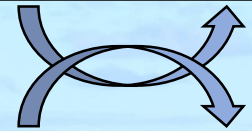# How Do Existing and Potential Renewable Energy Projects Affect Food, Energy, and Water Security in Rural Alaska?

Presenters: Erin Whitney & Jen Schmidt
http://ine.uaf.edu/microfews

#1740075

NSF

USDA

UAF
UNIVERSITY OF ALASKA FAIRBANKS

UAA
UNIVERSITY *of* ALASKA ANCHORAGE

Results for Scientific Community

Results for Community Planning

Super Nerdy Research Questions:

1) What are the direct and indirect linkages and feedbacks between renewable energy generation and the local drivers of food, energy, and water (FEW) security in Arctic and Subarctic communities?

2) To what extent can combinations of renewable energy generation and FEW-related infrastructure energy loads be optimized to enhance FEW security in Arctic and Subarctic communities?

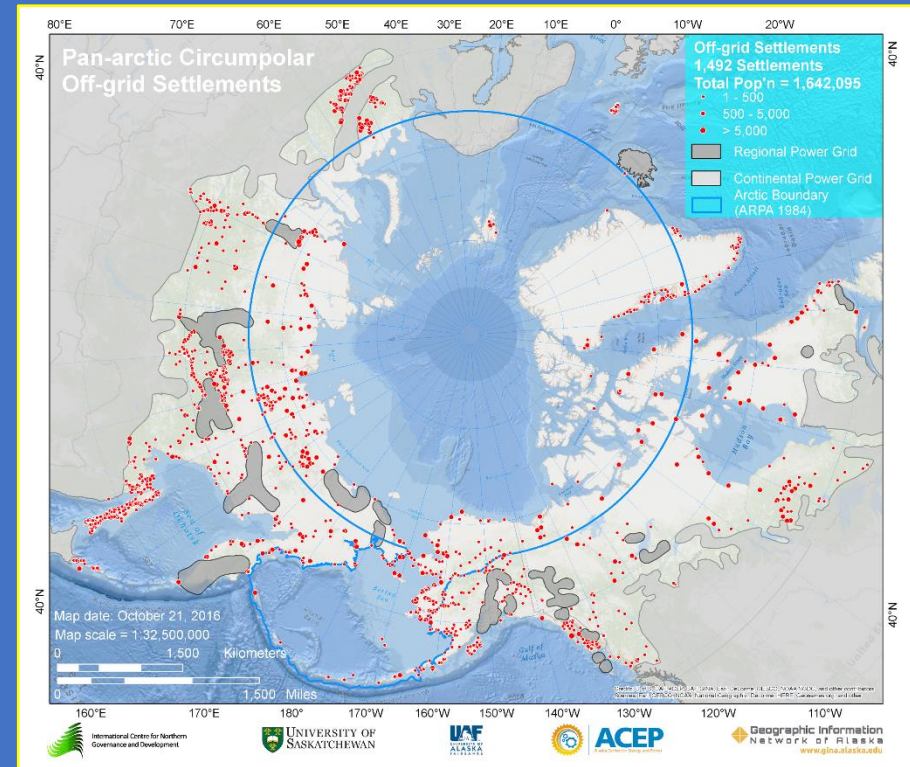# Does Renewable Energy Make Life Better in Rural Alaska?

UAA

Huntington Consulting

Graduate students

UAF

Communities of Kongiganak, Tanana, Cordova, and Igiugig
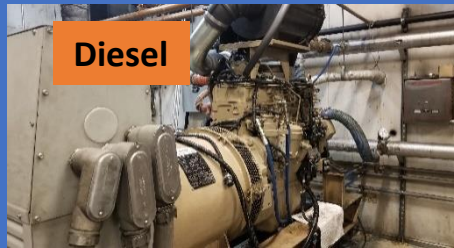
http://ine.uaf.edu/microfews

Energy in Rural Alaska

- Most communities are located off the road system.

- Isolated communities, or "microgrids," supply their own power.

Diesel Generator

Can be…
- Expensive
- Dependent on fossil fuels
- Environmentally unfavorable

Example: Food, Energy, & Water (FEW) in Rural Alaska

Diesel

Energy

Food

Water

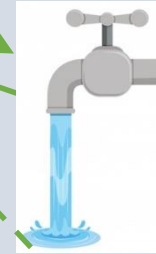# What do FEW connections look like in Tanana?

Making Heat

Using Heat

School

Wood Depot

Public water

Washeteria

Public worker buildings: Firehouse, VPSO, Triplex, Teacher housing

Photo courtesy of Chas Jones

Greenhouse

OIL

Residential houses, City & Tribal offices

Potential of Renewable Energy:
Kongiganak – an Energy Success Story
Film by Amanda Byrd

Now we'd like your input!

What kinds of information are most useful?

1. Renewable energy options
2. Economics of renewable energy options
3. Uses for excess renewable energy
4. Assessment of food, energy, and water security
5. Connections between renewable energy and food-energy-water security

(What kinds of information are most useful?)

Renewable energy options

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

What kinds of information are most useful?

1. Renewable energy options
2. Economics of renewable energy options
3. Uses for excess renewable energy
4. Assessment of food, energy, and water security
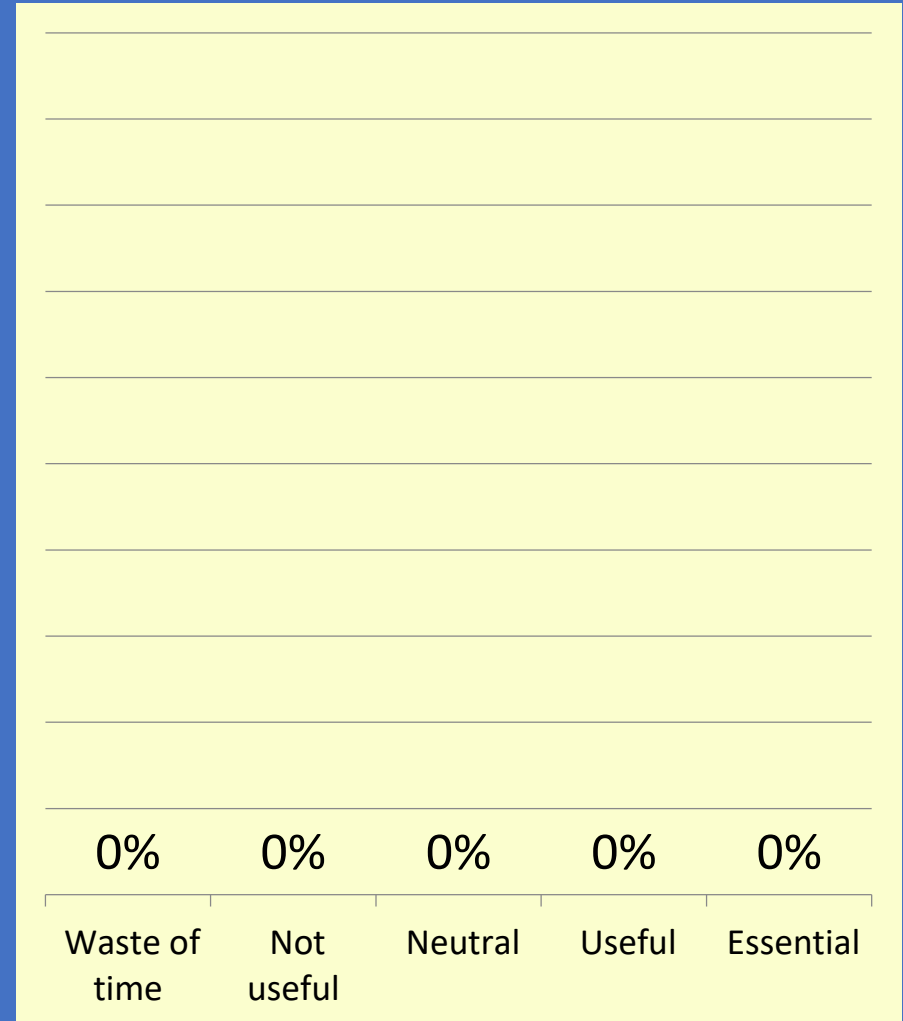5. Connections between renewable energy and food-energy-water security

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Economics of renewable energy options

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

What kinds of information are most useful?

