Using GIS to Investigate Environmental Justice

Abu Badruddin

I have been teaching GIS and remote sensing courses with the inception of our GIS program. I always intended to bring students to my GIS classes from across the disciplines to expose them to the power and capabilities of technologies to investigate and analyze the issues of common interest. Often we focus on how to solve a particular problem and spend very little time on the problem itself outside of the technical domain. After discovering more about our critical environmental issues, I see a pressing need to include more socio-environmental topics in our geoscience exercises. In one of my GIS classes, students have to complete a final project where they are encouraged to do a community/service-learning based activity. An important aspect of the GIS Final Project is for students to gain practical experience in solving real-world problems with real data. Students need to use GIS technology that they have used over the years to address relevant problems. Environmental Justice (EJ) came across several times and generated interesting discussions among the students.

Teaching in a small class setting provides me with a better opportunity to work closely with my students. I strongly feel that incorporating the concepts of EJ in my GIS classes will broaden classroom discussions to include more intriguing topics and theories. EJ issues are so common and widespread that everyone in the class will be able to connect and contribute. I think our students will able to unlock the true power of GIS by analyzing important EJ issues. Exposing students to the environmental issues in our community will surely ignite awareness about our limited and depleting resources. Knowing more about EJ will definitely give my students and me the chance to create a link between GIS and our society, a connection that will ultimately make the teaching and learning process more practical and meaningful.

I have years of geoscience experience, but this will be my 1st formal participation in any environmental justice workshop. I am eagerly looking forward to share my experience and learn from the expertise of others. I like to see how others are incorporating EJ issues and field trips within the geoscience classes to make the activities socio-environmental and cross disciplinary.

April Baptiste

EJ Workshop Essay

Environmental Justice: making students comfortable with the uncomfortable.

I was first exposed to the concept of social justice as a teaching assistant during graduate school. This course exposed me to concepts of social justice and its relation to sustainability, attempting to tease out the compatibility between the two concepts. It was during this experience that I was able to think more closely about justice and its relationship to my research. On my own I continued reading about environmental justice and eventually had a base to apply the theory to my work on oil and gas drilling in Trinidad and Tobago.

On being hired to teach exclusively environmental justice, I was now challenged to bring my knowledge and personal experience with environmental justice to a group of students who are not readily exposed to these concepts. Additionally, for many students, social justice issues as it relates to the environment and more specifically as it relates to minority and marginalized populations is new. What I have found after my early years of engaging students on concepts of race, class, rights, and environmental problems as it relates to both domestic and international issues is that the missionary approach is often not the best. As such, I had to find creative methods to engage students with the difficult concepts but also to challenge their underlying worldviews of the contradictions that they believe might exist in addressing environmental justice, particularly in the US context.

I have begun to use strategies from the National Coalition Building Institute, which has a group of active participants on my campus. This has allowed me to use small group workshops at the beginning of the semester to allow students to address different forms of discrimination, and oppression and brainstorm ways in which these can be effectively addressed even when there are differences of opinions in the room. This I have found addressed the elephant in the room in an open manner and it also set a tone of openness for the semester. My classes have been much better with this approach.

Class discussions have become an important component of my classes on environmental justice. I schedule class discussions into my syllabi and I have students lead the discussions, with me as the facilitator summarizing the main points at major points during the discussion. This allows two things. 1. First, my students take responsibility for the material and own it. By this I mean that my students have to find their voice and develop their ideas on the readings and the problems that are assigned for that day. In this way they have to think about both their position and the position of others who may not agree with them and be effective in not just dismissing these thoughts but rather be able to engage someone in a conversation who has a difference of opinion on the issues of race, class, rights, and environmental issues as it pertains to minority groups. 2. Secondly group discussions allow my students to be able to work through problems with each other rather than rely on me to “tell them what I think is the right answer.” It allows

them to realize that in dealing with social situations, that often times there are no black and white solutions; hence the reason environmental justice is often contested.

My approach to teaching environmental justice is one of openness and to allow students to critically think about the processes that have resulted in minority and marginalized populations being negatively affected by environmental hazards. Most of my students though environmental studies majors are being exposed to concepts of race, class, rights, and environmental issues for the first time and to be able to provide them with an open classroom to explore these concepts in an honest manner, I have found to be the best approach.

Environmental Justice -- When Is it Absent?

Diane Beres

The course in which my teaching of environmental justice occurs is "Introduction to Environmental Studies." It is primarily taken as an intro to the major or to fulfill a requirement in the Educational Studies program. Some students take the class as an elective. This course is very broad, covering many topics, and neither delving deeply, nor focusing much time on any one. None of the various textbooks I have seen adequately addresses environmental justice (hence my interest in learning additional ways to teach it). The objective of the course is for the students to have a general knowledge base and to recognize that "everything is connected."

My approach to teaching "environmental justice" has been to endeavor to enable students to recognize instances of environmental injustice. My goal is to get students to ask "who decides?" and "who pays?" and "in what currency?" For example, we visit a landfill. After learning about the management of the facility, we talk about considerations for siting "sanitary landfills" and about where other types of waste goes, and who must deal with it. We consider whether NIMBY (not in my backyard) is ever a reasonable attitude, from the point of view of what's best for society, not what the individual might prefer.

Development (at any scale and in any locale) involves many environmental decisions. I want students to consider the basis on which those choices are made. Who are the stakeholders; are they all part of the decision process? Who benefits; who loses? What/whose are the resources? Are they renewable? What is being accomplished by their exploitation?

Sometimes, I use outside speakers. One that has been particularly well-received speaks about mountaintop removal coal mining. Because this person is from a state where MTR occurs, and because she is a very dynamic speaker (and has a well-chosen set of slides), the students become very engaged. Additionally, because most of the electricity in our state is generated by burning coal, it demonstrates that WE are causing the impacts THEY are suffering.

I have also had a lawyer engaged in environmental advocacy speak to the class. The first-hand perspective of trying to obtain "justice" is instructive for students. One thing it helps them see is that the laws are not always clear and what may seem intuitively "right" may not be the legally correct outcome. It also helps students realize the costs in terms of time for the lawyers and time for cases to proceed through the court system.

The choices made by consumers play a role in environmental justice. Each purchase is a sort of vote in favor of the provider's business method. I try to get students to be more thoughtful consumers. We all consume. Consuming has environmental impacts. Their money is buying more than products. What are the hidden costs? (Who pays?)

It is also important for students to understand that many of the decisions affecting them and their environment are made by representatives. Thus, it is vital for them to be active citizens, participating in the political process and doing what they can to let their representatives know about constituent's viewpoints. This engaged citizen imperative applies to all levels of government.

The greatest opportunity for environmental injustice occurs where people are powerless to influence decisions affecting them.

Environmental Justice in Energy and Water Studies

Karen Berger

My first exposure to environmental justice was when I co-taught a course by that name as an undergraduate student through the Stanford Workshops on Political and Social Issues. The course had a regional focus, looking at such issues as occupational exposure (farm workers in the Central Valley), siting of hazardous waste facilities (Kettleman City), and unequal exposure to air pollution (Los Angeles region).

It is now many years later and the field of environmental justice has evolved. I currently teach four courses in a department of Earth and Environmental Sciences; in each course I look for ways to inform the students not just about human-environment interactions, but how social justice is relevant to the specific topics we are studying. I believe it is important for the students to understand several aspects of environmental justice: how certain populations are subjected to disproportionate environmental harms, how disparate access to environmental resources may limit socioeconomic opportunities, and how either accidental or intentional policies can lead to these injustices. The specific topics vary in each of these courses, but these themes are central: access to limited resources, access to the economic benefits of resource extraction, access to the decision-making process, and exposure to harm.

In *"Introduction to Environmental Science,"* I discuss environmental justice explicitly in two separate units. When talking about New York's debate about whether or not to allow high-volume horizontal hydraulic fracturing within the State, we discuss cases where there is conflict between those individuals threatened with air or groundwater pollution, and those who work, sign leases, or otherwise benefit economically from the drilling process. We also spend two classes discussing economics and ethics; a component of this is the question of how to value externalities. We discuss how unequal exposure, lack of participation in the political process, and consideration of the needs of future generations can be considered external costs, and incorporation of these costs is key to an ethical approach to environmental science.

In *"Energy and Society"* we address justice explicitly in three ways throughout the course. First, we discuss disparate exposure to environmental harm from the energy industry: the students read and discuss the 2002 report "Air of Injustice: African Americans and Power Plant Pollution." The second discussion arises when talking about fossil fuels and the many security, economic, and political dimensions to the oil industry. The students read the 2003 paper from Annual Reviews entitled "Just Oil: The distribution of environmental and social impacts of oil production and consumption." This paper is thought-provoking because it challenges the students to think about some of the indirect injustices that arise through a resource economy, and not just domestic or pollution-related challenges. It is not just the location and pollution from power plants, but also who is employed in the extraction industry, how those workers are treated from an economic and health perspective, or who has political control over oil resources and infrastructure. The third discussion centers on articles from a 2000 series on environmental justice published in the New Orleans Times-Picayune. The articles cover a diverse set of topics; for this course, we discuss the ones that are specifically energy-related. These include one about access to public transportation, siting of a road through sacred Native American land, and uranium mining also proposed on Native American land. The three articles address access to an environmentally beneficial resource (public

transportation), land use (and lack of political power to address it), and exposure to environmental harm.

