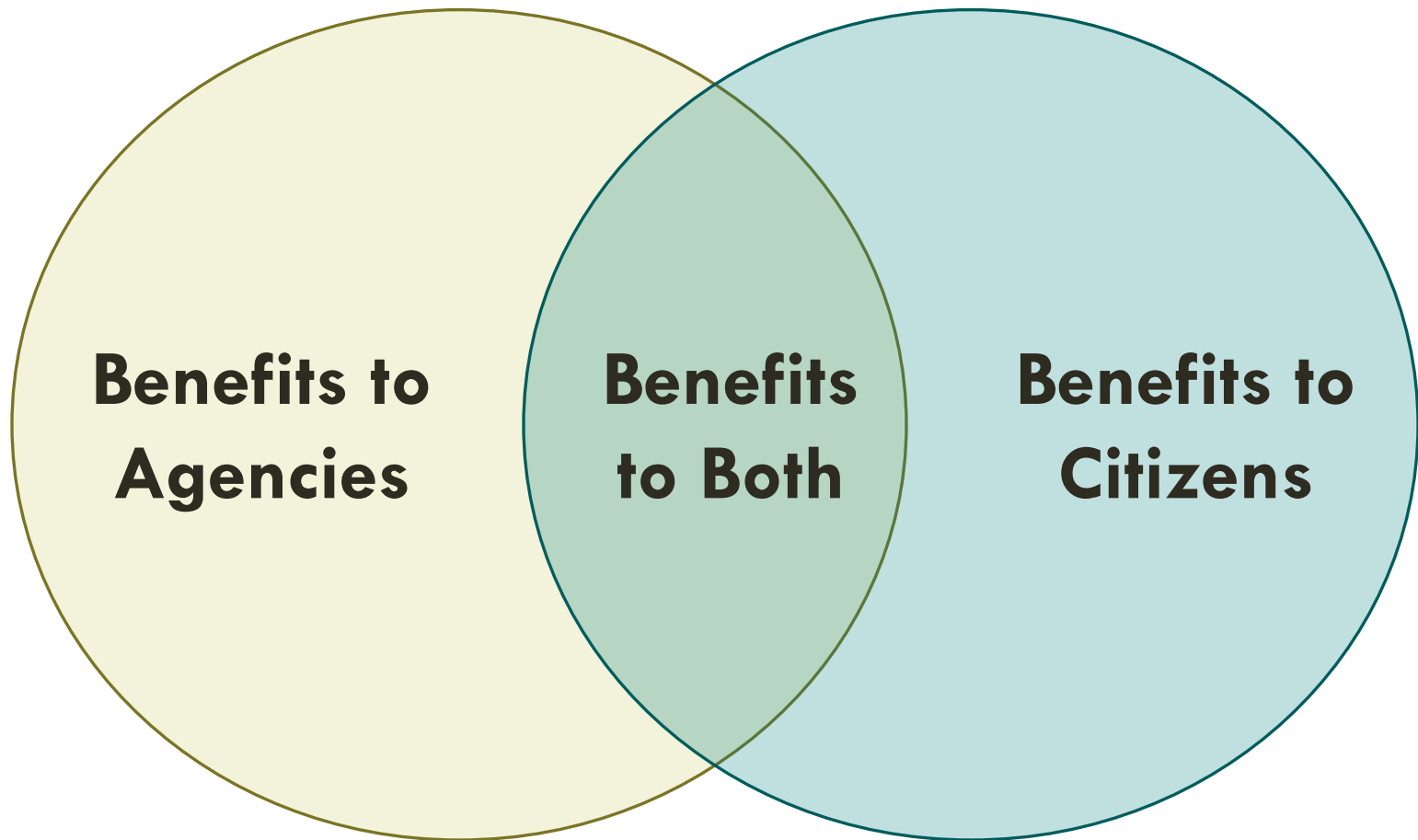


# CONCLUSIONS: WHAT DO THESE RESULTS TELL US?

- Citizens are more knowledgeable than they are given credit for
- Agencies are more concerned than they are given credit for

