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FIGHTING FOR THE RIGHT TO BREATHE: EXPLORING PERSPECTIVES OF ENVIRONMENTAL THREATS IN THE SOUTH DURBAN BASIN

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FIGHTING FOR THE RIGHT TO BREATHE: EXPLORING PERSPECTIVES OF
ENVIRONMENTAL THREATS IN THE SOUTH DURBAN BASIN

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Frequently used terms and acronyms

South Durban Community Environmental Alliance.....SDCEA

South Durban Basin.....SDB

Environmental Justice.....EJ

Environmental Protection Agency.....EPA

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Abstract

The goal of this project is to understand the way in which community members in South Durban perceive the environmental threats that they face. I have contextualized the current environmental injustices present in the wake of the Apartheid legacy. I worked closely with the South Durban Environmental Conservation Alliance in preparing my questions and conducting my interviews. I conducted 24 interviews in three different communities in the South Durban Basin including Wentworth, Merebank, and Clairwood. Following the interviews in Merebank and Clairwood, I engaged the participants in a short participatory mapping exercise in which they highlighted where the pollution was coming from on a map.

Following my interviews, I transcribed and coded all of them while extracting pertinent themes. I found that all 24 participants perceived some form of pollution as the greatest environmental threat that their area faces. There was, however, variation among communities relating to the particular forms of pollution. Wentworth and Merebank community members primarily spoke about air pollution as a result of the refineries and other industries while Clairwood community members highlighted trucking pollution. All 24 participants also discussed negative health as a major consequence of the pollution. The participants expressed varying opinions regarding the changes they would like to see that would make the community healthier. These different attitudes depict the challenges inherent to the environmental justice movement.

Introduction

“Well we are gunna die...eventually...get sick and die” (Wentworth anonymous 4). This was the grim response given by Wentworth anonymous 4 when I asked him what he thought the consequences of the environmental threat his community faced was.

South Durban is known to have extreme amounts of air pollution as a result of large refineries in the area. The “unacceptable levels of toxins, chemical waste and a large context of sulfur dioxide” (Jaggernath 2010: 137) have resulted in harms to the health and wellbeing of the surrounding residents. As a result of apartheid, the communities surrounding the large industries are predominately black, poor areas (Jaggernath 2010). This has become a case of environmental justice as the Environmental Protection Agency defines environmental justice as “the equal treatment and participation in decision making of all people regardless of their race, color, nationality or income status” (EPA 2015).

The environmental justice movement began in the US during the 1980s in the wake of the civil rights movement, and the movement gained momentum in South Africa during the 1990s. The environmental justice movement in South Africa is slightly different than in the US in that it is driven by the majority instead of the minority (Cock 2004). Leger (2007) explains the current reality in stating that “the zoning strategy of Apartheid and its radicalized separate development philosophy resulted in black South Africans being coerced to live in overcrowded Bantustans and townships located downwind or downstream from industrial complexes” (Leger 2007). I explore the way “environmental struggles in South Africa emerged in light of the longstanding legacy of Apartheid politics and spatial planning discourse and practice” (Jaggernath 2010: 141) by engaging with community members and understanding their perceptions of the environmental threats faced today.

These perspectives are uncovered through interviews and a minor participatory mapping exercise. I have chosen the particular use of participatory mapping in understanding local opinions as “it can enhance capacity in generating, managing and communicating spatial

information; it can stimulate innovation; and ultimately, it can encourage positive social change” (Corbett et al 2006: 13). I believe that participatory mapping provides the researcher with primary data that is much different from what is produced through simple surveys or interviews.

As with environmental justice movements throughout the world, it is extremely difficult to gather empirical evidence to prove that particular industries are causing specific health issues. Leger (2007) discusses some studies that show that South Durban may have a leukemia rate that is 24 times higher than the rest of South Africa. Although this statistic might seem convincing, it holds very little political power since it is difficult to prove direct causation. The SDCEA is currently in the forefront of fighting against environmental injustice in South Africa. It was formed in February 1997 and there are now 8 community based organizations and 2 NGOs under the alliance. It represents the commitment of local communities in addressing the environmental justice issues that the region faces (Leger 2004).

The study that Jaggernath (2010) produced deals with community perspectives of environmental justice in the South Durban Basin. A large percentage of respondents indicated that they felt the industries were causing environmental instability that was seen as a threat to the health of the community (Jaggernath 2010). They discussed air quality as being one of the main concerns and a variety of resulting medical conditions (Jaggernath 2010). I am intrigued by the Jaggernath (2010) article because it encompasses many of the same research questions that I have, but I feel that the particular methodology could be improved upon. I don't feel that the surveys generated a well-rounded perspective and I hope to better understand the perspectives by engaging with participatory mapping techniques and interviews. It is by the use of multidimensional methodologies that I will be able to triangulate and crystalize my findings. The particular use of participatory mapping will be bringing a fairly new technique into a field of study that, according to my preliminary research, has not seen much of its use.

Participatory mapping emerged in the early 1990s and has been gaining momentum ever since. It is a form of data collection that generates a world and a perspective that cannot be understood simply through surveys or interviews. When compared to the traditional notion of maps, it has been noted “these maps are a picture of the world as seen by health workers and the communities they serve. Far more than cartographic portrayal, they capture features and dimensions often missing from a ‘real’ map” (Bennett, preface). It is for these reasons that I have chosen participatory mapping as a means of displaying perceptions since I feel they will be of extreme value and they are also a technique not yet being fully utilized.

Context / literature Review

As the industrial hub of the city of Durban, pollution in the SDB is one of the most polluted regions in the world. There are approximately 285,000 people living in the SDB and the low-income townships include Wentworth, Merebank and Bluff (Leger 2007). Jaggernath (2010) paraphrases Peek (2002) in stating that there are “two major petrochemicals refineries, several hazardous waste dumps, fibre plants, the Mondi paper mills, hazardous chemical storage facilities, a major airport and more than 150 industries which are dependent on crude oil” (Jaggernath 2010: 138) all situated within the South Durban Basin. The Durban Metro Council claims that the South Durban Basin is “environmentally degraded, and experiences high levels of air pollution and waste disposal problems, and that the problems are additionally compounded by the loss of important natural resources” (Jaggernath 2010: 138). The air pollution and other environmental concerns have a negative impact on human health along with the surrounding environment. “Unacceptable levels of toxins, chemical waste and a large context of sulfur dioxide, which are characteristic of industrial processes and activities” (Jaggernath 2010: 137) are noted to being the largest contributors to the environmental issues today.

During apartheid, the black areas were usually near or downstream from the polluting industrial areas as it allowed for cheap labor. This caused the quality of life in these areas

to decrease as they were exposed to a variety of environmental problems that affected their health and wellbeing. Jaggernath (2010) states that during apartheid, Mondi purchased land from the Durban Council and began operating without consulting the local communities. This created conflict since the local communities were not consulted and completely disregarded from the process. Thus, “the distribution and impacts on low-income groups, racial minorities, and other marginalized groups have been the focal point for environmental justice research in recent years” (Jaggernath 2010: 140). This study done by Jaggernath (2010) systematically selected 200 households and conducted a survey in order to understand the community’s perception of the environmental impacts. The report outlines the findings which express an overwhelming concern for the environment and human health as well as a desire for more involvement from the community in the decision making process regarding the industries.

Leger (2007) claims that there has been research done showing that the leukemia rates of people living in South Durban is 24 times higher than the rest of the country. Another example of how the environmental pollution effects the surrounding communities is that school attendance is also know to be lower in Settlers Primary School when the toxic emissions are blowing into the classrooms in high quantities (Leger 2007). The case study shows “a strong desire by communities to enforce environmental responsibility in the absence of clear environmental regulation and law enforcement by the national and/or provincial government” (Leger 2007). These studies show that communities are aware and alarmed by the pollution they are subjected to, yet feel they need to have more of a means of communication and agency in important decision-making.

Participatory Geographic Information Systems (PGIS) combines Participatory Learning and Action (PLA) and Geographic Information Technologies (GIT) (Chambers 2006). Participatory mapping emerging in the early 1990s and has been gaining momentum (Chambers 2006). Corbett et al (2006) state that this form of mapping “can enhance capacity in generating, managing and communicating spatial information; it can stimulate innovation; and ultimately, it can encourage positive social change” (Corbett et al 2006: 13). It involves local people having the opportunity to visually prioritize and discuss

environmental issues. It is important to keep in mind that “the medium and means of mapping, whether ground, paper or GIS, and the style and mode of facilitation, influence who takes part, the nature of outcomes and power relationships. Much depends on the behavior and attitudes of facilitators and who controls the process” (Chambers 2006: 1).

Methodology

Design overview / work with SDCEA:

In order to undertake my project, I was aware that I would need to seek the help of an organization already established in the South Durban Basin. I was in contact with Desmond D'sa from the South Durban Community Environmental Alliance, a local NGO. I was lucky enough to be able to work with the SDCEA in order to complete my project. Along with going out into the field to collect interviews, I assisted with various tasks around the office. These included, traveling to collect air bucket samples, setting up for a workshop, sitting in on a meeting with a local clinic, and researching water pollution incidents from their newspaper article database. The SDCEA was interested in updating their health survey from the local communities since the most recent one had been conducted in 2007. I was able to work with Noluthando Mbeje and combine the questions for my project and her questions for the health survey into one interview. This way, we would be able to gather the necessary information for both purposes simultaneously. Below are the main questions that I was interested in having answered:

- How long have you lived in this community?
- What is the greatest environmental threat that your area faces?
- What causes this threat?
- What are the consequences of this threat?
- What type of changes would you like to see regarding the health of this community?

