Inputs	Participants & Activities	Short-term Outcomes	Medium-term Outcomes	Long-term Outcomes	Vision
▪ Research ▪ Evaluation ▪ Practitioners ▪ Leadership programs ▪ Support to scientists ▪ Communication & engagement training ▪ Institutional support for scientists and publics ▪ Funding (including Broader Impacts and other funding requirements) ▪ Strategy of communication	Participants ▪ Scientists ▪ Publics ▪ Practitioners Activities ▪ Public Dialogue Approaches ▪ Policy Deliberation Approaches ▪ Knowledge co-production approaches ▪ University-led, cooperative engagement approaches ▪ Everyday engagements ▪ Note: see typology for more details and examples	Scientists humanized/ publics individualized	Build trust between publics and scientists	Build trust between publics and scientists	Sound, evidence-informed public decision-making on science-related issues
		Positive affect	Longer-term positive affect about science	Long term positive affect	Dialogue on critical science-society issues embedded in public discourse
		Increased sense of public engagement identity	Shared appreciation of public engagement Do more & better engagement (more able and comfortable) Build relationships to continue public engagement with science	Engagement is part of work and life (proposals, plans) in strategic and reflective ways Institutional change	Influence individual and collective action and behavior Influence policy
		Intention to act or engage again Increase skills/ability to engage civically Increased self-efficacy	Act on something from engagement Be ready to advocate/amplify Increased preparation to engage between science and society	Share scientific or social content and understanding with networks	Influence research agendas Research that is responsive to societal needs and interests
		Increased interest and motivation around topic	Increased willingness to consider science-society intersections	Improve goals or focus of research Hear/understand others' views about science	Resilient STEM workforce Science embedded in daily life
		Increased understanding of the process of science and social institutions	Increased ability to discuss science-society intersections	Frame science to be relevant to publics Framing knowledge outcomes for use by scientists and decision-makers	

Notes on the Logic Model for Public Engagement with Science

- This logic model is a sketch of an emerging theory of change for public engagement with science, based on a review of public engagement with science literature and input from the public engagement with science community.

- Public engagement with science describes intentional, meaningful interactions that provide opportunities for mutual learning between scientists and members of the public. Mutual learning refers not just to the acquisition of knowledge, but also to increased familiarity with a breadth of perspectives, frames, and worldviews.

- Outcomes move from individual to institutional to systemic in addition to moving from short- to long-term. The columns are meant to be sequential, but the time required to move from one step to the next may not be consistent across outcomes.

- Scientists are understood to be active researchers from any domain of the sciences, including, but not restricted to social sciences and natural or physical sciences (Rainie and Funk, 2015). The term scientist is inclusive of applied fields, such as engineering. Through public engagement, scientists can share details of the process of science, the methods and findings of their work, and the experience of being a scientist. While public engagement can be a part of the work a scientist does, it is not their primary endeavor. Scientists may be employed by universities, government, NGOs, industry, or other research institutes.

- Public should be broadly construed to refer to those individuals who operate primarily outside of the practice of science. McCallie, et al (2009) note that "'the public' is actually composed of many subgroups who may sort themselves differently depending on the issue at hand…the singular 'public' is misleading; it is more accurate to identify the various 'publics' and their various kinds of interests (NSF 1982)" (p 47). In AAAS's experience, 'public' is often interpreted as 'general public' or those with little vested interest or expertise in an issue. 'Public' may be segmented by the expertise or stake a group has in a scientific issue. This may include highly specialized publics, such as policy makers and their staff, business leaders, resource managers, community leaders, faith leaders, and others with extensive expertise. Attempts to find a more amenable term than 'public' have proven challenging; substitutes such as 'audience' implies passivity on the part of a group that is intended to be equally active within public engagement. Motivations and capacities of publics to participate in public engagement remain an area ripe for exploration (Brossard and Lewenstein, 2009).

- Public engagement practitioners have expertise in conducting public engagement, can more easily connect scientists to publics, and can support and train scientists for their engagement. Practitioners may also play a role in helping publics make meaning of public engagement by ensuring the relevance and accessibility of the activities. Practitioners often serve as a bridge between scientists and public engagement researchers by remaining up-to-date about best practices and sharing them with scientists. Practitioners work in many types of organizations, including science societies, universities or scientific institutions, museums and other informal learning institutions, and culture or arts organizations. Many practitioners identify primarily as a member of some other profession, such as informal science educator.