

Scientists, Communication, & Publics

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*Uses & Practices of Community Dialogue in
Geosciences & Environmental Sciences
Engaged Scientist Series: CIRES Public*

OVERVIEW

PUBLIC LECTURE (4-5PM)

DINNER (5:30-6PM)

PRAXIS WORKSHOP:

ENGAGEMENT THEORY IN PRACTICE (6-8:30PM)



“One need only consider the controversies surrounding climate change, vaccinations, and genetically modified food to understand that learning to communicate better with the public is a worthwhile endeavor.

Whatever the reason may be for scientists sticking to the deficit model, it should not be a deficit in knowing about communication theory.”

— co-founder of SciComm Hub Amanda Freise



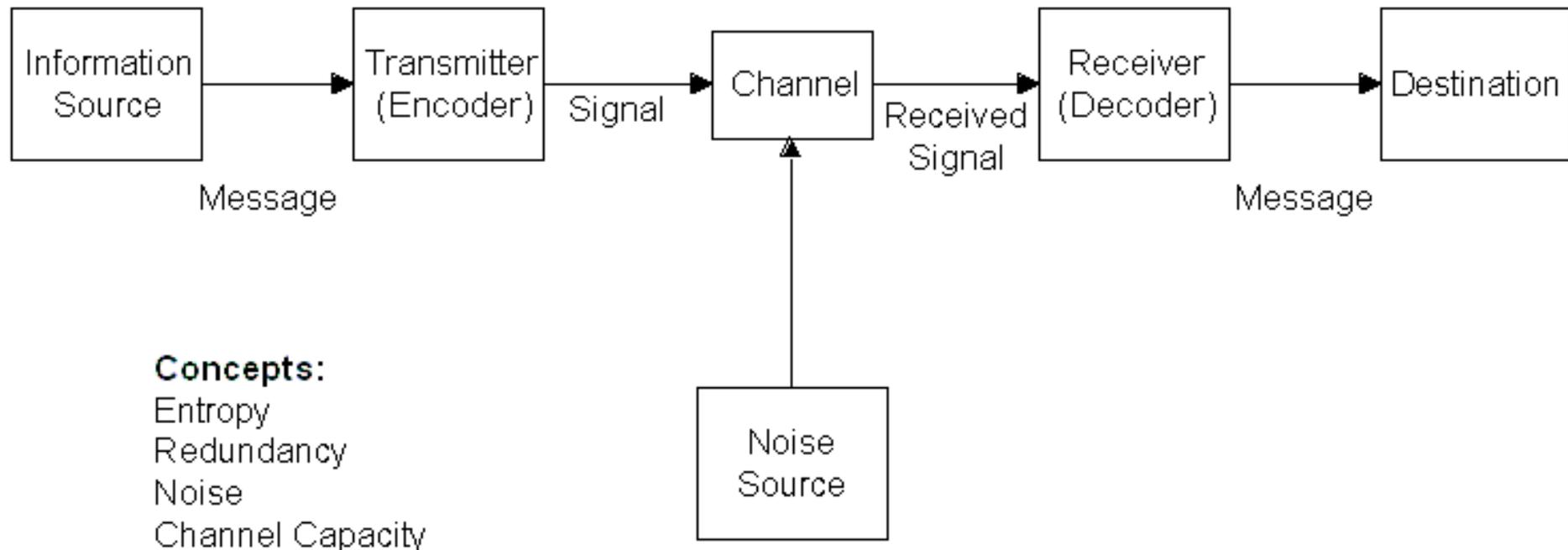
A COMMUNITY FOR PEOPLE INTERESTED IN SCIENCE EDUCATION, OUTREACH, AND COMMUNICATION

Communication Systems Are Complex



One-Way Communication

The Shannon-Weaver Mathematical Model, 1949



Information deficit model of communication

Assumes “the public” just doesn’t know what the scientist knows and if the scientific data is shared, the public will feel compelled to act.



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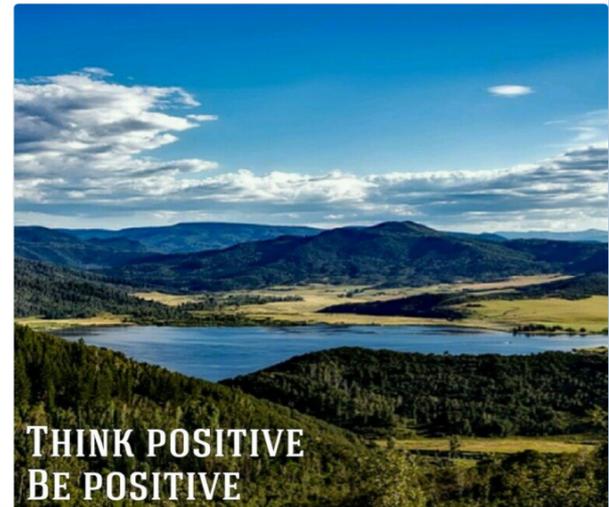


Glo H @ghaucke · 2h
Hut trip 2017.

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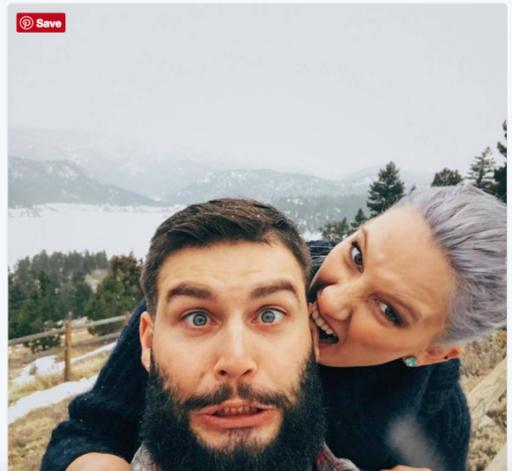