In focus of the course “Hydrology and Water Resources” is on the physical resource rather than water quality concerns. As a result, the justice issues are most relevant have to do with access to and control over water resources. Sample topics include who is involved in the decision-making process for construction of large dams and who does or doesn’t receive the benefits (cheap power, reliable water supply); political conflicts between regions/countries for access to scarce water resources (Israeli-Palestinian groundwater resources, Tigris-Euphrates basin); and allocation of limited and variable resources (Colorado River, climate change threats).

Even when these courses do not explicitly discuss issues of environmental justice, the inherent values are reflected throughout the course material. Teaching within a department of Earth and Environmental Sciences, it is expected that natural science is at the core of these courses. However, I am not comfortable teaching these topics without introducing and integrating a human dimension. This includes economic valuation of our resources, consideration of internal and external costs in our personal and institutional decision-making process, regulatory frameworks for resource use or conservation, and implications of environmental quality on human health and prosperity. It would only be providing the students a part of the picture if we did not discuss inequities between these costs and benefits within and between populations and nations.

Many of the students who take my courses are not science majors. My ultimate goal is to provide for them a framework for thinking about environmental challenges they hear about in the future. Whether it is a flood or drought, energy crisis, or extreme weather event, they should go through the following thought process: 1) Why did this happen? 2) Who was affected and how? 3) What could be done to prevent or minimize the problem? 4) Is everyone affected involved in the solution? Addressing questions 2 and 4 is key to ensuring that, moving forward, we work – both as environmental professionals and as citizens of the world – to avoid unjust access to environmental benefits and exposure to environmental harm.

Community Capacity-Building & Environmental Justice

J. Kyle Bryant, U.S. EPA-Region 4/Office of Superfund Public Affairs & Outreach

Before people “care what you know”, they must first “know that you care”! This phrase rings so true for the countless EJ Communities I have engaged in the Southeastern U.S. As a Community Activist/ Organizer, Technical Advisor to Grassroots EJ Organizations, African-American, Environmental Scientist, and Federal Community Involvement Coordinator, my perspectives on EJ issues are quite broad. My understanding of the disproportionate impact of environmental risks on poor, politically-underserved communities, and children stems from a lack of capacity. EJ Communities generally suffer from several “quality of life” issues that complicate the ability to effectively conduct outreach and education. As a result, my approach has been to integrate basic community-level, teachings in capacity-building, power dynamics, leadership and participation, and the fundamentals of grantsmanship into my EJ community engagement efforts.

Utilizing Environmental Science Towards a Better Understanding of Environmental Justice

Nathan Cahoone, , Trinidad State Junior College

This essay is designed to link two major concepts in a study of Environmental Science and Environmental Justice. As an instructor who has taught primarily Biology courses, I have spent much of my academic life focusing on topics like Chemistry, Energy, Genetics and Evolution. One of the overriding similarities between these topics is that they are often focused on the individual, even in the case of Evolution.

However, when discussing a topic like Environmental Science, it is such a massive subject, where it is difficult to put everything into nice, tidy little boxes. This course is a microcosm of what issues we face as a country and as a world that shares similar resources. It helps to teach us how our consumption habits and population growth affects the vital resources we so depend on for survival.

Before teaching, I worked for several years as an environmental consultant, helping companies develop strategies and plans for their development projects. AS an instructor, I aim to assist students in developing an understanding of environmental science, and how it is all around us all of the time.

Linking environmental justice into this topic is the last aspect of this conference and what I aim to do with the course. When we see how our actions influence the planet in many different ways, we can learn new methods and strategies that hopefully can provide a better understanding of our planet and how to better interact and use resources. Also, I hope that this can also lead to better interactions between people that depend on these resources, and that the costs of something as damaging as pollution is not felt only by those people that cannot afford to leave polluted areas. Topics like pollution, urban sprawl, acid rain etc.. affect us all.

Calculating Costs: Economic and Environmental Justice in Urban Geography

Christopher Cusack

Environmental justice stands as one of the great challenges of the 21st century. In community after community, the juxtaposition of wealth and poverty and of clean versus contaminated is abundantly self-evident. So too is the need for action. As the traditional manufacturing belt of the United States continues its decades-long decay, the communities within the region are doubly affected. First, the economic loss of manufacturing jobs and dollars typically initiates the transition of a community from self-sustaining to one of dependence. The hollowed out industrial core not only serves as a constant reminder of better economic times, it can also remain an ongoing threat to the populace. Nowhere is the issue of environmental justice more prevalent than in the decaying cities of the rustbelt. From Buffalo to Cleveland to Detroit and beyond, collectively these cities serve as the poster child of contamination.

To address the declining manufacturing base of these cities, I employ the economic base analysis technique in my *Urban Geography* class. The issue of the economic base of a city is first explored, and the functional classification of cities is demonstrated with examples from around the United States. Next, students are provided an overview of the basic and non-basic sectors of a local economy, after which the Location Quotient (LQ) technique is taught. The LQ is defined as the ratio of an industry's share of the local economy to the industry's share of the national economy. Using data from the U.S. Census Bureau, we then calculate the location quotient for the manufacturing sector in various cities. Students find that the importance of manufacturing to the employment base of rustbelt cities has declined over the past decades. These calculations and findings are followed with a discussion of the consequences of this decline. Typically, students identify issues of increases in unemployment, crime, social duress, and outmigration. Less typically do they identify concerns of contamination from the now abandoned industrial sites or any thoughts on environmental justice.

This leads naturally into discussion of the issue of environmental justice. The 1978 chemical release in the Love Canal neighborhood of Niagara Falls, New York, which spurred the federal government to enact the 1980 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) is discussed. The principal goal of the CERCLA legislation is to identify sites of hazardous contamination, to identify the responsible parties, and to assign costs of cleanup. Questions of just how clean is clean, and just who is to be held liable for the costs of the cleanup, have dogged the legislation since being enacted more than three decades ago. Fear of being stuck with the tab has served as a tremendous deterrent to potential buyers. In community after community, not just in the rustbelt but across the United States, former gas stations, textile mills, Laundromats, and more, remain abandoned. The absence of redevelopment is costing the communities tax revenue, employment opportunity, and social cohesion. Moreover, these abandoned and potentially hazardous sites are disproportionately found in neighborhoods of lower income or higher minority population. To demonstrate the reality of the situation, the students in the *Urban Geography* class then use free online software to map out Superfund sites in our home state of New Hampshire. Frequently surprised to learn of such sites in their own or nearby communities, it can be a transformative experience for students who are able to relate personal stories of environmental justice.

Cultivating Action: Environmental Justice in the Environmental Science Classroom

Kate Darby

Too often, environmental studies/science courses and students begin with the presumption of a people-free environment. When I ask students in a lower-division environmental science class what words come to mind when I say "environment", they typically respond with "forests," "wilderness," or "trees". I've yet to hear students respond with "cities," "people," or "home." Most of our students buy into what environmental historian Cronon calls the myth of a pristine wilderness; they tend to view the environment as something "out there" that is (or should be) untouched by human activity. Of course, we know that humans have always manipulated – and been manipulated by – the landscape. Yet, we rarely start a discussion of the environment with a discussion of people.

The students at our liberal arts institution also often enter my classroom with little understanding of power, privilege and difference within the United States. Recent media attention to income inequality, such as this recent viral video, are beginning to catch their attention, but many of them still have trouble believing that racism in any form still exists in the U.S. And notions of institutionalized racism, classism and sexism are even more difficult for much of the fairly-privileged student body to swallow. Unfortunately, some students even arrive in my classroom with a sense of global environmental superiority – "If only people in China would stop having babies and polluting so much, then our environmental problems would go away." (To which I respond, "the majority of goods produced in Chinese factories are consumed by people in the U.S.")

These two issues – the role of people in the environment, and social justice – are related: All environmental issues have a social equity component. As a critical social scientist in an Environmental Science department at a small liberal arts college in Western Pennsylvania, these themes underpin most of my courses, which tend to be interdisciplinary and reflective of changing environmental and social conditions. I aim to equip them with the tools to understand the social (and then, inevitably the issues of justice, equity and fairness) in the environment. I also maintain a normative goal of helping them rethink environmental problem-solving in a way that incorporates social justice.

While I address these issues most explicitly in my environmental justice course, they also inform how I teach all of my ES courses. How do I attempt to work through these intellectually complicated and personally challenging topics with students? I tackle three perspectives of enviro-social problems: the historical (i.e. process), the contemporary narratives and evidence (i.e. pattern) and the normative (i.e. application).

Helping students understand the social justice components of contemporary environmental problems is perhaps the easiest of the three tasks. Students (and I) seem to find the prototypical EJ maps depicting environmental hazards and demographics to be particularly compelling, so I often begin with these visuals and other empirical research. I also, though, find it useful to provide a more humanistic account of current problems, so I rely heavily on videos and personal testimony from those affected by environmental injustice. In the past, I've relied on Valerie Kuletz's *Tainted Desert* to give students a deeply personal and ethnographic account of nuclearism in the U.S. West as a case study.

