U.S. Environmental Protection Agency (EPA) Board of Scientific Counselors (BOSC)

Sustainable and Healthy Communities (SHC) Subcommittee

Meeting Summary

April 2–3, 2019

Dates and Times: April 2, 2019, 8:30 a.m. to 5:30 p.m.; April 3, 2019, 9:00 a.m. to 4:30 p.m. Eastern Time

Location: EPA Research Triangle Park Research Facility, 109 TW Alexander Drive, Durham, North Carolina

Executive Summary

On April 2–3, 2019, EPA's BOSC SHC subcommittee convened in Research Triangle Park, North Carolina. The goals of the two-day meeting were to review the SHC Research Program's draft Strategic Research Action Plan (StRAP)[1] and propose research strategies therein, and provide overall direction to the SHC program by responding to several charge questions. SHC program staff members were available during the meeting to address StRAP content and specific areas of input from the BOSC. The meeting format allowed for presentations, open dialogue, program feedback, subcommittee questions, and EPA responses to questions.

Day 1 consisted of presentations and selected illustrations outlining the SHC program's three main topics, 11 research areas, and respective outputs. Day 2 included continued presentations and discussion between the subcommittee, SHC program staff, and program office and regional partners. The subcommittee formed 3–4 person BOSC workgroups organized by SHC topic areas to develop strengths, suggestions, and recommendations for the seven Agency-provided charge questions for each topic area.

Dr. Bruce Rodan, Deputy Assistant Administrator for Science, Office of Research and Development (ORD), welcomed the SHC subcommittee members and noted their role of providing independent peer review of ORD planning and research implementation. He reviewed the subcommittee charge to provide advice to ensure the SHC program completes research in an appropriate way and implements EPA's strategic goals. Mr. David Dunlap, Deputy Assistant Administrator for Research and Development, ORD, emphasized the subcommittee's role and ORD's need for their input and commitment to assist EPA with StRAP implementation. Mr. Jace Cujé, served as the Designated Federal Officer from ORD.

Overview of SHC's Strategic Research Action Plan

Dr. Michael Slimak, National Program Director, SHC Research Program, outlined the StRAP structure of three topic areas, which divide into 11 research areas. He explained how the program prepared the draft StRAP to align with EPA's strategic goals and objectives, specifically Objective 1.3 (revitalize land and prevent contamination) and Objective 3.3 (prioritize robust science). Dr. Slimak noted that EPA's Strategic Plan accelerated the pace of cleanups by creating specific goals and metrics.

[1] https://www.epa.gov/sites/production/files/2019-03/documents/shc_strap-_feb_27_public_review_draft.pdf

Dr. Slimak discussed the SHC program's need to increase the number of research products to meet customer needs by 2022, emphasizing the program's work with program and regional partners. He reviewed the strategic drivers and documents used to inform SHC's StRAP.

Mr. Stiven Foster, Science Advisor, Office of Land and Emergency Management (OLEM), discussed partner engagement and provided background information on OLEM's organization structure and how OLEM collaborates with ORD. He stated that OLEM's participation in Research Area Coordination Teams (RACTs) provides an opportunity for great collaboration in the development of the SHC program's planned outputs. Mr. Foster noted the involvement will help better align the research with priority needs within OLEM's entire portfolio.

Ms. Regina Poeske and Dr. Jonathan Essoka, Region 3's Regional Science Liaison (RSL) and Regional Superfund and Technology Liaison (STL), discussed how ORD and the SHC program engaged with the regions to develop the SHC program StRAP. Ms. Poeske explained that their role is to facilitate communication and transfer of ORD's products to regional offices, state partners, and other stakeholders. She emphasized the benefit of regional participation in RACTs.

Ms. Sarah Mazur described how the Regional Sustainability and Environmental Sciences Research Program (RESES) facilitates collaboration between ORD scientists, the regions, and their stakeholders and has demonstrated success in building regional capacity, assisting stakeholders, and influencing stakeholder decisions. She described the evaluation findings of impacts and outcomes and noted that RESES project results influence stakeholder decisions or actions, which influences EPA project outcomes.