1. *Renewable energy options*
2. *Economics of renewable energy options*
3. *Uses for excess renewable energy*
4. *Assessment of food, energy, and water security*
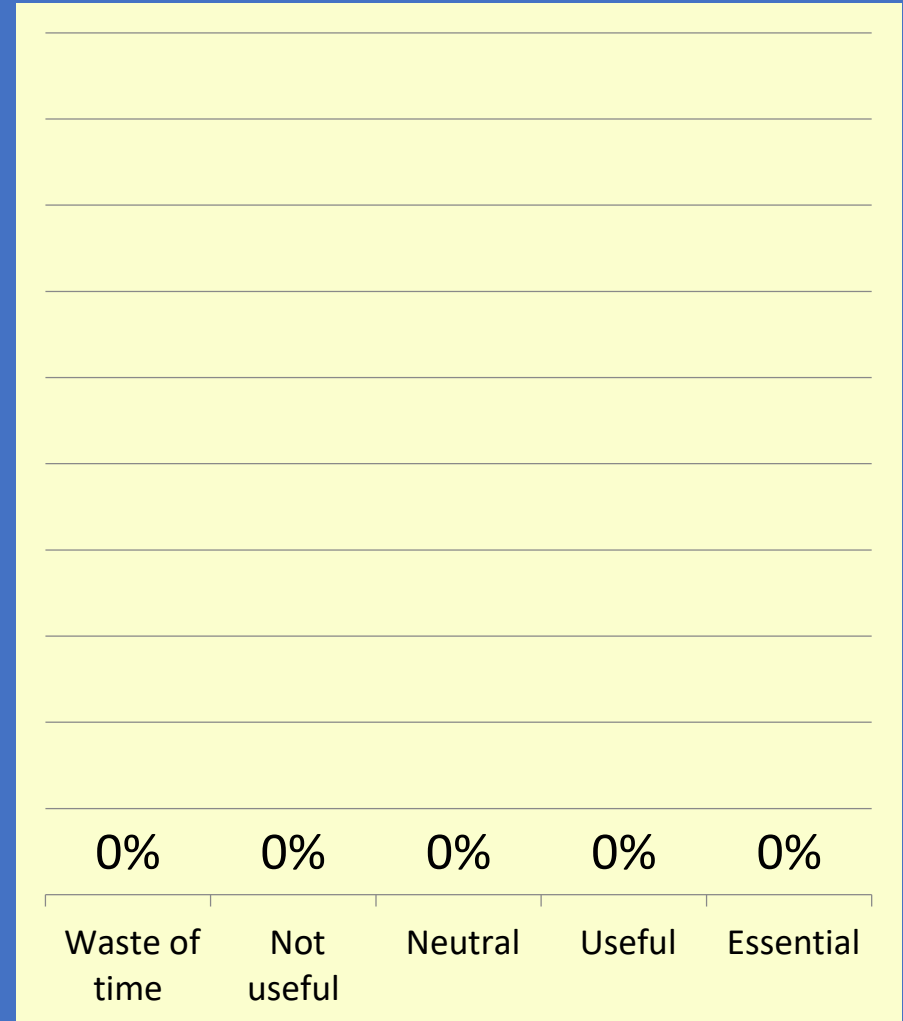5. *Connections between renewable energy and food-energy-water security*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Uses for excess renewable energy

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

What kinds of information are most useful?

1. *Renewable energy options*
2. *Economics of renewable energy options*
3. *Uses for excess renewable energy*
4. *Assessment of food, energy, and water security*
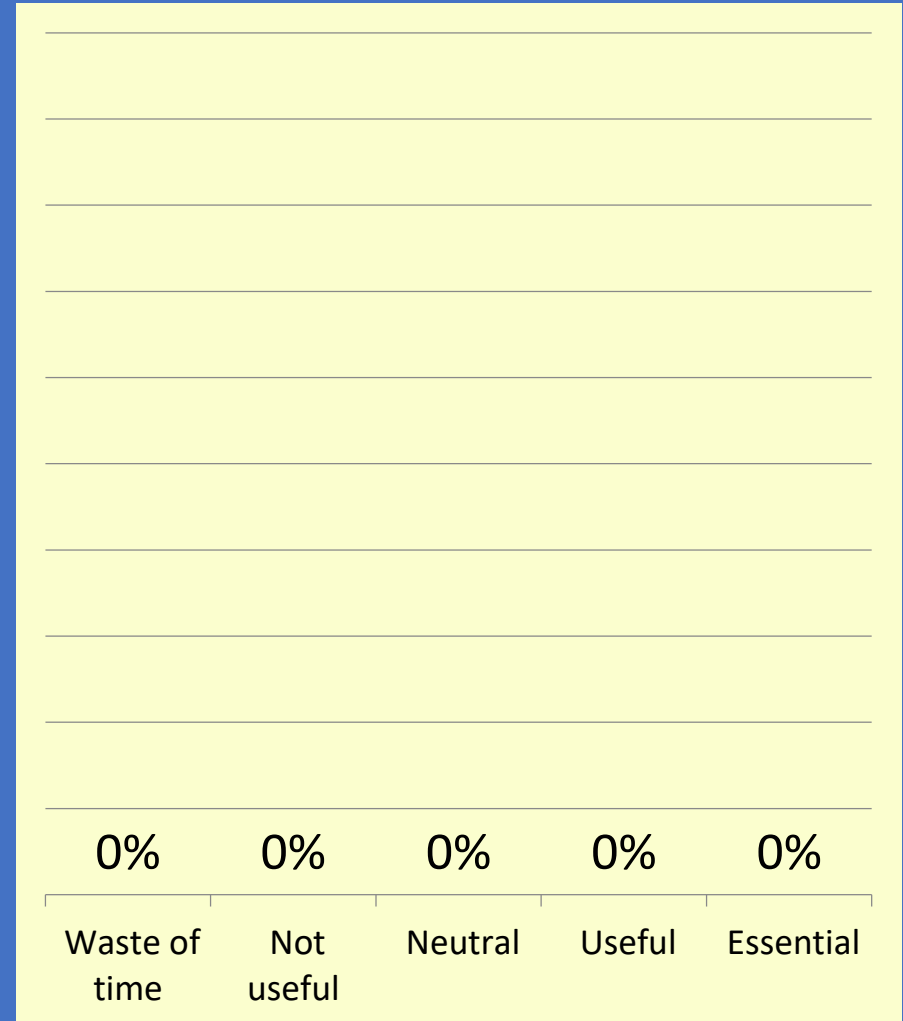5. *Connections between renewable energy and food-energy-water security*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Assessment of FEW security

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

What kinds of information are most useful?