Once presented with a picture of current socio-environmental conditions, most of us want to know how and why things came to be this way. It's important to give students the tools and language to understand "why." Sometimes answering "why" requires attention to key theoretical concepts, such as Peggy McIntosh's "Invisible Knapsack" of privilege. Oftentimes, it also requires attention to historical context and path dependencies. In my EJ course, this means that I give a great deal of attention to key historical moments, including the post-WWII redlining practices and suburbanization that contributed to many of the spatial environmental inequities we see today. We also situate the contemporary environmental justice movement within its historical context; to do so, I often draw on Robert Gottlieb's EJ history, which finds the movement's roots in not just the civil rights and anti-toxics movements, but also in the Progressive Era's settlement houses and Cesar Chavez's work. I stress the importance of a historical approach in other environmental science courses, as well. For example, in a unit on organic agriculture, I spend a week explaining the history of farming in the U.S. and the movement towards mechanization and scientization of agriculture to help students understand contemporary debates surrounding the Farm Bill and other agricultural policies.

Because of my concern for social justice, and my belief that all environmental problems carry implications for justice, equity and fairness, my courses are unapologetically normative. I want students to question the tremendous income, gender and racial disparities in the U.S. and the even larger inequities globally. And I'd like them to do something about it. I call them to action. In my environmental justice course, I frame up EJ as both an academic field of inquiry and a mode of engagement. I require students in the class to apply the ideas they've learned to an advocacy and service project of their choice (e.g. art-based campus protest, volunteer work at an EJ organization, letter to the editor). I encourage and often require civic engagement in my other classes, as well. For example, in a unit on ocean environments, I asked students to write and send a letter asking an elected official to take a particular action on an oceans-related policy.

Finally, I believe it's important to tackle environmental justice issues with a sense of optimism. By allowing the normative to enter the classroom, and by talking explicitly leverage points in the system, and effective activist strategies, I hope to give students some tools to cultivate action. In my EJ class, we end the semester by reading Rebecca Solnit's *Hope in the Dark*; I also ask students to document a person

or organization that gives them hope for the future. As students share their photo essays, quilts, songs, paintings, and videos, I can feel the collective energy of our group grow. When we're finished with one of my courses, I hope students leave with a sense of tempered optimism, and an understanding that their work on environmental justice – both the intellectual and the practical – has only just begun.

Close Reading—and Close Writing—Environmental Justice
Amanda Hagood, Hendrix College

As an English teacher equally concerned about the health of our global ecosystem and committed to the concept of environmental justice, I often find myself colliding with the disciplinary limits traditionally placed on the teaching of literary texts. Born and raised into the practice of "close reading"—the rigorous and sustained exploration of a text's language, with the goal of constructing a sound explication of that text—we English teachers are warned away from considering, with our students, the factors outside the covers of a book that may have influenced its creation. Historical context, authorial intentions, and even the ethical orientation of a text all recede before our prime directive to present the text as a closed system, a self-contained object capable of providing its own array of complex meanings and interpretations. While this allows us great freedom to cultivate students' sensitivity to things like tone, rhetoric, and syntax—faculties they will certainly need to navigate the information-dense experience of twenty-first century life—it also tends to promote a certain skepticism in their encounters with narratives of environmental justice. When we deliberately occlude the connections between a narrative and the experience on which it is based, as the strategy of close reading demands that we do, we create an additional barrier to students' ability to engage affectively and ethically with that text, allowing students to sidestep the hard question of justice in favor of a more objective critique of someone else's rhetoric.

I have never felt completely satisfied with my responses to this pedagogical conundrum, and the need for new insight is part of what drove me to apply for this workshop. But, over the last few years, I have developed two strategies which I think can help students to engage more meaningfully with issues of environmental justice in the literature classroom—and, as I will shortly explain, outside of it. My first strategy takes root in the very practice of close reading I have previously described, and focuses on a concept that is crucial to the study of literature: point of view. Point of view is the consideration of how authors use a narrative voice (or voices) to construct, over the course of a text, a character's unique relationship to the world she inhabits, and analyzing that relationship can become the basis for a classroom discussion about how we, as a culture, relate to our world. This is especially true for texts that experiment with more than one point of view.

I have had some success, for instance, in teaching with T. C. Boyle's novel *The Tortilla Curtain*, which juxtaposes the experience of two undocumented Mexican immigrants with that of two wealth suburbanites in the same two-mile stretch of southern Californian canyonland. As the suburbanites confront the fear of urban violence that drove them from the city and the hungry, displaced coyotes that now prey on their pets, the undocumented immigrants struggle with the very different environmental issues of exposure, racial prejudice, dangerous working conditions, and vulnerability to violent crime. Asking students to identify and compare passages which portray the same locations from different characters' points of view can be very illuminating, particularly if this comparison is mapped, on a chalkboard, across a number of different shared locations. Helping students to become attentive to how race, class, and gender all play a

role in shaping point of view—and structuring interactions with our environment—can spur reflection on our own experience of environmental harm, as well as insight into what we do and do not know about others' experience of the same environment.

Further affective and ethical engagement can be spurred by creating opportunities for firsthand experience with environmental justice issues at a local level. While the experiences portrayed in a novel might start a discussion about the differential experience of space and place, connecting these conversations to real-life disparities, particularly the ones that run through local communities, adds embodied knowledge to students' analytical grasp—a far more vivid sense of what it might be like to move, breathe, eat, or sleep in the shadows that structural violence imposes on disenfranchised groups. This embodied knowledge might be gained in a number of ways, some of which I have tried in the classroom, and others of which I have encountered as a learner: asking students to research and write about an environmental justice issue in their home towns; bringing environmental justice activists into the classroom for face-to-face conversation; arranging a "toxic tour" with local experts who can demonstrate, firsthand, the impact of environmental burdens on nearby neighborhoods; or engaging students in a long-term service project that allows them to connect with an environmentally disenfranchised group.

Each of these approaches has its own unique set of complications in planning, implementation, and evaluation, but a key component for each, at least for students in the language arts, is to include opportunities for sustained reflective writing. In creating personal writing about an experience with environmental justice—whether that means recalling memories of community change, describing the sensory experience of trash incinerator, or trying to rearticulate the words of a guest speaker—students reorient themselves to language, becoming the producers, rather than consumers, of a point of view. Even as writing about such an experience adds an affective dimension to the issue of environmental justice, it also gives them further insight into the challenge of constructing one's own subjectivity, precisely the challenge that environmental justice activists face in making others aware of the harm their communities face on a daily basis. Helping students to understand not just the technical issues that create environmental injustice, but also the problems of representing environmental harm in language, usefully disrupts—at least in a pedagogical sense—the all-too-common Not-In-My-Back-Yard response to environmental justice that Robert Bullard characterized twenty years ago. It links the restrictive, but productive practice of close reading to the creative process of close writing, creating a far more holistic form of learning.

Some of us are more "in it" than others

Deborah Jackson, , Earlham College

In Southwestern Ontario, just across the St. Clair River from Michigan's "Thumb," is the largest concentration of petrochemical plants, refineries, and related facilities in Canada. At the north end of this industrial area is the city of Sarnia; in the midst of the heaviest industry to the south is the Aamjiwnaang First Nation reservation. As a cultural anthropologist specializing in indigenous peoples of the Great Lakes Region, I had been aware of Aamjiwnaang since graduate school in the 1980s. But it wasn't until 2006, when I was beginning to develop a strong interest in environmental anthropology, that I learned of the extremely compromised environmental conditions plaguing that community. Since then, I have spent a six-month sabbatical and several summers in the area conducting ethnographic and archival research at Aamjiwnaang. Recently, I have expanded to include industrial workers and their families, and residents of other communities along the St. Clair Corridor (St. Clair River, Lake St. Clair, Detroit River) where heavy industry is wreaking environmental havoc.

When I first began this research, Earlham College was in the process of forming a major in Environmental Studies, and given my new-found research interests, I joined the core group that was developing the major. Since that time, the major has been approved and I have developed a number of new courses with a strong environmental focus. What it took me several years to recognize, however, is that the key element that distinguishes my particular focus and subject matter from that of my colleagues in the program is not that I am the only anthropologist, but rather that I am the only one who is centrally and passionately concerned with environmental justice.

There's a saying common in environmentally oriented circles: "We're all in it together." That is, when pollution poisons the air and water, when national parks are opened to resource extraction, when climate change leads to increasingly harsh and violent weather conditions, no one is entirely immune from these changes – they eventually affect us all. Therefore, we should all do our part to control and reverse these trends. I do not disagree with this perspective. But as I have spent time at Aamjiwnaang, and in Sarnia with the widows of workers who have died of mesothelioma and other occupational diseases, as I have met with mothers whose children with rare childhood cancers and traveled through Southwest Detroit (designated the most toxic zipcode in Michigan by University of Michigan researchers) where neighborhood blight and serious ailments predominate, the message comes through all too clearly that we are not, in fact, all in it together. Some of us – people of color,

industrial workers, low-income people – are much more "in it" than others if the "it" is heavily polluted air, water and soil, high-risk work, and disproportionate rates of cancer and other deadly conditions.

This, then, is the message I seek to convey to students in my environmental studies classes. There are benefits to be had from industrial growth, and there are costs, and the harsh reality is that these are not distributed equally; rather, the benefits accrue disproportionately to some, while the costs are disproportionately borne by others. Most of us – my students and myself included – are in the middle. My mission is to instill in my students a deep and abiding understanding of what it's like, on a daily basis, to live in an area that has been "sacrificed" to industrial pollution, and the extent of the toll that takes on those who have no choice but to remain there.