By combining my questions with the questions posed by the SDCEA, I was able to gain even more information, which allowed me to better understand the community members' perceptions of the threats and how they are directly impacting the lives of the people. I gathered information about their health histories along with the health histories of their

family members, I was able to note if they had worked in one of the local industries and how that may impact their perceptions of the threats, along with how they viewed the health risks they faced compared to other areas.

Sampling plan:

I attribute the success of all of the interviews I was able to conduct to the SDCEA and the help they were able to give me. We chose three the three communities of Wentworth, Merebank and Clairwood. All of these communities are situated in the South Durban Basin, but we were curious to see if there would be variation among answers given the varying degree of proximity to the large industries. In each community, we only interviewed community members that were over the age of 18. That way each participant was able to give consent for him or herself. I initially hoped to interview an equal number of males and females and an equal number from each community. These guidelines could not be completely controlled for and below, in Table 1, the sampling plan is depicted.

Community	Number of Females	Number of Males	Total number of Participants
Wentworth	7	2	9
Merebank	6	4	10
Clairwood	4	1	5
TOTAL	17	7	24

Table 1: Sampling plan of participants in three South Durban Basin communities

Data collection:

Each of these communities had been visited before by members of the SDCEA for past surveys. This gave us an initial idea of whom we should seek out to interview. In Wentworth, after initially starting with community members that were known by the SDCEA, we engaged in with snowball sampling. Both Thando and James, one of the interns, accompanied me. Before leaving each flat, we would ask the participants to give us the names and flat numbers of community members they knew of that would be willing to speak with us. This presented as a successful method of acquiring participants, yet it must be acknowledged that our participants can no longer be expressed as random

sampling. We initially hoped to conduct ten interviews in each community but in Wentworth we were forced to end early because my ride had arrived.

In Merebank, our method of data collection was slightly different as we were able to use a well-known community member who took us around to numerous flats. The woman who was willing to help us, Auntie Logie, has been involved with a number of marches and meetings held by the SDCEA. Thando and James were with me again, and we initially went around to community members she directly knew who had struggled with cancer or asthma and then engaged again with snowball sampling. It is important to note that this method of sampling naturally resulted in a higher incidence of participants complaining of negative health as a result of the pollution. We were able to achieve our goal of ten interviews in this community.

Clairwood proved to be slightly different situation since Thando was too busy to accompany us. Instead, James and I set out into the community and although this community had been used for a previous survey, neither James nor I had any knowledge of who was previously involved. Clairwood was composed of houses instead of flats, making everything more spread out. We had a limited amount of time to conduct the interviews and ended up getting five. We conducted convenience sampling in this community, going from home to home hoping someone would be willing to speak with us.

The protocol for conducting each interview was consistent across each one performed. We would introduce ourselves at the door and ask to come in and speak with the community member for ten or twenty minutes. In most cases we were openly welcomed, and only a handful of community members turned us away. After sitting down and introducing the project, both my project and the survey the SDCEA was aiming to produce, we would have the participant fill out my consent form and the agreement the SDCEA drafted. Almost every participant was willing to let me use my phone to record our conversation for transcription purposes. The interviews lasted anywhere from five minutes to twenty-five minutes. Although in my initial proposal I stated that I was

planning on also conducting focus groups, I did not have the resources to organize them, and they did not align with the project the SDCEA was simultaneously conducting.

I also hoped to engage community members with a participatory mapping exercise. Ideally this would have been in the form of a seminar or at least an extended period of time in which I could explain the purpose and procedure of community mapping properly. Similar to the focus groups, I lacked the time and resources to conduct the mapping in such a manner. I still hoped to gain another form of perspective, so I decided to have the interview participants map out the pollution after the interview. I did not have time to print out maps before we headed into the community in Wentworth but before we went to Merebank and Clairwood I printed map of each town from Google Maps. I would ask each participant to draw where they thought the most pollution was coming from on the map.

Data analysis:

I must make it very clear before I discuss the methods I used to analyzing the data that I collected in order to conceptualize in and understand it, that the conclusions I make are by no means generalizable. They are simply the perceptions of the 24 community members I worked with. After saving all of the interviews on my phone I downloaded them onto my computer. The next step was to transcribe all of the interviews and I used the InqScribe application to make this slightly easier. Once I had all of the transcriptions, the next step was to code the data by discovering common themes and making sense of how each participant touched upon each theme.

I began with the first question that I asked, “What is the greatest environmental threat that your area faces?” I counted the number of times that specific terms were used to describe the environmental threat and compared them across communities. I then moved on to my question regarding the perceived consequences of this threat. I used the health histories that respondents spoke about to create tables including the health history of their families in order to depict those suffering with reparatory illnesses and cancer. I also determined the frequency that each large company was mentioned as being responsible for the

environmental threats. The last step in my coding process was to express the responses to my question about what participants would like to see change in their community that would make it healthier. I determined various themes within their responses and separated each response accordingly.

By creating various tables, figures, and organizing particular quotations, I was able to clearly discuss the common themes that were found. I used past studies along with EJ literature to triangulate and crystalize my findings within the context of South Africa along with the greater EJ movement.

Ethics

I made certain that at every at every step along the way of my project the Human Subjects policies and ethical research guidelines were adhered to. I made it of my upmost concern to communicate my project along with the survey being conducted for the SDCEA to my participants before they gave me consent. I explained my program, my educational experience and my motives for the research. I ensured that all of their words would remain anonymous and their identities confidential. I am aware that some of the participants were employees of local industries and could risk losing their job if their employer had found out about some of the opinions they expressed. For this reason I removed any identifying information about the participants, ensuring their safety.

Results

Overview of results:

I will begin by presenting my results as they pertain to each specific community, and themes I found throughout that particular community. I will then attempt to make sense of particular themes as they pertain to all three communities in order to highlight similarities and differences.

Wentworth- perception of “greatest environmental threat”:

The initial question that I posed for each participant was: what is the greatest environmental threat that your area faces? All nine of the participants that I interviewed in Wentworth responded by mentioning something regarding the air pollution or the various industries responsible for the pollution. Below, Table 2 depicts the various terms used and the frequency each term was mentioned, as some participants used multiple terms to describe the environmental threat.

Term used to describe greatest environmental threat	Number of times it was mentioned in answer	Quotation
Factories	3	"I would say it's the factories all around us" (Wentworth anonymous 9)
Refineries	2	"Well we live quite close to the refinery... " (Wentworth anonymous 8)
Pollution	4	"Air pollution " (Wentworth anonymous 3)
Industry	2	"...Too much industry around" (Wentworth anonymous 4)
Fumes	2	"All the fumes... " (Wentworth anonymous 5)
Oil	2	"Well it's the oil " (Wentworth anonymous 2)
Chemical companies	1	"Um, chemical companies " (Wentworth anonymous 1)

Table 2: Frequency of various terms used to describe greatest environmental threat being faced.

It was very clear from the community members I spoke with that they were not living in a clean environment and that it was the result of the surrounding industries that they were living amid a large amount of pollution. One respondent described the threat by stating,

“Well we live quite close to the refinery, we have pollution, we can smell the gases, we can see the dirt, the soot that it actually ends up on our curtains and stuff like that, we can see in our health, the fact that we suffer with sinuses and asthma...so we know that we definitely not in a environmentally clean area” (Wentworth anonymous 8, 2015).

Respondents related the pollution to simple cause and effect in making comments such as “All the fumes from the factories” (Wentworth anonymous 5, 2015) or “Its pollution from oil refineries” (Wentworth anonymous 7, 2015).

Wentworth- health impacts of the threat:

Moving forward from discussing the greatest environmental threat faced, I was then curious to understand the perceived consequences of this threat. Once again, each of the nine participants would agreed that the consequence of the air pollution and presence of various industries resulted in negative health impacts for the community members.

Respondents mentioned health impacts such as a heavy chest, wheezing, trouble breathing; which then turned into asthma, bronchitis and cancer. The fumes, in particular, seemed to be an immediate and day-to-day concern. Wentworth anonymous 1 recalled that “I can’t walk a distance because of the fumes...I lose breath...it’s a lot... yeah I’m suffering quite a while with it” (Wentworth anonymous 1, 2015). Similarly, “I mean you know if you having difficulty breathing you need fresh air and then you coming out to open your windows or be on the balcony thinking you are getting fresh air and then the fumes are there...so it affects your health” (Wentworth anonymous 6, 2015). Many directly relate the fumes to asthma as it was mentioned that, “when you are breathing the fumes you get asthma” (Wentworth anonymous 2, 2015). The nighttime was also stated multiple times as being the worst times for people suffering with these chest and lung issues. Wentworth anonymous 6 claims, “I’m battling to breath in the middle of the night” (Wentworth anonymous 6, 2015) and while referring to her son, Wentworth anonymous 2 describes the situation by saying, “...and then you find him getting sick and we have to close the window and his chest is tight at the night...we have rushed him to the hospital twice...for treatment” (Wentworth anonymous 2, 2015).

I was also able to gather data on the health history of the participants along with the health history of their family members who lived in the same community. This was a result of the health survey that the SDCEA put together. Table 3 is a visual representation of the health histories collected as it highlights the family member along with the diagnosed health condition.

