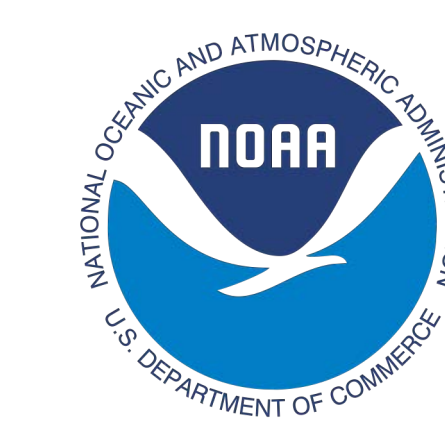
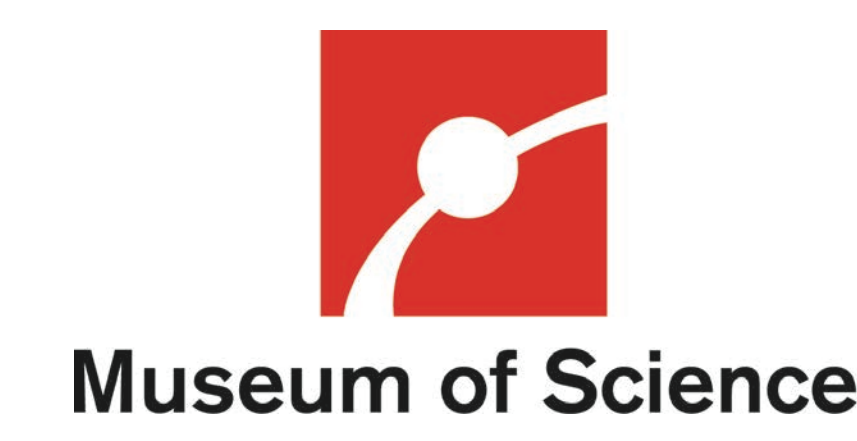


Mapping Public Values about Climate Adaptation & Resilience Using Deliberative Forums



Nicholas Weller¹, David Sittenfeld², Emily Hostetler², & Katie Todd² ¹School of Sustainability, Arizona State University; ²Museum of Science, Boston.

Public forums for climate resilience

Communities must confront difficult and complex decisions to prepare for climate change impacts. Those decisions involve assimilating a wide variety of community priorities with technical information and uncertainty about future hazards.



Participants in Phoenix, AZ discuss resilience strategies in Sep 2017.

Museum of Science, Boston and Arizona State University led community forums with partner science centers across eight US cities in 2017-18. Forums were designed to **engage** laypeople in learning and making decisions about resilience; **communicate** hazard vulnerabilities, resilience strategies, and tradeoffs; promote informed and respectful **civic dialogue** among diverse groups in a replicable way; and **collect and analyze** informed public opinion.

Informed public opinion

Forum activities were designed for extreme heat, extreme precipitation, drought, and sea level rise. Activities balanced informing participants about hazards and resilience strategies with fostering conversation about how participants thought communities should prepare.

This project demonstrates the ability of lay participants to learn about climate resilience and contribute substantive and informed opinions on the topic. Forums provide one mechanism to better involve communities in preparing for uncertain climate futures.



Participants at a forum in Portland, OR in May 2018.

Acknowledgements: Thank you to partner science museums, forum participants, and the ECAST network. Forums are supported by the US Department of Commerce – National Oceanic and Atmospheric Administration (No. NA15SEC0080005). Analysis supported by the Central Arizona-Phoenix Long Term Ecological Research Project (National Science Foundation No. DEB-1637590) and ASU's Graduate and Professional Student Association.

Participants reported knowing more about climate hazards & resilience strategies

How much did you know about the following topics before the forum, and how much do you know after?

The impacts of resilience strategies on different community members ^a



Strategies for reducing the impacts of climate related hazards ^b



The climate-related hazards that could affect my local community ^c



^a Wilcoxon Signed Ranks Test: n = 355, Z = -15.139, p < .001, r = 0.804
^b Wilcoxon Signed Ranks Test: n = 357, Z = -14.769, p < .001, r = 0.781
^c Wilcoxon Signed Ranks Test: n = 356, Z = -12.553, p < .001, r = 0.665