Colorado Christian T @COChristianTees · Jan 5
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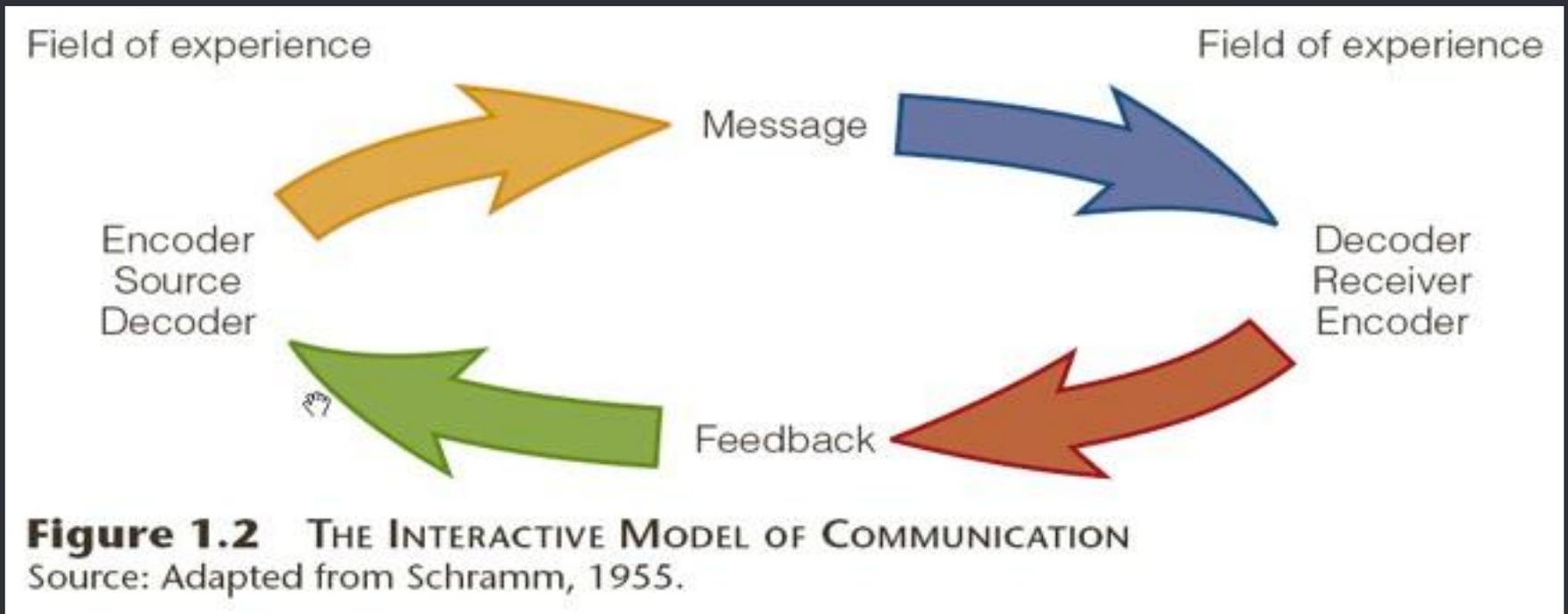


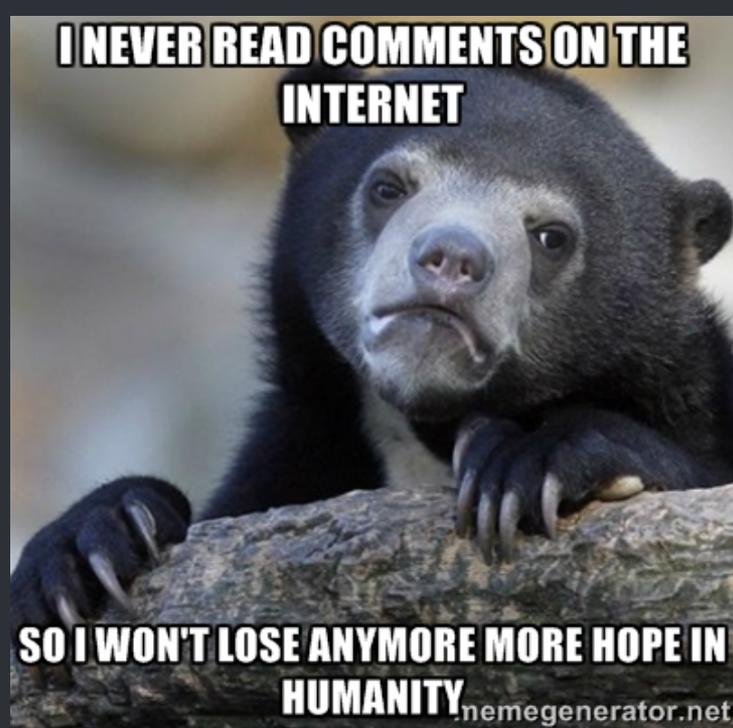
Elizabeth @LizzieLee33 · 13h
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Communication also has feedback loops





Let's bracket:
nonpersuadables or
“trolls”

