

8. Roadmaps for Cross-cutting Issues

Please address question 8a for each roadmap for: climate change research, children's environmental health, nitrogen and co-pollutants, and environmental justice.

8a. How effective is each Draft Roadmap in presenting a problem statement, elucidating key research topics, capturing relevant research in each of the six programs, and identifying any important scientific gaps?

I have reviewed the 4 draft roadmaps for the cross cutting issues.

The preliminary draft of the climate change roadmap is comprehensive. I have no suggestions.

The preliminary draft of the children's environmental health roadmap is detailed and comprehensive. One important gap is the need to include analysis of the human microbiome when evaluating environmental contributions to adverse outcomes. The human microbiome is acquired during the first three years of life and plays an important role in disease, health and allergy (<http://onlinelibrary.wiley.com/doi/10.1111/pai.12232/full>).

Preliminary studies suggest human microbiome is acquired from both people <http://www.nature.com/nature/journal/v486/n7402/full/nature11053.html> and the environment <http://www.microbiomejournal.com/content/2/1/1>. House dust may be an source <http://onlinelibrary.wiley.com/doi/10.1111/ina.12072/full>

The preliminary draft of the nitrogen and co-pollutants roadmap is comprehensive. I have no suggestions.

The preliminary draft of the environmental justice roadmap is strong. I have no suggestions.

Other comments- I don't recall which section included the discussion of the environment and citizen science. Here is a good example of a citizen science project: <http://homes.yourwildlife.org/>