A Philosophy for Teaching and Living in a Just Environment

Paul F. Jeffries
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Ripon College
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My approach to teaching about environmental justice is, in large part, affected by the context in which I teach. Ripon College is a small (about 1000 students) liberal arts college in northeast Wisconsin. I am the chair of a three-person Philosophy Department and as one of the interdisciplinary faculty team that makes up our Environmental Studies Program. Every two years I teach a required course for our Environmental Studies major, a co-listed course on *Philosophy and the Environment*. A second course I teach that sometimes has a section on environmental ethics is my *Human Rights* course. With such a small Philosophy Departmental faculty, we have limited ability to offer specific topics courses given our need to offer courses required for our major and minors. To date, I have not had the opportunity to offer a specific course that focused exclusively on the theme of environmental justice.

My academic interests, both in my teaching and research, revolved the study of theoretical and applied ethics. My PhD is in philosophy, but I also have an MAR in theological ethics. The fundamental conviction that I bring to my work with students is that philosophy is an activity, so my class rooms tend to focus more on discussions rather than lectures. Through my interaction with my students, I try to cultivate in them the skills and insights to discern arguments in different forms, to assess them, and to use the insights gleaned from these activities to craft sound ethical approaches to their personal and professional lives. Another important element to my general teaching philosophy is that I try to help students see how the concepts, arguments, and rival perspectives on the topics we study are grounded in traditions of philosophical inquiry. The topics we explore in philosophy do not emerge out of thin air. They have histories and those conceptual evolutions are sometimes critical in trying to make sense out of the current intellectual frameworks that affect our thinking and actions.

As I noted above, I teach about environmental justice in the context of a more general *Philosophy and the Environment* course, offered at the 2xx level primarily for sophomores and juniors (there are no perquisites). Typically I use an anthology that covers both theoretical and applied issues related to the environment. In the early part of the course, we examine some of the theoretical foundations for understanding the concepts used in discussions about the environment, as well as some of the philosophical and ethical theories that are relevant to thinking ethically about the environment. Some of these theoretical topics engage questions like: What does it mean to call something "natural?" Does nature and/or natural phenomena have value, and, if so, what kind of value is it? Do ethical obligations emerge from our understanding of the value of nature? What is the moral status of animals? Do they have "rights?" What are some approaches to environmental ethics? What does it mean to "pollute" the environment?

The second part of the course focuses more on questions of application. We cover topics like food ethics, climate change, economic considerations (both in terms of causing environmental degradation and of being possible solutions), and spirituality and the environment. It is in this section of the course that I have a one to two-week section on environmental justice. Given the

introductory nature of the course, we read a sampling of essays that address environmental racism, global environmental/developmental justice, indigenous people's environmental rights, ecofeminism, and international law (in relation to advancing environmental justice). Our discussions of these issues focus on the concepts and ideas that are relevant to these frameworks, exploring how they illuminate forms environmental injustice while also providing possible remedies to rectify past environmental injustice. Some of the concerns with international rights and international legal structures are also addressed in my human rights course, where we consider the extent to which a human rights approach along with considerations of international law can be tools to protect against and overcome forms of environmental injustice.

Beyond the class discussions on our readings, I also try to interject more personal reflections, especially in relation about how our choices have environmental consequences. For example, after showing a clip of a 60 Minutes clip of where some of our e-waste goes in China, I then consider how "e-wasteful" our cultural practices are (cell phones upgrades, computer upgrades, computerization of our industrial infrastructure and production, etc.) Sometimes we have taken up the issue of the availability of clean water. Again, while there are international implications to this justice issue, there are local applications. Most local streams in our area have excess nitrogen due to agricultural practices. How do we rethink such activities, including over-fertilized crops or our concern for the "perfect lawn?" This past fall I took my class to a local farm (a local organic certified community supported agricultural "CSA" operation) to see how different farming practices can be both economically effective and environmentally sustainable. Equally important is the dietary value of eating fresh, locally grown food. This experience was quite eye-opening for several of my students, especially some of the ones who come from farms throughout the area. The next time I offer the course, I will likely also take the class to a local CAFO dairy operation, in part as a contrast with the CSA and as a means to get students to consider the justice issues related to how these operations are located. This is a kind of environmental justice issue for rural communities in the U.S. and around the world.

In keeping with this effort to encourage more personal reflections and practical applications, I regularly share with my students about various strategies and practices that my wife and I have adopted because of our concern for environmental justice. I am a firm believer in the power of stories to expand a person's moral imagination. So, for example, I tell students about how we lived without a care for eleven years in the Twin Cities. I challenge them to consider the implications to the environment if China and/or India's populations had the same population/cars ratio as the US. And if this would be problematic, what should we do to change our dependence on vehicles? I tell them that I had more miles on my bike last year than I did my car (which, admittedly was a recently inherited "second car" that serves mainly as an emergency back up for when our 20 year old car dies). I also talk about how one might live more simply to free up resources to redress some of the environmental injustices people around the world encounter. Again, I suggest that they could (should?) regularly financially support food, development, or water organizations serving international communities suffering from environmental injustice.

I am certainly concerned about issues of environmental justice and incorporate them into some of my courses. Nevertheless, I am convinced that there are many other ways and resources for achieving this goal. I look forward to learning from the rest of the workshop participants as we try to creatively expand our pedagogical strategies for teaching about environmental justice.

FROM POLITCS and POLICY to PLACE-BASED INQUIRY and GLOBALIZATION

Richard Kujawa

Probably the most important background to this essay is that I am a broadly trained Human and Environmental Geographer. I work at a small Liberal Arts College in a beautiful part of Northern New England.

My educational background as an engineer, planner, and geographer with a multi-decade interest in environmental issues has been coupled with a position which has encouraged me to teach and engage in scholarship in a trans-disciplinary vein. Professional development is a continuous process for me. My most recent environmentally-related opportunities in this vein have included a workshop on research ethics/community-based research and a law class on agricultural and pesticide law. I am enthusiastic about this opportunity.

I incorporate environmental justice concerns into my instructional practice in at least four classes – an introductory Human Geography class, an intermediate level Environmental Problems class, an intermediate Geography of Water class, and an upper level Environmental Policy class. The exact mix of activities and resources varies with a common theme of moving beyond the obvious into discussions of real cases in real places.

Let me start with the policy and politics of environmental justice. I try to make a strong connection with the genesis of U.S.-based environmental justice concerns through the work of Robert Bullard and the United Church of Christ and real cases (e.g. the Warren County, NC case). I use a chapter from the Vig and Kraft environmental policy book (the chapter doesn't appear in the latest edition) to set the stage. In the upper level class, the concept of an environmental justice timeline is where I emphasize the differences between environmental racism and broader concerns with environmental justice. I also establish a legal and policy basis as well an ethical moral basis for conflict over environmental justice. There are lots of ways in which this occurs but it's mostly case-driven.

I try to make a strong case that environmental justice concerns span geographic scale and make connections with international cases and globalization. For example, I've focused considerable effort in assembling video collages related to electronic waste and trace an arc of stories over several decades which involve corporations, international law, and investigative journalism and advocacy. This allows me to introduce ideas related to the discourses of environmental justice. I've also used water as a context for discussion distributional justice issues related to water and human health. I've been dabbling with incorporating climate change concerns here too but this is in its nascent stages.

I've built in other activities which focus on organizational development. For example, I use the EPA Environmental Justice Awards and the awards given by the National Institute of Environmental Health Sciences as one jumping off point. I also use an article and chapter by Phil Brown (Toxic Exposures) to engage students in a discussion of Community-Based Participatory Research. These result in student research and interpretation as well as discussion of the practicalities of environmental justice work. In the international dimension, I deploy ideas related to transnational environmental movements – both in

a formal organizational vein in the work of mainline environmental groups but also in the evolution of looser social movements and advocacy networks.

In the context of advocacy, I assign chapters in several classes from Steve Lerner's book Sacrifice Zones. This forms a nice context for class discussion of narratives of environmental justice from an investigative/advocacy perspective. It also provides a focus for some directed student writing and peer assessment of writing on the methods and examination of environmental advocacy in this vein.

I've coupled the Sacrifice Zones work with some hands-on lab work with the Superfund and Toxics Release Inventory (stimulated by a case in a science teaching journal and hearing Michael Kraft speak about disclosure at a conference). This activity is the one I've submitted for the workshop. It allows some quite structured activities to open avenues for self-directed inquiry into environmental justice, environmental remediation, environmental health and toxicology. I've delivered a conference paper on this work in the Fall of 2012.

I think that engaging students with popular culture representations of environmental justice is an important element of pedagogy – hence my use of video collages, occasional use of feature films (A Civil Action, anyone?), and even clips from The Daily Show (the Aasif Mandvi visit to Asbestos, Quebec and its link to asbestos exposure in India is a classic). For me, using the discourses of popular culture doesn't mean dropping the rigor and analytical power of theoretical and technical analyses of environmental justice.

Teaching at a small liberal arts college with a service/social-justice ethos has given me a lot of room to work within Geography and across disciplines with themes of environmental justice in technical, policy and ethical/moral veins.

Again, I am thrilled to have been invited to join the group. I hope to be able to contribute to discussions and activities and to learn a lot!