Participant	Diagnosed with asthma	Diagnosed with cancer	Family members diagnosed with asthma	Family members diagnosed with cancer	Family members diagnosed with bronchitis
1	Yes	-	Daughter	Father; five other family members died in the same year	-
2	-	-	Grandson	-	Grandson
3	-	-	Father	-	-
4	-	-	Wife; grandson	-	Son
5	-	-	Children	-	-
6	-	-	Son	-	-
7	-	-	-	-	-
8	Yes	-	Daughter	Mom	-
9	-	-	-	Dad	-

Figure 3: Family health history of the nine Wentworth participants

The health of the participants' family members appeared to be of utmost concern. Wentworth anonymous 5 told me about her children stating, "my children when they were small...doctor diagnosed them with asthma" (Wentworth anonymous 5, 2015). "There is not a single member in my family that doesn't suffer with hay fever or irritation to their nose, whatever the case may be, and their eyes" (Wentworth anonymous 8, 2015)

is how Wentworth anonymous 8 described the consequences of the environmental threat. When I asked the participants if they thought the issue was becoming more of a problem lately, they responded by saying that more and more children were getting sick.

Wentworth anonymous 2 responded to this question by stating that, “yes because every generation that is born now... like every third or fourth person that gives birth to a child ends up with the same problems” (Wentworth anonymous 2, 2015). In agreement, it was also stated that “...you find that many babies are born with asthma (Wentworth anonymous 5, 2015) and “children also inhaling as they growing up” (Wentworth anonymous 9, 2015).

Wentworth- specific industries responsible:

When I asked participants which specific industries or companies were responsible for the environmental threats they were discussing, almost everyone mentioned one of the large industries. The “big three” usually refers to Engen, Mondi and Sapref. The bar graph below, Figure 1, depicts the frequency of each company mentioned, as one in which is directly responsible for the environmental threats. Engen is clearly the company with the most frequent mention.

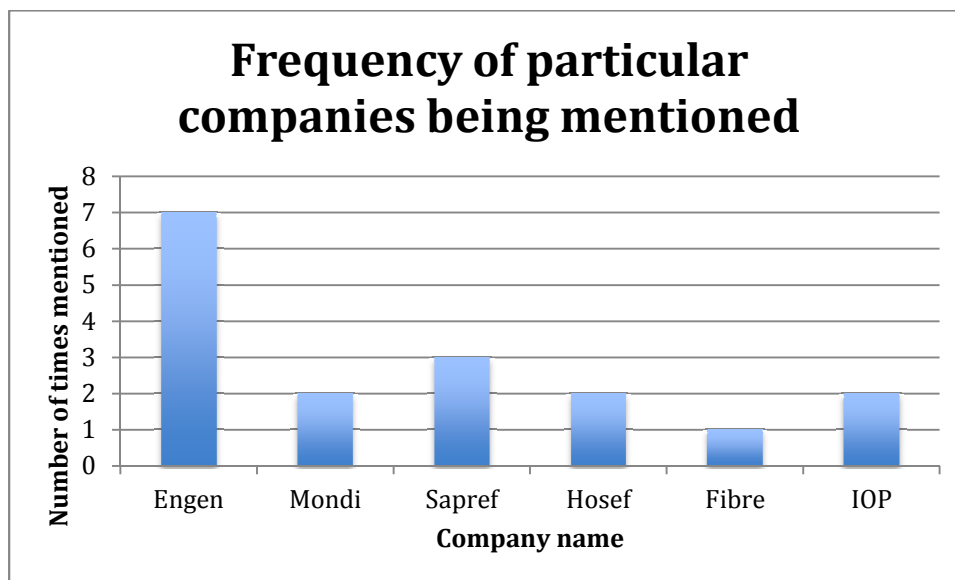


Figure 1: Frequency of particular companies being mentioned in Wentworth

The proximity and overwhelming number of large industries was clearly articulated by many participants. “If you look at where I am living...I’ve got one right here.... I’ve got Mondi, Sapref , Engen... I’m around, I’ve got...what...I’m surrounded... and Fibre is down at the bottom...besides Hosef...uh and one right down there...” (Wentworth anonymous 1, 2015) was how one participant described the area. Similarly, Wentworth anonymous 2 states that, “we are surrounded by them, look! Engen there, we've got Hosef there, IOP down the road...you know we like kind of surrounded, its like we are in a box” (Wentworth anonymous 2, 2015). Frustrated, Wentworth anonymous 3 exclaimed that “...it’s just like too much for the people...look how close we are... look the refineries are right there...Engen is right down the road” (Wentworth anonymous 3, 2015).

Wentworth- what changes would make this community healthier?

When I asked the participants what they would like to see change in the community that would make it a cleaner and healthier environment, I was provided with a variety of answers. The three main categories that respondents fell under with their answers were: wanting the companies to either stop polluting or limit their pollution; believing the companies should just leave; and understanding that the companies provided jobs for the people and could not leave.

Wentworth anonymous 5 spoke about the need for companies to stop polluting and believed that the environment would be much healthier “if they stop polluting...” (Wentworth anonymous 5, 2015). Wentworth anonymous 2 expressed the sentiment that there needs to be more regulations and stated, “the companies should actually agree to the limit of whatever they are supposed to, precautions that they were told to adhere to... but they don’t” (Wentworth anonymous 2, 2015). Similarly, Wentworth anonymous 6 felt that there was a need for

“The environmentalist to be here more often and checking the pollution and the contaminants from all it... I think that would be a good solution...and for the community to work together...take the walks...do whatever they need to do...approach some people in the factories in the [unclear] areas and find a way to solve the problem” (Wentworth anonymous 6, 2015).

Only one of the participants out of the nine interviewed in Wentworth talked about the possibility of either the companies leaving or the people being moved away. Wentworth anonymous 3 stated that "...the refineries need to be shifted to a much safer place or the people need to be moved further away from them" (Wentworth anonymous 3, 2015).

Three out of the nine Wentworth participants expressed a view that depicted the companies and the community members in a symbiotic relationship. Wentworth anonymous 7 said, "well I'm saying they must not be shut because people have got to go to work" (Wentworth anonymous 7, 2015). It was also stated that, "you cant say to remove these companies" (Wentworth anonymous 1, 2015). A similar sentiment was expressed when Wentworth anonymous 8 said,

"- but they have provided a lot of jobs and I thinks that's why they have such a great stance or the community back up. Because most of the community from, whenever they employ- they employ from the immediate community and that is where the community is benefitting and able to put bread and milk on there, you know ... and um, beyond that factor, I don't see them moving...or if we are forced to relocate, are we going to be as comfortable or as we are now, will we have the same space, the same luxury of where we are now...sort to speak...they might just take us and put is all one all of us in just one small little plot and then we basically put our hands out we will touch our neighbor... That sort of thing, just to get rid of us. so we don't know what's going to happen with the new port that is coming out here and uh...we don't know how that will affect us, but like I said, um- its like a yin and yang story situation because you win some and you lose some" (Wentworth anonymous 8, 2015).

Merebank- perception of "greatest environmental threat":

Eight out of the ten participants interviewed in Merebank used the term pollution to describe the greatest environmental threat that their area faces. Merebank anonymous 4 stated that "the major crisis at the moment is the pollution...both air and water...you see the canal that is polluted and the community water is sub zero and I don't even go anywhere near the water in this area like cuttings beach..." (Merebank anonymous 4, 2015). Merebank anonymous 5 described the situation in detail by stating,

"hey...this pollution of the Engen thing...first thing is this Engen thing, they let that gas out and when we go outside to do our clothes, sometimes you want to sit late night you see like last night you cant stay inside because there is no air, we want to go sit outside and then you know you get that funny smell and the gas...there was a little bit of smell when I was sitting so what I did was...and it was like a funny smell...there was like a smoke and a funny smell...the other time there was a lot of smoke coming out from this side...it came by this and started you know like powder...a white powder on our clothes...yeah it went on our clothes...everyone kept quiet...what am I going to do...am I

going to go to court?...I had to take it out again and wash it and dry it on the line” (Merebank anonymous 5, 2015).

Below, in Table 4, the frequency of various terms used to describe the greatest environmental threat in Merebank is depicted.

Term used to describe greatest environmental threat	Number of times it was mentioned in answer	Quotation
Smell	1	"The smell " (Merebank anonymous 1)
Heavy Chest	1	"We get affected in our chest comes heavy " (Merebank anonymous 10)
Pollution	8	"It's the pollution " (Merebank anonymous 3)
Refinery	3	"Mostly from the refineries " (Merebank anonymous 2)
Industry	1	"There are numerous industries " (Merebank anonymous 8)

Table 4: Frequency of various terms used to describe greatest environmental threat being faced in Merebank

Merebank- health impacts of the threat:

When I asked each of the ten participants what the consequence of the environmental threat was, all of them described negative health consequences. Merebank anonymous 6 describes the consequences by saying that

“wheezing, like I am suffering from asthma...there have been times where there has been like an explosion in Engen and there have been oil spills that damage peoples clothes, damage peoples cars, you know what I mean...yeah that’s now not all the time...like if there is an explosion...but it has happened like two or three times...the fumes in the air

that come back our chests very heavy you cant breathe you know...you have a lot of people that have chest problems especially late in the night...like we guys that sit until two three in the morning that's the time you really smell the bad smell...sometimes during the day...but mostly at night that's the worst" (Merebank anonymous 6, 2015).