...but there are important differences

# CONCLUSIONS: WHY USE THESE TECHNIQUES?



# THANK YOU!

Avik Basu, PhD

[abasu@umich.edu](mailto:abasu@umich.edu)

Jason Duvall, PhD

[duvallj@umich.edu](mailto:duvallj@umich.edu)

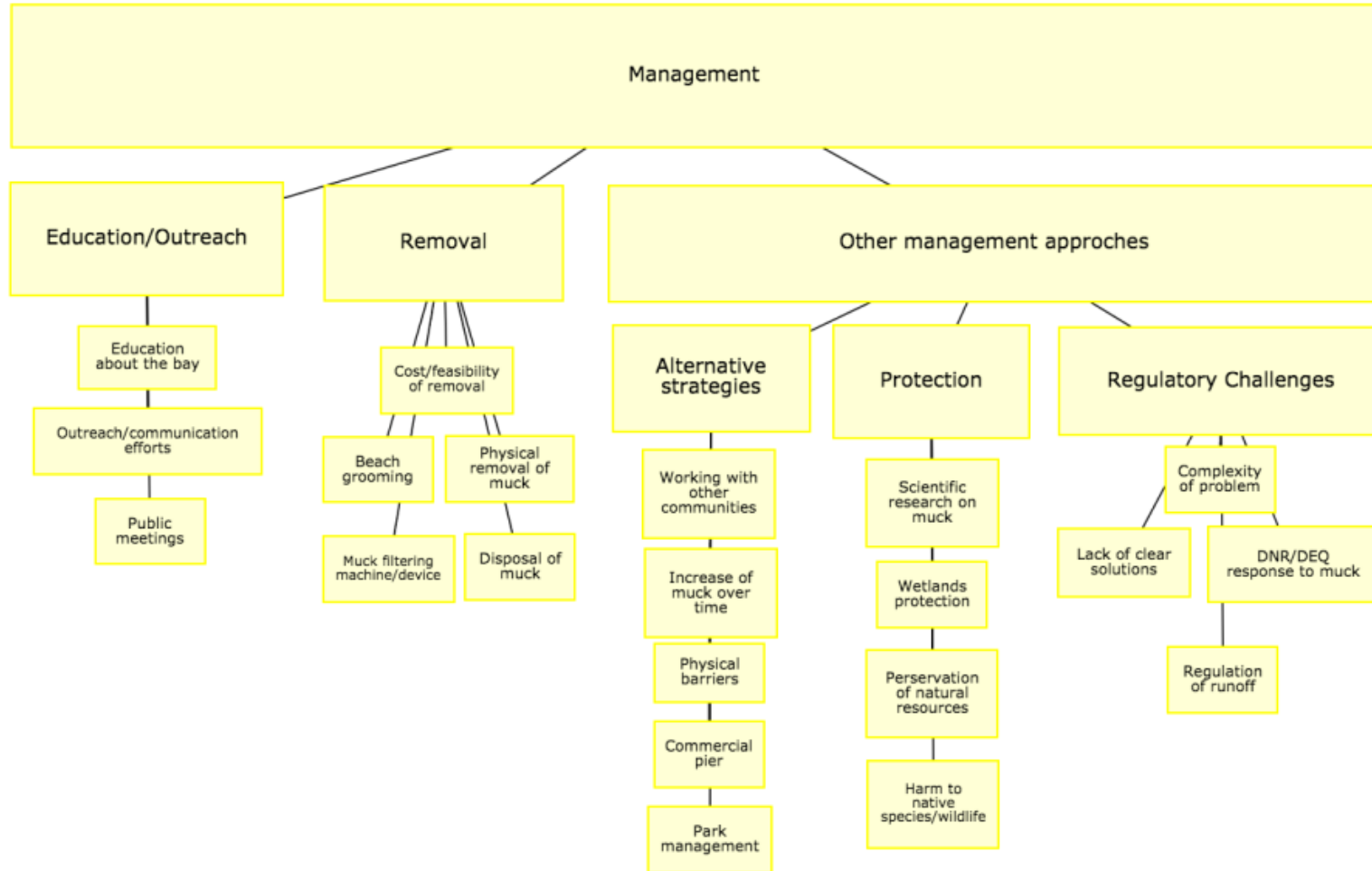
Jennifer Carman

[jpcarman@umich.edu](mailto:jpcarman@umich.edu)

