



HESI SOLICITS PROPOSALS FOR 2016 ACTION

Deadline for submission: **4 December 2015**

See **next page** for the HESI Proposal form.

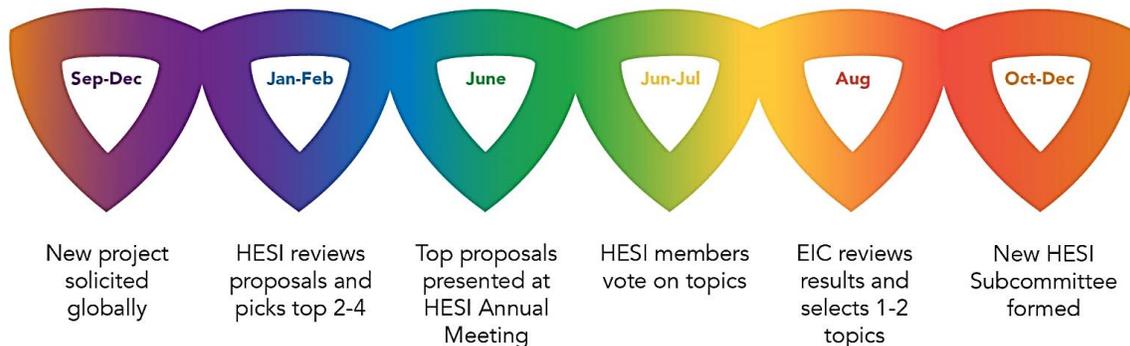
*Is your organization facing new scientific challenges?
Are you seeking a collaborative forum to help generate data,
develop methodologies, or build consensus on applications for safety?*

The ILSI Health and Environmental Sciences Institute (HESI) seeks your suggestions for priority emerging scientific issues (human or environmental health) that should be addressed through a focused, multi-sector collaborative program. The most promising proposals will form the basis of new scientific initiatives within HESI, and will receive start-up funding to initiate activities in the fall of 2016. Click [here](#) for more information about the HESI Proposal Solicitation process. Click [here](#) for frequently asked questions about the HESI proposal solicitation process.

Proposal Selection Criteria:

- The issue should be a priority for a broad cross-section (academia, industry, government) of the scientific community and should have current public health significance.
- HESI's efforts to address the issue will have measurable scientific impact.
- Lengthy basic research proposals will not be considered. Proposals should reflect applied science as contrasted with basic discovery science.
- Proprietary and product-specific issues will not be considered. Proposals should not include lobbying or advocacy components.
- HESI's efforts to address the issue should not be duplicative of other groups.
- Although not required, projects that come with matching resources will be given special consideration.

Timeline:



The ILSI Health and Environmental Sciences Institute (HESI) is a nonprofit institution whose mission is to engage scientists from academia, government, and industry to identify and resolve global health and environmental issues.



HESI PROPOSAL FORM

Return no later than **4 December 2015**
to Cyndi Nobles at cnobles@hesiglobal.org (fax: 202-659-3617).

Instructions:

- Consult / coordinate with colleagues in other divisions / departments within your institution to solicit and propose ideas on human health and environmental issues of concern.
- Use a separate form for each topic and additional pages, if needed.

Submitter name, affiliation, phone, and email:

Erica N. Jones, ExxonMobil Biomedical Sciences Inc., 832-625-7570, erica.n.jones@exxonmobil.com

Is this proposal submitted on behalf of more than one person / institution? If yes, identify co-submitters below.

Proposal title:

Harnessing Expanding Exposure Monitoring Paradigms: A Data Interpretation Toolbox for Citizen Scientists

Key words: *(minimum of two)*

Big data, data quality, data interpretation, credibility, citizen science, participatory science, sensor technology

Describe the problem to be addressed. Why is the issue important? To whom is this issue important?

Low cost, easily distributable consumer-grade exposure assessment and biomonitoring technologies are becoming widely available. Increasing technology availability and integration into daily life has the potential to reveal novel correlations between exposure and health. Broad access to this technology opens the door for innovative data collection both by professionals with formal training and by non-professionals who may have limited training in data collection and interpretation principles. Improper study design can limit the usefulness of collected data, and improper data interpretation can generate false conclusions.

The US EPA has recently developed an "Air Sensor Guidebook" which outlines considerations for selection and use of citizen-based air quality assessment technologies. The guidebook introduces basic concepts, such as instrument accuracy, bias, and precision, which can impact data quality. However, the Guidebook does not address study design, data analysis, and data interpretation. Supplemental guidance is needed to address areas such as power, uncertainty, statistical significance and trend analysis, association or correlation versus causation, and appropriate comparison of data to exposure or biomonitoring reference values.

The objective of this project is to develop resources to educate nonprofessionals about basic data collection, analysis, and interpretation principles to improve the overall quality of citizen or participatory science. Since the US EPA guidance is directed toward air sensors, there is also an opportunity to



develop more general sensor technology guidance to be inclusive of other new exposure assessment technologies (e.g., biomonitoring/health monitoring technologies).

This issue is potentially important to:

- individuals who are interested in learning more about their exposures and health,
- citizen groups who wish to collect credible robust data,
- academic institutions and other organization performing community based research,
- governmental/regulatory organizations wishing to expand available data sources to inform policy making,
- industry organizations interested in expanding understanding of consumer exposures and health

Describe the basic project steps or stages to the best of your ability, including an expected timeline, milestones, and deliverables for the first two years.

Scope of guidance package and timeline is scalable based on collaborator and resource availability.

Year One:

- Identify and engage collaborators (ideally including academic, government, industry, and citizen group representatives)
- Host workshop to identify key survey design and data interpretation concepts relevant to citizen science projects
- Define focus areas for first guidance package
- Draft communication strategy and select communication media/delivery methods. Potential media options could include: report, podcast, interactive web page or PDF, curated Wikipage, etc..
- Initiate development of technical guidance

Year Two:

- Progress and finalize technical guidance
- Finalize communication strategy
- Publish and actively promote guidance package
- Evaluate future guidance needs

What is the potential or anticipated impact of successfully achieving the milestones described above? *(Describe scientific, regulatory, policy, public health, and/or other impacts.)*

The objectives of this project are 1) to provide educational resources to promote scientific literacy among nonprofessionals and 2) improve the quality of citizen-based participatory science to enhance existing knowledge of the relationship between exposure and health. Potential metrics of success may include metrics of distribution (e.g., resource downloads), acceptance and promotion by external partners or other organizations.

Describe the interdisciplinary, collaborative nature of the proposed project, and identify potential partners: *(identify institutions, organizations, companies, and or consortia)*

Ideally, the project would include representatives from academia, government, industry, and NGOs or other citizen stakeholders. Collaborators could contribute to one or multiple aspects or phases of the



project, e.g., identification of focus areas/needs, technical guidance development, communication development, review of draft products, etc..

- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- National Institute of Environmental Health Sciences (NIEHS)
- National Institute for Occupational Safety and Health (NIOSH) Center for Direct Reading and

Sensor Technologies

- Oregon State University
- Carnegie Mellon University (CMU) Robotics Institute/Create Lab
- University of California San Diego (UCSD)
- Massachusetts Institute of Technology (MIT)
- National Science Foundation (NSF)
- National Institutes of Health (NIH)
- Public Lab.org
- Citizen Science Association
- Pharmaceuticals and Chemicals Industry Representatives

How did you hear about HESI's proposal solicitation? (e.g., HESI email or website, society announcement)

HESI Official Representative

Other comments.

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QUESTIONS?

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