He went on to say that "it is a very sickly, sickly place...you can say like lung diseases or something...its harming our lungs...what you breathing, its harming our lungs...you tend to cough you know...you tend to get a tight chest, you'll be coughing badly, phlegm will be like that..." (Merebank anonymous 6, 2015). He described how prominent the issue was by explaining that

"we breathing it all the time...we must be getting asthma because of the refinery...if you drive out of this area like 50 kilometers out of this area, and you wait there for about half an hour and you drive back to this area, as soon as you enter this area you will know you are here...like us, we just know where we are because of the smell...as soon as we arrive here we get the smell...we are so used to it now we cant get the smell, but if we drive out for about two hours and come back we've got the smell...you'll just know you entered this place..." (Merebank anonymous 6, 2015).

Similarly, another respondent told me about leaving the area and said, "if I got for holiday to my aunts place in the Valley of 1000 Hills, I go there, I stay for a week or one month, one month I am so welcome ...you know my atmosphere changes, my breathing, and everything...as soon as I come back home, things are very terrible again" (Merebank anonymous 3, 2015).

Merebank anonymous 5 explained her situation be stating,

"too many times we were taken to a hospital and this thing pollution you know this air, we had this thing and we couldn't you know sleep and we have to rush to the hospital and sometimes you have to you know one day the gas and the whole lot of the kids from the grandchildren's school was brought to the hospital...settlers school...we finished up at midnight and came home from hospital...we can't breathe, you can't take air inside, its too strong...and then you get cough here now, we can't take any more, we can't breathe in because we are already jammed here with that uh wheezing...we just say we want to die...we would rather die...my pump is finished...I'm not taking it now...I have to go to the hospital, I go on the second day to the hospital only they say no I can't give you more, you have to have an appointment, the fellows over there...unless you call the ambulance, you sit for so long...but who is going to sit with the children?" (Merebank Anonymous 5, 2015).

Below, Table 5 depicts the health history of the participants that I spoke with along with their family members. Seven out of the ten participants in Merebank told me that they had been diagnosed with cancer and half of the participants mentioned that at least one other person in their family was suffering from asthma.

Participant	Diagnosed with asthma	Diagnosed with cancer	Family members diagnosed with asthma	Family members diagnosed with cancer	Family members diagnosed with sinus
1	-	-	-	-	-
2	-	-	Two daughters; nephew; two brothers	-	-
3	Yes	-	Sister; son	-	-
4	Yes	-	-	-	-
5	Yes	-	-	Sister	-
6	Yes	-	Daughter	-	-
7	Yes	-	-	-	-
8	Yes	-	Son	-	-
9	Yes	-	-	Mom; sister	-
10	-	-	Two grandchildren	-	Two sons

Table 5: Family health history of the ten Merebank participants

Merebank- specific industries responsible:

When I asked the participants which specific industries were responsible for the pollution and environmental threats, an overwhelming amount mentioned the “big three” once again. Merebank anonymous 3 stated that the responsible industries were, “Mondi, Sapref, Engen, and south...uh the waste company” (Merebank anonymous 3, 2015). Others, focused mainly on the refineries, making statements such as “hey the refineries...they got this side here is Engen, then we have Sapref there, then we have the waste you know like all the sewage goes to the waste, that is the main source of

pollution...we we've got all this around us” (Merebank anonymous 6, 2015). Similarly, Merebank anonymous 9 expressed concern about the refineries by responding, “oil refineries like Engen, I don’t think that the water department here would cause it...Mondi is very unlikely...oil refineries...Engen here and then you have Sapref on the other side” (Merebank anonymous 9, 2015). Below, Figure 2 summarizes the responses I received and shows that Engen and Sapref were both mentioned six times, Mondi was mentioned five times and Southern Waste was mentioned three times.

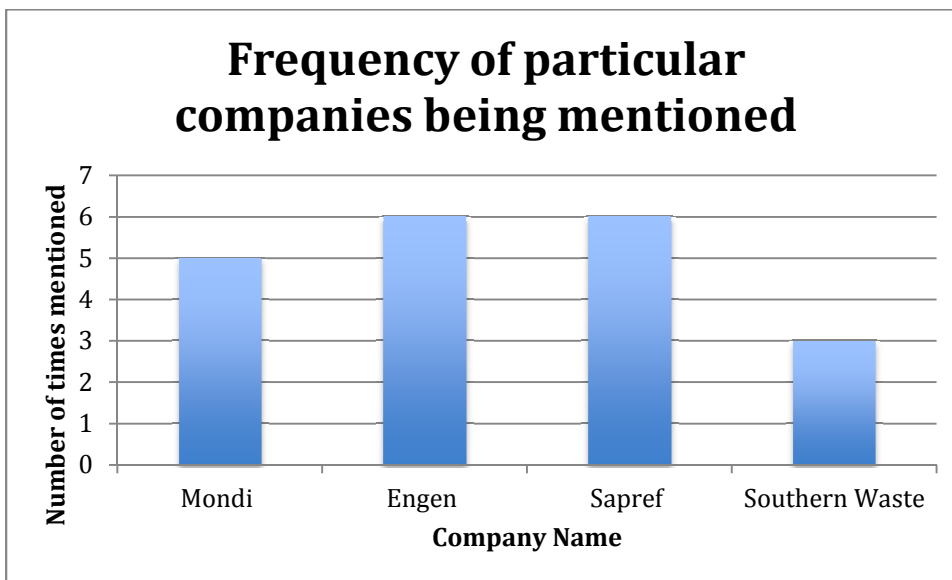


Figure 2: Frequency of particular companies being mentioned in Merebank

Merebank- what changes would make this community healthier?

Once again, when I asked the participants about what they thought should change in order to make the community healthier I was presented with a variety of answers. This was unlike the previous questions I have asked in which most responses were along similar lines. Three participants mentioned that they felt that there needed to be less pollution. Merebank anonymous 8 stated that, “most importantly, for companies to show concern for community first. Refraining from doing issues they know are going to harm...maybe use milder products” (Merebank anonymous 8, 2015). Similarly, it was mentioned that, “I would like to see less pollution...less pollution...that is the only thing that would make it better” (Merebank anonymous 6, 2015). Merebank anonymous 2 said,

“well they could minimize the smell, the pollution... we know we can't ask them to move” (Merebank anonymous 2, 2015).

Similar to Merebank anonymous 2, two other respondents described to me how it was unrealistic for the refineries to be moved out of the area. “It's hard to say because the refinery has been here before we could even move here so you know what I think it would be unfair if I would say we want this refinery to move you know...it would be difficult” (Merebank anonymous 9, 2015). Merebank anonymous 7 described the symbiotic relationship mentioned above in her response by stating that, “um...maybe...oh I don't know...its so difficult because those things there they also they are part of our lives...you know what I am saying...so by shutting it down, it will become a problem you see...that's the thing...I don't know” (Merebank anonymous 7, 2015).

Three out of the ten respondents did not have hopeful ideas regarding the environmental threats they faced and how to make it healthier. Merebank anonymous 5 said, “I don't know what they are going to do about it because they have all the money...we don't have any money...if they tell us to move we are going to move, that's all that they are going to do to us...because they won't move, they wont make the big companies go” (Merebank anonymous 5, 2015). Merebank anonymous 3 claimed that “there is nothing I can recommend because we tried so much but the government has done nothing, nothing has happened...am I right or wrong...we try so much...but nobody answered our questions” (Merebank anonymous 3, 2015). “Why must the poor people that are living in this area pay for all this because of the government's fallacy...” (Merebank anonymous 4, 2015) was a rhetorical question posed for me regarding the environmental reality these community members faced.

Merebank- Participatory mapping

Although the form of participatory mapping that I had planned on engaging with was not able to occur to its fullest extent, I was able to have community members draw on a map where they thought the most pollution was coming from. In Merebank, eight out of the ten participants agreed to partake in the short mapping exercise at the conclusion of the

interview. Below in Figure 3 and Figure 4 are two examples of maps that were produced. Merbank anonymous 6 explains the phenomenon about being surrounded by the large industry in stating that “hey the refineries...they got this side here is Engen, then we have Sapref there, then we have the waste you know like all the sewage goes to the waste, that is the main source of pollution...we we've got all this around us” (Merbank anonymous 6, 2015). Similarly, Merbank anonymous 4 said “that’s why you see my window closed at most times...you get the terrible smell like cats urine coming in from outside...that is the burning of the chemicals from these factories...we are right in the center of it” (Merbank anonymous 4, 2015).