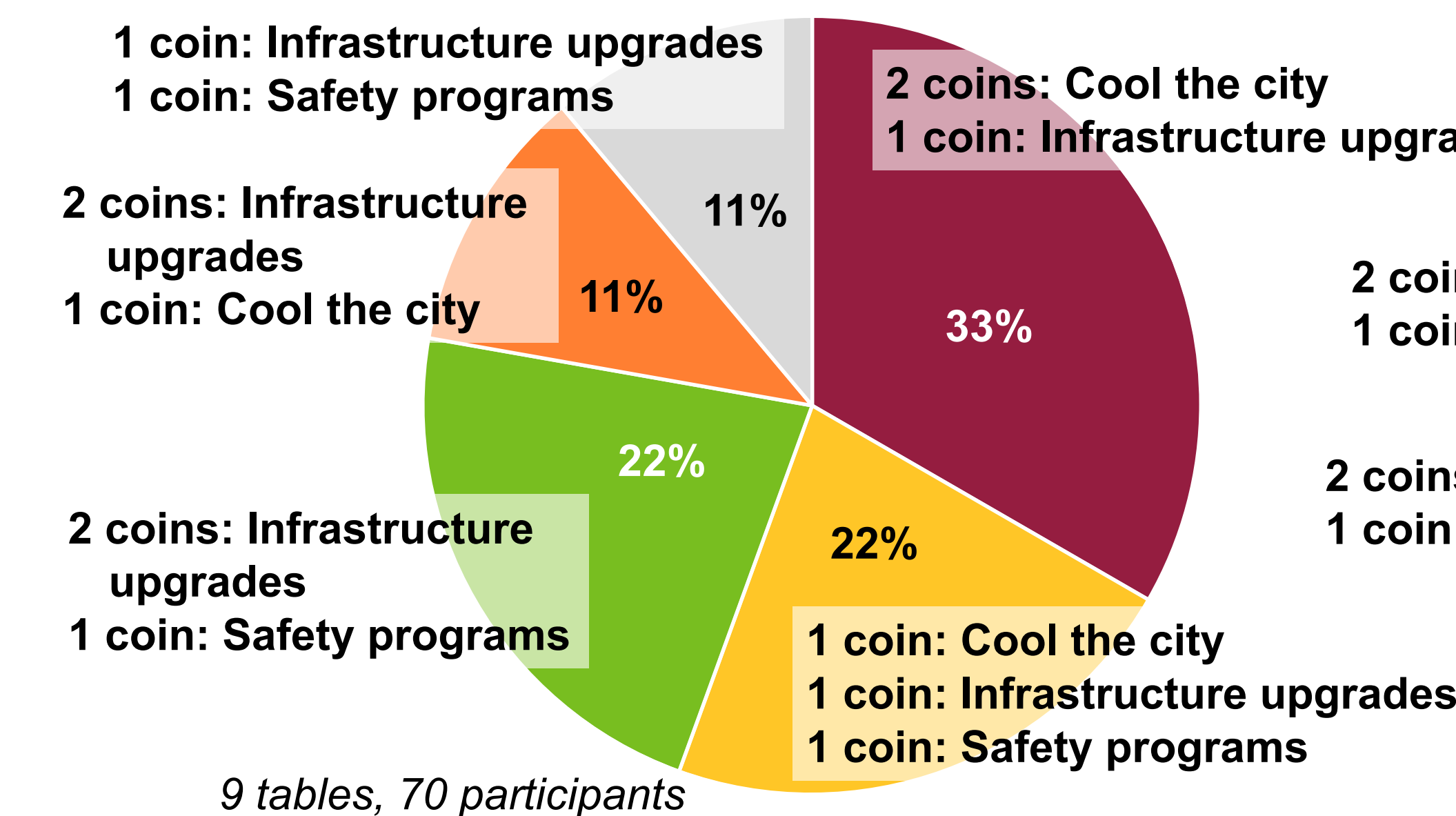
■ A lot ■ Some ■ A little ■ Nothing

Between 39-77 participants (mean=61) selected to match the diversity of each host region attended each forum. Participants completed a survey about their knowledge of climate-related issues after the forums.