SHC Research Program – Presentation and Selected Illustrations of Topic Area 1: Contaminated Sites

Dr. Andrew Geller, Deputy National Program Director, SHC Research Program, introduced Topic 1, Contaminated Sites, stating contaminated sites were a top priority for the new administration. He explained how the SHC program reference a detailed list of partner needs from OLEM, have face-to-face meetings with office directors, host engagement webinars where the SHC program and program office scientists meet to determine what science is needed, identify needs from RSLs, and engage with STLs to identify Superfund opportunities.

Mr. Daniel Powell, Acting Director of OLEM's Office of Superfund Remediation and Technology Innovation (OSRTI), provided OLEM's perspective working closely with the SHC program to characterize and clean up waste sites and an overview of key recommendations from the Superfund Task Force related to technologies. He outlined OSRTI's needs, challenges, and considerations.

Mr. Tom Holdsworth, Assistant Laboratory Director for the SHC program, reviewed Research Area 2, Site Characterization and Remediation and the corresponding outputs, as outlined in the StRAP.

Dr. Geller recognized ORD's work on lead in direct response to technical support needs from states to help build their response capabilities. He emphasized that the SHC program is involved heavily in lead research, including the development of multiple models of lead exposure.

Dr. Elaine Cohen-Hubal of the National Exposure Research Laboratory (NERL), ORD, described how the SHC program works on predictive models for understanding per- and polyfluoroalkyl substances (PFAS) exposure, methods for measuring PFAS in different media, and strategies for controlling sources and remediation. She noted that the SHC program's highest priorities are multi-media exposure estimates for risk management and identifying locations with high potential exposures. Dr. Cohen-Hubal discussed the benefits of the publically-accessible Chemical and Products database (CPDat).

SHC Research Program – Presentation and Selected Illustrations of Topic Area 2: Waste and Sustainable Materials Management

Dr. Geller introduced Topic 2, Waste and Sustainable Materials Management, and the SHC program's ability to address waste that society produces.

Mr. Barnes Johnson, Office of Resource Conservation and Recovery (ORCR), OLEM, discussed the different research areas occurring in ORCR, including landfill management and bioreactor landfills. He highlighted ORCR's perspective and work in the SHC StRAP's Research Areas 7 and 8.

Dr. Thabet Tolaymat, National Risk Management Research Laboratory (NRMRL), provided a selected illustration on Research Area 6, Landfill Management. He acknowledged the concern of state regulatory agencies and the decisions regarding landfill closures, protection, and temperature.

Dr. Wes Ingwersen, NRMRL, discussed Research Area 7, Life Cycle Inventories and Methodologies, and the effect of increased global materials use on lifecycle inventories. He highlighted the readily-accessible United States Environmentally Extended Input-Output (USEEIO) model and the enhancement of measurement methods used for waste tracking. Dr. Ingwersen explained the need for waste estimation tools, noting that NRMRL hopes to add new waste types to USEEIO and integrate waste tracking.

The NERL and NHEERL staff conducted tours of the EnviroAtlas, Bioaccessibility, and Solvent Vapor Intrusion laboratories.

The SHC subcommittee members and EPA staff engaged in discussion on various topics including waste streams of e-waste, plastics, and recyclables. Other topics of discussion included what processes the program uses internally or across ORD to determine the research question of highest priority and how the SHC program addresses the customer's long-term needs.

SHC Research Program – Presentation and Selected Illustrations of Topic Area 3: Healthy and Resilient Communities

Ms. Mazur provided an overview of Topic 3, Healthy and Resilient Communities, and an overview of Research Areas 9, 10, and 11, as outlined in the StRAP.

Dr. John Thomas, Office of Community Revitalization (OCR), explained the process of OCR funding and how OCR wants to create a space for the communities to have a conversation about their vision for the future and develop action plans within the SHC program topic areas. He

discussed OCR's recent collaboration with the SHC program through shared data layers in EnviroAtlas.

Dr. Essoka provided a regional perspective on challenges surrounding the conversion of contaminated lands into properties that could be considered assets for communities. He raised the wealth of contaminated sites around the country and their proximity to humans, emphasizing how regions have community engagement centers and community coordinators that establish trust with local communities.

Dr. Joel Hoffman, a research biologist within National Health and Environmental Effects Research Laboratory and lead scientist of the Great Lakes Lake Study, discussed the goals and benefits of Research Area 9 and the R2R2R program (i.e., remediation to restoration to revitalization), which is to help transform remediation projects into sustainable revitalization of the surrounding community by maximizing the positive societal and environmental outcomes.