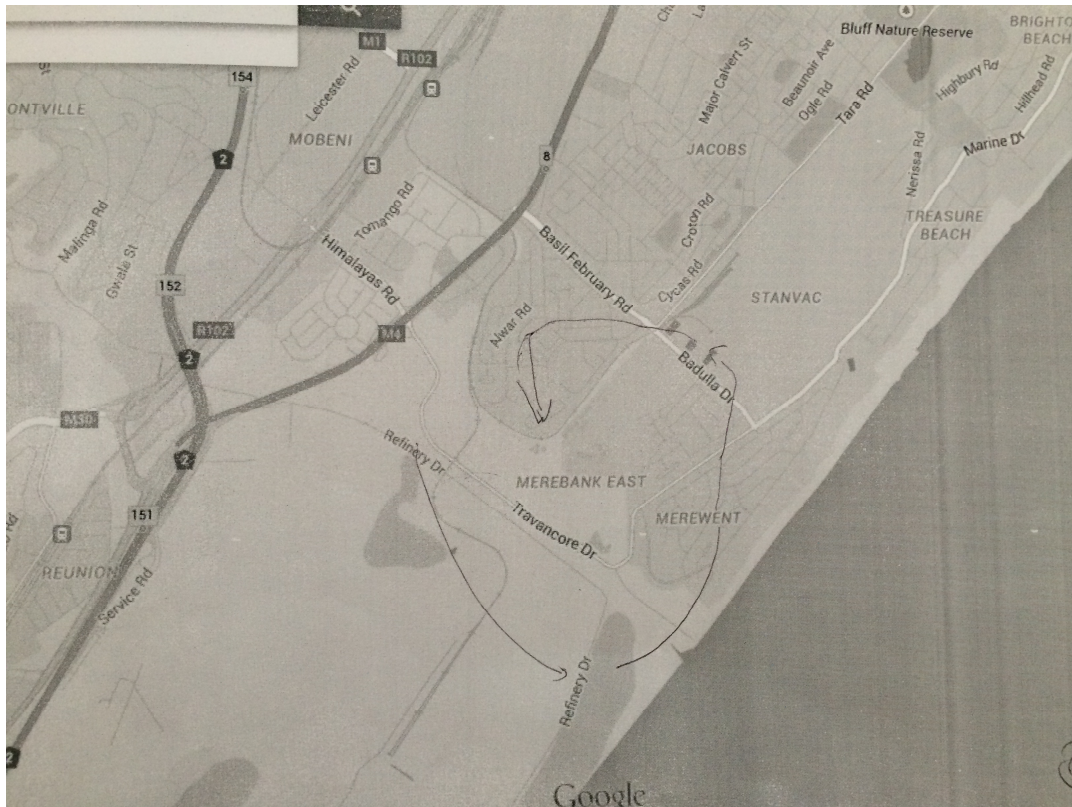


Figure 3: Participatory mapping exercise by Merbank anonymous 2

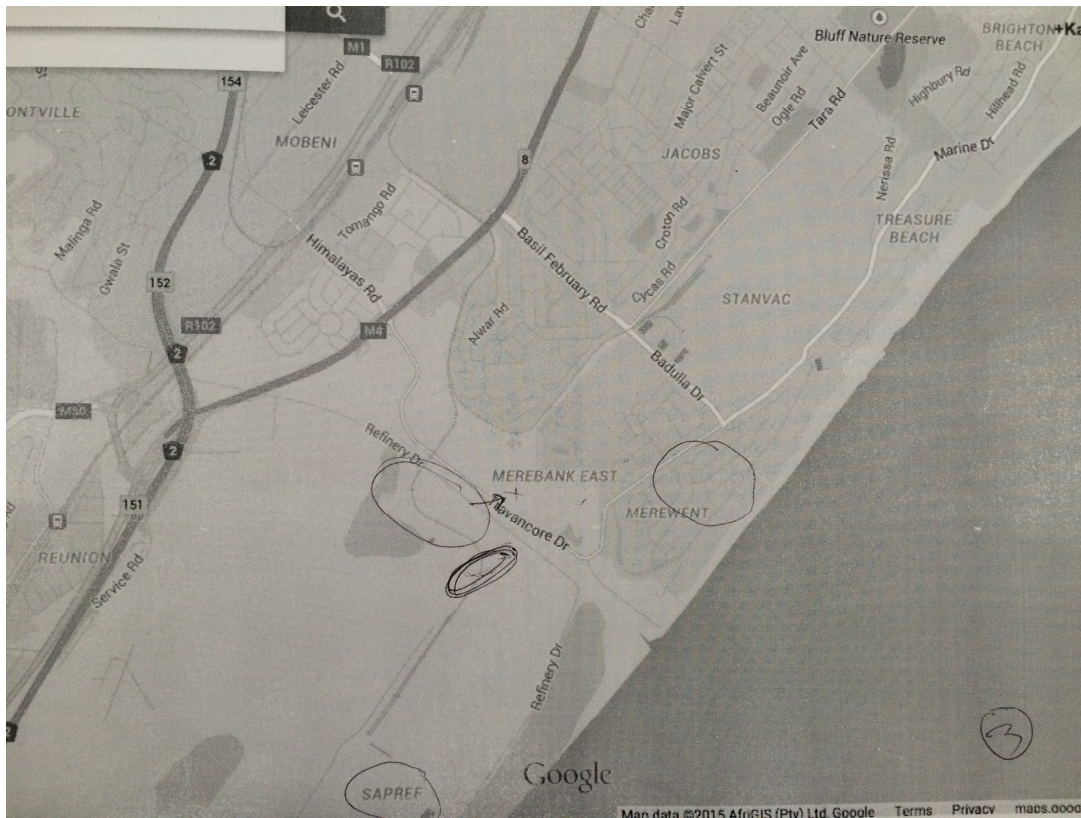


Figure 4: Participatory mapping exercise by Merebank anonymous 3

Clairwood- perception of “greatest environmental threat”

When I asked the five participants in Clairwood what they thought the greatest environmental threat was, the results were slightly different from the two previous communities. Instead of an overwhelming consensus of pollution, and in particular air pollution, being the greatest perceived threat, only one out of the five Clairwood participants discussed air pollution. Clairwood anonymous 2 stated “the most thing here is the air pollution” (Clairwood anonymous 2, 2015), and he went on to attribute the air pollution to industries “like Engen”... “like I said Engen...Holet...they are cooking the sugar so too much smoke there” (Clairwood anonymous 2, 2015).

The other four participants specified that the trucking pollution was the greatest threat that they faced, something the nineteen participants in the other communities did not mention once. Clairwood anonymous 4 responded to my question by stating that the greatest environment threat was “trucking pollution...can’t sleep at night with noise at

night...its dangerous for kids to walk and there is a lack of respect here because people rent yards to trucking companies and then they get more income and move to other areas” (Clairwood anonymous 4, 2015). Similarly, the response I received from Clairwood anonymous 5 was,

“Pollution... that's regarding trucks...you know what I mean...its the trucks mainly that is a problem here...vibration to your house, all your walls are cracking...the noise...problems parking in front of your driveways where you cant in or out...and you can't say anything to them because they are violent...you know what I mean...they like aggressive when you tell them to move...sometimes you've got a problem because you have got to get to the doctor or your child is sick you know” (Clairwood anonymous 5, 2015).

Clairwood- health impacts of the threat:

When I asked the participants about the consequences of the threats, health was once again a priority for four out of the five respondents, although it was not the only concern. Clairwood anonymous 1 stated that “the people that are living here are getting sick and running out of places to live because most yards are taken by people that are owning trucks” (Clairwood anonymous 1, 2015). Safety, along with health, was a reoccurring theme as Clairwood anonymous 3 responded with “infectious diseases...deaths on the road...it's not safe to walk on the pavement” (Clairwood anonymous 3, 2015). Clairwood anonymous 5 described the consequences in much detail by stating

“I mean there is a lot to it you know and then your children are getting sick with all that inhaling...inhaling all that uh smells and things...yesterday we had a child almost knocked...right there on the pavement...now they drive on the pavement...they drive on the pavement, where do you walk? children are going to school in the morning...little things...going to school... there is no one taking them just no they must go up the road to the school...where do they walk because the trucks are on the pavement...if you walk out of here just go down the road take photos of the manholes...there is nothing there...now when aren't you falling into the holes” (Clairwood anonymous 5, 2015).

Below in Table 6 the health history of the five Clairwood participants is depicted.

Participant	Diagnosed with asthma	Diagnosed with cancer	Family members diagnosed with asthma	Family members diagnosed with cancer	Family members diagnosed with sinus
1	-	-	Cousin	-	-
2	-	-	-	-	-
3	-	-	-	-	-
4	-	Yes	Sister	-	-
5	-	-	Two grandchildren	Daughter	-

Table 6: Family health history of the five Clairwood participants

Clairwood- specific industries responsible:

With only five participants from Clairwood, I chose not to present the specific industries mentioned for being responsible in a figure. Trucking companies were mentioned twice as the prominent industry responsible as Clairwood anonymous 1 stated that “yes there are trucking businesses”.... “mostly this trucking companies” (Clairwood anonymous 1, 2015). Engen was mentioned once; Hosef was mentioned once, as was Dallas oil. This information is depicted in Figure 7.

Clairwood- what changes would make this community healthier?

When the participants were asked about how to make the community healthier, all five of the participants included in their response that they would like to see the companies go with four out of the five stating specifically the trucking companies. There were also other things they would like to see relating to increasing the quality of life for the residents. Clairwood anonymous 1 stated that “trucking companies out [laughs] and maybe if we were supplied with electricity and water because we don’t have that...because its not only us here on this road that doesn’t have electricity its quite a few of us” (Clairwood anonymous 1, 2015). Similarly, I was stated that there was a need for “proper housing... Sanitation for the residents... so we would have a clean

environment...find no dumping...get rid of the truckers and do housing for people...truckers are taking half the property...there is no...Every property that you see is a truck park” (Clairwood anonymous 3, 2015).