Richard Kujawa

Finding the Origin of Environmental Injustice in a Broad Social and Historical Context

Josefina Li

Department of Economics

Bemidji State University

I have just begun my teaching career at Bemidji State University as a Ph.d candidate from the University of Missouri- Kansas City. In Kansas City, the economic department teaches heterodox economics, which is a pluralistic approach to various different schools of thought, including Marxist, Post Keynesian, Institutional and social Economics. Consequently, this approach echoes with ecological economics, which recognizes the embededness of our economy in the ecological sphere, and the interdisciplinary nature of environmental issues, such as injustice. Kansas City has also been a historically segregated city, where Troost Avenue racially and geographically bisects the community. Troost is the home to an Indian hunting trail, a slave plantation, the famous 18th and Vine Jazz district, and now the decaying downtown that house the impoverished, underserved, predominantly black population. The university campus is in fact, bordered by Troost Avenue. It wasn't hard to talk about injustice, because it is happening right across the campus, just east of Troost, the community is systematically targeted by harmful practices in housing, land use, industrial pollution, and infrastructure. When I began teaching in Bemidji, Minnesota, I realize that I was preaching to a drastically different audience. Most of my students are white, working class, and rural. The interest twist is that our campus is in proximity to three American Indian Reservations, and American Indian studies is one of our signatures. However, without a methodical understanding of how racism, classism and sexism manifest themselves as systems of oppression within a capitalist patriarchal power hierarchy, many responds to injustice to the indigenous people with conflict and anger. Not only their denial to an institutionalized discrimination has long formed, their working class background makes them disinterested in knowledge and skills that are not so practical as to land them a job after graduation.

Knowing my audience, I say to them "our ideas, opinions don't just fall off the sky", indeed they are grounded in different ideologies, and ultimately different methodological

paradigms. Thus, I begin the course by guiding my students through the different frameworks that are used to identify, analyze and resolve environmental issues. Readings are presented from contending arguments on these frameworks, so to leave the final call to the students. By examining mainstream environmental economics, ecofeminism, deep ecology, and Buddhist economics, students begin to the see that redlining, economic disinvestment, discriminatory dumping, male dominance in today's society, and slavery, genocide in human history are all interconnected issues rooted in the same oppressive conceptual framework. The logic of dominance used to justify domination of nature is used to justify domination of humans by gender, race, class, age, ethnic, and economic status. Environmental injustices are not simple environmental issues, but complex legal, political, geological, social and economic problems. With that in mind, we then proceed to read the case studies in Bullard's edited volume *The Quest for Environmental Justice*, and through group discussion, to demonstrate the existence of an inequitable distribution of environmental risks based on race and socioeconomic status.

Finally, we explore the concept of sustainability, and what we can do to be sustainable both as an individual and as a democratic citizen. My goal is that by then, the students would know that sustainability is a complex issue that should be approached in an interdisciplinary way, and thus any advocacy must stand in solidarity with all forms of oppression, sexism, racism, classism, ageism, and heterosexism. Environmental justice movement must be a multiracial, multi-issue, multi-regional one that broadens it agenda to include social, racial and economic injustice.

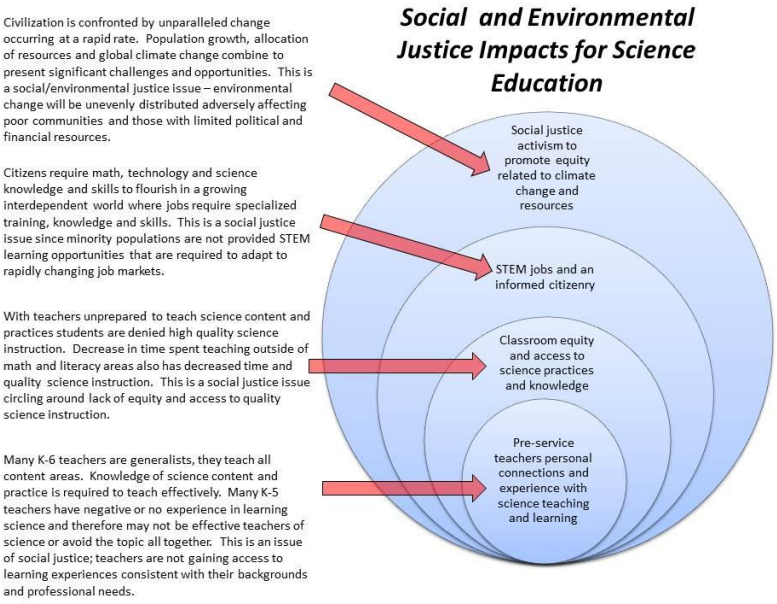
To those students who could care less the injustice because they are white privileged believe that they will never be the victim of injustice, I read to them this quote by Pastor Martin Neimoeller: "They came first for the communists and I didn't speak up because I wasn't a communist. Then they came for the Jews and I didn't speak up because I wasn't a Jew…Then they came for me and by that time there was no one left to speak up".

Matthew Nyman

Addressing the Complexity of Teaching
Training Teachers Through a Social and Environmental Lens

This is my first foray into explicitly addressing social and environmental justice issues in my teaching and, I have to admit, I do not have a super high comfort level with the application, theories and perhaps even the terminology in this field. I look towards my participation in the workshop as a learner, to expand my thinking and teaching towards a social and environmental justice lens. I would submit that throughout my teaching I have haphazardly and tangentially encouraged my students (who have been mainly pre- and in-service elementary teachers) to consider the broader implications and perspectives of science learning and teaching. This includes both seeing the wider applications of science practices as well as how science has had beneficial as well as destructive impacts on society, especially for certain groups.

My more direct interest in social and environmental justice in science teaching has been stimulated by a recent move to Oregon State University and participation in the research project Addressing the Complexity of Teaching (ACT). I am collaborating on this project with Drs. SueAnn Bottoms, Kathryn Ciechanowski and Emily van Zee. One of the project's fundamental goals is to inject a social justice perspective to the science training of K-5 pre-service teachers, including environmental issues. The model for ACT is to develop a sequence of science content, science methods and language learning classes that have coordinated content, clear connections to science practices and a consistent lens of teaching for social and environmental justice. As part of our work we have developed a preliminary model for social and environmental justice impacts for science education (diagram to left). The impetus for development of this model was our reflection on the enormity of the task of not only training pre-service teachers to teach science but provide them experience, tools and background to teach with a broader social and environmental justice lens. In our model attaining the higher levels of social and environmental justice (the larger circle of activism) require changes at grassroots levels in teacher training. This starts with training teachers through experiential learning experiences that are not based on a deficit model of teaching and learning. More students benefit when K-5 teachers are prepared to confidently and competently teach science that enhances potential entry into science and technology positions, especially for underrepresented populations. With more science knowledge and habits of mind these students have higher science literacy potentially leading to more access science and technology careers as well as citizenry capable of understanding and addressing complex issues, including environmental issues such as climate change and resource



management. The final model level is activism. Within this mode people act through voting, participating in campaigns or acting on local levels to mitigate the inequitable effect of, for example, environmental issues. A strong educational foundation of all disciplines and an awareness of social and environmental justice issues are required to more effectively operate on this level.

I end this essay with some nervousness about the validity of some of the ideas and their application to this workshop. The model and essay are clearly a work in progress and I look forward to sharing some of these ideas with more informed workshop participants. I suspect that some (many, most?) of the ideas in the model and essay have been more fluently and eloquently articulate elsewhere. And perhaps there are gaps and errors in the model. For example, does environmental or social justice activism "require" a strong educational foundation of science taught through a justice lens? This is probably not true for all individuals; but I would submit that high fluency in science content and practices, and strong writing and oratory skills are required to be effective. Although I am a new entrant to both social and environmental justice issues, models, theories and pedagogy I am committed to pursuing some aspect of this path in my future work with teachers.

Teaching Environmental Justice with Rhetorical Theory: Ecofeminist Wayfinding, Emplacement, and Agency

Lisa Phillips

Thus far I have experienced environmental justice pedagogy as a student more than as a teacher. As a graduate student in English Studies with a focus on rhetorical theory and ecofeminism, I have completed five courses in which my Professors built environmental justice and social justice issues into the core coursework. Some have included service-learning components, multimodal/media approaches, and community outreach efforts. My goal is to put into action the education I have received.

My approach to environmental justice is interdisciplinary, but I ground my pedagogical approach in American Indian scholarship, ecofeminism, and feminist pedagogies. Winona LaDuke's *All Our Relations*, Gerald Vizenor's *Survivance: Narratives of Native Presence*, Phaedra Pezzullo's *Toxic Tourism,* Stacy Alaimo's *Bodily Natures*, bell hook's *Teaching Critical Thinking*, and Julie Jung's *Revisionary Rhetoric* serve as examples of texts that influence my approach to environmental justice and teaching.

As a rhetorician my goal is to help students understand public argumentation strategies and develop critical awareness of ideological components—i.e. the values and belief systems that undergird environmental racism, sexism, and ecological destruction incurred by unchecked greed and capitalism. My goal is to empower students to take action and assert ethical agency in their own communities and in communities placed in harms way. The two may not be exactly the same, but expanding student accountability and shared responsibility for our emplacement in a web of relations is critical to my teaching goals. Ancient sophistic rhetoric included an activity termed *dissoi logio*—or understanding how both sides of an argument work in tandem to create a rhetorical situation. Embedded within this concept is a notion that privileges the "relativity" of knowledge in opposition to Aristotelian or Platonic Truth. Put differently, it is a way to see another person's argument inside and out in order to move toward civil discourse and action. The neosophistic view is one that extends pedagogy beyond assessing skill mastery. In conjunction, the teacher's objective is to foster critical awareness and ethical action in students.

