**NNIP Milwaukee Camp Session 2 Thursday June 13, 2019**

**Environmental Indicators**

**Leader: Allison Plyer**

**Notes: Olivia Arena**

**Participants:**

· Allison Plyer, The Data Center (New Orleans)

· Seleeke Flingai, Metropolitan Area Planning Council (Boston)

· Gerardo Mares, Data You Can Use (Milwaukee)

· Libby McClure, DataWorks NC (Durham)

· Ryan Brenner, NYU Furman Center (New York City)

· Mariko Toyoji, Seattle-King County Public Health (Seattle)

· Aaron Schill, Mid-Ohio Regional Planning Commission (MORPC)

· Jie Wu, Rice Kinder Institute (Houston)

· Katie Wang, Rice Kinder Institute (Houston)

· Olivia Arena, The Urban Institute (NNIP HQ)

· Katie Zager, University of North Carolina at Charlotte Urban Institute (Charlotte)

· Danielle Wood, University of Notre Dame

· Denise Riedl, City of South Bend

· John Cruz, Rise (St. Louis)

· Katie Philips, Center for Urban and Regional Analysis at The Ohio State University

· Shahrukh Farooq, University of Texas at Dallas (Dallas)

· Sharon Kandris, The Polis Center at Indiana University - Purdue University Indianapolis (Indianapolis)

· Troy Rosencrants, University of Michigan -Flint

· Elizabeth Grim, CT Data Collaborative

· Naomi Cytron, Federal Reserve Bank of San Francisco

**Allison Plyer**: Visible land loss in New Orleans, population moving away from the coast, use postal data. Now we are looking at doing projections. We am looking at projecting not only how many people will leave in future decades and where they are going to go. Because what we are realizing is that yes, these places are going to depopulate, but where they go are going to be more impacted than where they left. Receiving communities will be affected, houses will be unaffordable, might be in flood plains, etc.

**Seleeke Flingai**: Climate gentrification. Seen an example from Miami. Lower-income communities were pushed into the center of Miami versus the beach, and now people on the coast are gentrifying areas in the center. How is Boston dealing with the same thing, similar income profile to the core community? In Boston, the hottest neighborhood is the Seaport Neighborhood, constructed over the last ten years. New buildings, but probably have a finite length of life because of its location. There are a lot of parallels between communities that may not think they are parallel.

**AP**: Seeing in population movements, in coastal areas, people who are poorer cannot afford to leave. You need money in the bank/wealth in order to move your household. Middle income people go first. Higher income people stay if they can self-insure. This creates a huge disparity between rich and poor in coastal areas affected by climate change.

**Libby McClure**: North Carolina Environmental Justice Network, also related to climate change, the compounding effects of flooding on pollution and contamination. Hog farms increase regulation and reporting requirements from the larger industries. Incorporating double and triple exposures into industry sites.

**AP**: Data sources?

**LM**: work in ebbs and flows with the department of environmental exposure in NC. Their job to maintain industrial reporting and hold industries accountable and not be building in places they can’t build. [Not doing great]. There have been small wins in terms of stopping new development.

· Both environmental contaminants (existing) and new. Waste from big hog farms. Bacteria from farms flooded out. Rural and urban sewage backups. ⅓ of our population in NC is on well-water.

**AP**: We have also tracked air quality and groundwater salinity. Groundwater salinity changes as sea level rises.

**SF**: We look at asthma rates for children in Health Needs Assessments.

**Ryan Brenner**: Green gentrification point. Rent regulation rules limit how much you can increase rent every year. A lot of resiliency initiatives are counted as capital improvements, so can raise rent. The resiliency efforts in the City are in conflict with the affordable housing community. The work post-Sandy is opposed by the affordable housing community because of the fear of gentrification. How to incorporate sustainability and resilience without displacement?

**NC**: I am curious if people are starting to see reports that outline the various goals and others that may have co-benefits.

**RB**: Exemptions, kind of just getting around the issue that way instead of looking for co-benefits.

**Mariko Toyoji**: State department of health and advocacy groups, intersection between environmental exposure and health outcomes. It comes out as an indicator soup. How helpful, actionable, are they? Health department -- Washington State Health Department, Environmental Advocacy Organization produced [WA State Environmental health disparities map](https://fortress.wa.gov/doh/wtn/WTNIBL/). One of our increasing problems is air quality issues because of wildfires. That causes a lot of issues because it got hot and a lot of people don’t have AC. Don’t have AC in Seattle. Some look into doing surveillance with hospitals to see if we are seeing an increase in hospitalization from asthma.