Clairwood- Participatory mapping

Four out of the five participants in Clairwood agreed to engage with the mapping exercise. Below in Figure 5 and Figure 6 are two examples of the maps produced. Clairwood anonymous 4 depicted all of the “scrapyards, panel beaters, spray cans, trucking” (Clairwood anonymous 4, 2015) in her map.

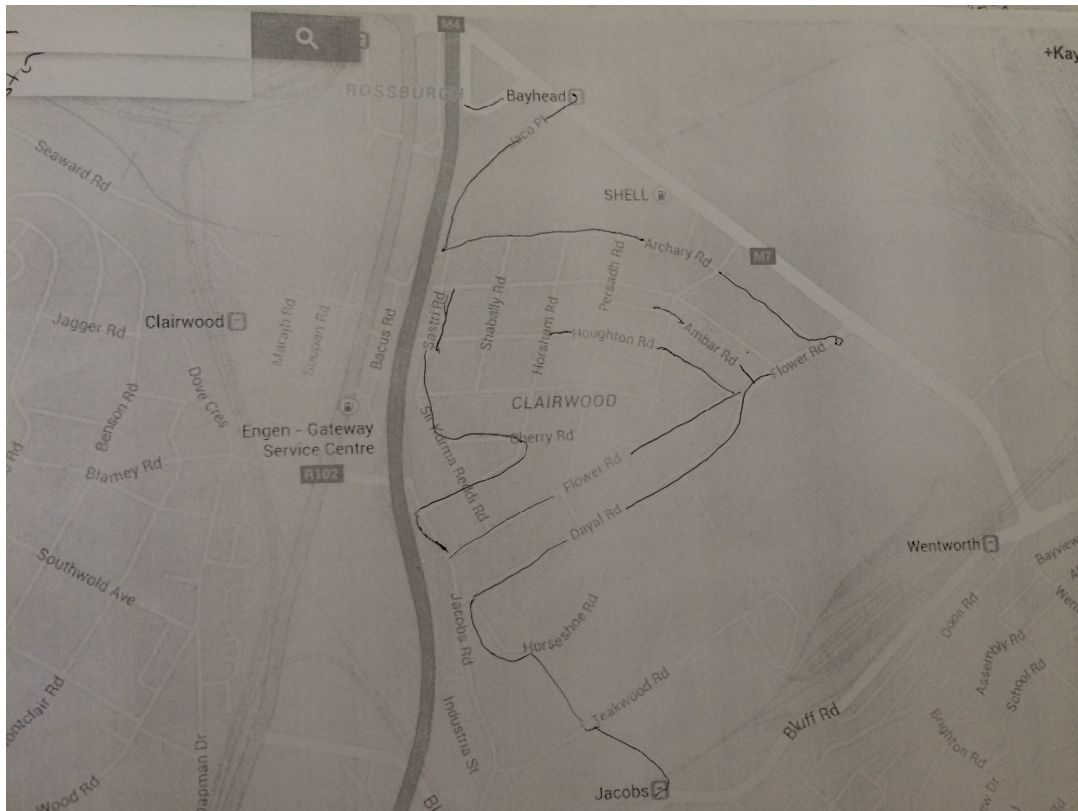


Figure 5: Participatory mapping exercise by Clairwood anonymous 3

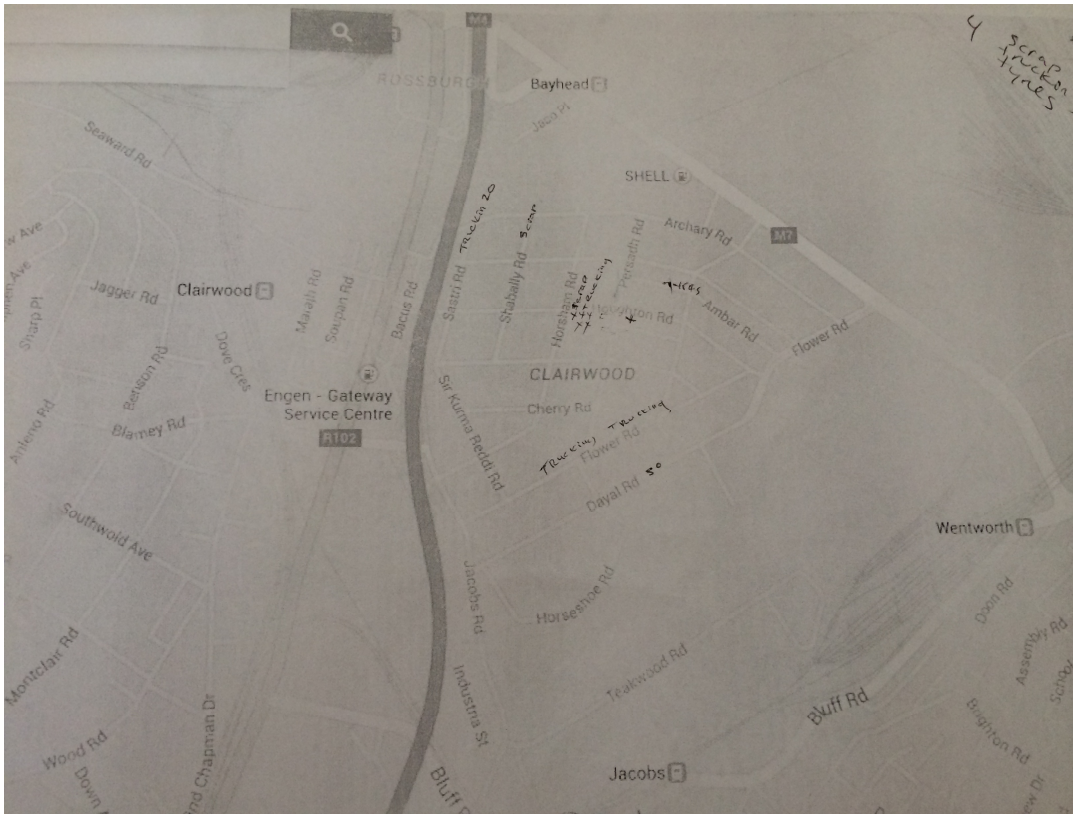


Figure 6: Participatory mapping exercise by Clairwood anonymous 4

Perceptions of the environmental threats as they relate to all three communities

All 24 participants mentioned or alluded to the phenomenon of air pollution being the greatest environmental threat that their area faced. Although many terms were used in their responses such as factories, fumes, oil, air pollution, trucking pollution etc., all 24 participants also regarded negative health as their major concern resulting from the pollution. The communities of Wentworth and Merebank spoke mainly about air pollution from the surrounding industries while it was only in Clairwood that respondents discussed the issue of trucking more so than air pollution as a result of big industry.

Below in Figure 7, the frequency of each of the specific companies perceived to be responsible for the environmental threats is depicted. The responses from all 24 participants were included.

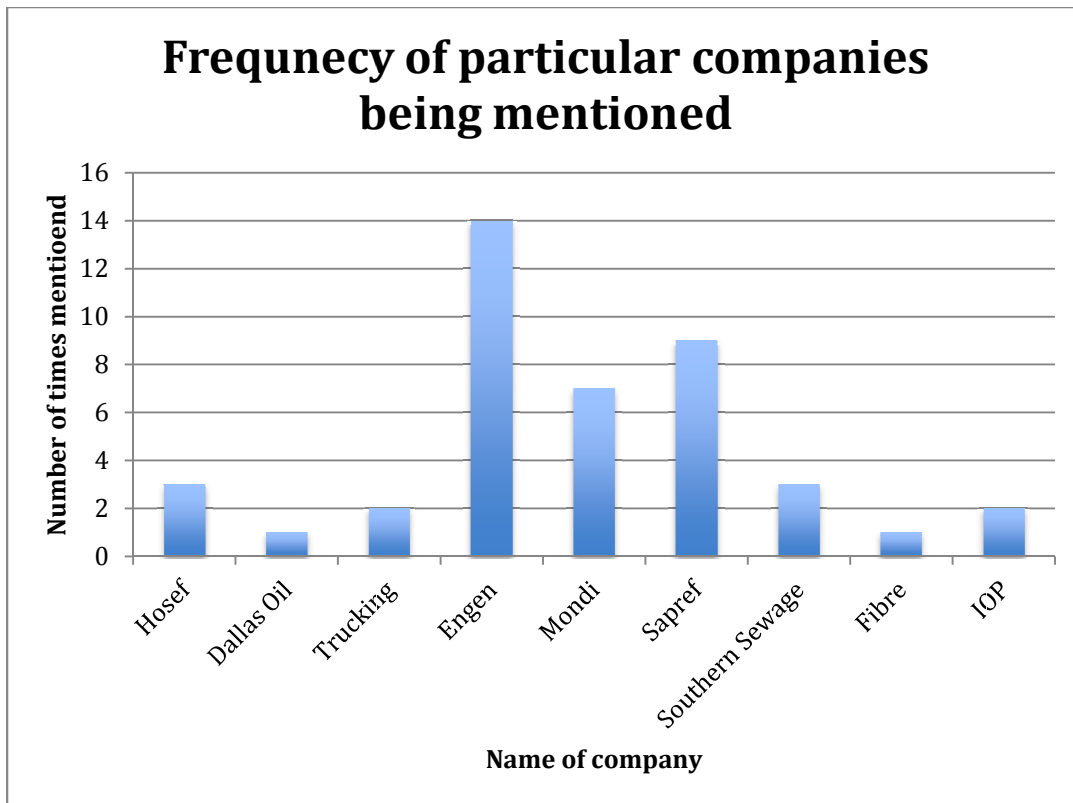


Figure 7: Frequency of particular companies being mentioned in all three communities

In terms of the consequences of the pollution, cancer and asthma appeared to be the two most prominent health concerns that were discussed by the respondents. Of the 24 community members interviewed, nine claimed to have been diagnosed with asthma and one to be diagnosed with cancer. 18 out of the 24 claimed to have at least one family members suffering from cancer or asthma. Out of the 18, the average number of family members diagnosed with a disease that they claimed was a result of the environment was 2.17 family members.