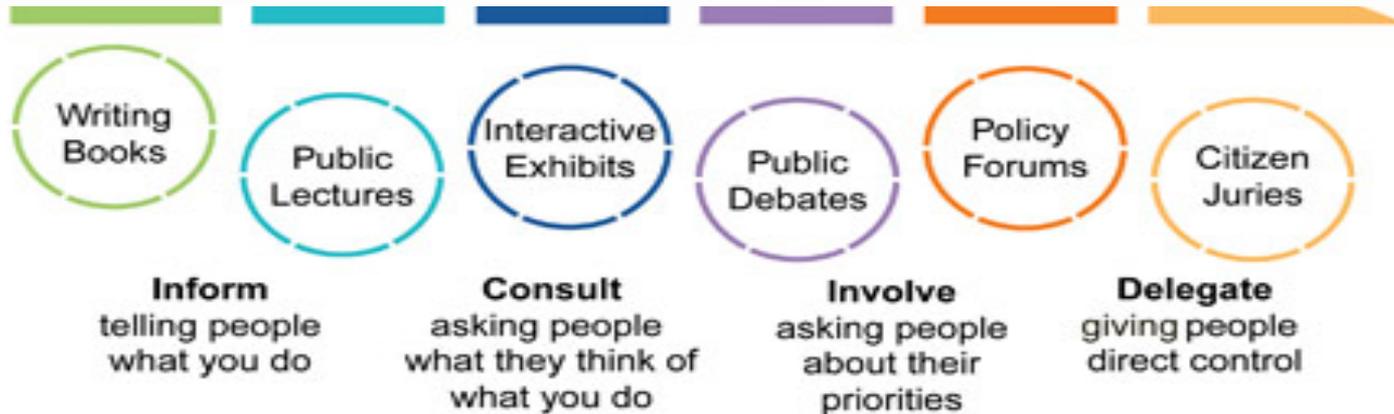
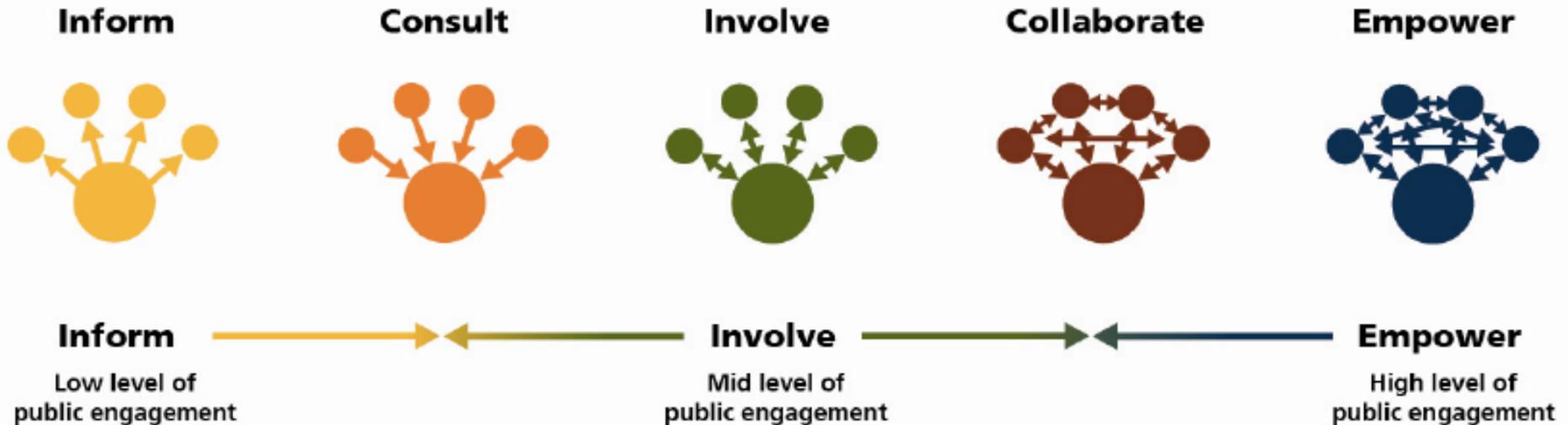
We all
have knowledge
to share.



The Public Sphere Is Not Monolithic



Public Engagement Is Not Monolithic



(Top: International Association of Public Participation, shared by City of Burlington; bottom: Arstein, 1969)

Public Engagement Is Not Monolithic





**Save the Poudre
Store it in Glade**

The Poudre Runs Through It:

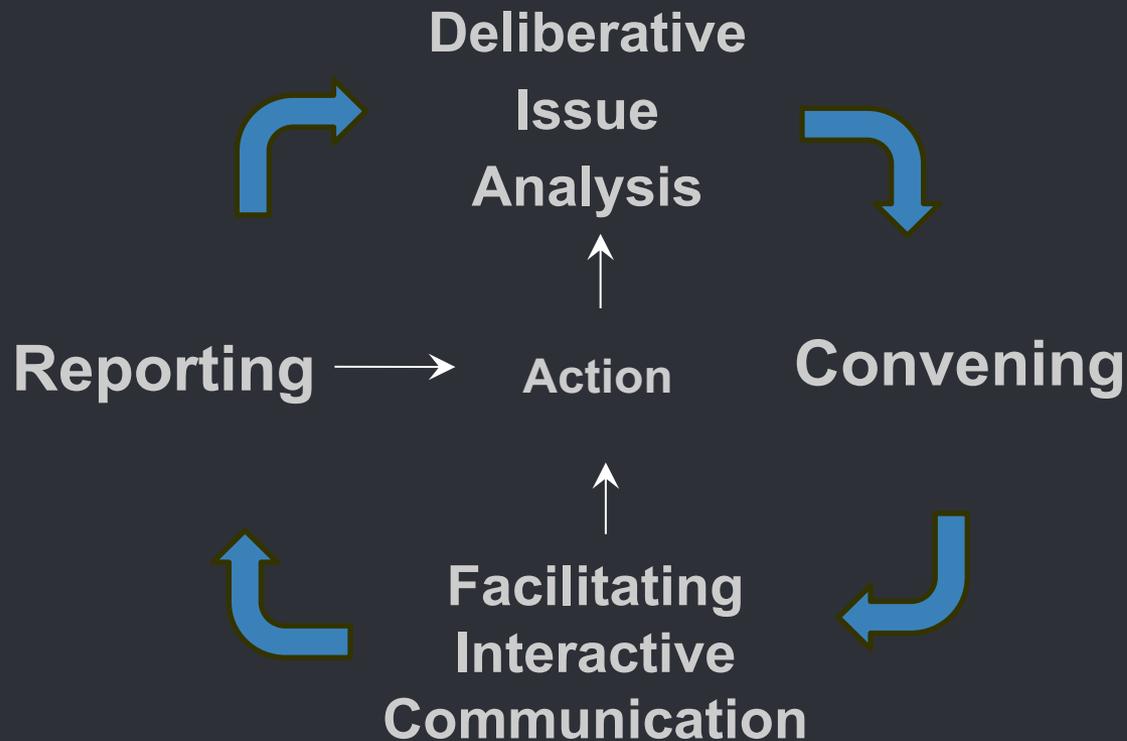
Northern Colorado's Water Future



Public dialogue
Public education sessions
Public deliberation

Deliberative Cycle: A Process for Doing Deliberative Inquiry

(Carcasson & Sprain, 2016)