1. *Renewable energy options*
2. *Economics of renewable energy options*
3. *Uses for excess renewable energy*
4. *Assessment of food, energy, and water security*
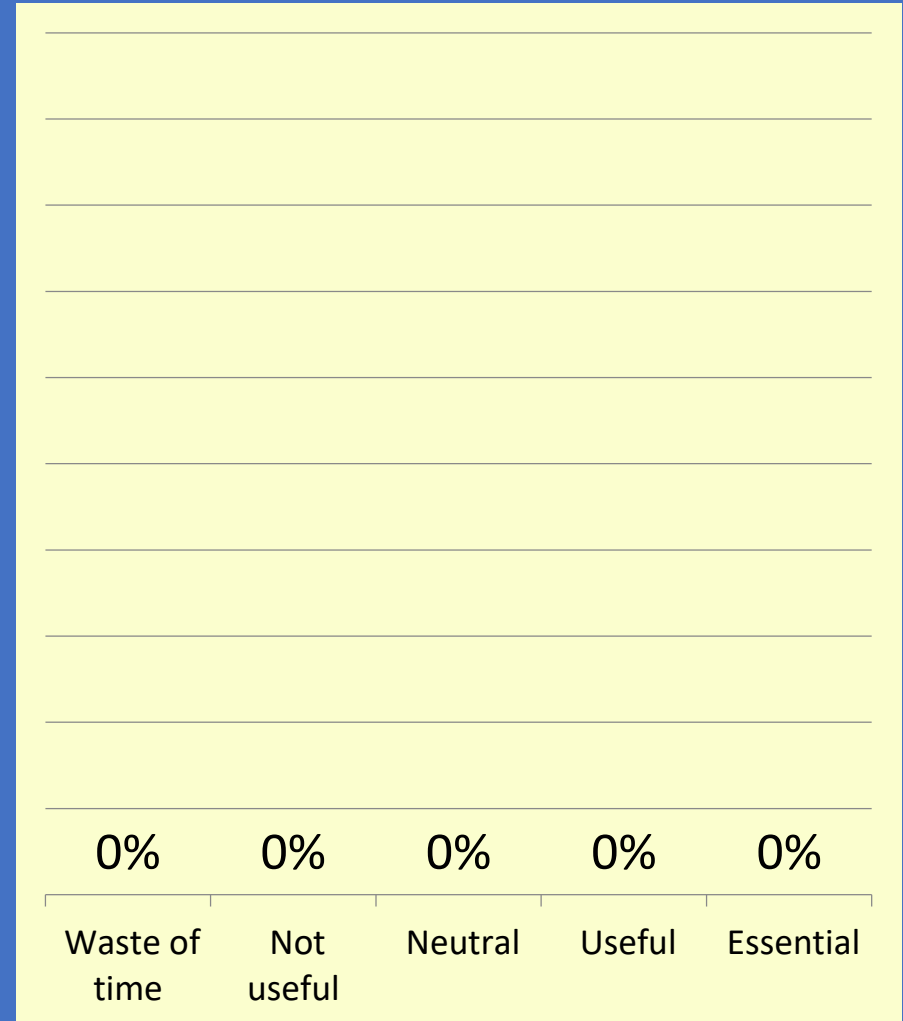5. *Connections between renewable energy and food-energy-water security*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Connections between RE and FEW security

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

What kinds of information are most useful?

1. *Renewable energy options*
2. *Economics of renewable energy options*
3. *Uses for excess renewable energy*
4. *Assessment of food, energy, and water security*
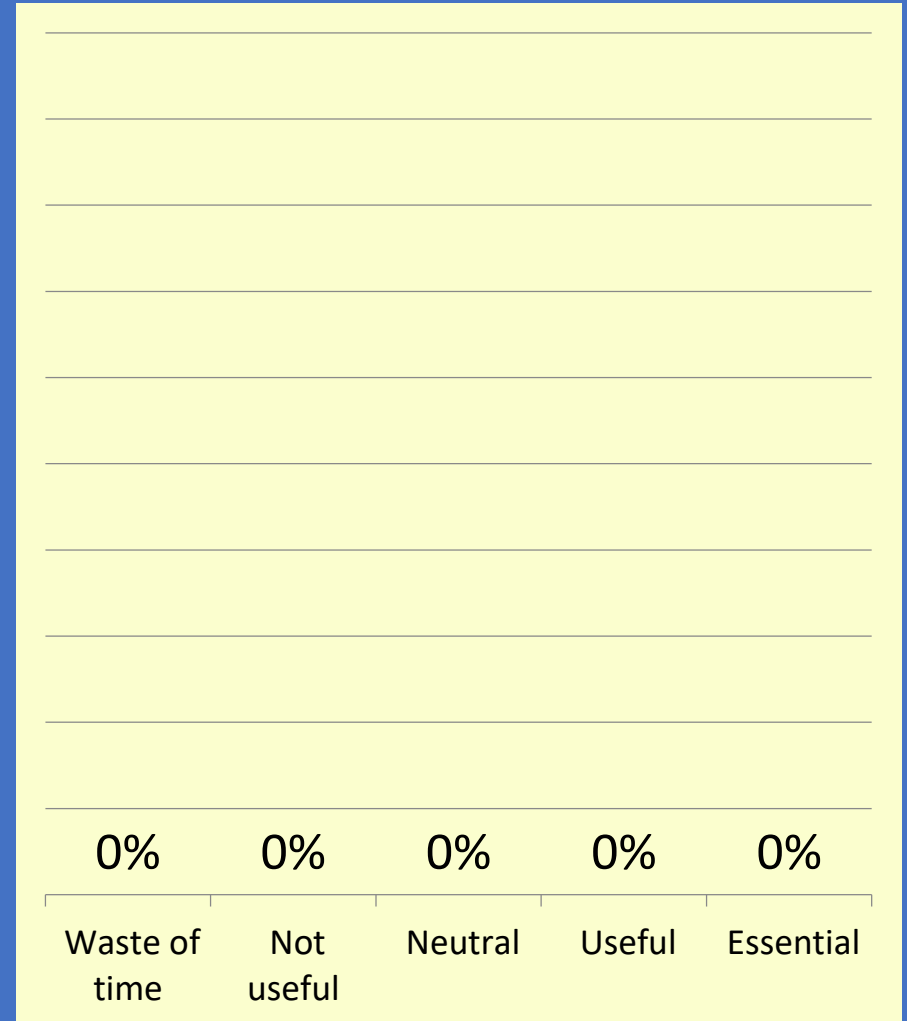5. *Connections between renewable energy and food-energy-water security*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Other ideas?

The choices so far most useful information:

1. *Renewable energy options*
2. *Economics of renewable energy options*
3. *Uses for excess renewable energy*
4. *Assessment of food, energy, and water security*
5. *Connections between renewable energy and food-energy-water security*

How do we make this information accessible to communities?

