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Berkeley blues; Ford community corps partnership: Integrating environmental ethic, bioethics and the ethics of emerging technology into a comprehensive leadership philosophy. A regional study, Detroit

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Abstract. The following project was conducted in partnership with University of Detroit Mercy and Ford Community Corps. Multiple no-profit were approached to make this project possible such as; ERACCE, Detroit Audubon, Detroit International Wild-Life Refuge, Belle Isle. The non-profit ERACCE has provided the criteria of analyzing power in the organizations that are at risk of environmental violations or have had environmental violations. Furthermore, the non-profit has asked for a comparison of power between non-profits working within the sector, such as Detroit Audubon, Detroit International Wild Life Refuge and Detroiters Working for Environmental Justice and the business sector. Hence, this is where ERACCE believes the gap in power to be and hence, environmental injustice and satisfying the proposals need to impact the community. To this end they have provided a sampling of questions that the interview/research should answer. The project has also been written to enhance Michigan's competitive advantage in; conservation, environmental stewardship, civil rights, industrial innovation, and entrepreneurship as put forth by the Environmental Justice Workgroup in 2018. Furthermore, the rationale that has been provided is the increase in both the private sector and public sector awareness towards sustainability and push towards higher levels of sustainability by CEO's. Two Nobel Laureates have been awarded a joint Nobel Peace Prize in integrating technological and environmental advances into economic theory. His Holiness Pope Francis wrote an encyclical towards integrating environmental ethics into religious faith followed by an effort with Notre Dame and Oxford to establish a center to focus on matters of ecology. UN Sustainable goals have been established and work has been done to map out the frontier of sustainable technologies. Furthermore, during the course of the year long projection March 19th the state of Michigan entered into a lock-down due to the pandemic termed Covid-19 and the project and scope were modified to reflect this change. The research confirms the hypothesis that there is an imbalance of power between the business community and the community involved in the work of environmental injustice issues.

Keywords. Environmental ethic, Emerging technology, Leadership philosophy, Regional study, Detroit.

JEL. F21, F68, O53, K23.

1. Introduction

The following is a proposal for a Ford Community Project. The proposal consists of a literacy component and an interaction

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component to create environmental consciousness and the responsible use of technology. The problem is that Michigan has always been a manufacturing hub which in the past has led to growth but at the same time irresponsible use of emerging technology and damage to the environment. The goal is to engage students into learning the responsibility that they have towards the environmental sustainability as well as to learn the responsible use of emerging technology.

The project involves a literacy and interaction component that educates the student in the fields of Environmental Ethics, Bio Ethics and the and the Ethics of Emerging Technology. The agency that has been approached for the project is ERACCE. ERACCE is currently involved with Environmental Justice projects in Kalamazoo, Michigan. Students may visit the nature conservatories to see first-hand the sanctuaries that have been created to promote biodiversity. Furthermore, communities that have been impacted by the rapid growth of industrialization will be served by collecting data from the business community in the area and then conducting an analysis for further action.

This project can lead to a healthy debate regarding the environment, sustainability and emerging technologies and can be beneficial for the Michigan economy through providing a conscious framework that accesses future industry growth especially in the technology sector. Furthermore, the project aligns itself well with the Green Initiatives set by the Ford Motor Company, the initiative of the University of Detroit Mercy Law School, Environmental Clinic, protecting the exceptional natural habitats that exist in Michigan and serving the needs of the negatively impacted community.

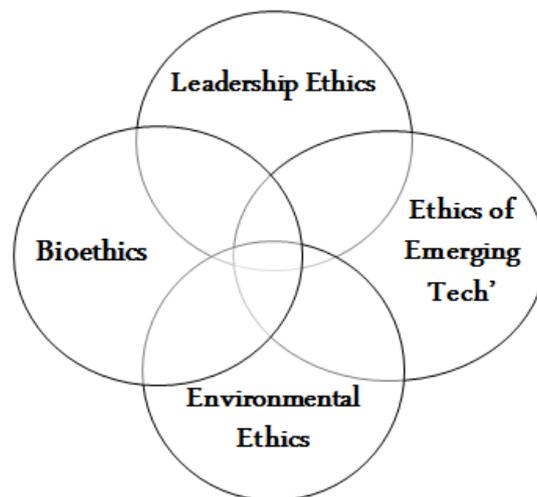


Figure 1. Relationships.

1.1. The objective

Michigan has a legacy of leadership in conservation, environmental stewardship, civil rights, industrial innovation, and entrepreneurship. Yet actions across the state also have a legacy of polluting the environment in ways that affect

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negatively peoples' health and damage the terrestrial and aquatic ecosystems that people rely on for maintaining their economic vitality, recreational enjoyment, and cultural heritage.

Environmental Justice Work Group Report-Michigan as a Global Leader in Environmental Justice-March 2018.

- ◆ Need 1: Lack of literacy and awareness regarding Environmental Ethics.
- ◆ Need 2: Lack of literacy and awareness regarding Bio Ethics
- ◆ Need 3: Lack of literacy and awareness regarding the Ethics of Emerging Technology
- ◆ Need 4: Lack of engagement, outreach and public relations with and to sanctuaries, impacted communities and business.

1.2. The opportunity

The opportunity exists to both provide a literacy and interaction component in the realms of Environmental Ethics, Bioethics and the Ethics Emerging Technology of Technology. Furthermore, the proposal satisfies the requirement set by the Ford Community Corps; quality of community engagement, quality of service learning engagement, quality of project planning and value added.

- ◆ Goal 1: Build literacy on the topics of Environmental Ethics.
- ◆ Goal 2: Build Literacy on the topics of Bio-Ethics.
- ◆ Goal 3: Build literacy on the topics of Responsible use of Technology and Ethics of Emerging Technologies.
- ◆ Goal 4: Engage students with a service learning trip to visit sanctuaries.
- ◆ Goal 5: Engage students in an outreach project that reaches out to the in the area.
- ◆ Goal 6: Present findings to the partner agency as well as an end of project report.

1.3. Our proposal

My personal qualification includes an A.B. in Philosophy from the University of California Davis. During my time at UC Davis, I studied both economics and philosophy. My further studies include a M.A. in Economics from the University of Detroit Mercy, where I have studied relevant courses such as Public Finance and Labor Economics. Some of my research has focused on the impact of Globalization on Labor Markets, Technology and Environmental Policy. I have graduated with my M.A. in Economics from University of Detroit Mercy, in June 2019, after which I will be continuing my studies as an MBA student. Furthermore, my work experience includes a decade of experience in the textile manufacturing and export sector, research and administrative experiences with the University of California Berkeley, University of California Davis and University of Detroit Mercy. Additional experiences include work as an audit intern, accounting intern, trade analyst, car export, retail and business administration.

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2. Rationale

During my time in the apparel manufacturing industry I witnessed first-hand the externalities that arise, and this led to my current focus in education. Furthermore, one of the main reasons to move to Michigan was because of Michigan's strengths in manufacturing and my relevant skill set. During my time in Michigan I have seen the same problems that have arisen in the manufacturing industry throughout the world. Pollution and externalities are evident, and a lack of concern is also evident. At the same time there has also been an evident move towards effective environmental policy, although as the recent Environmental Justice Report from 2018 states there is still more work to be done. The rationale is to bring about Michigan's strength in manufacturing with a focus on sustainability and to allow Michigan to develop a competitive advantage in the fields of Environmental Ethics, Bio-Ethics and the Ethics of Emerging Use of Technology.

