

Ethnographers and Civic Data Infrastructure

Insights From Environmental Activists

Formosa Plastics plays dirty. While that's not surprising for one of the world's largest petrochemical companies, it still provided rich content for the Netflix show **Dirty Money**. In an episode released in Spring 2020, viewers get a deep dive into the political power of the Taiwanese conglomerate. We also learn that the company is responsible for environmental disasters in Taiwan, Vietnam and the US. At the center of the episode, however, is a Formosa plant in the small city of Point Comfort, Texas, notorious for discharging plastic powder and small pellets into surrounding waters. The film crew follows retired shrimper-turned-activist **Diane Wilson** and her friends as they go out on the water in canoes, collecting evidence to put the bad guys on trial. And against all odds, the group wins a historic \$50 million lawsuit and zero-discharge order against Formosa.



Fig. 1 Diane Wilson in her barn in Port Lavaca, Texas alongside boxes for storing plastic pellets she collects as evidence of Formosa’s on-going pollution. Behind Wilson are boxes of supporting documents collected over almost thirty years of activism in her community. Wilson used to be a shrimper on the Gulf of Mexico, piloting her own boat. Today Wilson continues to go on regular boat trips to collect plastic pellets (or “nurdles”) around the Formosa facility, part of which she donates to the civic science initiative [NurdlePatrol](#). Given the frequency of extreme weather in the region – including the recent “unsurvivable” [Hurricane Laura](#) – the barn-as-archive is both impressive and precarious. Photo by Emree Weaver for [The Texas Tribune](#) (2019).

My PhD project focuses on digital data and infrastructure that communities need to effectively address entangled economic, environmental and public health challenges. Through research in diverse communities near petrochemical plants, I have come to see the importance of “civic data” ([Fortun & Fortun 2019](#); [Wiley et al. 2017](#)) – data that is freely available and organized to be useful in characterizing and addressing social problems. Environmental civic data are data that help turn entangled economic, environmental and public health issues into matters of public concern.

In my research, I've learned about important data gaps but also about huge amounts of data collected by activists over years of work. Often this data is stored in activists' homes, inaccessible to others working on related issues. I've thus also learned about the need for civic data *infrastructure* and begun asking questions about how such infrastructure should be designed, governed and sustained going forward.

In process, I've learned that data infrastructure has many layers and technical components (from data collection technologies to repositories, technical services, user agreements, visualization capabilities, etc.), and depends on many types of expertise. I've also learned that to build good civic data infrastructure, we'll also need to continually reflect on what is needed, and on the limits and affordances of the infrastructures we've built so far. I've come to see civic data practices, expertise and infrastructure as an important focus for ethnographic research, with rich, politically important possibilities for collaboration with the communities ethnographers study.

Civic Data Across Systems and Scales

Fig. 2 includes questions that I've developed to orient ethnographic research on civic data infrastructure in different locations. The questions are open-ended, tuned for comparison and continually expanding as I learn about the many kinds of data collected, used and needed in activism to address Formosa. The questions also offer a way to *organize* civic data; they offer a way to structure the data in a digital archive so that it is discoverable by diverse users, helping them "see" Formosa in many different places.

My ethnographic research has included both empirical and design questions. In 2019, for example, I co-organized an ethnographic "**Field Campus**" focused on Louisiana's "**Cancer Alley**", a stretch of the Mississippi River where hundreds of petrochemical plants were built on top of former sugar plantations. In addition to staggering

pollution, the area saw some **of the highest COVID-19 mortality rates** in the United States. There are also plans to build a new \$9.5 billion Formosa facility, which would bring even more pollution to the area. A local activist group, Rise St. James, recently achieved a **delay of the plant's construction** until February 2021, calling for a re-evaluation of the sacred slave burial grounds located on the site. The data used in this activism included independent archeological examinations (first initiated by Formosa), and later **aerial photographs** — demonstrating how diverse data relevant to environmental activism can be.