1. Website
2. Social media
3. Videos
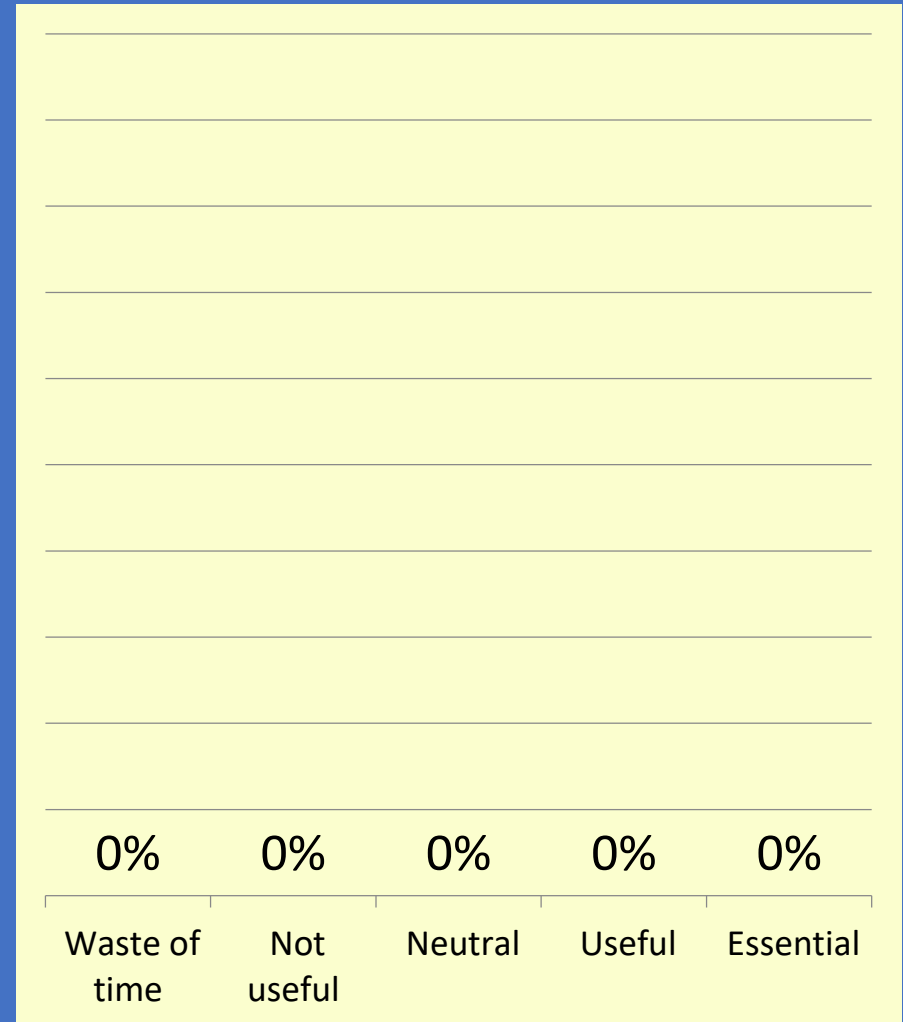4. Conferences and gatherings
5. Fact sheets

Website

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

How do we make this information accessible to communities?

1. *Website*
2. *Social media*
3. *Videos*
4. *Conferences and gatherings*
5. *Fact sheets*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Social Media

1. **Waste of time**

2. **Not useful**

3. **Neutral**

4. **Useful**

5. **Essential**

How do we make this information accessible to communities?

1. *Website*
2. *Social media*
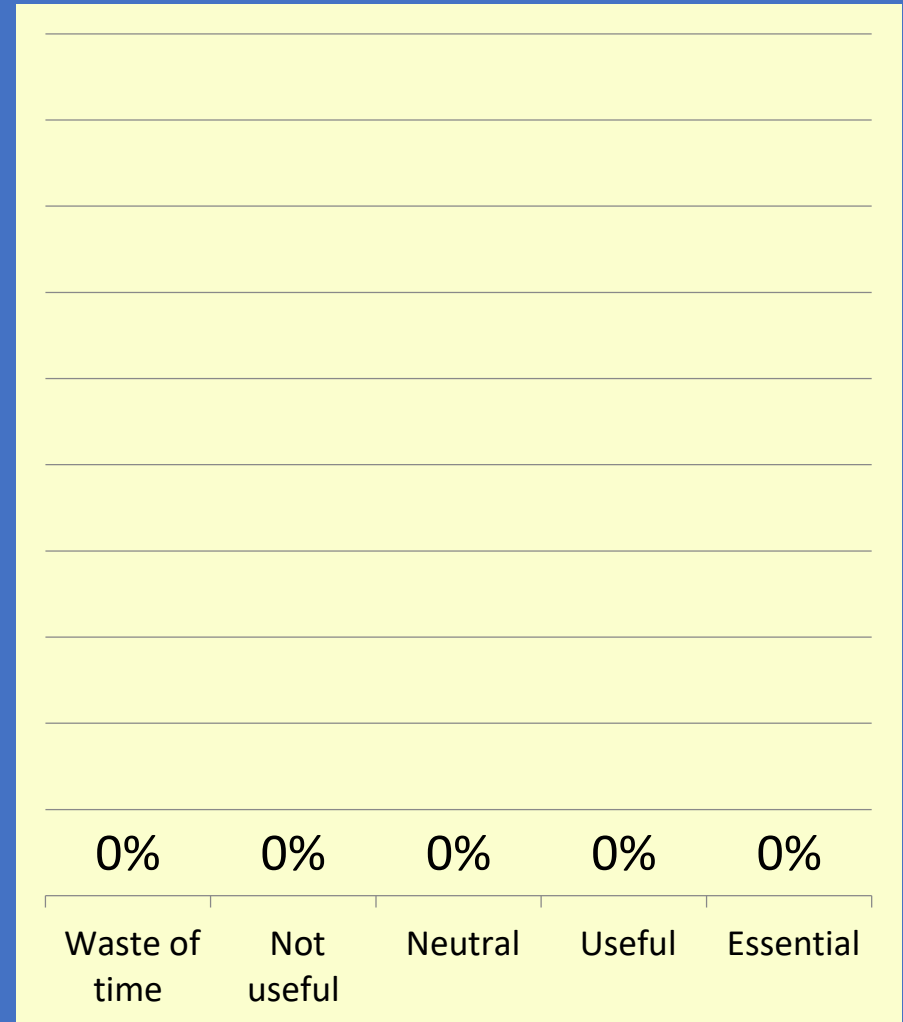3. *Videos*
4. *Conferences and gatherings*
5. *Fact sheets*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Videos

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

How do we make this information accessible to communities?