Furthermore, I also draw inspiration from other major sources and works. First and foremost, *His Holiness Pope Francis' encyclical Laudato Si' released in June 2015, sub-titled 'On Care for our Common Hope'* which puts ecological justice and social justice right at the heart of Catholic faith practice. *The Laudato Si' Institute was launched in September 2019, with Professor Celia Deane-Drummond, currently Professor of Theology and Director of the Center for Theology, Science and Human Flourishing at the University of Notre Dame, USA, will be the inaugural Director of the Institute.*

(1) *An ambitious research program using a dialogical method that enlists philosophical, ethical and theological insights as well as scholarly research in the natural and social sciences.*

(2) *A global network of allied activities inspired by Laudato Si' in order to foster international collaboration and link scholarship across different global cultures and contexts.*

I also draw inspiration from the work of two Economic Nobel Laureates who shared the Nobel Peace Prize in 2018. Dr. William Nordhaus, "*For integrating climate change into long-run macroeconomic analysis*" and Dr. Paul Romer, "*For integrating technological advances into long-run macroeconomic-analysis.*" Since, economics in its earlier days was itself an extension of philosophy and ethics and could not be separated, I believe that running a project that focuses on ethics parallel to these ideas will provide beneficial results. Further, inspiration is also drawn from *UN Sustainable goals and World Economic and Social Surveys 2018 and Frontier Technologies for Sustainable Development*. I also include in the proposal for immediate impact the results from the EJ Screen, an app developed by EPA that measures environmental quality and environmental justice in a given region. The below analysis has been conducted for a 10-mile radius surrounding Detroit Mercy.

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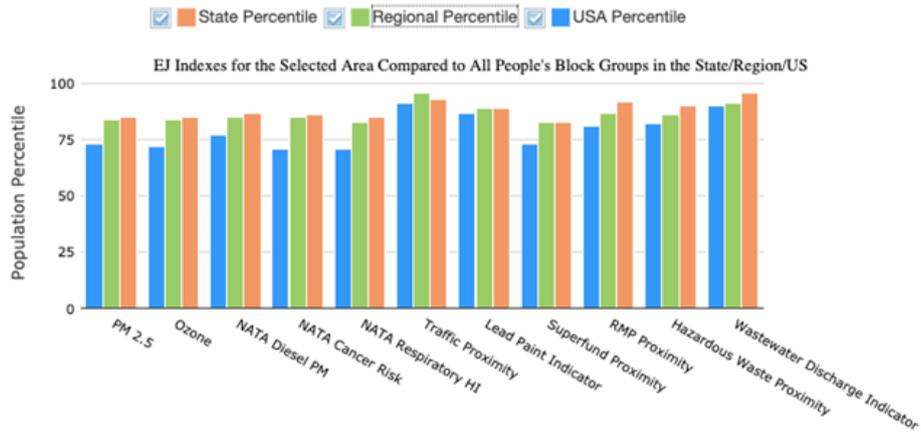


Figure 2. EJ Indexes

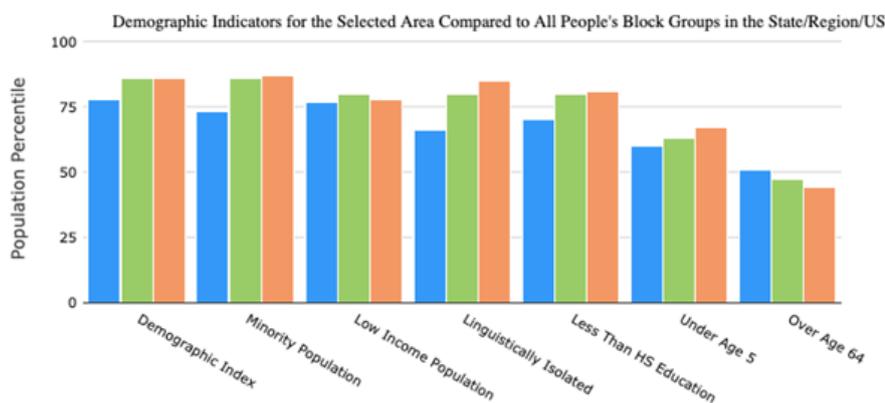


Figure 3. Demographic indicators

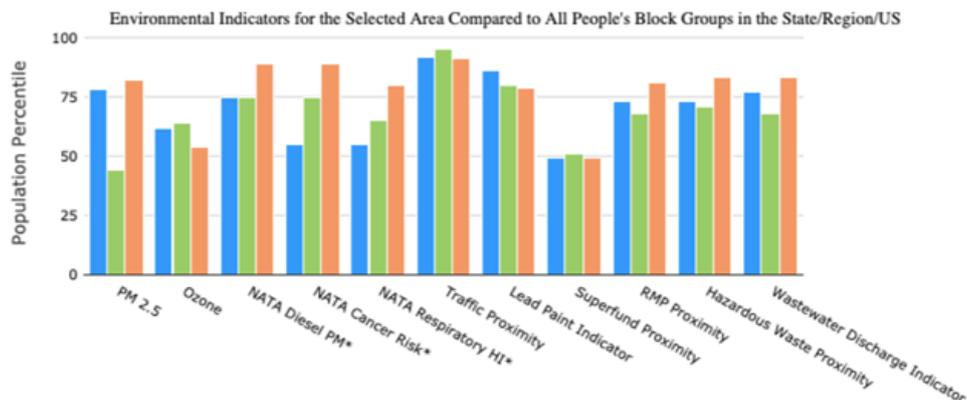


Figure 4. Environmental indicators

The data displayed shows the indicators set by the EPA to gauge environmental justice issues. As we can see data points such as cancer risk is above the state and national levels, so is the NATA respiratory level, hazardous waste proximity, and the wastewater discharge indicator. The business community with a sense of social responsibility can have a positive impact on the surrounding vicinity of the University which in turn will have a desirable consequence on the impacted residents.

