

Summary of First Meeting Regarding A Possible Ohio Core Project

Started at Noon and ended at 1:00 pm

Kottman Hall 333 (main campus) and Williams Hall 117A (OARDC)

Based on the comments and discussion, it is clear that there is at least one or perhaps more than one core project idea that would be Ohio centric. Given this viability, we formed an exploratory committee made-up of 2 people from each represented college (see 8 names below). This committee will further develop the ideas and, working with the CWC advisory board, determine the optimal fit of specific ideas with the CWC founding questions and core project guidelines.

(1) Introductions:

- a. The meeting was attended by about two dozen people with about half from FAES and the remainder evenly split amongst SBS, MPS, and Engineering. OARDC was represented by 5 people.

(2) Geographic Regions of Study within Ohio and the Ohio River Basin

- a. Richard Moore: FAES/OARDC. Richard explained the ideas behind the Sugar Creek project, which was initiated in 2000 and is funded by over \$6M in grants (<http://sugarcreekmethod.osu.edu/>). This project (1) focuses on headwaters, (2) is participatory or stakeholder based, and (3) has established a water quality trading. Methodologies use side-by-side watersheds to study the impacts of different land use practices.
- b. David Bromwich: SBS. David and colleagues are studying numerical weather prediction for central Ohio and the long term surface water budgets.
- c. Nick Basta: FAES. Nick is working with Heidelberg's National Center for Water Quality Research on the Upper Sandusky River basin regarding land-use impacts on phosphorus run-off to Lake Erie. Pharmaceuticals are also a potential study item.
- d. Warren Dick: FAES/OARDC. Warren studies mercury run-off related to coal plants and was a finalist in NSF's critical zone grant competition. He also has carbon related work on no-till plots that have existed for 46 years (longest maintained in the world).
- e. Charles Goebel: FAES/OARDC. Charles studies the Cuyahoga River riparian zones using GIS to assess the impact on water quality. He also has work in understanding the soil organic matter and its impact on water quality.
- f. Larry Brown: FAES. Larry indicated his work on drainage water management from agricultural lands and the impact of transported phosphates and nitrates.
- g. Bill Mitsch: FAES. Bill and his group study the Olentangy River and wetlands toward understanding flood pulses and related water quality issues. He also has work on wetlands peat development and related carbon sequestration.
- h. Berry Lyons: MPS. Berry has studied the inorganic chemistry of the Olentangy and Scioto Rivers around Columbus.
- i. Hal Walker: Engineering. Hal leads the Ohio Water Resources Center which distributes grants to Ohio researchers. His research is focused on Ohio, including fate, transport, and treatment of water constituents (e.g., arsenic) and resulting impacts such as blooms.
- j. Jialin Lin: SBS. Jialin uses global climate models to provide context and teleconnections between Ohio and global climate phenomenon (e.g., ENSO).
- k. Rattan Lal: FAES. Rattan is studying the carbon sequestration and balance of soils in seven states, including Ohio.

- l. Roger Williams: FAES. Roger is working on forest carbon amounts in two of Ohio's largest state forests. His work includes both above and below ground carbon stocks.
- m. Brian Slater: FAES. Brian uses scaling tools to understand land-use land cover changes.