Analysis / Discussion

I must preface this analysis section by stating that I am not making knowledge claims, simply discussing relevant themes that occurred throughout my interviews. I acknowledge that the opinions expressed by the participants are not generalizable as they are simply their own opinions and perspectives. Interviewing participants in three

different communities resulted in a very interesting set of data. The three communities all make up the South Durban Basin but they are located in different areas and are composed of varying populations. Below, in Figure 8, I have created a map on Google Maps demonstrating the location of each of the three communities and three of the main industries: Sapref, Mondi and Engen.



Figure 8: Location of Wentworth, Merebank and Clairwood

The results make it very clear that all 24 of the participants I interviewed mentioned pollution as the greatest environmental threat that their area faces. I found it interesting, though, that the language used to describe the pollution varied between communities. In Wentworth, as Table 1 depicts, seven different terms were used to describe the pollution. However, in Merebank, eight out of the ten participants simply used the term pollution to describe the threat. In Clairwood, four out of the five participants discussed trucking pollution as the main contributor to the surrounding pollution. Merebank, as can be seen in Figure 8 above, is surrounded by all three of the largest industrial companies: Sapref, Mondi and Engen. It is possible that these community members have a better

understanding of how all of the various industries are contributing to the broader term pollution. Wentworth is also close to Engen but further from the other two large industries. Clairwood is further north than the other two communities and the furthest away from the largest industries. Instead, they are within closer proximity to the large highways, which may result in more trucking activity.

It was stated in the report by Guastella & Knudsen (2007) that “it is not only industry that contributes to air pollution, but also □ vehicle emissions, in particular poorly maintained diesel vehicles. A combination of increased container traffic through Durban harbor and failure of the national railway system to deliver an efficient service has contributed to a sharp increase in heavy-duty truck traffic in the SDB” (Guastella & Knudsen, 20). It is intriguing to examine the greatest perceived threats as they are influenced by location. This relates to the paradigm of ones own perception affecting many social movements including the environmental justice movement. Individuals may perceive a threat based on visual and locational cues without also understanding the unforeseen influence of, for example, air pollutants.

What I found especially striking during my conversations was the influence the industries had on the community members every day life. The pollution and the smells have a great impact and affect when people can open their windows. There appears to be a common theme regarding the struggle between needing fresh air and needing to open a window versus needing to keep the odors out of the home. Participants also talked to me about having to wash their windows extremely frequently since a black layer of dust would settle on them every night. Clothes that were left out on the line after being washed would become covered in unidentifiable black pollution. These industries are integrated into the landscape of the surrounding area. Standing out on the balcony of Wentworth anonymous 1, my very first interview, I could see Hosef to my right and directly behind the next flat I could see smoke stacks and other industrial companies. Pictured below, Photograph 1 is a view I captured on the balcony outside of Wentworth anonymous 1’s home. Photograph 2 is another photograph I took in Merebank outside of the flat where Merebank anonymous 1 lived. The smokestacks visible are from the Mondi paper plant.

The participatory mapping exercise also visually depicted the statements about being surrounded in all directions by industry and pollution. These community members cannot escape the reality they live in, a reality that has neglected their rights. Section 24 of the South African Constitution guarantees a clean a healthy environment, something not experienced by the members of the South Durban community (South African Constitution).



Photograph 1: The view from the balcony of the flat where Wentworth anonymous 1 lived. Photographed on 9.04.2015 by K. Bhangdia



Photograph 2: The view from outside the flat where Merebank anonymous 1 lived. Photographed on 14.04.2015 by K. Bhangdia

The health impacts of the pollution were overwhelmingly of greatest concern regarding my question about the consequences of the environmental threat. The respiratory illnesses prevalent throughout the communities appear to be abnormally high. This finding aligns with the epidemiological study conducted in 2004 and 2005 by the Universities of KwaZulu Natal and the University of Michigan in the South Durban Basin (Batterman et al 2007). The perception of many participants in my study was that their ill health was a direct result of the air they were breathing in containing the pollution. I would hear stories about coughing at night, or having a chest so tight they needed to be rushed to the hospital. I was able to see the many inhalers participants used on a daily basis and I could hear them coughing and wheezing during my interview. Although, through my participants' perspective, the health impacts were directly caused by the pollution, there are a whole host of other factors that could have also had an impact. Many of my participants smoke cigarettes, which would play a role in increasing the rates of respiratory illnesses in a community, and others also did not have proper access to health services, which may have aggravated health issues. It is nearly impossible to empirically prove direct causation in this case given the nature of non point source pollution.

It was, however, shown in the epidemiological study conducted by Batterman et al (2007) and discussed in 'I Breathe to Live' that "Sulfur dioxide concentrations varied widely across the study area, averaging from 1 - 3 ppb at northern sites to 12 - 20 ppb in the south" (I Breathe to Live, 10). The south is referring to the South Durban Basin while the north refers to communities north the basin. My own findings would have been more comprehensive if the interviews had been combined with a current air study sample as there appears to be a lack up to date information regarding air quality.

When I would continue my conversation about health with the participants, many times they would steer it in the direction of the children. Many participants felt that the amount of children getting sick has increased significantly. There have been studies done at the Settlers Primary School that have found this school to have one of the highest rates of asthma than any other school world wide. The study at Settlers School was conducted in

2002 and the results indicated that 52% of children at the school suffered from asthma (Guastella & Knudsen 2007). I found it heart wrenching to hear stories about young children or grandchildren being rushed to the hospital in the middle of the night because they were wheezing so hard they could not breathe. My findings, one again, aligned with the Batterman et al (2007) epidemiological study which found, as ‘I Breathe to Live’ discussed, “the most prevalent health problem among children, as reported by their caregivers, was asthma (14% of the children studied were diagnosed by a doctor). Based on reported symptoms, 12% had persistent asthma (asthma that causes symptoms more than about 2 times per week), and this was somewhat higher in the south as compared to the North” (I Breathe to Live, 10). Below, Photograph 3 is a picture of children playing on a playground directly next to Hosef, just one example of the children in extreme proximity to an industry releasing chemicals with unforeseen consequences to their health.



Photograph 3: An image of Hosef with a playground right beside it. Photographed on 9.04.2015 by K. Bhangdia

The overwhelming similarities in responses regarding my questions about the environmental threats and its consequences were quite different than what I received in

response to my final question. The last question I asked the respondents was about what changes they would like to see that would make the community and the environment healthier. The responses were varied and expressed the different opinions in the community that align with the nature of the environmental justice debate. Some people immediately said that the companies needed to leave, that they are polluting the environment and harming the well being of the community members. A second theme that I found was the community members who focused on the need for the industries to pollute less, follow regulations, and have air quality being monitored by experts. Others saw the symbiotic relationship the industries had with the community members in terms of employment and comments were made about these industries allowing people to put bread on the table. These respondents, although aware of the consequences of the industries, appeared to believe the benefits of them outweighed the consequences. A fourth theme that emerged from the responses was a disheartened attitude about ever seeing change in the community. There were those who had given up hope and did not believe that anything we did would ever work since the people have no money or power and the big industries have all the money and power.

The four emergent themes are characteristic of the global struggle for environmental justice, as they shed light on the various stakeholders present in the debate and the different attitudes present. Pellow (2000) addresses the issue of multiple stakeholders and the consequences associated with the iron triangle when the main decision makers have each others interest in mind. As I have learned with my own results, there is a component of qualitative research that can be subject to the researchers own agenda. This allows stakeholders to produce studies that are consistent with their own agenda, an unfortunate reality of the EJ movement. When the SDCEA invited the Engen CEO to attend one of their community workshops, he responded with the following explanation. "I must decline the invite as there is very little chance of anything positive coming out of the workshop due to our very different views on the causes of health problems and social issues between you and I. It seems the local doctors have pre-judged that the conditions they want to relate are a function of air quality. I have never seen valid evidence to

suggest that the sum of anecdotes is an epidemic that can be related to a specific cause (The Right to Breathe, 19).

It is fascinating to place the findings of this study within the context of the greater environmental justice movement. Many dominant themes and theories regarding the EJ movement have emerged from the United States as the movement initiated there following the civil rights movement. This gives context to the issues present in the South Durban Basin and allows for further crystallization of this study. Pellow and Brulle (2005) address the notion of the treadmill of production, which can be used as a metaphor for a capitalist society. Production and consumption is what drives an economy and the continued need for profit has resulted in the exploitation of the environment and the natural resources present. Unfortunately, it is the marginalized populations that have a tendency to reap the burdens of these actions rather than the benefits.