Dr. Susan Julius, National Center for Environmental Assessment, addressed Problem Statements 1 and 4 under Research Area 10**,** Community-Driven Solutions. She explained how extreme weather events affect how EPA provides tools, which enables communities to become more resilient.

Dr. Nicolle Tulve, NERL, reviewed health outcomes in Research Area 10 and explained how EPA wants to use the tools and information from the national research programs to organize, evaluate, and prioritize the interrelationships between exposure to chemical and non-chemical stressors, inherent characteristics, and health outcomes.

The SHC subcommittee and SHC staff discussed the topic of resiliency research and how EPA must consider risks of revitalization at different scales and present these risks to their partners.

The SHC subcommittee also discussed the topics of spatial delineation at a contaminated sites, EPA's partnering with other agencies, temporal aspect within restoration, and asset mapping. SHC subcommittee members emphasized the value and resiliency focus of tools such as EnviroAtlas, and the availability and dissemination of SHC product and tools.

The SHC subcommittee discussed each of the seven charge questions including the SHC subcommittee-specific charge questions on the program's problem statements with solutions approach and the impact of natural disasters. The subcommittee formed 3–4 person workgroups organized by SHC topic areas to address all charge questions, with the goal to produce a draft response.

SHC Subcommittee Report-Out and Summary of Preliminary Recommendations

Each workgroup identified strengths, suggestions, and preliminary recommendations pertaining to the draft SHC StRAP, each specific charge question, and designated topic area. The SHC subcommittee discussed the recommendations of each workgroup and presented an initial summary for SHC program staff. These recommendations and supporting suggestions will be reviewed and refined by the subcommittee over the next few months and finalized in a draft report for the BOSC Executive Committee (EC) meeting.

Topic 1: Contaminated Sites

The workgroup did not propose suggestions or recommendations for Charge Question 1a. The workgroup proposed the following suggestions and recommendations by charge question.

- Include additional detail on state and tribal needs and how those needs are represented. (CQ 1b)
- Add methods to increase flexibility of participation from states (e.g., hosting one-day meetings or funds to attend conferences). (CQ 1b)
- Develop strong science to engage, inform, and empower communities with the data and tools to maintain sustainable environmental protection. (CQ1c)
- Place stronger emphasis on strategic long-term vision. (CQ1c)
- Assist states with the capacity to measure and understand the potential effects or communicate risk to the public for unregulated contaminants in drinking water. (CQ1d)
- Include ORD's role of support to city planning at contaminated sites to balance concerns regarding infiltration and migrating contamination. (CQ1d)
- Include area of exposure research in the total environment approach and make more explicit. (CQ1d)
- Explore strategies to improve the quality of community engagement and transfer of control to local communities as EPA's role at the site lessens. (CQ1d)
- Develop and expand examples of market-based solutions and incentives to adopt new technology and financing (i.e., federal tax incentives to incent remediation and community engagement). (CQ1e)
- Engage with the community early to identify community research and data needs to help design a remedy to meet that need. (CQ1e)
- Develop an implementation plan to identify how the program will address problems and requested further clarification and categorization regarding strategies for community engagement. (CQ2)
- Explore a partnership with the American Academy of Pediatrics to obtain consistent, ongoing, and comprehensive data on children's blood levels. (CQ2)
- Access a chemical class-based approach for PFAS compounds (i.e., a simple organofluorine measurement might need to be explored as an output) due to the broad extent of contaminated sites. (CQ2)
- Foster a better understanding of how the SHC program works with the Federal Emergency Management Agency and the U.S. Department of Agriculture to support community resilience. (CQ3)
- Expand the promotion and understanding of EnviroAtlas to a larger audience.

Topic 2: Waste and Sustainable Materials Management

The workgroup emphasized the need to build stronger partnerships with research partners, both within EPA and across other agencies and institutions. The workgroup did not propose suggestions or recommendations for Charge Question 1a. The workgroup proposed the following suggestions and recommendations by charge question.