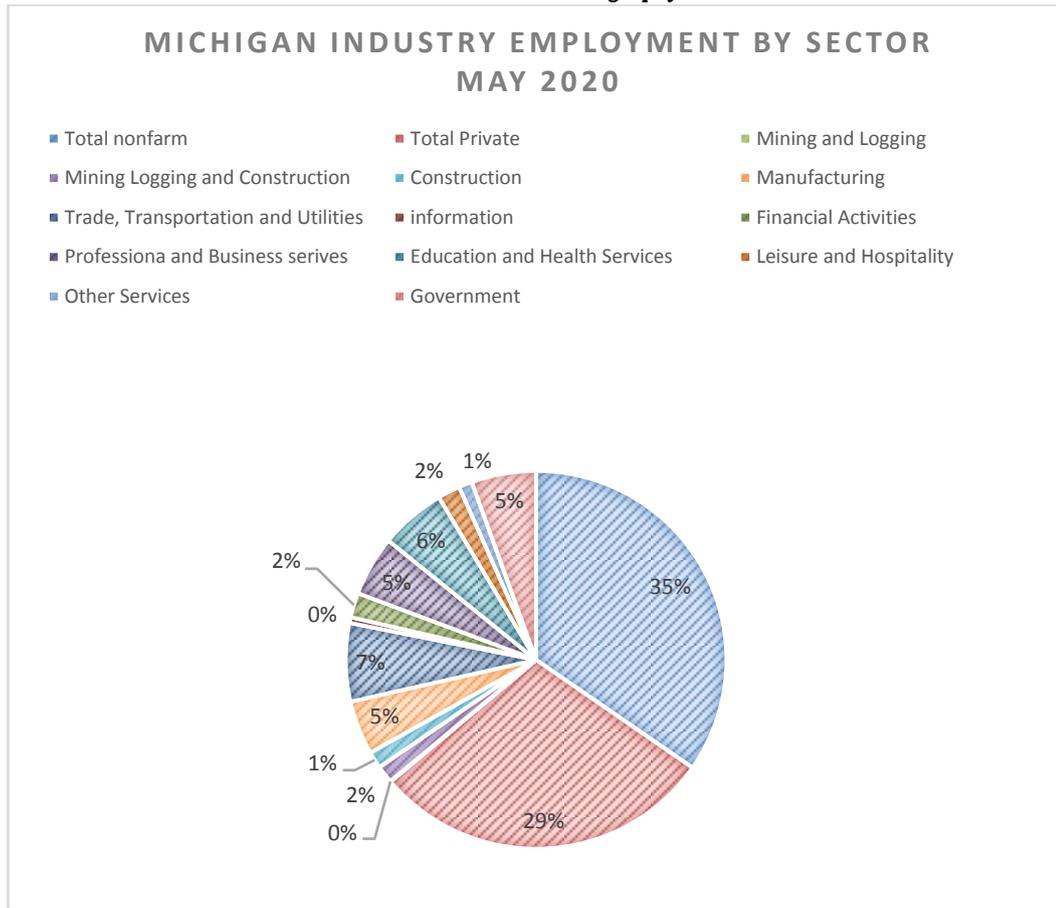


Figure 5. Data constructed from Michigan Department of Technology, Management & Budget

3. Covid 19 response

EJ Screen

- ◆ Cancer Risks Above State and National Levels.
- ◆ NATA Respiratory Levels Above State and National Levels.
- ◆ Hazardous Waste Proximity
- ◆ Waste Water Discharge.

Covid-19

- ◆ One of fastest states to get infected.
- ◆ Urban Decay hampers revitalizations efforts.
- ◆ Defiance of Social Distancing.
- ◆ Critical Infrastructure and Supply Chain Failures.

Is it all for naught?

- ◆ Arsenal of Democracy.
- ◆ Strong Health Care Industry.
- ◆ World Class Academics.
- ◆ Revitalization.
- ◆ Great Lakes.

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WHERE WE STAND WITH COVID-19

The State of Michigan is working around the clock to test and treat COVID-19 patients. Below is the most recent data healthcare experts across the state have compiled. It is updated daily.

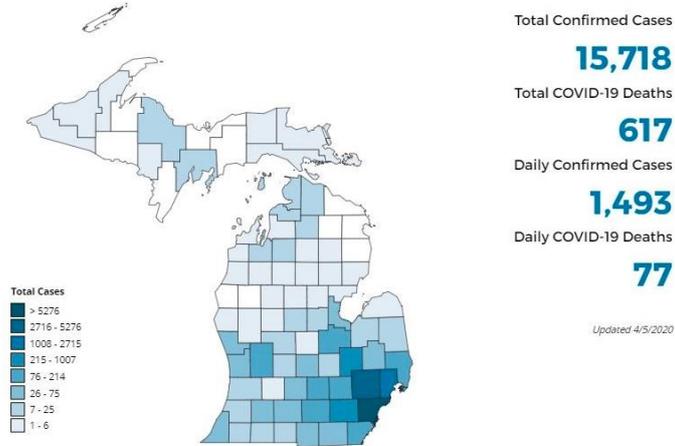


Figure 6. *Where we stand with Covid-19*

3.1. Mission specific response



Figure 7. *Mission specific response*



Figure 8. *Focusing on the following*

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3.2. Mission specific response

- ◆ Integrating Pope Francis's Encyclical *Laudato Si'*:
 1. The Relationship of Science, Religion and Ethics
 2. The Dangers of Technocratic Paradigm
 3. The Integral Ecology of Humankind and the Environment
 4. The Call to Ecological Conversion
 5. The Importance of Dialogue with Business
- ◆ Ministry Specific Responses:
- ◆ Online Seminars for Reflections and Spiritual Support
- ◆ Food Pantry- The Hive
- ◆ Spiritual and Intellectual Events

3.4. Relevant theories

- ◆ Notre Dame and *Laudato Si'* at Oxford.
- ◆ 1.The Relationship of Science, Religion, and Ethics 2. The Dangers of the Technocratic Paradigm 3. The Integral Ecology of Humankind and the Environment 4. The Call to Ecological Conversion 5. The Importance of Dialogue with Business.
 - ◆ Dr. Gregory Clark UC Davis, *Microbes and Markets: Was the Black Death an Economics Revolution? A Farewell to Alms, The Son Also Rises.*
 - ◆ Dr. William D. Nordhaus Yale University “for integrating climate change into long-run macroeconomic analysis” and Paul M Romer, NYU “for integrating technological innovation into long run macroeconomic analysis”.
 - ◆ Notre Dame and *Laudato Si'* at Oxford.
 - ◆ 1.The Relationship of Science, Religion, and Ethics 2. The Dangers of the Technocratic Paradigm 3. The Integral Ecology of Humankind and the Environment 4. The Call to Ecological Conversion 5. The Importance of Dialogue with Business.
 - ◆ UN Sustainable Goals 2018. UN Sustainable goals and World Economic and Social Surveys 2018 and UN Frontier Technologies for Sustainable Development.



Figure 9. Sustainable development goals

4. The Method and Solution

4.1. Who? What? When? Where? How? Why? Study Design

The study was designed with the following factors in place.

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Case-Control: A case control is an observational study that compares patients who are afflicted with a certain X with patients who do not have an affliction to X. Hence in our study the volunteers being a cohort of young students were not exposed to the environmental injustice. Case control is always retrospective because it starts with an outcome then traces their back to investigate exposures.

Cohort Study: A study design where one more sample called (cohorts) are followed prospectively and subsequent status evaluation with respect to an affliction X or outcome are conducted to determine which initial participants exposure to characteristics (risk factors) are associated with it. Hence the volunteer students were followed prospectively.

- ◆ 2 Cohorts:
 1. Foundation of Ethics – (Non-Mandatory/Discussion)
 2. Civil Engineering – (Mandatory/Discussion/Research)
- ◆ 22 Student, Foundation of Ethics:
 - ◆ 14 Business Students
 - ◆ 1 Bio-Chemistry
 - ◆ 1 Architecture
 - ◆ 1 Accounting
 - ◆ 1 Elementary Education
 - ◆ 2 Criminal Justice
 - ◆ 1 Undecided
- ◆ 6 Students, Civil Engineering
- ◆ PYC Leadership Cohort 2019.