Civic data infrastructure needs to have a place for this kind of data — data that doesn't have generalizable importance but is critical at the local level. Civic data infrastructure also, however, also needs to have global reach. Cancer Alley isn't far from Point Comfort, but forging connections between the two sites is still difficult. Civic data infrastructure should be designed to help with this. Civic data infrastructure thus needs to be locally tuned and global in scope.

CIVIC DATA ACROSS SCALES AND SYSTEMS

DEUTERO	Who in this setting or domain is thinking and worrying about the kinds of civic [qualitative, air pollution, energy transition, anthropocene, risk] data infrastructure, work and capacity called for currently and in the future?
META	What discourses shape the way people in this setting talk about and conceptualize civic data infrastructure and capacity, right-to-know, freedom of information, the potential of expanded public participation, and so on?
MACRO	What laws and economic drivers produce (or undercut) civic data infrastructure, access, work and capacity in this setting?
MESO	What groups, networks and publics are implicated in civic data infrastructure, work, governance and capacity in this setting? What data and visualizations of these groups and networks are available?
MICRO	What practices produce (or undercut) civic data work and capacity in this setting?
BIO	How has civic data capacity (or lack of) impacted people in this setting (subjecting them to industrial risks, for example to over-research or invisibility)? What human health impacts and indicators need to be accounted for and addressed in this setting?
NANO	What cultural frames and dispositions enable or deflect civic data work and capacity in this setting?
EXDU	What educational and research programs (formal and informal) produce civic data capacity in this setting? What data expertise is available?
DATA	What civic data and communication infrastructure is in place in this setting and how is it configured, accessible and usable? What data, infrastructure and visualization capacity is provided by federal government actors, lower-level government actors, businesses, NGOs and other civil society organizations and networks?
TECHNO	What technical infrastructure in this setting needs to be monitored, governed and planned, and what civic data infrastructure is needed for this?
ECO-ATMO	What ecosystems in this setting need to be monitoring, governed and planned, and what civic data infrastructure is needed for this? What civic data infrastructure needed to account and plan for climate change in this setting?
GEO	What Anthropogenic load (toxic waste sites, mercury levels in lakes and streams, etc) in this setting needs to be documented, stewarded and governed, and what civic data infrastructure is needed for this?

Fig. 2. Analytical set of questions to query Civic Data across scales and systems. For the digital version and responses to the analytic, see [Schütz and Fortun \(2019\)](#).

Building the Formosa Plastics Archive

Thanks to support by collaborators Wen-Ling Tu, Sonia Su and their team members at National Chengchi University's [International College for Innovation](#), I was able to obtain a visa for Taiwan, enabling a three-month fieldwork stay from October to December 2020. While I am currently undergoing two weeks of mandatory

quarantine in a hotel in Taipei, the archiving work is already on its way. Coordinating remotely with Diane Wilson, and building on longstanding research in [Kaohsiung and Yunlin County](#), we have already sketched out the contours of a [Formosa Plastics Archive](#). Running on the Disaster STS Network, emerging data include interviews with Formosa workers in Texas and activist fishermen in Taiwan, internal company pollution reports, newspaper articles, visualizations and artworks.

FORMOSA PLASTICS ARCHIVE
台灣塑膠檔案館

ABOUT

This is a growing collection of reports, images and videos documenting the operations of the global petrochemical company Formosa Plastics.

The archive supports critical disaster and civic data research in the projects Quotidian Anthropocenes and the Transnational Disaster STS COVID-19 Project.

The material is also used for teaching case studies for the course Environmental Injustice.

「台灣塑膠檔案」匯集跨國石化企業台塑公司在不同國家場址運作的視覺化紀錄，媒材包含報告書、影像、動態影音。本檔案支持「日常人類世」(Quotidian Anthropocenes) 和「跨國災難科技與社會 Covid-19」(Transnational Disaster STS COVID-19 Project) 研究計畫研究；素材亦用於「環境不正義」(Environmental Injustice) 課程案例。

CITE AS

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Illustration by Kora Fortun.