**Aaron Schill**: The City of Louisville, pilot case where they did a couple geo-located asthma inhalers. We do air quality management for our region. It’s GPS and 4G. It only triggers when it’s used.

**Jie Wu**: Houston has a mobile monitoring, goes to school locations to collect and monitor air quality. I have a question. Is air quality and water so fluid? Affluent neighborhoods don’t see it or feel it, if you do an indicator project that is place-based and the tract in the localized area, how do you tease out the impact?

**Katie Zager**: Getting local-level data, getting sub-county level data. There are three monitoring stations in the whole county, cannot model a lot.

**Danielle Wood**: 3-1-1 data that includes air quality. Usually set up for not that.

**\*\*\*People saying no\*\*\***

**SF**: Disproportionality in reporting.

**DR**: Crowdsourced, people can report where they are and mention how bad it smells, participate in air quality gut check. Bob’s projects, small Pittsburgh.

**MT**: Project in Louisiana that is crowdsourced around pollution. People could document evidence of pollution from petrochemical.

**AS**: We are in a region that is pretty geographically and environmentally boring, we don’t have big rivers and climate issues. Trying to raise it as an issue-- be more efficient about resources. More about raising awareness, because not front of mind for a lot of folks. We are the sustainability agency for a lot of people, track indicators. Ohio State to build a dashboard, real-time and dynamically fed indicators to track regularly. Snapshot, point in time, no one thought about if the data existed. 50% infill development, no way to measure that. We are going back now and looking at 21 goals to see what data we need. OSU is doing larger work on sustainability tracking.

**KP**: Sustainable observatory, ingests open-source sustainability data to use and look at what is going on with our area and making data more available. Our dashboard would sit on top of that and build database on that. OSU and Portland State, cohosting a workshop to brainstorm what is a sustainability-focused research data set and make it sustainable. Like miles of bikeway. It ties into a lot of our metrics, track and maintain for HWA funding, transportation focused.

**JC**: Whittling down what indicators should look like, urban ecological assessment. Gather ideas from the google group, working list of things. Tracking impervious surfaces, park proximity, at-risk flood, at-risk populations like youth, tree canopy, air quality and air toxins, proximity of populations to roads, short line railroads, truck traffic, EPA air quality hot zones, Madison County has second worst, tracking where wetlands are, proximity to rivers and streams, asthma, flood insecurity data, highway buffer, additional trees or open space, noise barriers, food insecurity data, walkshed stuff, proximity to [trails, greenspace], bunch of variables in 3 categories (crime, risk variables [employment, education, SNAP, food pantry] and impact [ population density, transit, prime urban farmland], quite a bit. It is a work in progress.

**AS**: OSU students, he did a landscape scan of US and international cities have formal sustainable tracking 300 indicators. He has the full list, draft form. I will share that out when finalized. Using that to see what other people are doing.

**JC**: Does it matter, does it not matter, should we look at it?

**DW**: Environmental change initiative, working for the last few years, last few months, any city over 100,000 done resilience. Vulnerability, exposure, adaptation capacity, you could look and see what they’ve done. Census tract level.

**KP**: Columbus is experimenting with green infrastructure, other cities doing that. Not working that well.

**DW**: South Bend, disproportionality in which properties are willing to accept the green infrastructure and most important.

**AS:** Vacant property--

**DW**: Near a river is where you want them, but places who have flooded, they are becoming vacant. I don’t know how much it is changing runoff.

**AS**: Smart sewers? Combined sewer? No, the City is going through the last stages of a separation. Aside from that the mitigation, if it rained recently don’t go near the river.

**KP**: Right of way, that belongs to the city, though the homeowner has to maintain it. The residents are upset about it. Have to maintain these rain gardens.

**JC:** Metropolitan consolidated sewer district, funded consent decree. We are so far from an internet of thing conversation. The MSD is doing a lot of funding around rain gardens, they will just do it. They will pay for demo of buildings. It’s been helpful for us as an affordable housing developer. This is where it makes sense to put it.

**AS**: Impervious surface layer?

**JC**: not yet, need to make sure the data are reliable.

**AS**: 5-10% but soil and water department, just finished the county.

**KP**: Created the base maps to make impervious.

**KZ**: County taxes impervious surface at a different rate, Charlotte. So, they have that data.

**Olivia Arena**: Opportunities for citizen science initiatives? Working directly with communities to collect data?

**DW**: Citizen science work with housing, was external, well water monitoring where the focus would be in testing in the areas where we have good well water, building the algorithm that will reduce the error, not there yet for the well water.