As an ecofeminist my goal is to help student deploy rhetorical tactics to help mitigate environmental injustices incurred by human and nonhuman bodies in different places and spaces. To help students understand how to do this work, I ask them first to more critically engage their senses by understanding their emplacements within a built environment. This involves field investigation, which is the subject of my activity, which I call "Sensory Wayfinding." Basically, I want students to be more aware of the substances they take into their bodies and how that impacts their rhetorical responses to a place and to each other. I also want them to consider how sensory intake would impact the rhetorical responses of people living in communities subject to negative environmental impacts.

Although my students are all individuals, they do share some common traits at my current institution—historically a teaching institution and "normal" school. Most of my students are white, middle-class, and more than fifty-percent are female. Many do not have a complex understanding of racism, classism, or sexism. Most do not question the colonial and capitalist patriarchal power structures that create gross disparities in access to education and places people of color closer to toxic waste. Case studies, readings in

indigenous studies, and documentary films help me render visible what has been invisible in many of their experiences.

Incorporating Environmental Justice as Part of a Holistic Approach to Environmental Science Courses

Mike Phillips
Illinois Valley Community College

At the beginning of my professional career, I worked for an environmental consulting firm investigating hazardous waste sites throughout the Midwest. I subsequently worked for the Illinois State Geological Survey investigating human-induced and natural environmental hazards. During more than eight years of work as an environmental professional, I observed the impact a general lack of awareness regarding human activities could have on the environment. This lack of awareness resulted in poor containment of hazardous substances and, ultimately, the release of those substances into the environment. Some of the most egregious instances I observed impacted low income and minority communities where developers emphasized the need for jobs and minimized discussion of negative impacts in order to ensure placement of facilities.

I sought a position at a community college, initially as an adjunct and then full-time, in order to raise students' awareness about environmental issues that would impact their lives. I developed a course in environmental geology wherein students research the area around their home and report their findings as a capstone project. In my environmental science course, we begin the semester by investigating what science can and cannot address and proceed to discussions of how ethics, economics, and politics impact environmental decision-making. We then analyze specific environmental issues that are in the news or impact our local area, and we use science, ethics, economics, and politics to develop an understanding of each topic and to evaluate possible solutions.

Environmental justice is a thread that runs through many of the issues we explore in both environmental geology and environmental science. While science courses often focus on how the natural environment works, the "environmental" sciences must include discussions of ethics, economics, and politics in order to develop a more holistic understanding of human interactions with the natural world. I see environmental justice as the complex intersection of those three areas and its incorporation into my courses as a way to develop students' appreciation of the intricate web surrounding many environmental issues.

Science helps us understand the nature of environmental concerns from flooding to groundwater contamination. An examination of environmental justice aspects shed light on why low income and minority communities are more likely to be subject to those concerns. Combining science with environmental justice encourages students to think critically about those concerns and their impacts on people who may lack the means to deal with them effectively.

Global Corporate Social Responsibility

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Monmouth College

Defining CSR

Corporate social responsibility (CSR) has been defined by interest groups, organizations, and academicians in several different ways; there is no universally accepted definition of corporate social responsibility in the literature (O'Riordan & Fairbrass, 2008). One definition that provides us a way to think about CSR was provided by the World Business Council of Sustainable Development (1998). They define corporate social responsibility as "continuing commitment by business to contribute to economic development while improving the quality of life of the workforce and their families as well as of the community and society at large (World Business Council, 1998)."

One can break down the components of corporate social responsibility into two areas that have been considered in prior studies: those factors that focus on the internal environment of the firm (treatment of women and minorities, employee relations and advancement potential) and those factors that focus on the external environment (treatment of the environment, external perceptions of quality and external perceptions of employee compensation due to marketplace comparisons) (Rothbardt, 2012). Additionally, research by Zhang & Gowan (2008) broke CSR into three dimensions (economic, legal and ethical responsibility).

Teaching CSR

This course will look at business as it relates to ethics and social responsibility. Specifically, the issues of the environment, human rights, corruption, employee and community relations, philanthropy and product quality will be will be the focus as they pertain to international laws, customs, and global business practices and societal impact.

This is a contemporary and relevant business topic that touches on multiple areas of business: strategy, global trade, human resources, environmental justice, the law, and employee relations. This is the first integrated studies course at Monmouth College that focuses on the management and leadership side of business ethics with practical learning outcomes.

Environmental Justice and CSR

As one focuses on the components of CSR, environmental justice is addressed as 1) a political and legal aspect of global business, and 2) a fundamental guiding ethic in sustainable business practice. From an environmental justice perspective, students will learn of the effects that their business decisions will have on resource allocation, environmental practices, and global community development.

Bibliography

O'Riordan, L., & Fairbrass, J. (2008). Corporate social responsibility (CSR): Models and theories in stakeholder dialogue. *Journal of Business Ethics, 83*(4), 745-758.

Rothbardt, J. L. (2012). Applicant attraction to socially responsible organizations: The moderating effect of core self-evaluation. *Doctoral Distertation, St. Ambrose University*, 1-70.

World Business Council of Sustainable Development. (1998, September). *WBCSD - Corporate Social Responsibility.* Retrieved July 11, 2011, from World Business Council for Sustainable Development (WBCSD): http://www.wbcsd.org/DocRoot/hbdf19Txhmk3kDxBQDWW/CSRmeeting.pdf

Zhang, L. (2007). Corporate social responsibility, applicants' ethical predispositions and organizational attraction: A person-organization fit perspective. *(Doctoral Dissertation, The George Washington University, 2007)*, 148 pages; AAT 3288923.

Zhang, L., & Gowan, M. (2008). Corporate social responsibility, applicants' ethical predispositions and organization attraction. *Academy of Management Annual Meeting Proceedings*, (pp. 1-6).

A Science Writing Seminar on Geology and Justice

Jill S. Schneiderman, , Vassar College

I taught my first multidisciplinary "Earth System and Environmental Justice" course in 1997 after winning a National Science Foundation Curriculum Development Grant in order to develop it. In the first iterations of the course (1997, 1998, 2000), I focussed on the atmosphere, hydrosphere, and geosphere in order to explore the justice issues that cropped up in these arenas. However, at that time the phrase "environmental justice" was familiar only to a small group of activists and policy makers (following on the heels of the NAACP/UCC 1987 report "Toxic Wastes and Race", the First People of Color Environmental Justice Summit in 1991, and President Clinton's Executive Order on Enviromental justice in 1994). Thus, the idea that different groups of people were disproportionately impacted by environmental risk was foreign to most students. As a result, in the first few years of teaching the course, I spent considerable time not only on the earth science but on philosophical arguments about justice. I found it very useful in those early years to co-teach the course with an ethicist.

In subsequent years I moved to the model of teaching this course as a writing-intensive freshman seminar. As a result, I have been able to integrate more fully into the course feminist scholarship on hegemonic power. My experience shows that helping the students understand theories of structural inequality enables them to organize their understanding of the disproportionate impact of environmental risks on poor people, people of color, women and children. By teaching the course to freshman, I have had the opportunity to prove to them that understanding basic earth science principles is absolutely critical to the project of rectifying environmental injustice. Most recently I taught the course as a writing intensive seminar in Environmental Geology for more advanced students. That syllabus incorporated “contemplative pedagogies.” One student in the 1997 version of the course has since gone to earn a Ph.D. in environmental health science; directly attributing her work to that geology and justice course, she uses GIS and remote sensing techniques to discern vulnerabilities to disease-causing agents.

Topics covered in the current version of Geology and Justice include "slow violence" and geologic time; the 2004 Pacific Ocean tsunami; 2005 Hurricane Katrina; mountaintop mining; municipal and hazardous waste disposal; gendered access to water in the Caribbean.

My publications relevant to this subject work include:

Schneiderman, J.S., 2012, Awake in the Anthropocene: in Emerman, S.H., Bjørnerud, M., Schneiderman, J.S., and Levy, S.A. eds. *Liberation Science: Putting Science to Work for Social and Environmental Justice*. Raleigh, North Carolina: Lulu Press 2012.

Schneiderman, J.S. and Reddock, R. “Water, Women and Community in Trinidad, West Indies.” *Natural Resources Forum* 28.3 (2004): 179-188.

Stewart, M.E., Schneiderman, J.S., and Andrews, S.B., 2001, A GIS Class Exercise to Study Environmental Risk: *Journal of Geoscience Education* 49.3: 227-234.

Schneiderman, J.S. and Sharpe, V.A., 2001, An NSF-Sponsored Curriculum that Moves Students Towards a Feminist Geology: *Women's Studies Quarterly* XXIX.1&2: 234-243.

Schneiderman, J.S. and Sharpe, V.A., 2000, Geology and Environmental Justice: in Schneiderman, J.S., ed., *The Earth Around Us: Maintaining a Livable Planet*, W.H. Freeman, New York, NY, p. 368-385.

Schneiderman, J.S. “The Common Interests of Earth Science, Feminism, and Environmental Justice.” *National Women’s Studies Association Journal* 9.3 (1997): 124-137.