4.2. Who did I work with?

- 1.University of Detroit Mercy, Leadership Institute Ford Community Corps Partnership
2. Faculty Sponsors: Dr. Martin Leever, Dr. Alexa, Rihanna-Abdlalah
- 3.Volunteers: Foundation of Ethics and Engineering.
- 4.Non-Profits: ERACCE, Detroit Audubon, Detroit International Wild-Life Refuge, Belle Island.

4.3. Selection criteria

1.University of Detroit Mercy, Leadership Institute Ford Community Corps Partnership: An RFP was issued and responded with my proposal. After a review the proposal was selected, and my work began with the Leadership Team and I began my studies of Leadership Theories in Fall 2019.

2.Faculty Sponsors: Dr. Martin Leever, Dr. Alexa, Rihanna-Abdlalah= The faculty and departments were selected based on their strengths pertaining to the topics of, environmental ethics, bioethics and the ethics of emerging technology.

3.Volunteers: Foundation of Ethics and Engineering. The selection of the volunteers followed through with the selection of the faculty members. Furthermore, the volunteers were chosen based on what course they were

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attending. Hence all the volunteers were from selected courses that complemented the objective of the proposal.

4. Nonprofits: ERACCE was selected as the primary non-profit due to their strengths in the subject matter, regional and national presence as well as prior relationship with the University of Detroit Mercy. Detroit Audubon, Detroit International Wild-Life Refuge and Belle Island were designated secondary non-profits and their eligibility was based on them being part of the community advocating for environmental justice. All the non-profits operate in a Urban setting as does the University of Detroit Mercy.

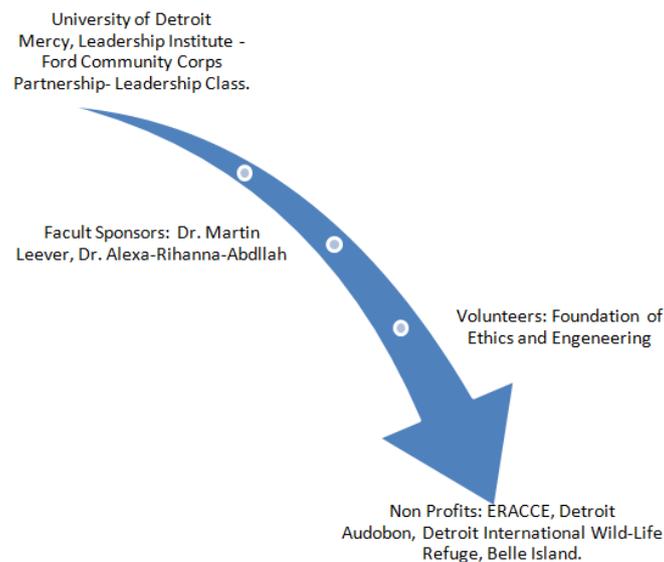


Figure 10. Selection criteria

4.4. What did I work with?

The following data sources were used:

Primary Data: Regional Data, Company Research, Volunteer Research, Surveys, Interviews, Interventions, Evaluations, Site Visits.

Secondary Data: Regional Journals, Academic and Scientific Journals, EPA Data, EJ Screen.

4.5. Solution and intervention

The recommendations that lead to the proposed solution are to encompass a literacy and interaction component preferably in and through courses that signify ethics. Courses such as; Foundation of Ethics (undergraduate). Personal Development and Social Responsibility (Graduate, MBA), Global Sustainability, (Graduate MBA)

- ◆ Recommendation 1: Integrate Environmental Ethics, Bio Ethics and the Ethics of Emerging Technology into Foundation of Ethics and Civil Eng'
- ◆ Recommendation 2: Provide an interaction component to visit existing sanctuaries in Michigan and/or engage with a non-profit that

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works in the sphere of environmental sustainability/justice and technology (eg: renewable technology).

- ◆ Recommendation 3: Provide an interaction component to engage with the business in the area on behalf of the impacted community to collect data and perform further analysis.

- ◆ Recommendation 4: Utilize the research and data collected from outreach projects to provide a value-added service to a non-profit and relief to the community.

4.6. Measurements

- ◆ The recommendations were implemented by the Student Leader and the Faculty Sponsors.

- ◆ Communication with all stakeholders took place with bi-weekly updates throughout the year-long project.

- ◆ A formal pre-evaluation was conducted at the beginning of the project and was administered by the student leader

- ◆ An informal evaluation was conducted by the student leader to gauge student interest in the project.

4.7. Service learning outcomes

Goal 1: Students will be able to articulate the various positions in Environmental Ethics and Bio-Ethics and the Ethics of Emerging Technology. This will enable students to pinpoint with accuracy the problems that arise in the community in regard to different ethical positions.

Goal 2: Students will engage on behalf of the community with the business in the area to ascertain their position on the selected topics. The students will conduct public relations and build on relationships and conduct investigations and conversations to steer resources, and attention towards environmental issues surrounding the immediate vicinity of the University.

4.8. Classroom strategies

In pre-service reflection session, students will be asked to identify the social issues facing residents of the area in which the students will work.

As part of the written post-service reflection students will be asked:

- ◆ Why were our services needed? What social issues impacted those whom we served?

How has your understanding changed regarding the social issues facing those whom we served?

Students will be required to enter a Blackboard journal entry immediately after every service experience including the following:

- ◆ What was my immediate reaction during and after the service experience? How did I feel? What thoughts did I have?

- ◆ How do I think the people whom I served were feeling? What were they thinking while we work interacting with them?

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Students will be required to write a three-page reflection paper on what they learned from the service experience and how it related to the course material.

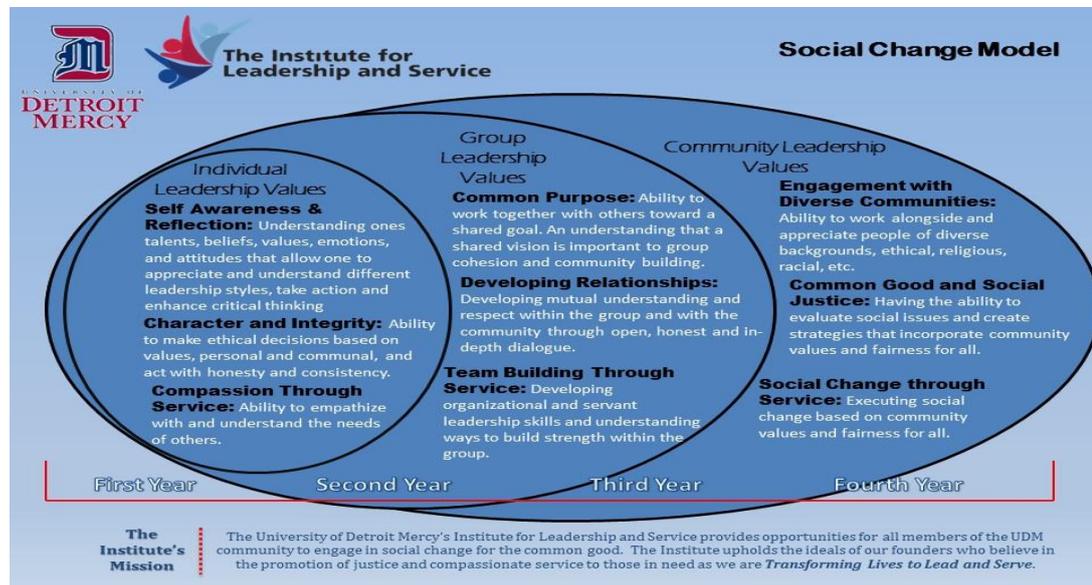


Figure 11. The social change model used by the university is recommended as a reference throughout the project lifecycle.