**RB**: Citizen groups, that measure outflow sites for CSOs across the city. The city’s department is sampling, but the samples collected by tributary organizations has changed how the city collects (like bacteria loads). Northern Queens working across and up and down, whole Long Island Sound, local groups on the tributaries.

**AS**: The state accepts that sampling?

**RB**: They won’t accept it, but they’ve had to deal with in public meeting, so led to some changes.

**DW**: NASA’s globes program, high schools do environmental sampling, air to water, sampling through a program that has guidelines and multiple points in the same city.

**GM**: In terms of data, we aren’t working on an indicator project, but in WI we have a farming community. There are university retreats in rural areas to think about EJ. We looked at reports by the state, they kept good data on the farming communities there. Good place to start, interactive dashboards and mapping layers. Another resource.

**DW**: Document fish kills.

**LM**: EPA’s monitors and toxic release inventory.

**KZ**: Reluctant to put TRI on a dashboard, we aren’t sure how that affects a neighborhood. Toxic Release is the big polluters. Dry cleaners that have to report to the EPA, but our understanding of how a dry cleaner affects a neighborhood. Don’t know how to contextualize it.

SK: 2020. The data have to be useful at the neighborhood level across the county. It wasn’t very representative of the county. Guidelines of what we could use as good data.

**MT**: TRI, filter out things. If there is a facility that is the issue facility, it is the corroborating facility, not necessarily everything. Zeroing on an industry that is a problem, you could go to the neighborhood and gather qualitative data and use TRI.

**GM**: Reach out to people doing this work, reached out to geologists in an area who were doing work in farming area. They may have a better idea of which dashboards to trust.

**MT**: Group monitoring increased number of airplanes flying over. As Seattle has grown, the frequency of planes has increased.

**KZ**: Good data sources on where to put the cutoff of exposure. On this side of the line exposed vs. not, dashboard cannot account for in a binary variable.

\*\*Haven’t come across\*\*

**JC**: Working to measure pollen.

**DW**: Little trees are planted that don’t reduce the air quality as much.

**JC**: These trees are coming down, as we replace new trees, we can put them up.

**DW**: Has tree canopy.

**RB**: City’s environmental department goes out and surveys.

**AP**: We understand why you would combine indicators into an index so you can see them visualized on a map.

**SF**: Discussion, how to aggregate indices, they could become indicator soup. We were working on a displacement vulnerability displacement that we have like 100 indicators that we are going to drill down. A lot of thinking going into how you aggregate indicators and allow the research literature to we don’t know the model to. You are able to see which indicators can fall out of the analysis because they are highly correlated with something else, so don’t add anything new. This indicator can describe a certain type of important factor we can map out. The largest issue we found was how do you articulate to the public, that’s why we did the individual indicators. We are not going to use correlation in our language -- choosing a weight by not choosing a weight--

**DW**: You could test weighting over time. How will we get past the weighting of 1 if we don’t try? It doesn’t seem like we are trying to get past it.

**SF**: It is hard to not say how subjective a weight is.

**DW**: What if we called out subjectivity, 311 calls we know are not

**SF**: Whatever analysis we do has to talk about history racism, intersectionality, our data didn’t allow us to do that. I wouldn’t know how to do the aggregation with environmental indicators. It may be harder or easier to explain, but with social vulnerability, the attempt at vulnerability

**AP**: We never combine indicators into an index. We feel it puts us in a position to justify weights or lack of weights and challenges our neutrality. In addition, indexes are so much harder to explain. For example, “Our Index got worse by .036” No one knows what that means. Our objective is to form a common understanding among decisionmakers and the general public. It’s hard to get them talking about an idiosyncratic measure.

**DW**: In lieu of an index, do you cluster? Without aggregating or putting into an index, could cluster.

**AS**: We group the indicators into 5 overarching domains.

**DW**: The resiliency question is different for that question for one vs. the other

**OA**: Relationships or contributions to resiliency work, Chief Resiliency Officers, or resilience offices in your cities?

**JW**: New CRO, wanted to become 100 RC city, but don’t have that anymore, funding from corporation to secure position. She came to us to brainstorm ideas about what they could do, one thing we are thinking about

**AP**: Indicators we published, we grouped into domains/buckets. We analyzed each domain and described the trends in that domain. Then those domains are relevant to resilience so we describe in our analysis how the region is doing in regard to resilience. But users can see the individual indicators and/or read the narrative about resilience. We do this without claiming our indicators claiming our indicators add up to a resilience measure. Because there is a lot of literature on resilience and no one agreed upon understanding of how to measure it. But the way we did it, presenting individual indicators and analyzing them from a frame of resilience was very useful in the New Orleans area and was used as the foundation for our CRO’s resilience plan in the Rockefeller program.