1. *Website*
2. *Social media*
3. *Videos*
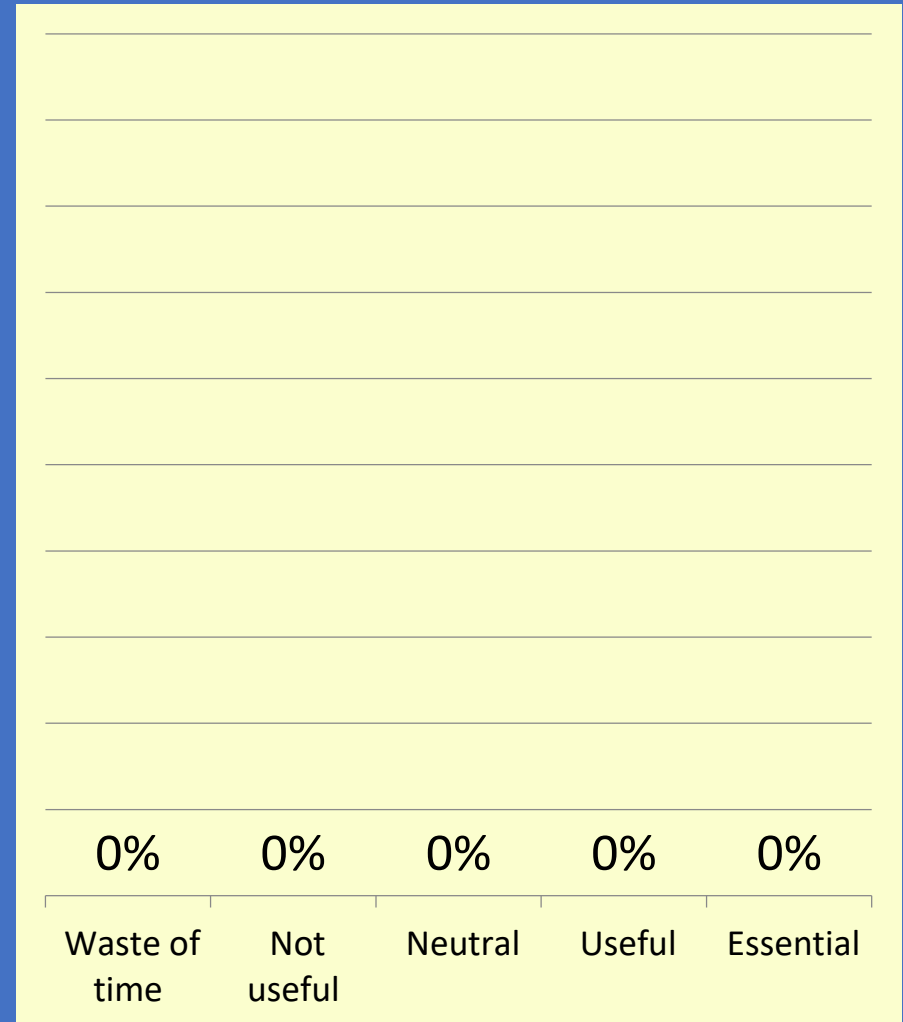4. *Conferences and gatherings*
5. *Fact sheets*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Conferences and gatherings

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

How do we make this information accessible to communities?

1. *Website*
2. *Social media*
3. *Videos*
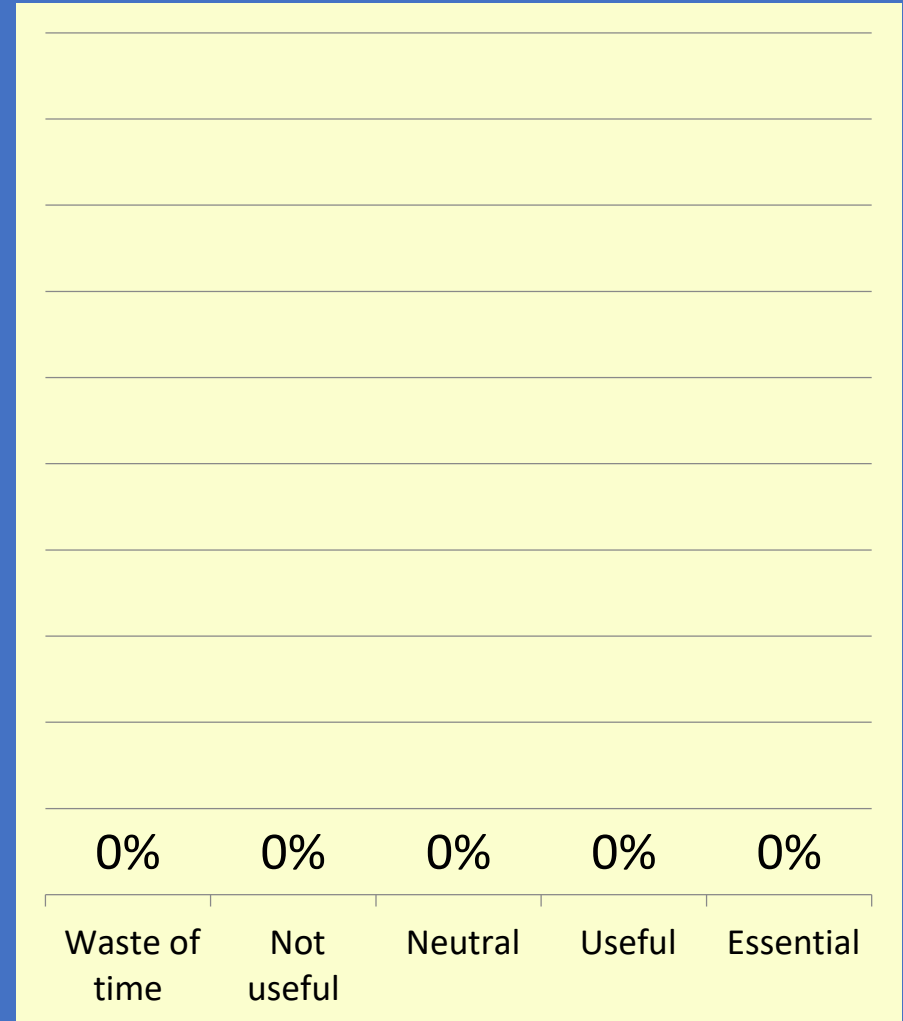4. *Conferences and gatherings*
5. *Fact sheets*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Fact sheets

1. **Waste of time**

2. **Not useful**

3. **Neutral**

4. **Useful**

5. **Essential**

How do we make this information accessible to communities?

1. *Website*
2. *Social media*
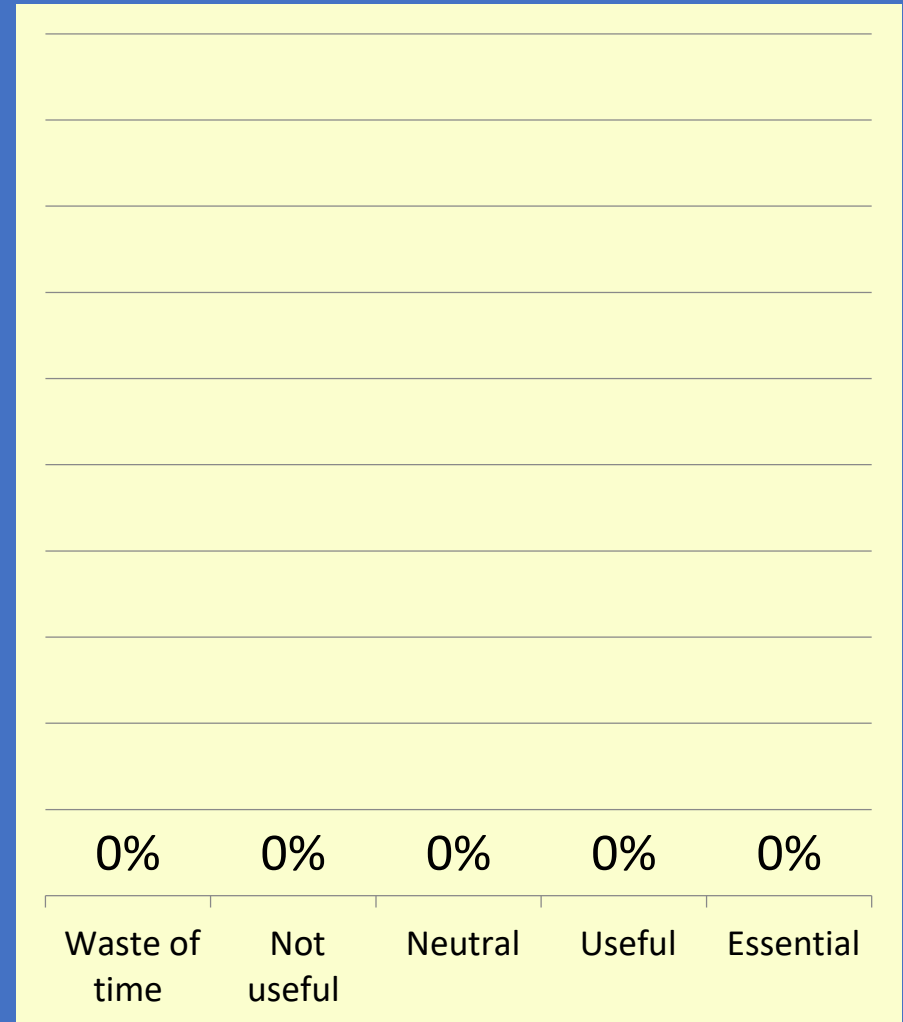3. *Videos*
4. *Conferences and gatherings*
5. *Fact sheets*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Other ideas?