4.9. Assessment method

Student assessment will be based on the quality of the students' reflection and based on the rubric below.

Student assessment will be based on students' ability to clearly identify issues. The standard for this will be established in classroom presentations.

1. The project has the ability to enhance the course components of the following courses: Foundation of Ethics (undergraduate).

2. The project will enhance the organizations position on environmental ethics, bioethics and ethics of emerging technology. It will also provide the organization with actionable research from the field service projects which can then be used to better serve the community. The student will engage in public relation on behalf of the community with organization that have a significant impact on the immediate vicinity around Detroit Mercy.

The best way for the students to evaluate and reflect would be to write a reflection paper towards the end of the project as well as participate in a survey regarding the project. The students will also effectively participate in preparing the end of project presentation and report.

5. Deliverables

- ◆ One training from ERACCE
- ◆ One visit to a sanctuary.
 - ◆ One visit to/conversation with an environmental justice non-profit –
 - ◆ to learn about their work and get names of and suggestions about how to get them to answer and engage in public relations.
 - ◆ Get their answers to the questions that ERAACE proposes
 - ◆ Engagement with "" Each student required to get answers from at least one "polluter" on the list from the Environmental Justice non-profit and engages in public relations.
 - ◆Correspond with the Environmental Justice group about success/lack thereof with first attempt.If the students experience repeated lack of success in trying to reach the , and can show evidence of attempts, next steps will be evaluated in conversation with the Environmental Justice group and FCCP Coordinator.
 - ◆End of Project Report: (preferably one report for all the parties involved as separate reports will create too much work for students.)
 - ◆Report to ERACCE/Environmental Justice Non-Profits – this Report would have to be approved by FCCP Coordinator. Approval would depend on the quantity/quality of information received and quality of analysis.
 - ◆Report to ERACCE about power dynamics
 - ◆Report to Dr. Leever about the ethical analysis of the experience.

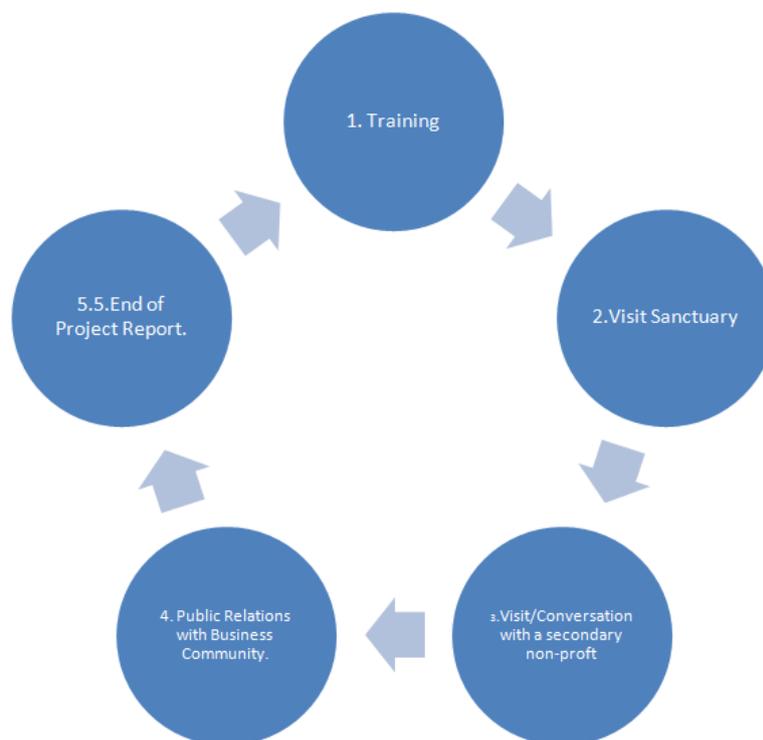


Figure 12. Deliverables

5.1. Project research criteria

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Moral Philosophies to keep in mind during the analysis: Instrumental and Intrinsic goodness, Teleology, Deontology, Relativist Perspective, Virtue Ethics, Justice, Cognitive Moral Development.

How to audit the culture of a company: Why would you audit a company's culture? This is an important exercise for anyone in the business world either looking to enter employment or otherwise. An individual wants to work in a culture that is suitable for their growth and conducive to the flourishing of the community.

How to audit the company's culture?: "A corporate culture is the shared beliefs top managers in a company have about how they should manage themselves and other employees and how they should conduct their businesses."

"The Ethical Culture reflects the integrity of decisions made and is a function of many factors including corporate policies top management's leadership on ethical issues, the influence of coworkers and the opportunity for unethical behavior."

Types of Cultures: Apathetic Culture, eg: Countrywide Financial; A Caring Culture, eg: Ben & Jerry's; Integrative Culture, eg: Starbucks; Exacting Culture.

Power Shapes Culture: To Identify Power you have to identify the stakeholders and the power they possess.

1. Employees (compensation and benefits, training and development, employee diversity, occupational health and safety, communications with management)
2. Customers, (product safety and quality, management of customer complaints, service to disabled customers)
3. Investors (transparency of shareholder communications, shareholder rights)
4. Suppliers (encouraging suppliers in developing countries, encouraging minority suppliers)
5. Community (public health and safety protection, conservation of energy and materials, donations and support of local organizations)
6. Environmental Groups (minimizing the use of energy, minimizing emissions and waste minimizing adverse environmental effects of goods and services)

5. Types of power

Rewards Power, Coercive Power, Legitimate Power, Expert Power, Referent Power

Ethical Leadership

"Leadership is the ability or authority to guide and direct others towards a goal"

Eg: Warren Buffett, Howard Schultz, Larry Merlo, Kip Tindell

-Normative Myopia

Eg: *7 Habits of Strong Ethical Leaders*

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Ethical Leaders have strong personal character, Ethical Leaders have a passion to do right, Ethical Leaders are proactive, Ethical leaders consider all stake holder interests. Ethical leaders are role models for the organization's values, Ethical leaders are transparent and actively involved in decision making. Ethical leaders take a holistic view of the firm's ethical culture.

5.1. Questions to ask for discovery and assessment process

Does the company have written code of conduct? Have individual from high-level positions in the organizations been assigned overall responsibility to oversee compliance with standards and procedures?

What are the process or other means by which ethics are integrated into any or all manufacturing distribution, e-commerce and general corporate strategy decision?

Is there a review process whereby legal, ethical and business practice considerations are presented, reviewed, or otherwise considered by the board of directors?

What steps has the company taken to communication its standards, procedures, and policies to all employees through training programs or publications that describe company expectations? Has the organization takes reasonable steps to achieve compliance by utilizing, monitoring, and auditing systems to designed to detect misconduct and by providing a reporting system whereby employees can report without fear or retribution. In adherence to and implementation of the code of ethics one of the standards by which the corporate culture can be linked directly to performance measures?