(3) Specific Climate, Water, & Carbon and Related Policy Questions for Ohio

- a. The following points were quickly mentioned during the meeting and remain as potential opportunities for an Ohio core project:
 - i. Water quality and nutrient trading in the Ohio River Basin
 - ii. Working with waste water treatment plants to help them toward the 1 mg/L phosphorus treatment levels by changing farming practices
 - iii. Engaging Lake Erie phosphorous impact studies, including remote sensing
 - iv. Describing the impact of zoonotic diseases within the context of climate change (e.g., changing patterns of bird migrations) and the role of the water cycle
- b. More discussion was provided on understanding the potential impact on agriculture, disease, and water availability in Ohio from future extreme weather events (floods) and climate change (drought). Essentially these extremes are brought-on by climate change, which in turn, is understood through ongoing climate modeling efforts by Lin and Bromwich. This modeling provides the linkages between climate, water, and carbon.
- c. As mentioned by Rattan Lal, the fate of carbon, as it is transported in river basins by erosion is of concern.
- d. Joseph Fiksel of the Center for Energy, Sustainability, and the Environment TIE indicated that the Ohio core project should make connections with sustainable development, jobs, and economies, while working on the environmental questions. We need to develop policies that are useful and actionable.
- e. Nick Basta noted that Penn State has a long time program on Soils as Living Filter which might serve as a model for ideas related to beneficial uses of waste water, especially during water shortages.
- f. Amanda Rodewald wants to make certain that the impacts on animal and plant communities, i.e., biodiversity, are kept in mind when considering carbon sequestration strategies.
- g. Bhavik Bakshi made the point that Ohio's industries should be involved toward solutions to climate, water, and carbon issues, e.g., how to deal with CO₂ from power plants.
- h. Robyn Wilson noted that behavioral patterns of individuals are a part of the policy making decision process.
- i. Tom Koontz likewise indicated that human systems are impacted by and make impacts on climate, water, and carbon systems, thus we need to understand how science is presented to policy makers toward making viable decisions.

(4) What are the Connections with other TIEs and OSU Programs?

- a. Public Health Preparedness for Infectious Diseases TIE
- b. Center for Clean, Sustainable Energy TIE
- c. Connections of water and energy in Ohio: Jeff Daniels (via email)
 - i. Water quality/supply (surface and groundwater) for energy production. Increased coal production is inevitable in Ohio and this will have a huge impact on water quality and supply. Is statewide monitoring being done? Is it doable? Should the CWC become the center for gathering the information, conducting research on impact, and predict the future of water quality/supply for Ohio?

- ii. Water quality with respect to mining: getting rid of slag from power plants and what to do with the mines after the coal is extracted?
- d. What are the issues with sequestering CO2 from power plants, with respect to deep burial?

(5) Who will initiate future discussions?

The following people volunteered to continue the dialogue started today. Two people from each college were appointed to an exploratory committee:

Nick Basta: FAES basta.4@osu.edu

David Bromwich: SBS bromwich.1@osu.edu

Jeff Daniels: MPS daniels.9@osu.edu (Doug will double-check with our volunteering of Jeff)

Joseph Fiksel: Engineering fiksel.2@osu.edu

Andrea Grottoli: MPS grottoli.1@osu.edu

Jialin Lin: SBS lin.789@osu.edu

Richard Moore: FAES/OARDC moore.11@osu.edu

Hal Walker: Engineering walker.455@osu.edu

The following CWC leaders will help in this exploratory process:

Doug Alsdorf: MPS alsdorf.1@osu.edu

Jerry Bigham: FAES bigham.1@osu.edu

Berry Lyons: MPS lyons.142@osu.edu

Email List for all interested people:

alsdorf.1@osu.edu ; bakshi.2@osu.edu ; basta.4@osu.edu ; bigham.1@osu.edu ;
bromwich.1@osu.edu ; brown.59@osu.edu ; carey@geology.ohio-state.edu ; dick.78@osu.edu ;
dick.5@osu.edu ; fiksel.2@osu.edu ; foster.316@osu.edu ; goebel.11@osu.edu ;
grottoli.1@osu.edu ; hitzhusen.1@osu.edu ; johnson@ee.eng.ohio-state.edu ;
johnston.213@osu.edu ; koontz.31@osu.edu ; lejeune.3@osu.edu ; lin.789@osu.edu ;
lyons.142@osu.edu ; mansfield.32@osu.edu ; mcsweeney.14@osu.edu ; mitsch.1@osu.edu ;
moore.11@osu.edu ; munroe.9@osu.edu ; porinchu.1@osu.edu ; rodewald.1@osu.edu ;
slater.39@osu.edu ; southgate.1@osu.edu ; walker.455@osu.edu ; williams.1577@osu.edu ;
wilson.1376@osu.edu ;