- Engage the matrix interface (MI) staff and RACTs to further enhance the coordinated engagement process. (CQ1b)
- Create a longer-term vision and an integrated and overarching framework to explain how specific problems and outputs contribute to overall research goals and priorities. (CQ1c)
- Include life-cycle assessment modeling as a tool to conduct additional research in materials technology and innovation, identifying sources of contaminants and researching how to efficiency reduce these (e.g., through incentives). (CQ1d)
- Explore the use of price-based incentives to motivate waste avoidance, reduction, and recycling. (CQ1e)
- Develop circular economy case studies to identify sustainable financing opportunities to avoid waste costs. (CQ1e)
- Increase program evaluation to better identify effectiveness of research need. (CQ2)
- Explore the adoption of a multi-level approach regarding disaster management. (CQ3)

Topic 3: Healthy and Resilient Communities

The workgroup did not specifically address each charge question, but they provided a summary of the workgroup's main points.

- Include goals of public participation and prevention into the draft SHC StRAP (similar to the EPA Strategic Plan).
- Provide a greater emphasis on the strategy for addressing and reducing vulnerability (i.e., more participation of communities).
- Incorporate a process or social learning as a benchmark, and structuring the report to replace "outcomes" with objectives, methods, or strategies.
- Recognize communities and ecosystems are distinct and nuanced, and they should be treated accordingly.
- Apply case studies in a broader framework or process for wider use.
- Include emerging research area of rising heat index, which is cross-cutting and applicable to other topics.

Conclusion

The SHC subcommittee will compile responses from each workgroup's suggestions and recommendations into the draft SHC StRAP review report. The subcommittee will convene via teleconference to discuss the final revisions as a group before the BOSC EC meeting, which will convene in June 2019. The EC will consider the subcommittees' recommendations and finalize the overall BOSC report, which will include reviews of each research program.

Meeting Agenda and Charge Questions

The agenda[2] and the draft charge[3] can be accessed at https://www.epa.gov/bosc/sustainable-healthy-communities-subcommittee-meeting-documents-april-2-3-2019.

Meeting Participants

BOSC Sustainable and Healthy Communities Subcommittee Members:

Courtney Flint, *Chair*
Matthew Naud, *Vice Chair*
Jay Golden
Kimberly Gray
Elena Irwin
James Kelly
Rainer Lohmann
Jonathan Meiman*
Donald Nelson
Barrett Ristroph
Leslie Rubin
Derek Shendell
Michael Steinhoff

**did not attend*

EPA Designated Federal Officer (DFO): Jace Cujé, *Office of Research and Development*

EPA Presenters:

Elaine Cohen-Hubal, *National Exposure Research Laboratory*
Jonathan Essoka, *EPA Region 3*
Stiven Foster, *Office of Land and Emergency Management*
Andrew Geller, *Deputy National Program Director, Sustainable and Healthy Communities Research Program*
Joel Hoffman, *National Health and Environmental Effects Research Laboratory*
Tom Holdsworth, *Sustainable and Healthy Communities Research Program*
Wes Ingwersen, *National Risk Management Research Laboratory*
Barnes Johnson, *Director, Office of Resource Conservation and Recovery, Office of Land and Emergency Management*
Susan Julius, *National Center for Environmental Assessment*
Sarah Mazur, *Sustainable and Healthy Communities Research Program*
Regina Poeske, *EPA Region 3*
Dan Powell, *Office of Land and Emergency Management*
Michael Slimak, *National Program Director, Sustainable and Healthy Communities Research Program*
John Thomas, *Office of Community Revitalization*

[2] https://www.epa.gov/sites/production/files/2019-03/documents/bosc_shc2_f2f_agenda_tabular_3-27-19-rev.pdf
[3] https://www.epa.gov/sites/production/files/2019-03/documents/bosc_shc_f2f_charge_qs_.pdf

Thabet Tolaymat, *National Risk Management Laboratory*
Nicolle Tulve, *National Exposure Research Laboratory*

Other EPA Attendees:

Karen Bradham	Intaek Hahn	Marc Russell
Karen Chu	Laura Jackson	Mike Tornero-Velez
David Dunlap	Melissa McCullough	Pai-Yei Whung
Emily Eisenhauer	Megan Mehaffey	Alan Williams
Amanda Fitzmorris	Anne Neale	Antonio Yaquian-Luna
Megan Fleming	Carolyn Pugh	John Zimmerman
Greg Grissom	Bruce Rodan	

Other Participants:

Lucinda Johnson, *Vice Chair, BOSC Executive Committee*

Contractor Support (ICF):

Canden Byrd
Blake Riley
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