Have the organizations used due care not to delegate substantial responsibility to individuals that it knows do not have the ability to implement organization wide risk reduction processes?

Have the standards been sufficiently enforced through appropriate methods such as discipline of employees who violated ethical policies?

5.2. State of the straits

Apply a similar analysis to the non-profits working in the fields of environmental justice. Do you notice differences in culture and sustainability? Gaps in Power.? What do you conclude?

Some sample questions for the students to ask the business community would be the following: (Suggested by Non-Profit ERAACE)

- How does your organization define environmental harm?
- What environmental harm is commonly caused by your industry?
- How does your organization mitigate or reverse environmental harm?
 - What success has your organization had with mitigating or reversing environmental harm?
 - What failures has your organization had with mitigating or reversing environmental harm?

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- What are positive impacts your organization has on the local community?
- What are negative impacts your organization has on the local community?
- We believe this reframing of the service component refrains from exploiting the impacted communities.
- We also believe implementing a power analysis in relation to bioethics is critical. We believe the questions below could be useful for your students.
 - Questions for analyzing power:
 - What kind of power do primary /companies have?
 - What kind of power do communities have?
 - What are the implications of these power distributions on bioethics?
 - How is power accounted for in theories of bioethics?
 - Also,
 - What are the rights of natural systems?
 - What are the rights of communities to natural systems?
 - What is exploitation? Who profits? Who suffers?

5.3. Institute student outcomes: Arising out of values of the social change model

As a result of the FCCP project, students will be able to...

- ◆ Value #1: Self Awareness & Reflection-
- ◆ Value #2: Character & Integrity-
- ◆ Value #3: Compassion Through Service-
- ◆ Value #4: Common Purpose-
- ◆ Value #5: Developing Relationship-
- ◆ Value #6: Team Building Through Service-
- ◆ Value #7: Engagement with Diverse Communities-
- ◆ Value #8: Common Good and Social Justice-
- ◆ Value #9: Social Change Through Service-

5.4. Sample size calculation

- ◆ EPA enforcement and compliant data for two highly polluted zip-codes was pulled. A sample of 132 companies was constructed.
 - ◆ 48209 – 96 Companies
 - ◆ 48217 - 36 Companies
 - ◆ Total = 132 Companies
 - ◆ The data identifies 4 parameters to gauge enforcement and compliance. The following data is aggregated and is not per company and it representative of 5 years.
 - ◆ Significant Violations: 3 = 2.27%
 - ◆ Quarters with Non-Compliance:
 - ◆ 17 Companies,
 - ◆ Total Violations: 116.

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- ◆ Mean:0.91,
- ◆ St. Dev:2.94
- ◆ 12.87%
- ◆ Facility Inspection Count:
- ◆ 32 Companies,
- ◆ Total: 55,
- ◆ Mean: 0.42,
- ◆ St.Dev: 2.09
- ◆ 24.24%
- ◆ Formal Enforcement 5 Year:
- ◆ 9 Companies.
- ◆ Total: 15,
- ◆ Mean: 0.1,
- ◆ St. Dev: .507
- ◆ 6.8%

- ◆ 2 Cohorts:
 - ◆ Foundation of Ethics – (Non-Mandatory/Discussion)
 - ◆ Civil Engineering – (Mandatory/Discussion/Research)
- ◆ 22 Student, Foundation of Ethics:
 - ◆ 14 Business Students
 - ◆ 1 Bio-Chemistry
 - ◆ 1 Architecture
 - ◆ 1 Accounting
 - ◆ 1 Elementary Education
 - ◆ 2 Criminal Justice
 - ◆ 1 Undecided
- ◆ 6 Students, Civil Engineering:
 - ◆ Total = 28 Students
 - ◆ Non-Profit Movement in Metro Detroit:
 - ◆ Metro Detroit Nature Network
 - ◆ Detroit Zoological Society
 - ◆ Belle Isle Nature Center
 - ◆ Michigan Hummingbird Guy – Birding on Belle Isle
 - ◆ Huron-Clinton Metroparks
 - ◆ EcoWorks
 - ◆ Greening of Detroit
 - ◆ Urban Neighborhood Initiatives
 - ◆ Detroit Riverfront Conservancy
 - ◆ Detroit Public School Community District
 - ◆ Children’s Hospital
 - ◆ Michigan Environmental Council
 - ◆ Southeast Michigan Land Conservancy
 - ◆ Friends of the Detroit River
 - ◆ Grosse Ile Nature and Land Conservancy
 - ◆ Detroit River International Wildlife Refuge

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- ◆ US Fish & Wildlife Service
- ◆ U of M-Dearborn Bird Observatory
- ◆ Detroit Audubon = 6000 Members
 - ◆ Total=19

5.5. Hypothesis 1

The non-profit ERACCE is concerned with the imbalance of power between the non-profits involved in the movement of environmental justice and the business community.

Such an unbalance of power can occur due to a few factors such as;

- ◆ Political Influences
- ◆ Lobbying
- ◆ Bribing
- ◆ Extortion
- ◆ Coercive Power

5.6. Assumption 1

I set a benchmark of an average of 50% inspection rate as a measure of power balance.

Hence, I take a 95% degree of confidence and construct the hypothesis.

Significance Level = $\alpha = 0.05$

Null Hypothesis, Mean of Inspections = 50%

Alternative Hypothesis Mean of Inspection $\neq 50\%$

6. Results

Hypothesis 1.

This is a two-tail test because of a not equal to sign in the alternative hypothesis.

This is a normal distribution testing a population mean with a large sample size and a known standard deviation, the test statistic is the standard normal calculated by a z-score.

$$z = \frac{\bar{x} - \mu_0}{\frac{\sigma}{\sqrt{n}}} = \frac{24.24 - 50}{\frac{2.09}{\sqrt{132}}} = -\frac{26}{33.77} = -0.7699 = P - \text{Value} = .441893$$

Decision: the rule is that if the P-value is less than or equal to the alpha, reject the null hypothesis. If the P value is greater than alpha, fail to reject the null hypothesis.

$\alpha = 0.05$, $P - \text{Value} = .441893$, Hence, in our case the $P - \text{Value} < \alpha$ and hence we are able to reject the null hypothesis.

Key Findings: Hence, I reject the hypothesis that there is a power balance between the business community and the non-profits involved in the environmental injustice. This is because the benchmark vis à vis the null hypothesis is rejected.

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6.1. Cohort Results

Foundation of Ethics: The 22 Students in the Foundation of Ethics Class were asked to volunteer for the project and the project was made non-mandatory for them.

The students were asked to gauge their interest and availability on a scale of 1-5.

Total Points = $22 \times 5 = 110$

Total Points Achieved = $70/110 = 63.63\%$

Hence, the approval rate of the project was 63.3%

Key Findings: 8 of 36% of the students chose to do the project and we overachieved our minimum criteria of 7 students required for the project. Furthermore, all students participated in discussions.

6.2. Civil engineering

Key Findings: 6 students in the civil engineering were asked to volunteer for the project. All students agreed to do the project. Furthermore, the project was made mandatory for them as it fit curriculum patterns. All student participated in discussion and research. Hence a 100% participation rate from Civil Engineering.