Holifield (2001) describes the path of least resistance that businesses usually take when implementing facilities. He describes the components of minority and lower class populations that make them the more favorable communities to dump waste. Newell (2005) describes the five main points of the report used by big businesses when deciding where to place waste facilities. The report clearly states to “avoid middle and higher income neighborhoods; target communities that are less well educated; target conservative or traditional communities preferably with fewer than 25,000 residents; target rural or elderly communities; target those whose residents are employed in resource extractive jobs like mining, timber or agricultural” (Newell, 2005, p. 76). This mentality and reality appears to be exacerbated by the legacy of Apartheid and the zoning strategies previously in place.

Challenges / Limitations / Recommendation for further study

The ways in which my project veered from my initial proposal:

I was unable to conduct focus groups as I originally hoped. My project lost some of its multi dimensional aspect since the only form of personal communication was through

interviews. A recommendation for further study would be to engage community members in a focus group, as I still believe it may have fostered alternative themes. It would also be interesting to hear discussions from community members about their different perspectives of how to make the community healthier since that was one area where their responses varied considerably. Another way in which my project turned out slightly differently than expected was related to the participatory mapping component I had proposed. I was expecting to sit down with a group of community members, talk about the field of participatory mapping, introduce my project and then spend a period of time having them draw maps of their communities and the pollution. I lacked the resources to organize this form of participatory mapping. Instead I had people draw over a Google Maps screen shot of their community and depict the pollution and where it was coming from. Although this did prove to be beneficial in explaining the phenomenon of being surrounded by the various industries, it lacked the depth of analysis that I was hoping to gain. I am still interested in and thus recommend for a future study, a more structured approach to participatory mapping as a way of depicting perceptions of environmental threats faced by community members.

Limitation within my own research:

There are numerous limitations that I must articulate within my own research as they affect the generalizability of my findings. First off, in my methodology I stated how the general form of my sampling was in the form of snowball sampling. The initial participants, however, were community members well known by the SDCEA and thus were consequently more involved with the environmental justice movement than the average person who may have lacked contact with SDCEA. Their answers may have lined up well with the goals of the SDCEA due to their past contact with the NGO. A recommendation for a future study would be to make sure that the researcher engaged truly with random sampling. Another important note is that in Merebank, the community member who took us around specifically took us to homes who were known to contain an asthmatic patient. The effects of this type of biases sampling was depicted in Table 5 in which seven out of the ten participants were noted as being diagnosed with asthma. This

is no longer an accurate representation of the asthma rates in the community. Once again, a further recommendation would be to stick to random sampling.

Correlation does not always mean causation:

I must make it very clear that although I speak throughout this paper about both the pollution in the SDB and the ill health of the community members, I am by no means authoritatively claiming causation. I do not have the knowledge or resources to prove the respiratory illnesses and cancer that participants spoke to me about were a direct result of the refineries and other large industries present. Some participants speak about a causal relationship between the two but that is merely their own perspective and opinion, something we are all entitled to. The difficulty in empirically proving effects of non point source pollution is something that the environmental justice movement has struggled with on a global level. There are scientific limitations to determining the particular causes of certain illnesses as well as time limitations and ethical limitations. However, to enhance the argument I am making throughout this paper and one in which the SDCEA is fighting for, it may be helpful to engage in air and water sampling. This would add empirical evidence of pollution, which could be combined with the community members' perceptions for a more well rounded argument.

Challenges faced by NGOs (as I have experienced):

Another thing I have learned by working closely with the SDCEA was how challenging it can be for NGOs to operate and accomplish particular tasks. What I have found is that since NGOs rely on outside funding, they can often lack the autonomy to make all of their own decisions. There are also two aspects of the fight for environmental justice that need to both be tackled in order to initiate and bring about change. There needs to be hard, scientific data resulting from proper academic studies as well as education campaigns to involve community members and mobilize those who are living amongst the injustice. Without both aspects, it is difficult to see change.

Conclusion

The South Durban Basin has been subjected to extreme industrial production and as a result, the health of the communities' are at risk. In examining the perspectives of environmental threats faced by these community members, it became evident that the 24 participants, spread throughout three different communities, agreed that pollution was the biggest threat their area faced. There were differences in the particular causes of pollution as they relate to the unique location of each community. Another overwhelming theme discussed by the respondents was the health impacts of the pollution and the high levels of respiratory illnesses. Although this study found a high number of asthmatic patients, it also acknowledges the ambiguity of air born pollutions' direct health impacts.

The various stakeholders present in the EJ movement are also expressed in the varied responses regarding how the community and environment can be made healthier. As challenging as the fight for justice can be, "South Durban has one of the longest histories of community mobilizing against urban industrial pollution in South Africa" (Guastella & Knudsen, 9). If resources are invested in exposing the specific pollutants and organizations such as the SDCEA continue to mobilize the community, the fight will continue. Dedicated citizens will continue to fight for their right to breathe.

Personal Learning

This experience has been extremely beneficial for me as it aligns with my passions and my career goals. I had taken a class about focus groups and had experience facilitating them last semester but I had no prior experience with individual interviews. I was able to expand upon my qualitative research skills while engaging with a topic I am passionately interested in. The independence and autonomy helped me grow as a researcher. I was able to have an authentic experience at an environmental NGO in which I saw both the important grass roots initiatives as well as the logistical challenges they faced. Being apart of the SDCEA community and getting to know the other members of the organization as the faces of the environmental justice movement was inspiring.

Going out into the communities of Wentworth, Merebank and Clairwood was also such an incredible opportunity. I am so grateful to have been able to hear the stories of these people. At times, it was hard to hear the stories and how badly the people were affected by the pollution. A particularly upsetting moment I remember was when one respondent had to stop the interview to go and get his inhaler because he was coughing so much. Seeing the industries directly next to the homes of these people was also upsetting.

Another aspect of my research that I had to grapple with was the fact that I was using their stories and their words for my own personal advancement. I am using it for my ISP but I am not an employee of the SDCEA who will be using the stories to fight for the rights of these people. Although I understand that this is simply the nature of my project, I still long to be more of a part of the fight.

Coding my transcriptions and converting the words of the community members into data and findings was also a difficult task for me. I struggled with the realization that the data I extracting from my interviews was partly subjective to my prior knowledge, opinions, and experiences. I seem to be caught between wanting to produce a piece of work that is highly academic and realizing that the work I produce is a product of my own paradigm, whether I like it or not. The themes I have chosen to expand upon in my analysis and discussion are the apparent themes from the 24 interviews I conducted. They are by no means generalizable and the claims I make are free from authority.

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Appendix A

SIT Study Abroad

a program of World Learning



CONSENT FORM

1. Brief description of the purpose of this study

The purpose of this study is to gain an understanding of how community members perceive the environmental justice threats that they face in the South Durban Basin. I will incorporate not only interviews and focus groups as data collection methods, but I will engage with participatory mapping techniques. This will allow me to gain a more holistic sense of the particular perspectives that may arise. I hope to contextualize the community perspectives within the environmental justice movement and understand how it has been shaped as a result of the legacy of apartheid.

2. Rights Notice

In an endeavor to uphold the ethical standards of all SIT ISP proposals, this study has been reviewed and approved by a Local Review Board or SIT Institutional Review Board. If at any time, you feel that you are at risk or exposed to unreasonable harm, you may terminate and stop the interview. Please take some time to carefully read the statements provided below.

- a. **Privacy** - all information you present in this interview may be recorded and safeguarded. If you do not want the information recorded, you need to let the interviewer know.
- b. **Anonymity** - all names in this study will be kept anonymous unless you choose otherwise.
- c. **Confidentiality** - all names will remain completely confidential and fully protected by the interviewer. By signing below, you give the interviewer full responsibility to uphold this contract and its contents. The interviewer will also sign a copy of this contract and give it to you.

I understand that I will receive **no gift** or direct benefit for participating in the study.

I confirm that the learner has given me the address of the nearest School for International Training Study Abroad Office should I wish to go there for information. (404 Cowey Park, Cowey Rd, Durban).

I know that if I have any questions or complaints about this study that I can contact anonymously, if I wish, the Director/s of the SIT South Africa Community Health Program (Zed McGladdery 0846834982).

Participant's name printed

Your signature and date

Interviewer's name printed

Interviewer's signature and date

I can read English. (If not, but can read Zulu or Afrikaans, please supply). If participant cannot read, the onus is on the researcher to ensure that the quality of consent is nonetheless without reproach.

Appendix B

IRB Action Form

Circle Action Level: <input checked="" type="radio"/> AD / <input type="radio"/> Local RB / <input type="radio"/> Full SIT IRB

Cover Sheet for Review of Research with Human Subjects
World Learning, Brattleboro, VT 05301

ACTION TAKEN: Form below for AD/LRB/IRB use only

Name of Student Kayleigh Bhangdia
 Title of ISP Proposed Research mapping community perspectives of environmental justice
 Study Abroad Program: SFH Durban Community Health and Social Policy
 Name of academic director: Zed McGladdery
 Names of LRB Members Frances O'Brien PhD, Clive Bruzas PhD
 Identifying project number SP 15/2

Research exempt from federal regulations. Action taken:
 approved as submitted approved pending revisions
 requires expedited review requires full IRB review not approved

Research Expedited Review. Action taken:
 approved as submitted approved pending revisions
 requires full IRB review not approved

Research requiring Full IRB review. Action taken:
 approved as submitted approved pending submission or revisions not approved

J. Maden 3/13/15
 LRB/IRB Chairperson's Signature Date

[Signature] 31st March 2015
 LRB/IRB Member's Signature Date

Student Name: _____