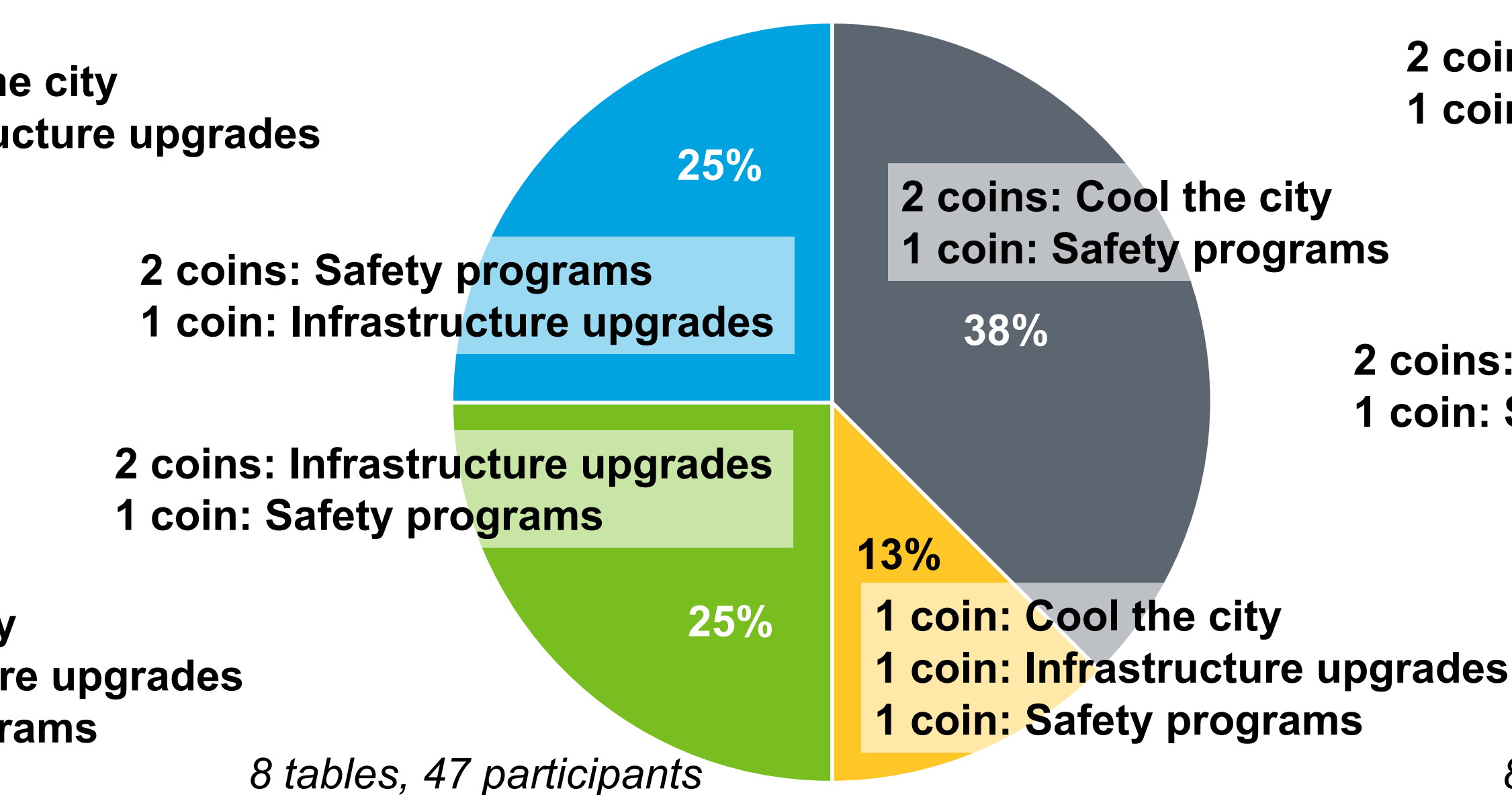
Preferences for addressing extreme heat varied across sites

For the extreme heat exercise, tables of 4-8 participants could chose to invest a lot (2 coins), some (1 coin), or no resources in three resilience strategies: Measures to reduce outdoor temperatures, measures to strengthen infrastructure, and public safety programs.