The choices so far making this information accessible to communities:

1. Website
2. Social media
3. Videos
4. Conferences and gatherings
5. Fact sheets

What is the best way for communities to share knowledge with one another?

1. Reports
2. Social media
3. Conferences
4. Site visits or exchanges
5. Trainings
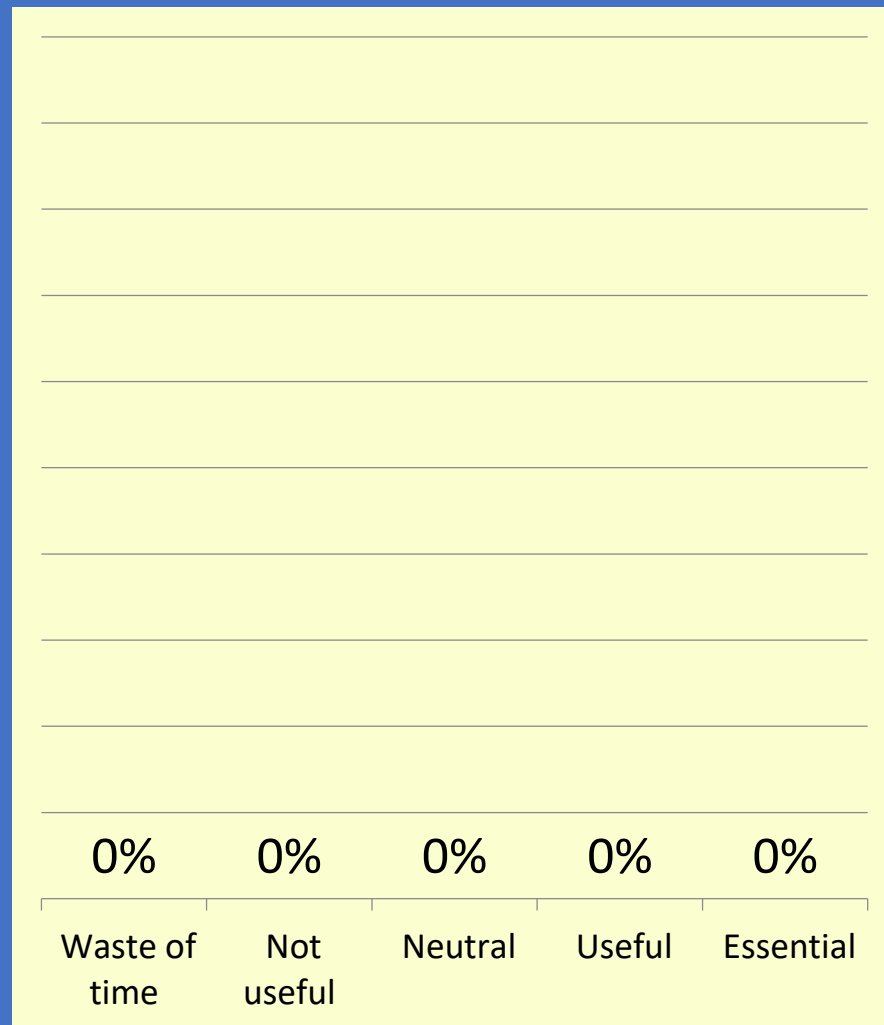6. Word of mouth, informal conversations

Reports

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

What is the best way for communities to share knowledge with one another?

1. *Reports*
2. *Social media*
3. *Conferences*
4. *Site visits or exchanges*
5. *Trainings*
6. *Word of mouth, informal conversations*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Social media

1. **Waste of time**

2. **Not useful**

3. **Neutral**

4. **Useful**

5. **Essential**

What is the best way for communities to share knowledge with one another?

1. *Reports*
2. *Social media*
3. *Conferences*
4. *Site visits or exchanges*
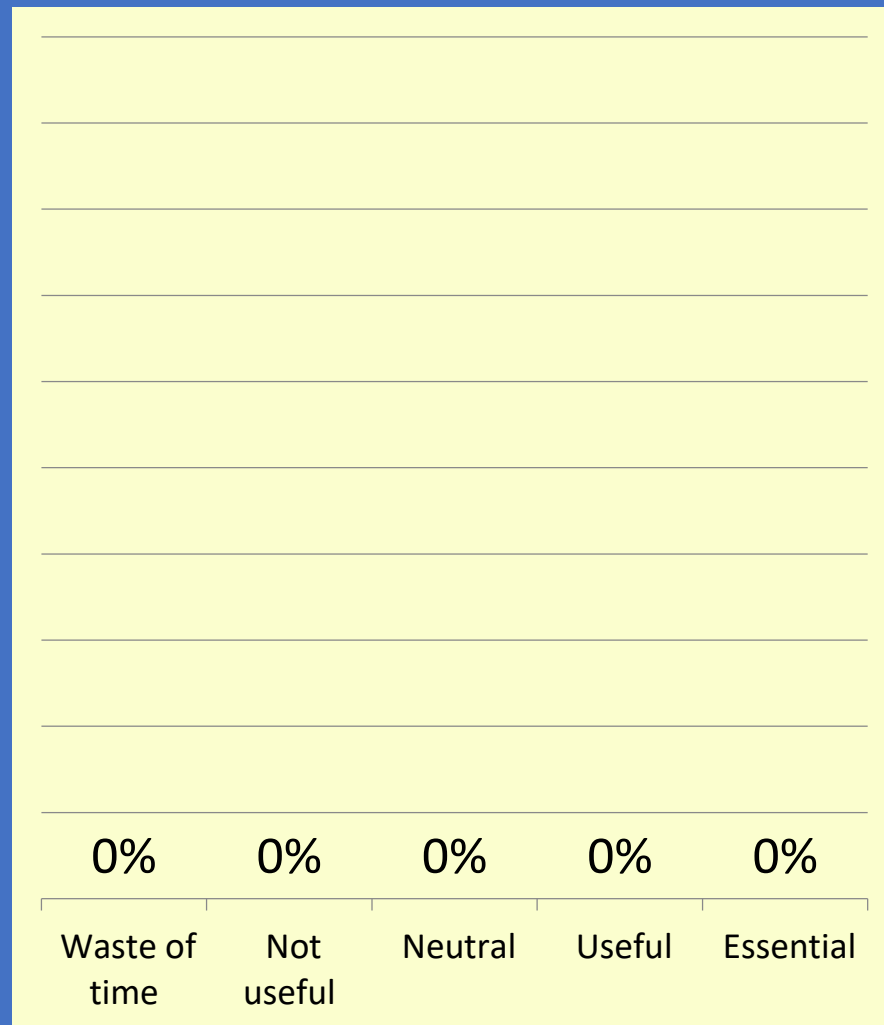5. *Trainings*
6. *Word of mouth, informal conversations*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Conferences

1. **Waste of time**

2. **Not useful**

3. **Neutral**

4. **Useful**

5. **Essential**

What is the best way for communities to share knowledge with one another?