6.3. Non-profits

Key Findings: During the course of the year I was able to establish contact with one primary non-profit, ERACCE and 3 other nonprofits. This more than enough satisfied the proposal criteria of partnering with one non-profit as well as the request by the primary non-profit ERACCE to establish communication channels with the additional non-profits involved in the movement. Hence, the result was a 100% achievement of the goal to establish partnerships with non-profits.

6.4. Site visits

Key Findings: During the course of the project I was able to survey some surrounding areas in close vicinity to University of Detroit Mercy. Some sites included;

- Winter 2020: 67 hrs (paid) Fall 2019 Semester 67 hrs, Summer 2019 20 hrs, Winter 2019 20 hrs
- Palmer Park
- Bagley District
- Detroit International Wild Life Refuge
- Detroit Downtown(PYC Leadership Cohort 2019)

7. Discussion

7.1. Initial perceptions

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The project was set-up well and towards the end of Fall 2019 much of the work was completed and ready to be implemented. During the leadership class I reflected on the project as well as reached out and established relationships with the non-profits. The project started off well in the Winter. I presented to the students in the Foundation of Ethics class and early morning class. Even then we received 63.3% rate of approval. Everyone wanted to do the project with some varying of interest. I then presented to the Civil Engineering Class and the project was made mandatory for them as it fit their studies. This was an important development as I now had two faculty sponsors. I visited the Henry Ford Museum after the presentation as part of my non-work study with the King Chavez Parks and documented the visit in this picture. The presentations were also documented to show engaged students. I then distributed additional research material to the student over email and we were all set for an engaging project. A few things stood out such as constraints about students' availability and the deliverables were changed according. The project was kept open and the non-profit agreed to visit to give a presentation to the students. The onset of the Covid virus was sudden because soon after the mid-terms when the students were able to engage fully in the project. The research criteria that was developed was strong enough to withstand such an onslaught surprisingly it being a crisis very much in the sphere of bio-ethics. The students from civil engineering wrote reflections paper even though they were revised in light of the recent circumstances with Covid. Covid was certainly unexpected especially for students, even for me, even though towards the end of January, from the news coming in from South Asia was pointing towards a crisis it was never expected that it would reach the US and cause a shut-down like present day. I was in many ways able to stand back from my personal virtues but in many ways some fears were confirmed especially when hoarding took place earlier in the crises. But this bias was also offset by many acts of charity that took place in parallel to the hoarding. I definitely believe that this experience has and will make me develop as a leader. Not only because I trained for it during the course of the project but also because extreme circumstances were thrown at me that have required behavior befitting a leader.

7.2. Major findings

EPA and EJ Data.

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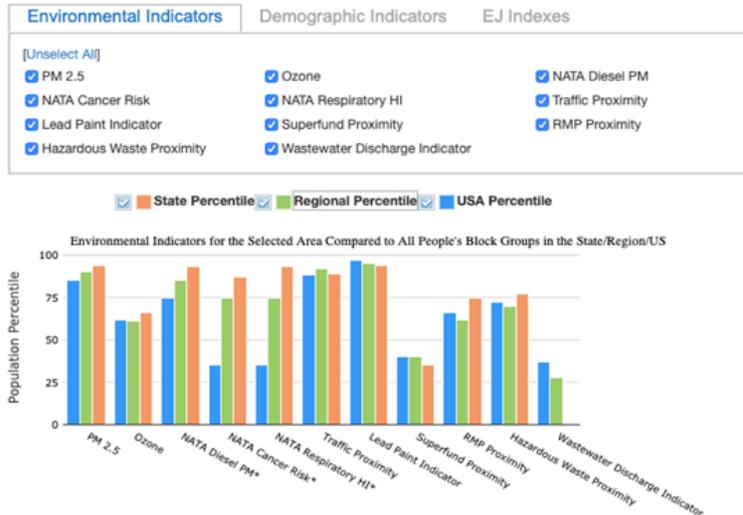


Figure 13. Environmental indicators

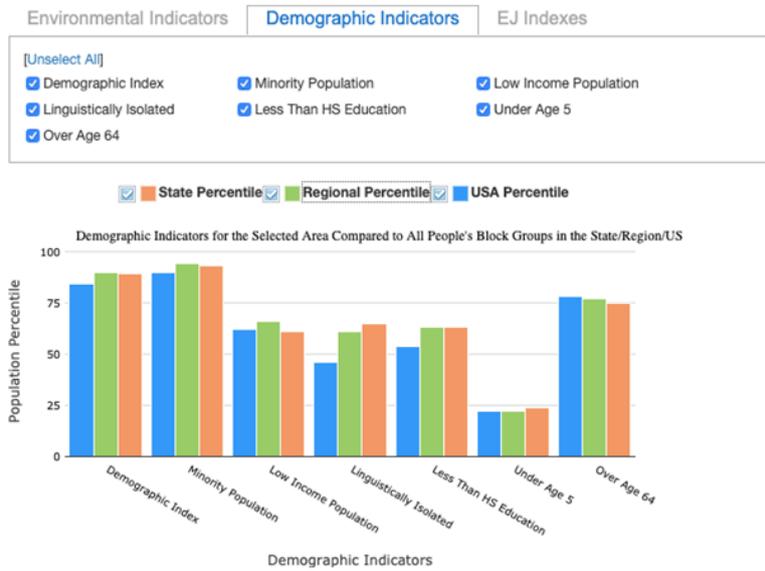


Figure 14. Demographic indicators

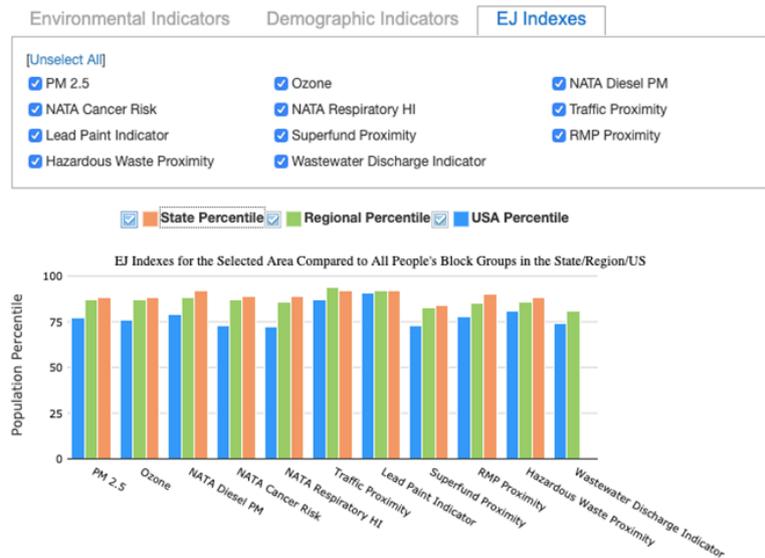


Figure 15. EJ indexes

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7.3. EPA and EJ Data. 8 Key Factors

Nata Respiratory Levels

7.3.1. What is NATA

◆ The National Air Toxics Assessment (NATA) is EPA's ongoing review of air toxics in the US. EPA developed NATA as a screening tool for state and local and tribal air agencies. NATA's results help these agencies identify which pollutants emission sources and places they may wish to study further to better understand any possible risks to public health from air toxics.