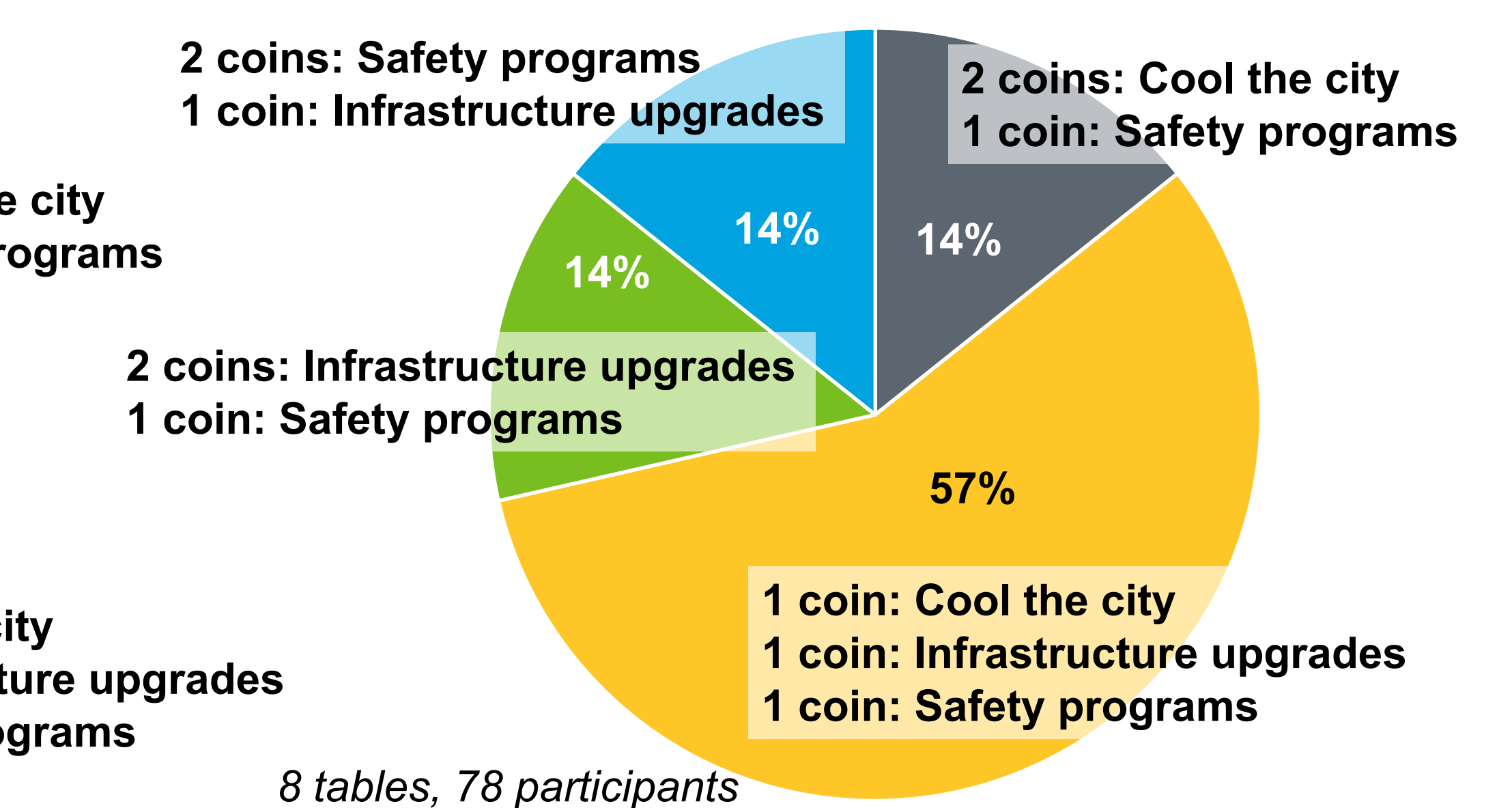
Phoenix, AZ



Portland, OR



St. Paul, MN



Participants discussed a wide variety of values, including efficacy, safety, & equity

Conversations from three tables at each site were coded to identify dominant themes in conversations.

Categories coded	Effectiveness & Timing	Cost	Equity	Electricity & Transport	Reduce Outdoor Temps	Environment	Health & Safety
	Long vs short term projects	Expensive	Effects on vulnerable populations	Grid	Cooling through shade	Benefits and harms	Heat illness/death
	'Band-Aid' solutions	Cheap	Benefits across community	Power sources	Urban heat island	Wildlife	Comfort
	Effectiveness	Affordable	Impact of hazards on groups of people	Blackouts	Shade structures	Water quality	Exposure/risk
	'Multi-prong' approach			Highways, railways		Stormwater control	
	Addressing cause			Public transit		Wildfires	

Illustrative examples

"We can end up putting in all those trees and all that plant life but...we're just assuming that all these trees are going to survive... Which is why I'm still reallocating the extra money to [infrastructure upgrades]..." - Phoenix

"If we're looking at the people that wouldn't necessarily have the resources to be able to put up [shade] structures on their own or put up shade on their own, we're protecting them; we're protecting the community." - Phoenix

"I think just based off of personal experiences. I have been to communities where there's heat zones... I do believe that having more green spaces and trees does make a difference outside. If people can't be in community centers, at least they can be outside." - Portland