CONTACT

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TIMELINES

SYSTEM + SCALES **DATA TYPES**

THEMES **PLACES** **KEY ACTORS**

DEUTERO: Who in this setting or domain is thinking and worrying about the kinds of civic [qualitative, air pollution, energy transition, anthropocene, risk] data infrastructure, work and capacity called for currently and in the future?

META: What discourses shape the way people in this setting talk about and conceptualize civic data infrastructure and capacity, right-to-know, freedom of information, the potential of expanded public participation, and so on?

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MICRO: What practices produce (or undercut) civic data work and capacity in this setting?

Fig. 3 In its draft stage, the Formosa Plastics Archive makes use of the Disaster STS Platform's collaborative tagging function, enabling a light coding process and a way of rapidly building collections (Screenshot: Tim Schütz). The analytic questions both orient ethnographic inquiry and help structure the digital archive. Moving forward, the archive will allow the creation of thematic collections and joint analysis. See for example this "[timeline essay](#)" curated by Sonia Su (2020), drawing on newspaper articles to document Formosa activism in different parts of Taiwan. The information architecture of the archive will also expand through iterative ethnographic design events, like the "para site" (Marcus).

Writing Culture with Archive Ethnography

I conceive of the Formosa Archive as an experiment in new forms of ethnographic expression and pedagogy beyond the monograph – a form of *writing culture* in the Anthropocene (Fischer 2018). For the project [Visualizing Toxic Places](#) (hosted by UCI's Center for Ethnography), I am working on a [photo essay](#) that gets at Formosa as a multi-sited, toxic “place” in need for new forms of governance (for example updated right-to-know legislation).

Further, on 7 October, 2020, Kim Fortun and I launched a [virtual exhibition and historic tour](#) of Cancer Alley (Fig. 4).. The exhibit was developed in partnership with the [Whitney Plantation Museum](#), a unique cultural institution focused on the lives and perspectives of enslaved people in Louisiana. Notably, Whitney Plantation was owned by Formosa until 1998, with the goal of building the world's largest rayon factory (Seck 2014). Interfacing with the Formosa Archive, the exhibit is designed for students in the undergraduate course [Environmental Injustice](#), opening a comparative angle for their own assigned case study research in California. Finally, the material will be made available as a [resource](#) for teachers at other universities.