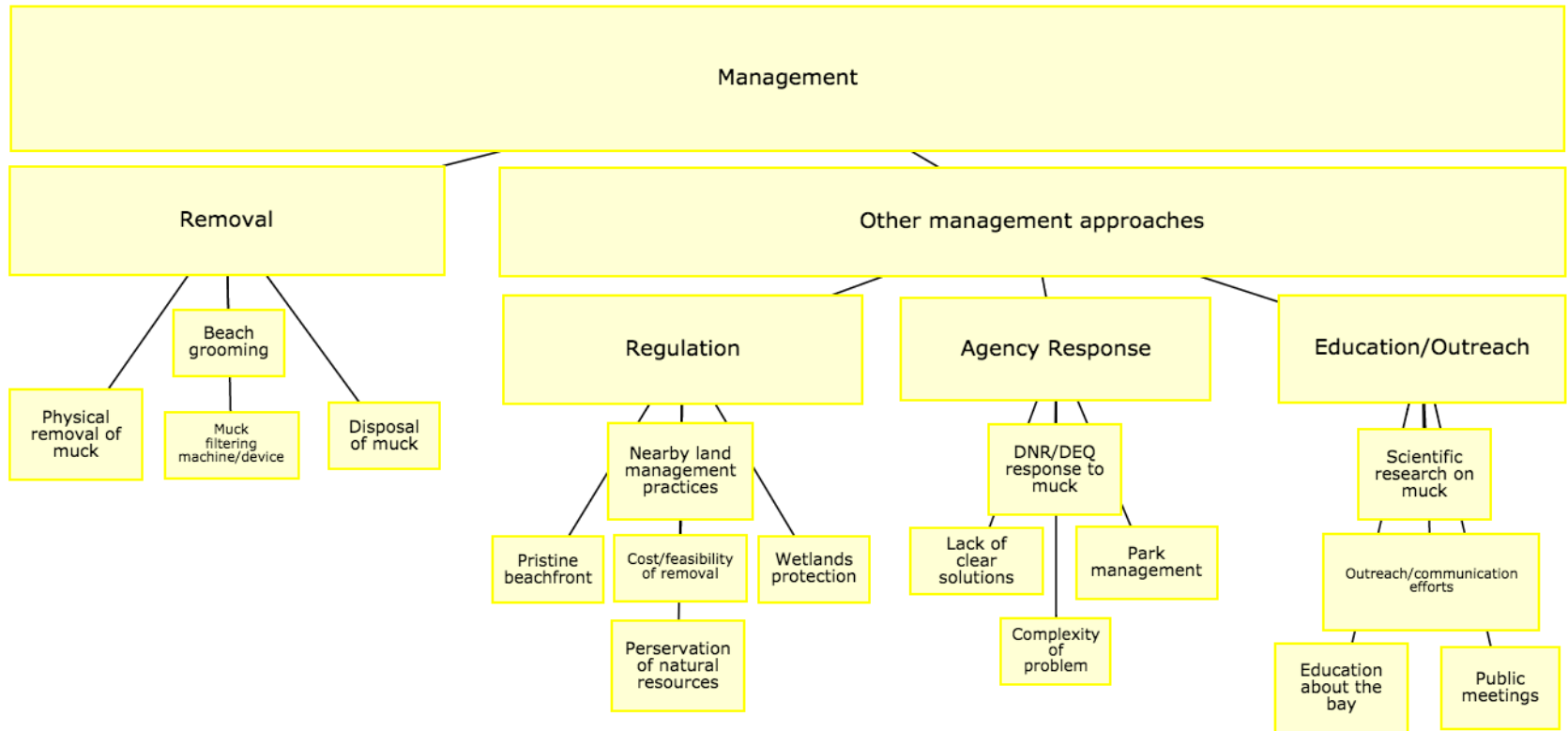


# ADDITIONAL SLIDES

# MAPS: MANAGEMENT – EXPERTS



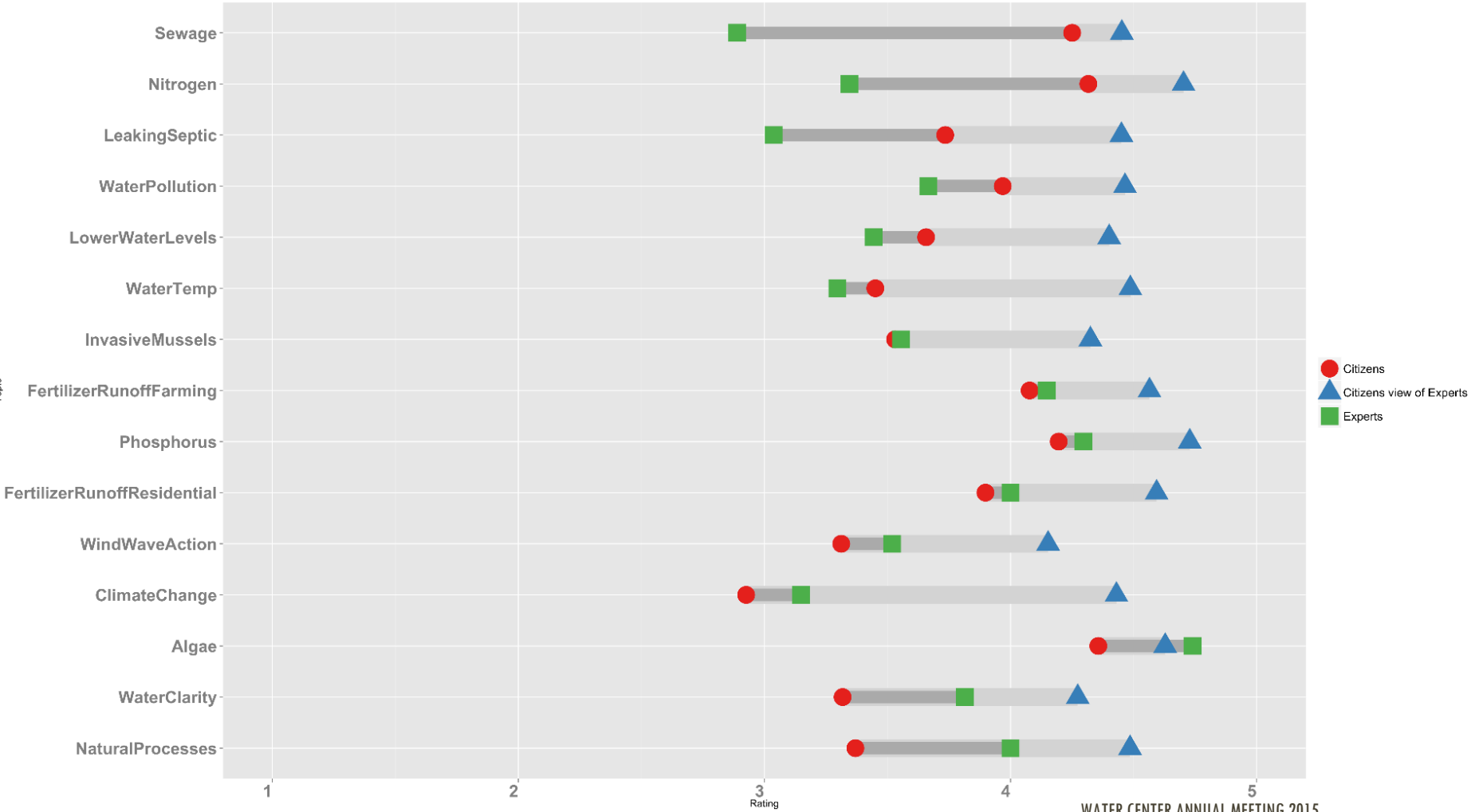