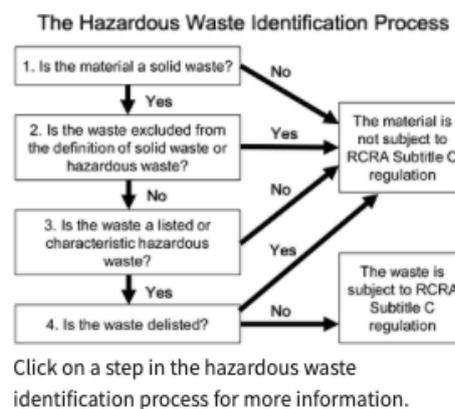
◆ NATA gives a snapshot of outdoor air quality with respect to emissions of air toxics it suggests the long-term risks to human health risks if air toxics emissions are steady over time.

◆ Hence, with a disease such as Covid which is a respiratory disease high NATA respiratory Levels will have a definite impact on the health of the citizens.

◆ Currently the NATA respiratory is very high in comparison to regional and national levels.

2. Hazardous Waste Proximity

Hazardous waste that is improperly managed poses a serious threat to human health and the environment. The Resource Conservation and Recovery Act (RCRA) passed in 1976 was established to set up a framework for the proper management of hazardous waste.



As hazardous waste is defined a waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment, being in close proximity to waste can have a detrimental impact on the health of the citizens. With the impact of virus such hazardous waste leader to further health complications. Currently the State level is at a high point.

7.3.2. Waste water discharge

The collection and treatment of domestic sewage and wastewater is vital to public health and clean water. It is among the most important factors responsible for the general level of good health in the US. Hence, Sewers

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coed sewage and wastewater from homes, businesses and industries and deliver it to wastewater treatment facilities before it is discharged to water bodies or land or reused. THE NPDES establishes discharge limits and condition for discharges from municipal wastewater treatment facilities to waters of the US. For the area selected by EJ screen and hence in close proximity to Detroit Mercy, the Waste Water Discharge indicator is higher than the national average. Furthermore, Waste Water Discharge facilities are mostly found in low-income areas.

7.3.3. NATA cancer risk

NATA estimates the cancer risks from breathing air toxics over many years. It also estimates noncancer health effect for some pollutants, including diesel particulate matter (PM). NATA calculates these air toxics concentrations and risks at the census tract level. Currently the NATA Cancer Risk at state level in Michigan is way higher than the regional and national levels.

7.3.4. Less than high school education

As EJ Screen is a tool that was developed to gauge environmental injustice, the tool combines environmental data with demographic data. Hence, we look at indicator that illustrate environmental just issues. One such indicator is High School Education. At the current point in time the local level for less than high school educated is higher than the regional and national levels. A less educated population means lower income, and hence, exposure to negative environmental issues and thus environmental injustice. Furthermore, it also leads to a pool of worker that is not trainable during a pandemic.

7.3.5. Linguistically isolated

As the area that has been selected by EJ Screen to determine indicators of environmental justice, indicates a high level of people who are linguistically isolated. This causes a problem because of linguistic barriers these individuals are not able to receive the help that they require. Furthermore, the language barriers exclude them for asking for help in case of emergency. Hence, a linguistically isolated population will experience environmental injustice, unless advocated for. Currently the linguistically isolated population for the area selected is way higher than the regional and national levels.

7.3.6. Minority population

The thrust of environmental justice campaigns is to prevent minorities and low-income workers from environmental injustice. The reason that the minority population faces this problem is because of living in areas that lead to environmental injustice or working in positions that lead to environmental injustice. Currently the amount of minority population screened EJ in the current area is way higher than the national and regional averages.

7.3.7. Low income population

Low income population faces a dire risk due to environmental injustice. Not only do they work at jobs that may expose them to dangerous

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environmental conditions but also live in areas that are target of environmental injustice. According to the Data from EJ Screen the Low-Income Population level is

Initiative for Corporate, local, state or federal level that could lessen the underlying problems that the agency needs to address.

The project deliverable was designed to mitigate the impact of the problem hence the power imbalance between the non-profit and the for profit. Hence, for the corporation the help would come in the form of volunteers and workers engaging in research on sustainability and providing services to the companies at risk of environmental violations. Bio-ethics has become more so important

The corporations are advised to engage with students in project of sustainability. Furthermore, the local, state and federal level it is advised that there remains a constant focus on developing Michigan's strength in bio-diversity, environmental justice, manufacturing, health-care. The students were also required to visit the reserves and sanctuaries. This did not happen due to Covid, although active involvement with activities that require developing a relationship with nature is advised. The government should also at all levels support national parks, reserves, etc. In conjunction with the community as well as the corporations. International Wilde Life Refuge is a good example of shoreline engineering efforts between the US and Canada and these should be adopted.

Furthermore, key indicators relating to the environment should be worked on to reduce the harm occurring from them. The same stands for the harm that can occur from biohazards as well as emerging technologies.

Hypothesis: The main concern that the non-profit ERACCE had with the current circumstances is the imbalance of power between the non-profits and the business community and this is where they believe the case of environmental injustice arise. Hence, to ascertain the validity of this concern, I set up a hypothesis with a benchmark of inspections. Hence, a 50% average inspection across the 132 companies during a 5-year period is set as the null-hypothesis. I conduct the calculations using a Z-Score calculation and reject the null hypothesis that there is a power balance present. More inspection need to take place over a 5 year period to reduce the power imbalance.

Cohort Results: The faculty sponsors, and the respective cohorts were chosen due to their individual strengths. Hence, volunteers from two courses participated. Foundation of Ethics and Civil Eng'. This allowed for a diverse group of students as well as a controlled group. The participation was optimistic, with all students in the Foundation of Ethics class showing interest with a strong approval rating of 63.3%. A 100% participation rate was achieved in Civil Eng' as the project fit the curriculum.

Non-Profits: The project requirement was to partner with a non-profit for the proposal. I was able to partner with ERACCE as the primary non-profit and this was because of their prior involvement with the University. Furthermore, during the course of the deliverable designed involved

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outreach with sanctuaries and non-profits involved in the movement of environmental justice and conservation. Therefore, partnerships and communication took place with, Detroit International Wild-Life Refuge

Site Visits: It was integral to the project that the close vicinity of Detroit Mercy be surveyed. Hence a survey of developments such as Bagley District, University District, Palmer Park were undertaken. Participation in the Leadership Class as required by the Ford Grant provided an excellent opportunity to survey Detroit Downtown. Furthermore, a visit to the Ford Museum. Provided for an excellent kick-off to the project and community discussions.

8. Conclusion

The research although not very comprehensive still does some justice to the region. Detroit, Michigan has for long had a history of both success and failures and is an area that is involved in a constant battle to recreate it-self. The imbalance of power in the region leads to results that impede the growth and flourishing of the region as well as causing many a case of injustice. The strength of the research is in the fact that it was conducted through a group of students who can be taught to learn from this research and be socially contribute. Further research and work is necessary if the region is to achieve optimal growth. The close proximity to Canada and facilitates international trade and investment. A world class academic system further accelerates this progress.

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Non-Profits: ERACCE, Detroit Audobon, Detroit International Wildlife Refuge, Belle Island

“Examine each question in terms of what is ethically and aesthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.” – Aldo Leopold Land Ethic.

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