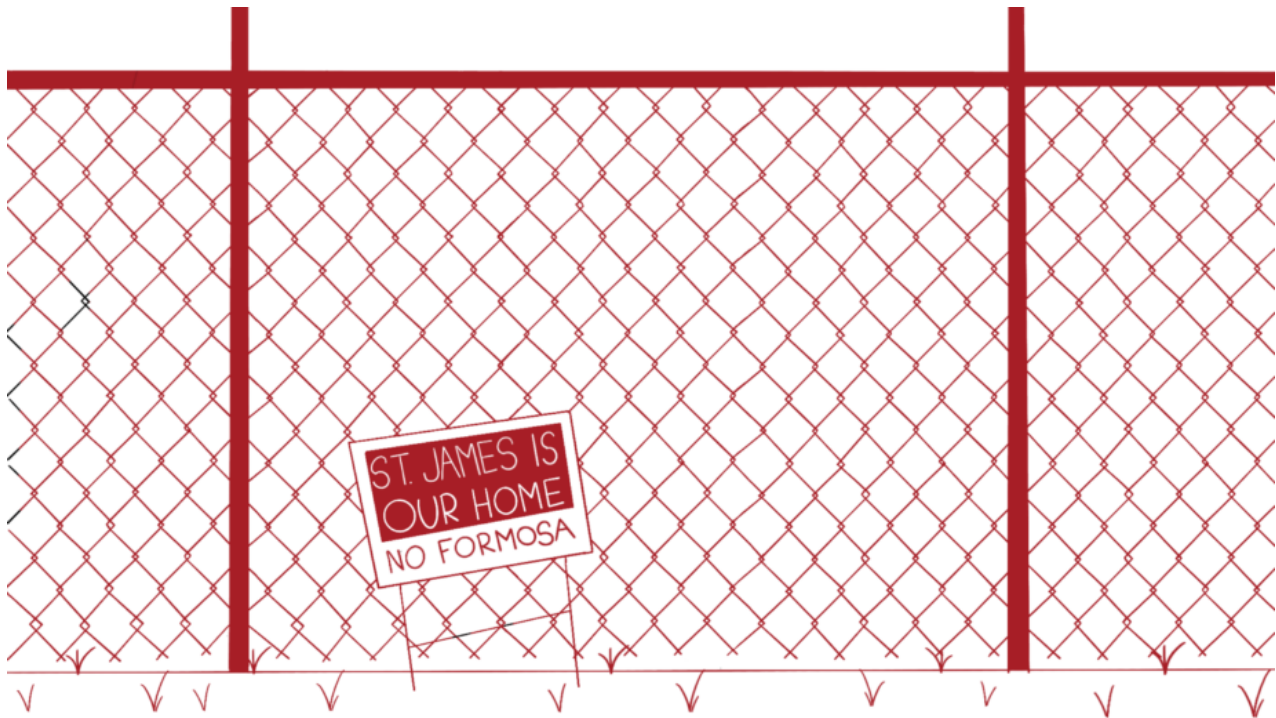


Fig. 4 Illustration of a protest sign at Formosa’s latest construction site in St. James Parish, Louisiana. The so-called “**Sunshine Project**” (named after the nearby Sunshine Bridge across the Mississippi) poses many challenges. It points to the need for legislation that would prevent new polluting facilities in already highly polluted areas, as has been passed in some US states – legislation designed to prevent and help remediate sacrifice zones. Connecting communities around the world dealing with pollution from the same companies is another long-running challenge in the environmental movement – with renewed importance today with expected industry expansions because of the latest oil and gas boom. The virtual tour and collection – interlinked with the Formosa Archive – are designed to support this connection between communities facing environmental injustice. Illustration by Kora Fortun for the digital exhibition **Sugar Plantations, Chemical Plants, COVID-19**, 4 October 2020.

Research Futures and Para Sites

Over the next three months of field research, I hope to figure out some of the multiple challenges of the archive. For example, some of the material is part of ongoing lawsuits against Formosa, demanding careful use of the platform’s privacy and data sharing settings. Our own protection against the company’s rogue tactics are also of concern. Recently, two Louisiana activists were **arrested with charges of terrorism**, following the harmless political stunt of dropping a bag plastic “nurdles”

on the doorstep of a known oil and gas lobbyist.

A possibility to focus these challenges is the format of the “**para site**” as articulated by George Marcus. Hosted by UC Irvine’s Center for Ethnography, such an event could (remotely) bring together archivists, lawyers, computer scientists, environmental activists and cultural producers that share similar concerns – like the team behind *Dirty Money*. Such seasoned filmmakers, for example, will bring substantive archival material to the project, but are potentially locked in by copyright issues. Carefully thinking through such issues is practical concern, but also produces ethnographic moments for better understanding the dynamics of civic data.

Ethnographers and Civic Data Infrastructure

The work that I’ve done to understand and help build civic data infrastructure supporting environmental activism what I’ve been calling “**Archiving for the Anthropocene**” – is technically enabled by open source software developed especially for ethnographers, the **Platform for Experimental Collaborative Ethnography** (PECE, pronounced “peace”). Many different instances of PECE – including <http://disaster-sts-network.org/>, where I’m working with my Formosa material – run on servers at the at the University of California, Irvine; the **design team** is transnational and includes people with many different kinds of expertise. As “middleware” (Khandekar et al, in press), PECE infrastructures my research, providing *research* archive capacity, spaces for analytic collaboration, and allowing new forms of scholarly expression and communication. A key challenge going forward is tuning this kind of open source, open access research infrastructure further to the particularities of the Formosa case.

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