1. *Reports*
2. *Social media*
3. *Conferences*
4. *Site visits or exchanges*
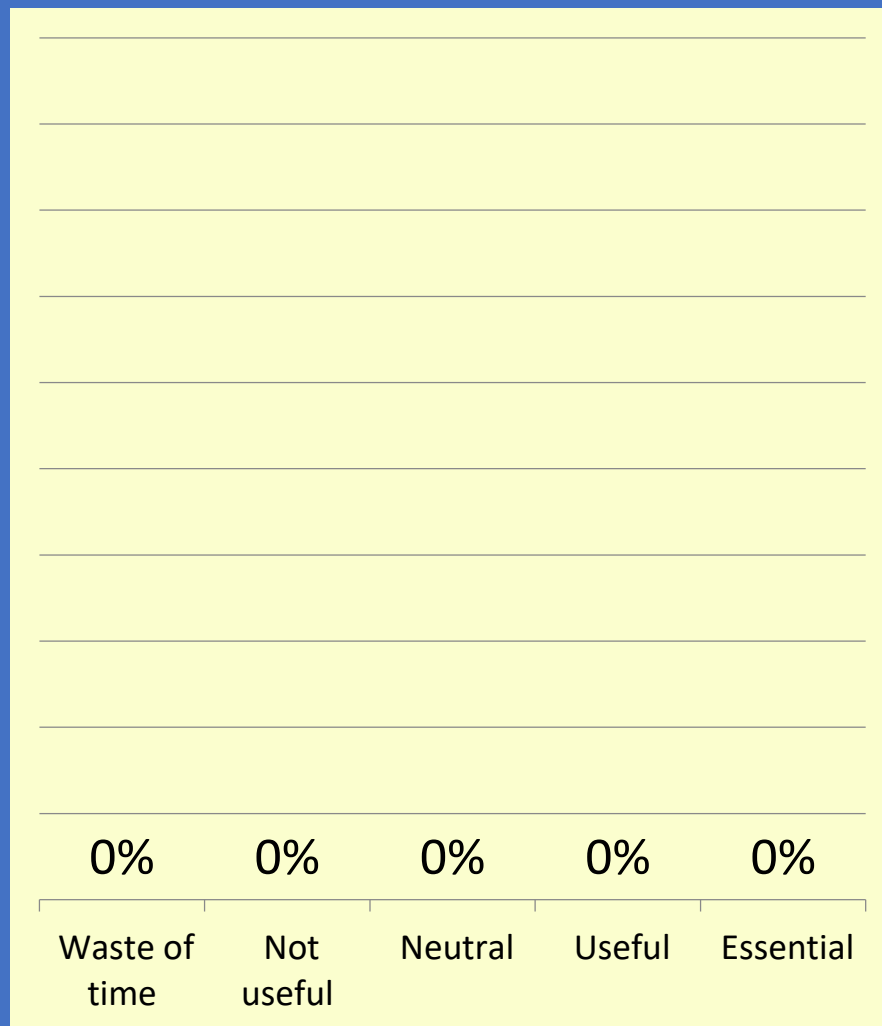5. *Trainings*
6. *Word of mouth, informal conversations*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

(What is the best way for communities to share knowledge with one another?)

Site visits or exchanges

1. **Waste of time**
2. **Not useful**
3. **Neutral**
4. **Useful**
5. **Essential**

What is the best way for communities to share knowledge with one another?

1. *Reports*
2. *Social media*
3. *Conferences*
4. *Site visits or exchanges*
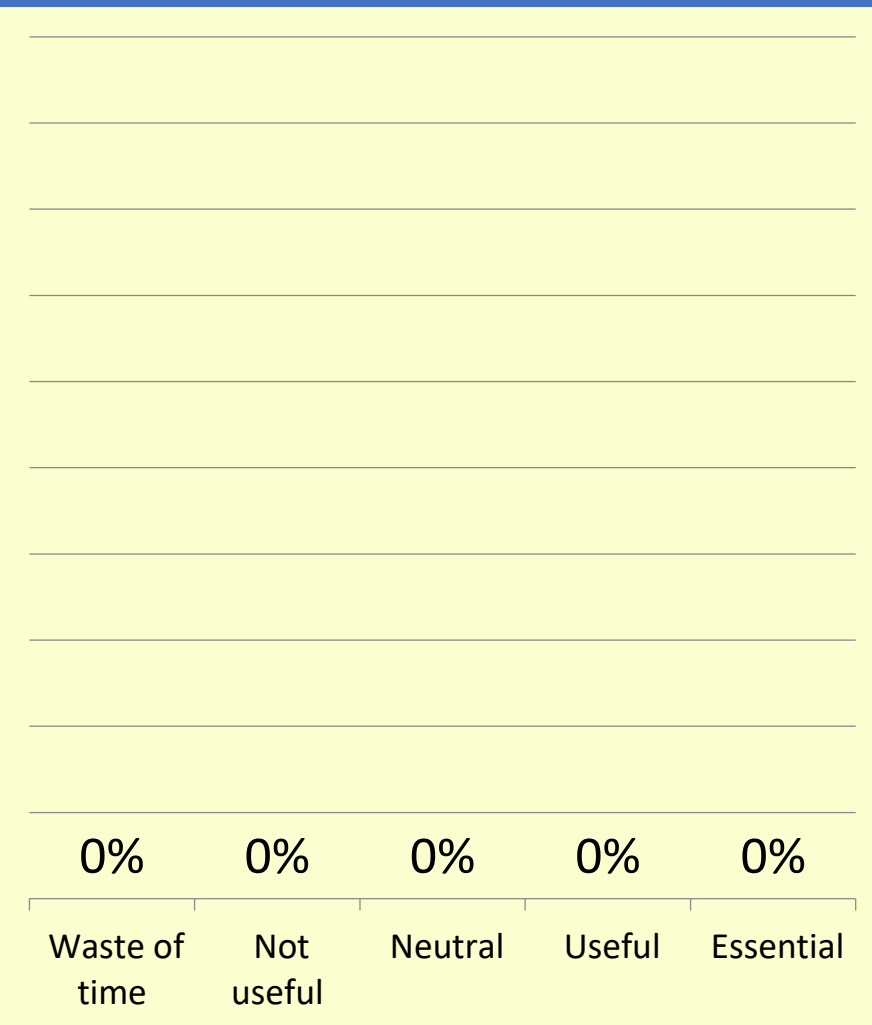5. *Trainings*
6. *Word of mouth, informal conversations*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Trainings

1. **Waste of time**

2. **Not useful**

3. **Neutral**

4. **Useful**

5. **Essential**

What is the best way for communities to share knowledge with one another?