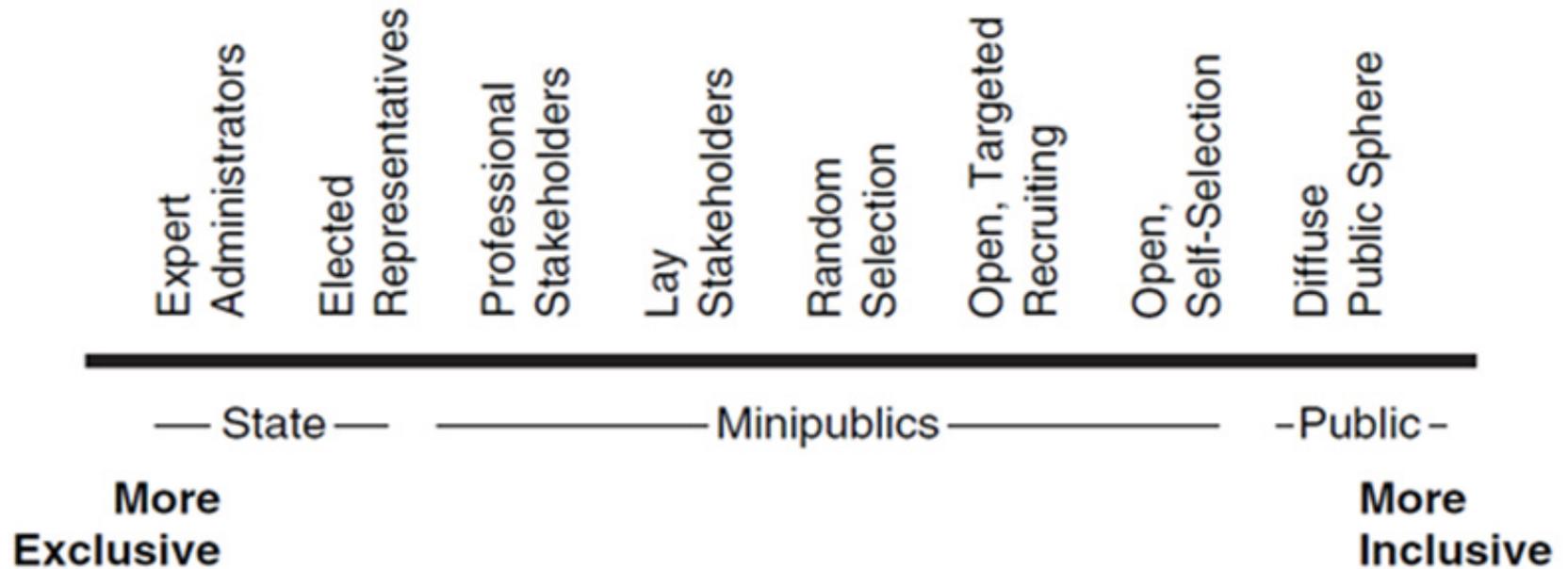
Deliberative Issue Analysis

- **Stakeholder analysis:** anyone who can affect or be affected by the problem or its resolution; “Holders” based on rights, spatial location, knowledge, share, interest, status (Schmitter)
- **Data collection:** surveys, CU Water Conflict seminar

How should we meet our future water supply needs?