Schneiderman, J.S. “Curriculum Transformation in the Earth Sciences: Women’s Studies and Geology.” *Transformations—The New Jersey Project Journal* 5.1 (1994): 44-56.

Transfering Observations into Reserach: Looking at the Student Perspective

Hayley Joyell Smith

Incorporating environmental justice into a classroom presents a rich opportunity to illustrate how geoscience can solve one of the world's most pressing issues—the availability of fresh water resources. I believe that infusing environmental justice with scientific content may invigorate students to generate solutions and potentially make the world a better place. The topic of environmental justice creates an emotional appeal that not only captures the attention of those students interested in societal issues, but also serves as an incentive to learn the scientific skills necessary for a sustainable future. I came to understand the value of coupling society and science while participating in projects throughout the developing world. These experiences have motivated me to return to school for a Master's program in geoscience education.

By looking through the lens of a researcher observing patterns, as a humanitarian in brainstorming ways to improve the quality of life, and as a teacher finding opportunities to facilitate learning, I have concluded that water is more than just a vital natural resource. Water shapes culture. The humanistic topics surrounding water, such as food, transportation, recreation, and even its role in religious ritual comprise the fabric of life in which all people are threads. However, the typical way in which people understand water systems is deeply rooted in availability and education.

In my experience, the people perceived as victims of environmental injustices do not always identify themselves as such. While interviewing elders along the floodplains of the Yangtze River, I realized that "progress" often leads to negative consequences for those who may not reap the benefits. However, to my surprise, no one spoke negatively about his or her situation. Instead, they shared their expectations for a new way of life away from the tributaries they had fished, bathed in, and revered. Their humble acceptance of the Three Gorges Hydroelectric Dam Project (that was forcing them to relocate) corrected my preconceived notion that these people would be upset about their situation.

On a separate venture to the Middle East, I found people who were acutely sensitive the topics of freshwater resources and environmental justice. People I spoke with openly referred to water as the precious commodity that determined wealth and power. This became evident by noticing which Jordanian neighborhoods had running water and access to waste disposal and which were dependent on bottled water. Furthermore, meeting third-generation landowners in Palestine who were penalized for drilling drinking water wells illustrated how politics is often a driving force in allocating fresh water. Most recently, I had the privilege to work with marginalized immigrates of Belize and indigenous Mapuche of Chile who taught me the resilience of the human spirit. Despite limited knowledge, technology and resources, there is a drive to improve the quality of life. This is, of course, dependent on the use and management of freshwater resources.

Exposing students to communities in the world that do not have reliable fresh water must be done with the intention to ignite an awareness that human beings share a common experience

and that geoscience education is a catalyst for change. As the regional water education coordinator for AmeriCorps in Western North Carolina, I created a teaching tool and curriculum to help facilitate conversation centered around our dependence on fresh water and the urban system that we often take for granted. This interactive physical model, called the UrbanHydro Link moves water through a series of chambers, pumps and valves. The model allows students to discover the connection between natural fresh water resources and the urban water system. From this base knowledge, students are able to interpret the consequences of limited water supply, unmanaged development, or lack of water treatment. Once students are able to discuss the complexity of the system, they could then approach the topic of environmental justice with ideas for solutions. Using a problem-solving approach encouraged students to explore the various facets of a complex system and apply their knowledge with purpose. With this format, the topic of environmental justice became a conduit for connecting geoscience and society.

At this time, I would like to bring my past observations and experiences into an academic realm and develop a thesis that incorporates the integration of society with geoscience education. For a Master's project I am interested in capturing the aspects of the student experience as they are introduced to a curriculum that combines the topics of environmental justice and geoscience. For example, does the integration of societal topics and scientific content influence student's situational interest versus personal interest? Are students more likely to become engaged if scientific concepts are taught within a framework of real-life scenarios involving environmental justice? I believe research on these topics will shed light on students' responses to the integration of environmental justice and geoscience, and therefore aid in the development of future geoscience curricula.

The Uneven Burden of Risk: My Approach to Teaching Environmental Justice

Anna Versluis

I address environmental justice in the 200-level Nature and Society course that I teach annually at Gustavus Adolphus College in Saint Peter, MN. This course is required course for the Environmental Studies major and an elective for the Geography major. The course is a broad overview of social science approaches to human-environment interactions. We study seven possible answers to the question "Why are there environmental problems?" One of these "answers" involves environmental justice: environmental risks are not shared equally by members of society; the greater burden of risk falls on the poor and minority communities.

In our three-class period study of environmental justice in Nature and Society, I draw on the following texts and ideas:

1. People are differentially exposed to risk and hazard. Risk is sometimes imposed on others, especially poor and minority communities. People's range of choices may be limited by political-economic conditions. Information about risk and hazard may be manipulated: people do not necessarily have full and correct information to make informed decisions. (Robbins, Hintz, and Moore 2010, 89-93).
2. Addressing issues of white privilege and the broader spatial and historical context is a necessary component to understanding environmental racism in the United States. Simplistic analyses based on narrow definitions of racism (e.g., racism as defined only by hostile, intentional, individual acts) and scale are mistaken. (Pulido 2000).
3. The environmental justice movement is a grassroots, people's movement that has developed, in part, in opposition to other environmental approaches. It refuses to deal with cost-benefit accounting and focuses instead on problems of inequality. It does not fully embrace expert environmental discourses and resist co-optation by the middle class and professional class. It is anthropocentric. It involves protest, moral outrage, and emotional response. It is a somewhat fractured and fractious movement that is often focused on point-source hazards and human health issues. (Harvey 1999)
4. Historical and political-economic contexts like colonialism play a role in making communities more (or less) vulnerable to hazards and natural disaster. (Oliver-Smith 1999)

In addition, my views on environmental justice have been influenced by the following:

1. My personal experiences working and conducting research in Haiti, where lack of safety measures and the extent of disaster vulnerability are often very great and inextricably intertwined with issues of poverty, race, and history.
2. My faith community's commitment to justice and mercy.
3. The work of geographer Gilbert White and others (e.g., Bob Kates, Kenneth Hewitt, Piers Blaikie) on natural hazards and disasters.
4. The work of Amartya Sen and Michael Watts on political economy of famine and drought, respectively.

In teaching students about environmental justice, I currently focus on two main goals: 1) to raise student awareness (and indignation?) of environmental justice in our own country, and 2) to recognize the value of a "critical realist" approach and how it critiques a "spatial science" approach. (Please see my environmental justice activity for more information on this.)

(Partial) List of References

Robbins, P., J. Hintz, and S. A. Moore. 2010. *Environment and Society: A Critical Introduction*. Chichester, U.K.: Wiley-Blackwell.

Oliver-Smith, A. 1999. Peru's 500-year earthquake: Vulnerability in historical context. Pp. 74-88 in *The Angry Earth: Disaster in Anthropological Perspectives*, A. Oliver-Smith and S. Hoffman, eds. New York: Routledge.

Pulido, L. 2000. Rethinking environmental racism: White privilege and urban development in Southern California. *Annals of the Association of American Geographers* 90 (1): 12-40.

Harvey, D. 1999. The environment of justice. Pp. 153-185 in *Living With Nature: Environmental Politics as Cultural Discourse*, F. Fischer and M. A. Hajer, eds. Oxford: Oxford University Press.

Building Partnerships for Educational Activities in Environmental Justice Communities

Environmental Justice (EJ) is a topic that lends itself well to the goal of civic engagement. In 2007 I gave a presentation titled "Incorporating Social Justice into Geoscience Topics" at a Cutting Edge Workshop, "Preparing for an Academic Career in the Geosciences." My theme was the same as this workshop's. Many geoscience topics fold into the EJ nexus of health, environment, law, urban planning, and racial equity. This panoply of societal issues promotes opportunities for multidisciplinary teaching, experiential learning and service learning, and community-based research. Because EJ inspires passionate advocacy, it is important to keep in mind the distinction between "religion" and "religious studies," between "environmentalism" and "environmental studies," and between "environmental justice – the movement" and "environmental justice – the academic subject."

My first exposure to the "Geo" in "Environmental Justice" came during a meeting of the National Association of Black Geologists and Geophysicists (NABGG) in 2000 and hearing David Padgett describe the siting of landfills in environmental justice communities. When I subsequently received an announcement from the University of Wisconsin's Nelson Institute for Environmental Studies about offering an evening summer forum on contemporary issues in American society, I suggested in an email that "Environmental Justice" would be a good topic. In return I received the (paraphrased) response "Yes, Herb, somebody should." As a co-organizer with a budget we could bring in national figures such as Sheila Foster, Vernice Miller-Travis, and Bob Knox.