1. *Reports*
2. *Social media*
3. *Conferences*
4. *Site visits or exchanges*
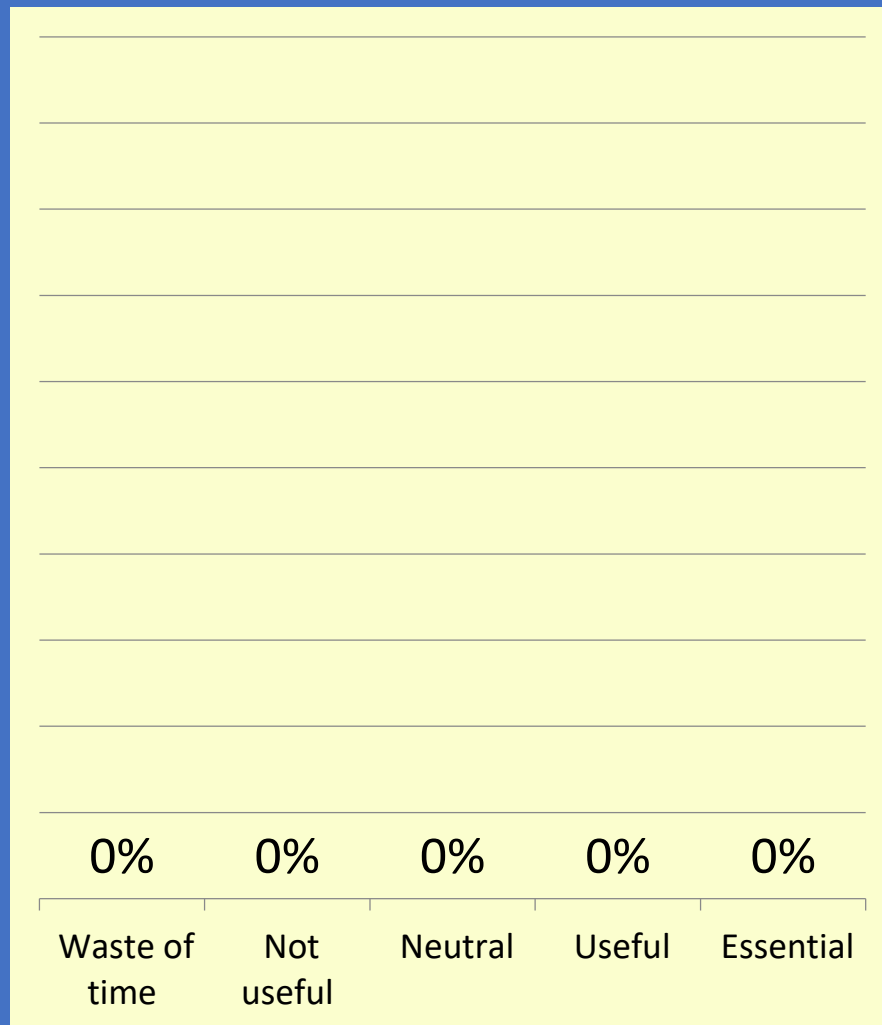5. *Trainings*
6. *Word of mouth, informal conversations*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Word of mouth, informal conversations

1. **Waste of time**

2. **Not useful**

3. **Neutral**

4. **Useful**

5. **Essential**

What is the best way for communities to share knowledge with one another?

1. *Reports*
2. *Social media*
3. *Conferences*
4. *Site visits or exchanges*
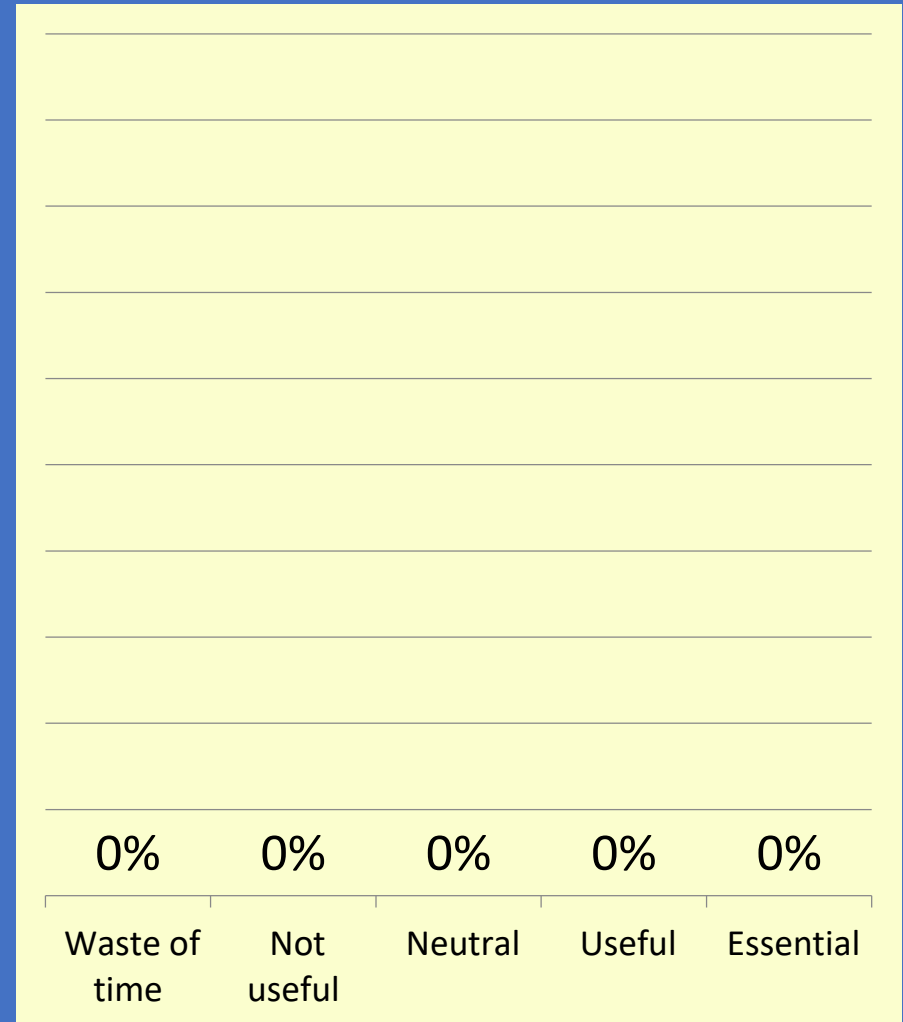5. *Trainings*
6. *Word of mouth, informal conversations*

Waste of time	Not useful	Neutral	Useful	Essential
0%	0%	0%	0%	0%

Other ideas?

The choices so far for communities to share knowledge with one another:

1. *Reports*
2. *Social media*
3. *Conferences*
4. *Site visits or exchanges*
5. *Trainings*
6. *Word of mouth, informal conversations*

Thank you!

Next Steps

Project goes until March 2021

Visit our project website:
http://ine.uaf.edu/microfews

Contact information:

Jen Schmidt   jischmidt@alaska.edu

Erin Whitney   erin.whitney@alaska.edu