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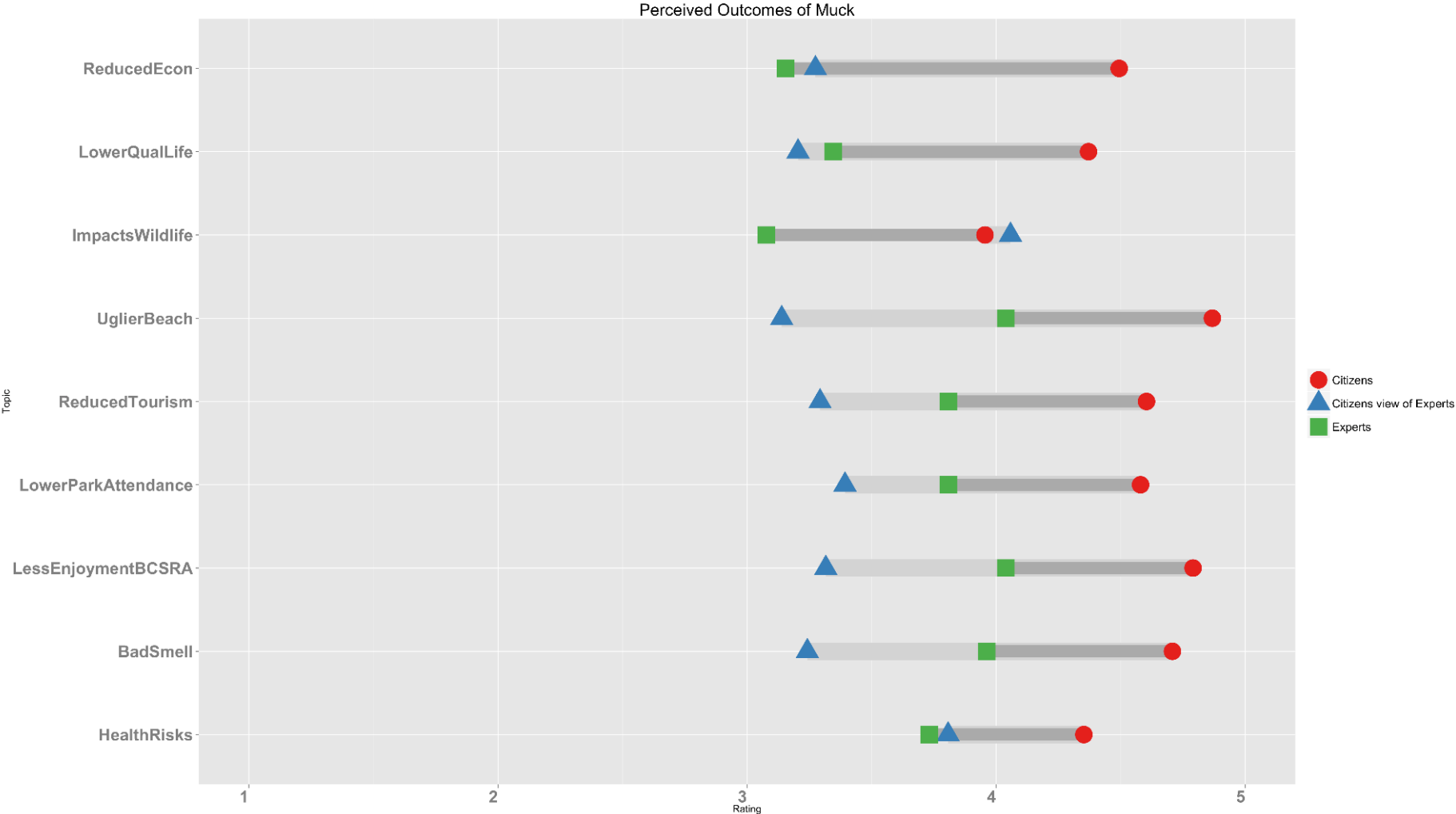