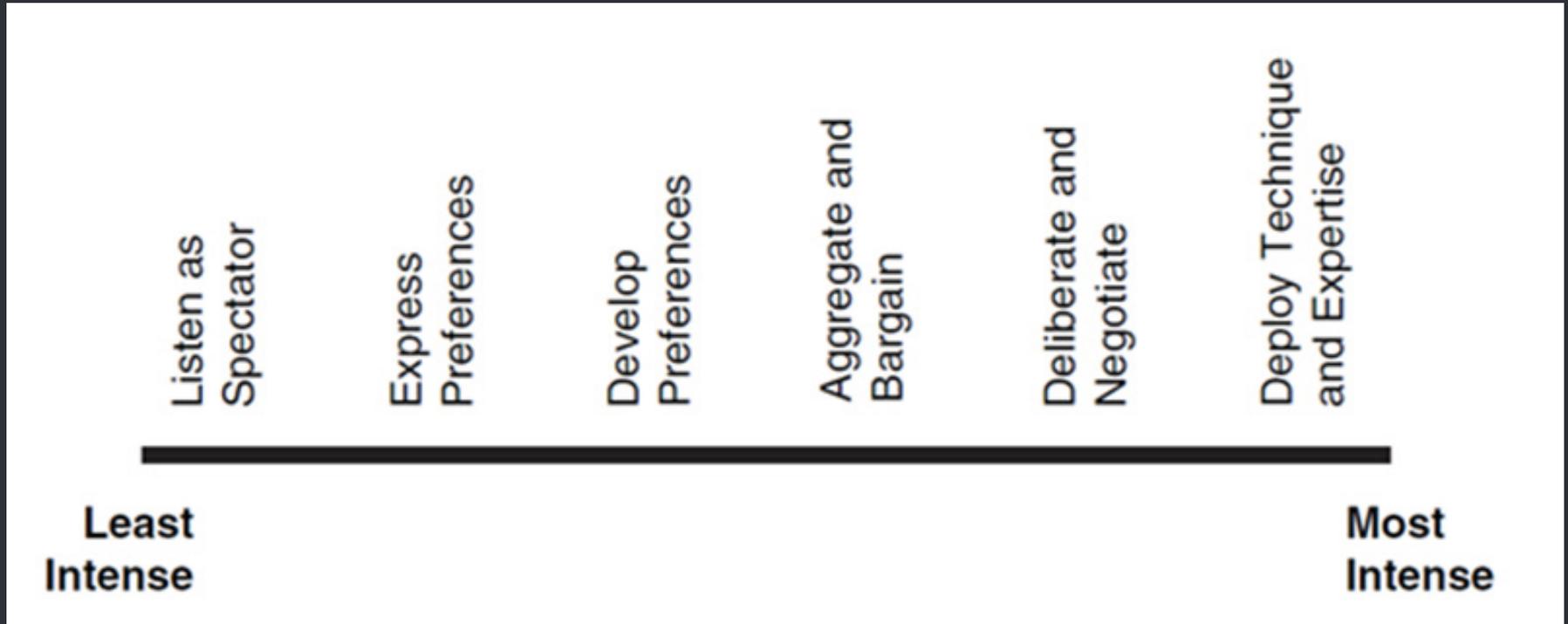
	Approach One: Focus on Addressing Growth	Approach Two: Focus on Urban Conservation	Approach Three: Focus on Storage Projects	Approach Four: Focus on Agriculture Conservation and Transfers
<p>Anticipated population growth along the Front Range has the state projecting a major municipal water supply shortage in the next 20-30 years. Contentious debates have ensued about how future demands should be met.</p> <p>How can we best provide the growing population with a reliable source of water without degrading natural resources or the agricultural economy and heritage of Northern Colorado?</p> <p>This issue placemat outlines four approaches to addressing increased water demand that will be the focus of our public deliberation sessions. The approaches are not exclusive options from which we will necessarily pick, but rather will frame the conversation to help insure a broad range of ideas for us to consider as we work through the issue.</p>	<p>If we could successfully manage growth, we wouldn't experience such drastic water shortages. Therefore, we should address growth as the root cause before we consider more costly approaches that might harm our environment or agriculture.</p> <p>What should be done?</p> <ul style="list-style-type: none"> Limit or control growth Increase density and efficiency of new growth through land-use planning Integrate costs of growth (including water) into new development <p>Proponents argue</p> <ul style="list-style-type: none"> Current growth is not sustainable; our environment has natural limits. Other options simply delay the inevitable. It doesn't make sense to ruin our own nest to provide for more people to come live here <p>Opponents argue</p> <ul style="list-style-type: none"> You can't prevent people from moving here Growth helps to keep our economy vibrant. We count on growth for sales tax revenue to pay for the amenities we all enjoy If you control growth in city boundaries it will just spill out into the county, causing other problems like air pollution from more commuting <p>Tradeoffs/Questions</p> <ul style="list-style-type: none"> Can we adopt laws/incentives that encourage or mandate that any growth must require less water, e.g. higher density? Do we have the political will to manage growth? What would that require? What are the economic impacts? Will controlling growth have significant impacts on the cost of living? 	<p>Future water supply needs should first be met by using our existing water supply more efficiently and eliminating wasteful urban uses.</p> <p>What should be done?</p> <ul style="list-style-type: none"> Recycle water for landscaping Local water providers should enact tougher laws and/or initiatives to limit water usage Implement tiered rate structures Stricter building/ landscape codes for new development Public education campaigns to change behavior and incentives to encourage water saving fixtures and irrigation <p>Proponents argue</p> <ul style="list-style-type: none"> This is the cheapest, most effective and sustainable method to meet water supply needs We can have attractive landscapes while using native plant material and improving irrigation practices to save water This option does not require the development of new water resources or further strain the river The threat of "demand hardening" if we conserve too much water is a myth <p>Opponents argue</p> <ul style="list-style-type: none"> Conservation measures are already in place. More drastic measures may create "demand hardening" that increases vulnerability to drought because there is no slack in the system Even increased conservation won't be enough to meet future water demands without other means Mandated conservation constrains individual freedoms Would increase housing and building costs Severe water restrictions may decrease neighborhood aesthetics and property values <p>Tradeoffs/Questions</p> <ul style="list-style-type: none"> Should individuals have the freedom to use water as they desire if that impacts all of us? What do you do when the inevitable multi-year drought comes? Will conservation alone provide a sufficient water supply for new growth? 	<p>The future demand for water should be met through building new or expanding existing storage projects to capture water that would help balance out wet and dry periods, while mitigating environmental impacts.</p> <p>What should be done?</p> <ul style="list-style-type: none"> Construction of new reservoirs and/or expansion of existing reservoirs, located to maximize the beneficial use of the water available Engineer creative solutions that mitigate environmental impacts. <p>Proponents argue</p> <ul style="list-style-type: none"> We only have water for our current needs because past generations chose to build water projects We can mitigate potential environmental impacts. If we don't capture and store the water to which we have water rights, others in line will take the water for their uses Consolidating the efforts of multiple communities into major water projects is more efficient and costs less in the long run <p>Opponents argue</p> <ul style="list-style-type: none"> If reservoirs are built, flows in the Poudre River will be further reduced, negatively affecting an already suffering ecosystem The Poudre River is the heart of the City of Fort Collins and further depletion of this natural resource will negatively affect its economy and quality of life Would be too expensive and communities would have to encourage additional growth to cover costs Growth projections are likely overstated <p>Tradeoffs/Questions</p> <ul style="list-style-type: none"> Is there a way projects can be constructed/expanded without significant adverse effects on the river? Would building/expanding projects prevent agricultural lands from being dried up? If projects are not built/expanded, where would growing communities get their water? How will recreation opportunities change if reservoirs are built? 	<p>Agriculture currently accounts for approximately 75% of all water usage in northern Colorado. Conserving agricultural water and converting water usage from agricultural to municipal needs could create significant supplies for growing cities.</p> <p>What should be done?</p> <ul style="list-style-type: none"> As cities expand, they can buy or lease water supplies from local farmers and ranchers Producers should seek ways to conserve water while maintaining required return flows to others <p>Proponents argue</p> <ul style="list-style-type: none"> If producers would increase irrigation efficiencies that could free up water for urban growth Transferring water from agriculture to cities does not degrade natural resources such as the river Water can be transferred through temporary leases to avoid permanent dry up of agriculture, particularly during urban drought situations. Under Colorado water law producers can sell their water rights if they choose. <p>Opponents argue</p> <ul style="list-style-type: none"> The agricultural economy and heritage of Colorado is extremely important to the region and the state. Ag transfers may result in substantial loss of agricultural lands Agricultural green space is a community amenity and provides wildlife habitat Cities aren't interested in temporary leases. They want permanent supplies from agriculture and that harms agriculture Irrigation efficiency improvements do little to reduce consumptive use (the only part of the water farmers are allowed to transfer.) Much of the water used by farmers must return to the system as "return flow" <p>Tradeoffs/Questions</p> <ul style="list-style-type: none"> What is the appropriate role of government in protecting agricultural lands and open space? How much water can be transferred from agriculture without losing our local food base? In the future, how important will it be to have a local food economy?