The summer forum led to teaching a First-year Interest Group (FIG). For their open-ended, term-project requirement, five students visited the People for Community Recovery (PCR) in Altgeld Gardens, an EJ community on the far south side of Chicago. The "Gardens" forms a chapter in President Obama's biography, *Dreams from My Father*. A picture in the PCR office shows its founder, Hazel Johnson, in the Oval Office witnessing President Clinton sign Executive Order 12898. A second group in my FIG wrote a grant proposal for offering an EJ summer course that contained several field trips and included high school teachers. I taught the summer course three times, an honors seminar, and then a spring break trip in 2005 to "Cancer Alley" between Baton Rouge and New Orleans. Our itinerary included visits with a remarkable set of EJ activists and scholars: Willie Fontenot, Beverly Wright, Darryl Malek-Wiley, Wilma Subra, and Adam Babich. The contact with Darryl Malek-Wiley, EJ organizer for the Sierra Club in New Orleans, led to our graduate Water Resources Management students to the Lower Ninth Ward post-Katrina. Students from two different years prepared reports dealing with the feasibility of restoring a 440-acre body of open water adjacent to the to the flood wall on Florida Avenue, which, as recently as the 1970s, was a cypress forest. Climbing an eight-foot wall to look at a wetland or watching a barge glide by above your head gives meaning to living below sea level. Mixed classes of undergraduates and graduate students went for two subsequent summers and most recently a group of freshmen in our residential environmental learning community went over spring break. Over the seven years, many new relationships were developed and previous ones deepened. A partial list of those who provided numerous teachable moments includes: Holy Cross Neighborhood Association (HCNA), Tulane's Center for Bioenvironmental Research, New Orleans Sewerage and Water Board (NOSWB), 'Mac' McLendon's The Village, the Army Corps of Engineers, the Tulane Institute on Water Resources Law and Policy, Turtle Cove Environmental Research Station, Martin Luther King Jr. Charter School, Our School at Blair Grocery, Smitty, John Taylor, and John Koeferl and his Citizens Against Widening the Industrial Canal.

A number of students over this decade of EJ classes found their experience to be transformative, as did I. The neighborhood crawfish boils and the 4th of July on the levee are cherished memories. While definitely rewarding, there are issues and obstacles that arise in offering experiential, service learning and service research courses in an EJ community.

- How can the educational mission of a university match the needs of communities and their organizations?
- What are the learning outcomes for students?
- How can relationships between universities and its community partners be sustained?
- How can universities form partnerships with each other and with community organizations and NGOs to provide place-based EJ learning opportunities?
- Are 'toxic tours' exploitive?
- How do we ensure that we maintain an appropriate level of academic rigor and objectivity?

I thank the organizers for bringing us together and I look forward to participating.

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Environmental Justice as a Pre-(Environmental)Professional Prerequisite

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Introduction: I teach in the Geology department at Appalachian State University in Boone, North Carolina. I am also a practicing attorney in the field of Environmental Law, with my current focus on citizen enforcement of Clean Water Act violations by coal mining companies in Kentucky and Virginia. While my law work deals with environmental justice issues, I have not formally tackled the subject as part of my teaching. However, this fall I will be teaching a new course, Environmental Regulation and Enforcement ("E-Regs"). I cannot claim to have developed an approach to teaching environmental justice but will share my thoughts regarding integrating environmental justice as a course theme for E-Regs and what I think are the core EJ concepts my students should take from the class.

Summary of New E-Regs Course: The course will be offered to Geology and Environmental Science majors who are interested in pursuing careers in industry, environmental consulting, regulatory agencies, or environmental and community advocacy—in short, almost all Geology and Environmental Science majors. The purpose of the course is to prepare students to navigate the rocky landscape of environmental regulation within their chosen profession. It will provide students with an overview of the history and development of environmental regulation in the U.S., the substance and reach of environmental regulation, with particular focus on the surface mining industry, and will conclude with an overview of the various mechanisms of enforcement when regulations are not met. I am optimistic that this will become a regular course offering for Environmental Science majors within a new (in planning stages) pre-professional/policy degree track.

Thoughts on Incorporating Environmental Justice Into E-Regs Course: Environmental Justice issues permeate every aspect of environmental regulation. However, while Congress has acted to protect the nation's waters and other resources through legislation such as the Clean Water Act, there exists no such statute or enforcement scheme specific to addressing environmental discrimination. Rather, Environmental Justice has been addressed in piecemeal-fashion through a smattering of legislation, executive orders and judicial decisions. As a result, Environmental Justice as a topic of study does not fit neatly into my E-Regs syllabus. Therefore, instead of trying to shoehorn it in as a discrete course topic, I plan to incorporate Environmental Justice as a running theme throughout the course.

Core Concepts: Through reading assignments, class discussions, and active learning activities, and beyond the basic facts of Environmental Justice, I would like my students to take from the course (and retain indefinitely), these concepts:

1) Discrimination is insidious, hard to prove and even more difficult to enforce against.

2) Environmental regulation, especially when taking into account issues of discrimination, is complex, riddled with uncertainty and fraught with competing interests.
3) People who are or may be affected by government or private action must be vigilant. The complexity and general messiness of environmental regulation can overwhelm even well intentioned people, creating an opportunity for others to use it to their own advantage, good or ill.
4) Environmental Justice is not only about addressing discrimination against minority communities, it is also a about promoting an equitable use of shared resources for us all.
5) You (the student and future environmental professional) have skills and knowledge that can be used, in ways big and small, to achieve an economically prosperous, environmentally sound, and socially equitable future.

History, Privilege, and Disproportional Environmental Burdens

Chris Wells

My course, Environmental Justice, is cross-listed among the departments of Environmental Studies, History, and American Studies, and focuses on a few key themes and take-home lessons.

First, we think about the ways that *the term "environmental justice" itself is socially constructed*. Is it synonymous with environmental racism? Can it affect poor white people, or does it only apply to racial minorities? Who has been instrumental in defining the term, and for what social and political ends? Next, we discuss the advantages—especially for thinking about the period before modern environmental justice advocacy emerged—of thinking about environmental justice in terms of times and places where marginalized populations (and especially racial minorities) have had to shoulder disproportional environmental burdens compared to more powerful members of society. We also discuss the observations of C. S. Lewis, who argued that "what we call Man's power over Nature turns out to be a power exercised by some men over other men with Nature as its instrument."[1]

Second, the course takes a *historical approach* to identifying and understanding the ways that structural inequalities have emerged as a product of changing social, political, environmental, and economic conditions. We also spend a good deal of time discussing the ways that those structural inequalities reflect (and feed) evolving power relations in American society.

Third, we think about the ways that *environmental decision-making intersects with race and class privilege*. A number of our case studies highlight the role of traditional environmental decision-making structures tend to privilege the opinions of outsiders over residents, expert interpretation over "lived experience," and broad social good over parochial, self-interested ("NIMBY") objections. During the early "Conservation Era," for example, new laws designed to protect natural resources from overexploitation imposed harsh new restrictions on (poor, sometimes white, sometimes Native American) local residents that broke markedly with past practices. Traditional "frontier" activities like harvesting timber from public lands to build a log cabin, hunting wild game to feed one's family, or burning trees and underbrush to clear land for agriculture suddenly became, as a result of new conservation laws, criminal activities: timber theft, poaching, arson. Similarly, establishing national parks and opening their scenic wonders for public enjoyment often meant evicting Native American residents or blocking their rights of access for traditional hunting and gathering activities.[2]

Finally, we discuss the power (and limits) of *narrative* as a tool for understanding how and why environmental justice activism has tended to take the forms that it has. How should legislators respond when epidemiologists insist that no causal links can be made between, say, oil refineries and poor health among nearby residents, yet residents continue to tell stories of unusual maladies, frequent health problems, and what seem like unusually high local cancer raters? What happens when those without power demand new approaches to defining which problems are legitimate and worthy of remediation?

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[1] As quoted in Andrew Hurley, *Environmental Inequalities: Class, Race, and Industrial Pollution in Gary, Indiana, 1945-1980* (Chapel Hill: University of North Carolina Press, 1995), 182.

[2] See Karl Jacoby, *Crimes Against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (University of California Press, 2003); and Mark David Spence, *Dispossessing the Wilderness: Indian Removal and the Making of the National Parks* (Oxford University Press, 2000). For a more extended summary of these points, see Wells, "The Early Conservation Movement," http://bit.ly/XOaIK0.

Gender and Service Learning in Environmental Justice

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I am very interested in teaching environmental justice, and work to incorporate it into most of the Environmental and Feminist and Gender Studies classes I teach. I've been less successful at incorporating these ideas into traditional physics classes, with the exception of the thermodynamics class, in which I have successfully used the Energy Audit and Retrofit Project described above.

I think that introducing ideas about environmental justice to our relatively privileged, largely white students broadens their ideas about environmental issues. Our students are passionate about the environment, but they tend to be focused on "saving the wilderness"—given our location on the Front Range, many of our students are avid outdoorspeople, and spend their weekends backpacking, skiing, kayaking and such. Environmental justice gives them new ways to think about environmental issues and the relationship between people and their interactions with the natural world.

There are two important things that I would like to learn from this workshop. I am interested in the interaction between gender and environmental issues, and would like to find ways to incorporate this important social variable into our discussions about environmental issues. There are many ways to approach this issue: Would science be different if the scientific community weren't so white and male? Would policy be different if a broader range of people were involved in the decision-making process? Are there differences in the way women and men experience environmental problems? Are there differences in the way women and men contribute to environmental problems? All these aspects are important pieces of the interaction between environmental justice and gender.

Second, I am interested in finding ways to incorporate these ideas into traditional physics classes. Physics departments often have "environmental physics" classes, but they are usually general education classes, not part of the major sequence. I believe that incorporating contemporary environmental ideas into physics classes would be interesting to majors, and would help them find ways to use their analytical skills in helping solve environmental projects.

I am particularly interested in using service learning as a device to help science students learn about and apply their skills to environmental justice issues. I would like to hear more about what kinds of projects others have tried, and how well they work.