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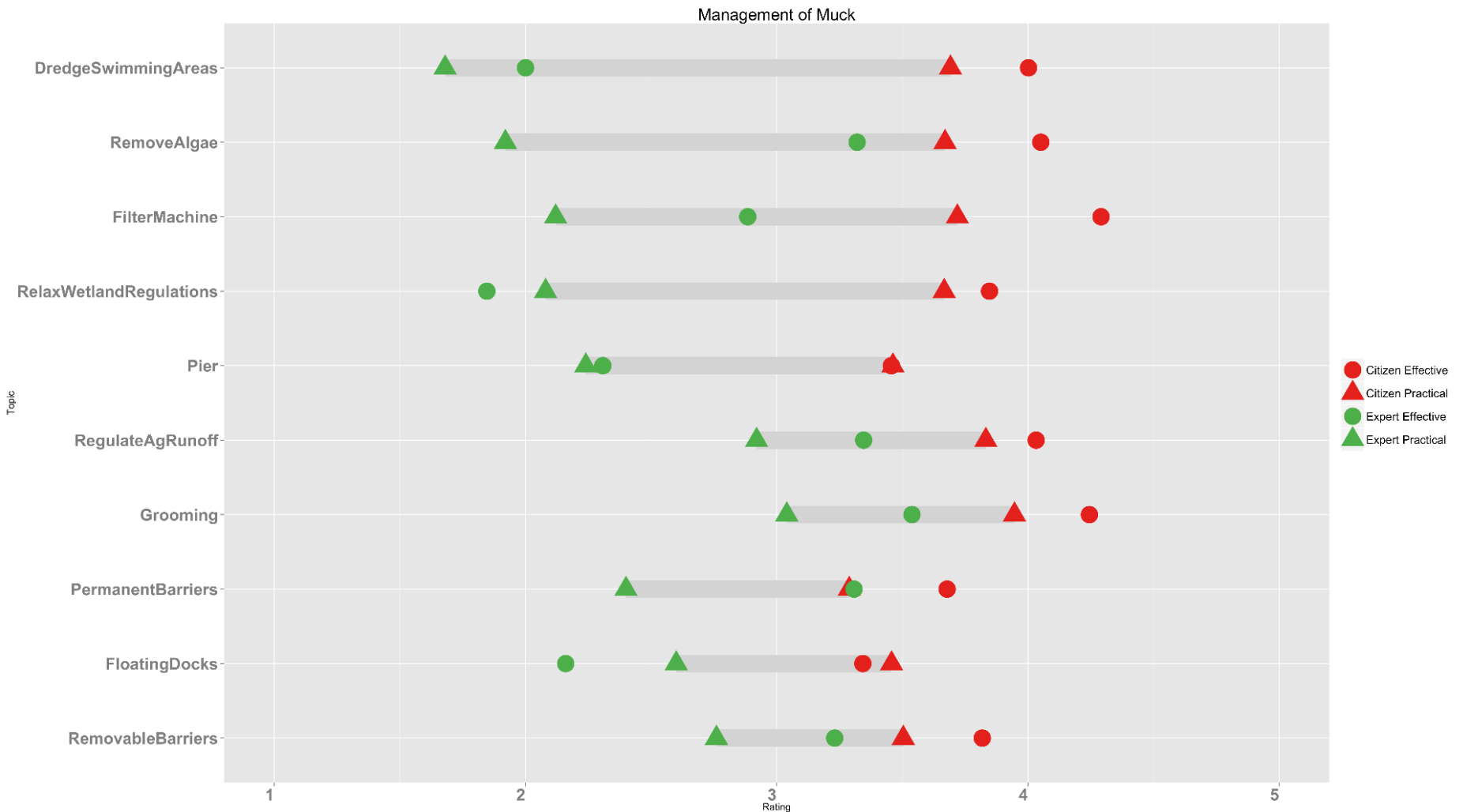
Perceived Causes of Muck



# IMPACTS OF MUCK



# MANAGEMENT STRATEGIES



# PUBLIC PARTICIPATION & RESOURCE MANAGEMENT

Desirable, but often difficult to implement

- Agencies and citizens have different mental models
- Curse of expertise

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