Convening



Democracy Cube, Fung (2006)

Facilitating Interactive Communication



Democracy Cube, Fung (2006)

For each approach, please write what you view as the most compelling appreciation and concern. These pages will be posted around the room at the end of the forum for others to see, scanned and put on the website, and typed up and included in the report.

ADDRESS GROWTH

1

Appreciation

Much appreciate the various users; agric, municipal, developers, recreational, storage etc. Very diff. to plan or limit growth.

Concern

Water waste - going to No. Platte, then to Missouri River, then Miss. River, then Gulf of Mex. The need storage to save water.

STORAGE PROJECTS

2

Appreciation

Education & Conservation should be encouraged.

Concern

Bigger problem continues to be storage for future dry or drought years. Concern: How to educate the public? ?

URBAN CONSERVATION

3

Appreciation

Poudre River will not necessarily be environmentally impacted if the conservation is accomplished in a positive way.

Concern

I disagree w/ almost everything in R 3, "opponents argue". I like the R on Trade questions & think this should be expanded upon.

AG CONSERVATION & TRANSFER

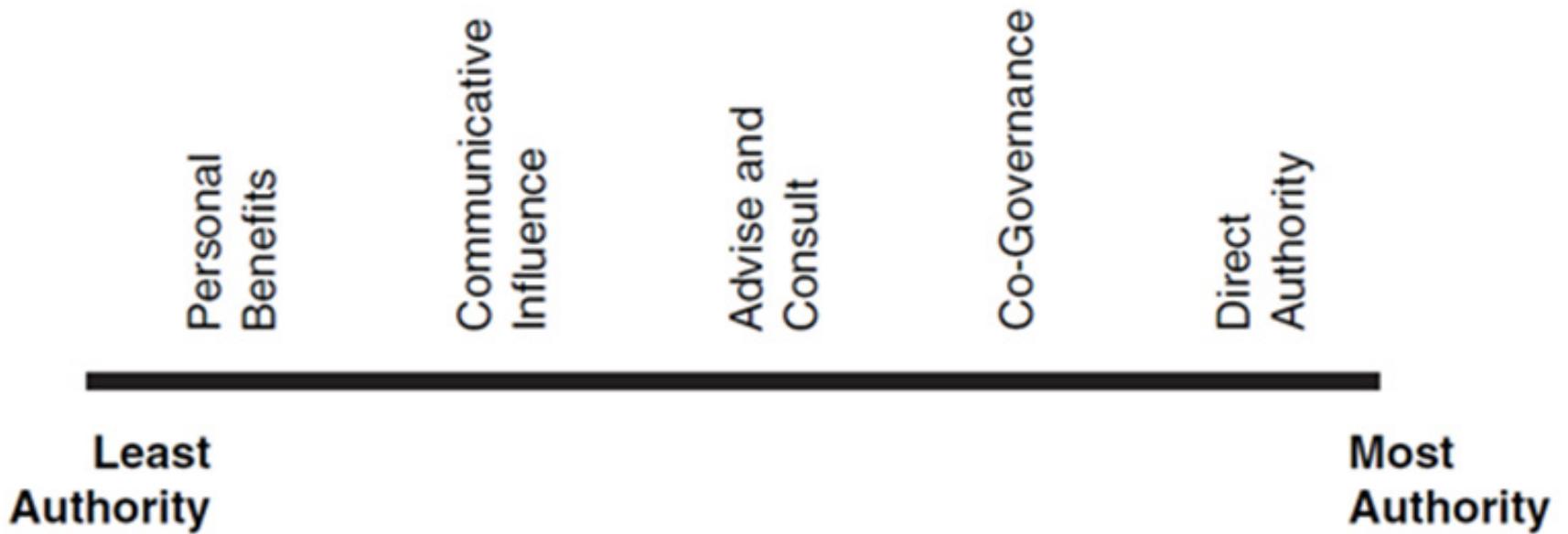
4

Appreciation

Municipalities & Agricultural should form a "PARTNERSHIP".

Concern

Local food economy of great importance. All issues in all 4 categories would need to be knowledgeable of Colo. Water Law (which is complicated but good).



Democracy Cube, Fung (2006)

Reporting

Storage projects: environmental impacts of water projects call for creative solutions currently unknown

Agricultural conservation and transfer: general support for agriculture; is there room for flexible innovation—transfer without drying farms completely?

Action



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PRTI Work Group

The goal of the Poudre Runs Through It Study/Action Work Group is to provide an opportunity for all of us who love the Poudre River to learn more about the river and to engage in ways to make it "the world's best example of a healthy, working river."

[More about the Study/Action work group.](#)



PRTI WORK GROUP

LATEST NEWS!

POUDRE RIVER FORUM

ANIMATED HISTORY OF THE POUDBRE

"Let's make the Poudre River the world's best example of a healthy, working river."

BUILDING Resilience AFTER DISASTER

BOULDER, COLORADO AFTER THE 2013 FLOODS



Contact us

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For more on the Engaged Scientist Series

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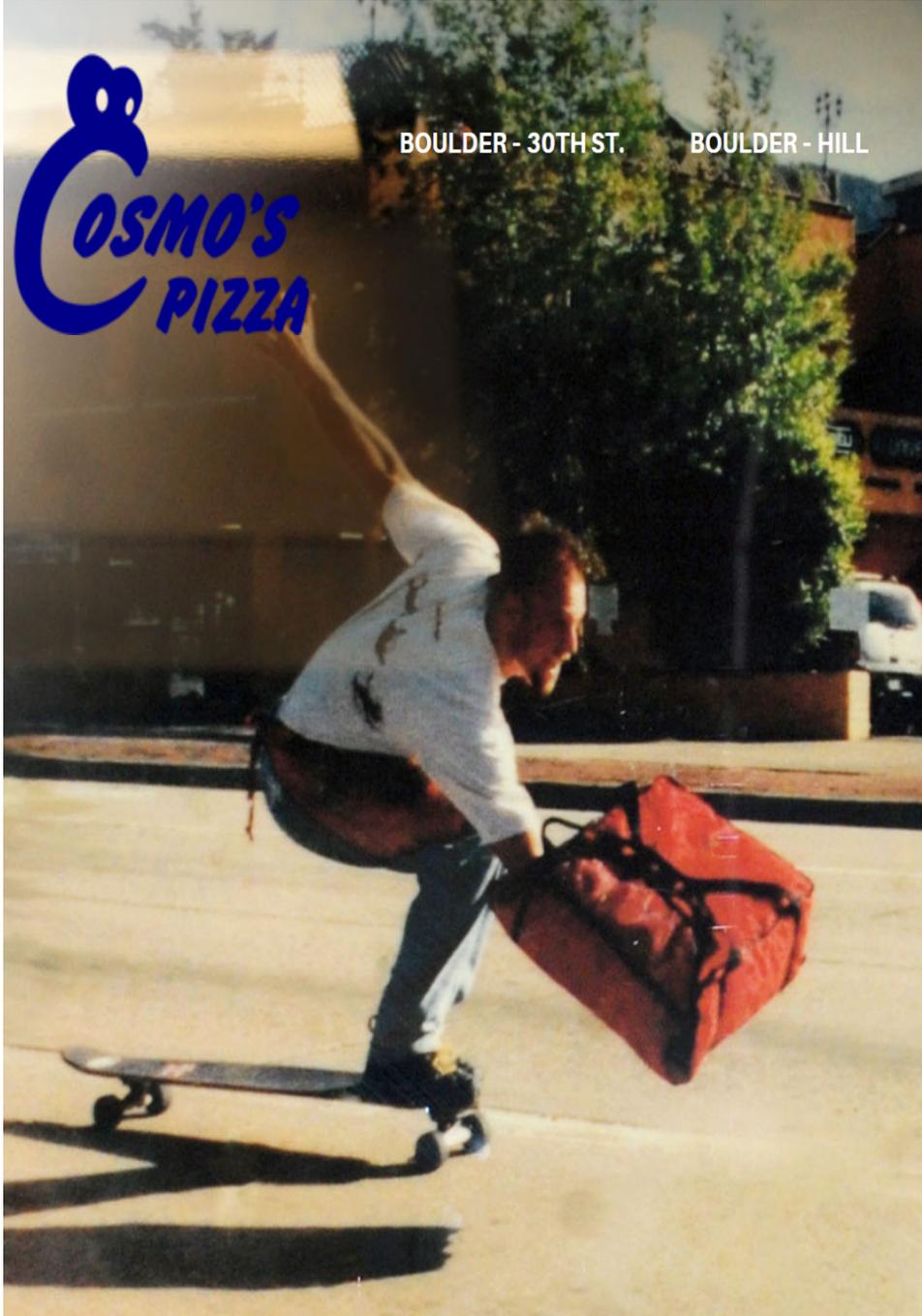


DINNER



BOULDER - 30TH ST.

BOULDER - HILL



- Workshop starts 6p
- Make sure you are checked in
- Make sure you have completed your pre-workshop survey

Community Dialogue in Geosciences and Environmental Sciences

January 19, 2017

Phaedra Pezzullo and Leah Sprain

Boulder Talks, Department of Communications, University of
Colorado Boulder



The Engaged Scientist Series is hosted by the new Albert A. Bartlett Center for Science Communication, CIRES Education and Outreach, INSTAAR, and the Office for Outreach and Engagement (OOE). Funding is provided from OOE.

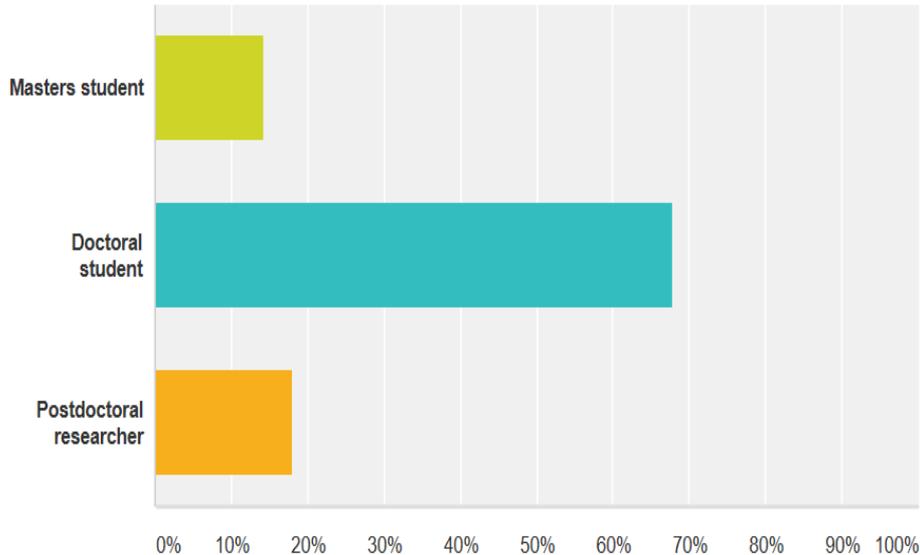
Goals for this workshop

- Discuss the possibilities and limitations around science, communication and democracy
- Analyze real world clips of scientists communicating during community dialogues
- Resolve engagement dilemmas
- Practice framing your research with feedback to help you move towards your goals
- Get connected with like-minded colleagues

Who is in the room?

Select the category that describes you:

Answered: 28 Skipped: 1

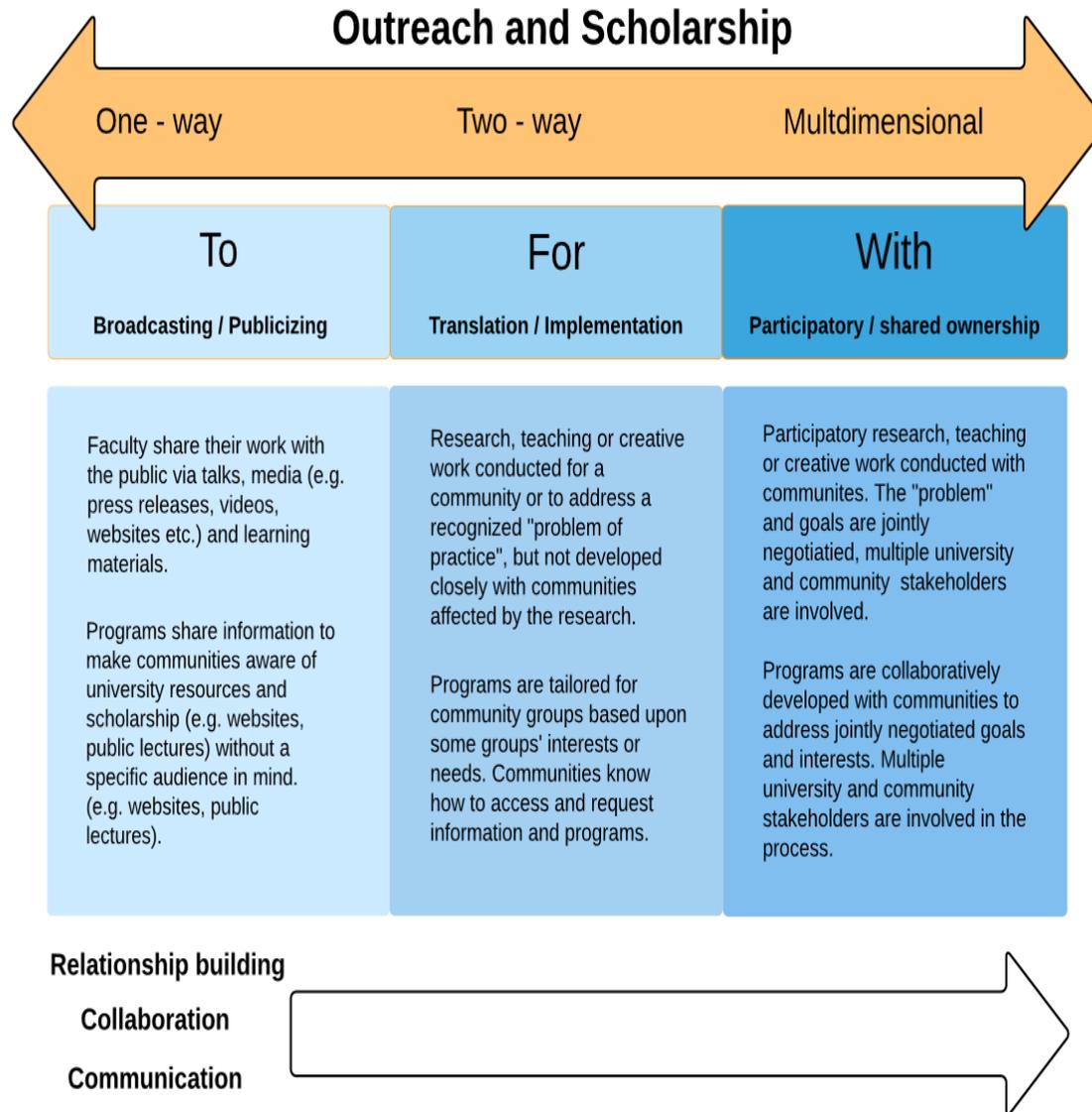


- *Atmospheric and Oceanic Sciences (ATOC)*
- *Bioengineering*
- *Chemistry and Biochemistry*
- *CIRES*
- *Civil, Environmental, and Architectural Engineering*
- *Environmental Studies*
- *Environmental Design*
- *Environmental Engineering*
- *EBIO*
- *Geological Sciences*
- *MCDB*
- *Physics*
- *Others?*

What are your interests?

- *...to carry out practice-relevant research*
- *...communicating scientific concepts to the public*
- *Learn about colleagues' efforts*
- *Learn about establishing similar [outreach] projects*
- *Learn how to be a better scientist and how to market myself...*
- *I'm interested in energy policy and communicating science to the public.*
- *...to make my research more relevant to the needs of local communities, and who and how to contact the relevant stakeholders to figure out those needs.*

Continuum of Engagement Conceptual Map



Workshop: Science & Public Deliberation

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*Uses & Practices of Community Dialogue in
Geosciences & Environmental Sciences*

Activity 1: Reflecting on Best Practices (Introductions)

“so just to begin um we’re going to go around the table and I would like if you guys would um introduce yourself and explain why you’re here kind of tell us what your stake is in this issue and we have about ten minutes for this so try and keep your response to a minute if you can do that if you would like to start ...”

Activity 2: Addressing Engagement Dilemmas



Activity 3:

Apply to Your Own Research

- **Convening a dialogue**
- **Participating as a citizen**
- **Participating as a scientist**

Wrap up

- What were big takeaways?
- What else do you want in future workshops?
- Needs assessment for proposal in preparation-see the slip in your folder.

- Evaluation please!

<https://www.surveymonkey.com/r/EngagedScientist2017Post>

Contact us

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- Susan Sullivan (Susan.Sullivan@Colorado.edu)

