Tata Steel versus Wijk aan Zee: creating a citizenship out of the battle between Health and Economy

An exploration of the perceptions of risk to health that is caused by the pollution of Tata Steel

Perceptions of Risk to Health: The industrial polluted region of the IJmond

An assessment of the different interests regarding risk to health causing division amongst citizens of Wijk aan Zee

Master Thesis

Cultural Anthropology: Sustainable Citizenship

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> Cover photo of Tata Steel taken by Charlotte Roosen

> Photo of protest Tata Steel made by Stephanie Dumoulin from Frisse Wind, translating it says: Planet before money

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Abstract

In the contestation of Tata's Steel industrial pollution in the region of the Ijmond in the Netherlands, I am exploring the link between economic and social inequalities and how they form people's perception of risk to health. After the migrant movement came to Ijmuiden around the eighties and lived nearby and worked in Tata Steel, there has been the marginalization of the lower-class society in Wijk aan Zee regarding health. Tata Steel Ijmuiden is a Dutch multinational steel manufacturing company, hereafter named Tata Steel, which has been allowed to pollute the Ijmond for decades; just recently been brought to hold by the foundation Frisse Wind and an RIVM report (Kreling & Schoorl. Volkskrant, 2022). It is the most significant source of pollution in the Netherlands (Nos Nieuws, 2021), and with the lack of anthropological research on the social problems Tata Steel is creating by polluting the Ijmond, my thesis will contribute to addressing the debates concerning this contestation. The foundation Frisse Wind wants to represent the people's voice of the Ijmond contested by Tata Steel's pollution and sues them for this reason. The RIVM report helped Frisse Wind by highlighting Tata Steel's contestation by measuring their emissions and the effect it can have on people living in the Ijmond. During my fieldwork and whilst conducting interviews, I have come across the struggle of workers of Tata Steel being economically and socially tied to work at a factory, marginalizing their health. During my fieldwork, I have followed members of Frisse Wind through the social, political, and economic debates and dilemmas within the discourse of industrial pollution.

Furthermore, I have experienced the fight for social justice within the foundation as an anthropologist and how it affects my position as a researcher. Trapped between Tata Steel and Frisse Wind, between residents and workers, I have portrayed the overall discourse of industrial pollution and how it is perceived to be affecting the health of people in the Ijmond, where I specifically found social contestation because of this in the town of Wijk aan Zee, which is why I have specified my research on this town. From the social contestation between different perspectives on the risk of health arose from this, I have found a new way of citizenship by dealing with these different contestations. This portrayal shows how the division between Tata Steel and Frisse Wind is not black and white but has multiple layers, where priorities and economic and social marginalization colour this discourse. I use the concepts of trust and risk to understand how people in the region of the IJmond perceive how the risk of Tata Steel's pollution is contesting their health.

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The field

It was nine O'clock at night when I met Richard in Wijk aan Zee, a town in the region of the Ijmond. We were having a beer in one of the local bars, which had a beach vibe with pictures of surfers and the beach that the town is adjacent to. When he came in, I was already sitting there preparing for our interview, and he seemed tired. He looked like he was in his forties, with a receding hairline, small but firm, and his overall was dirty from the day. The overall said: Aldor Verlichting, meaning he is an electrician working in Castricum. We spoke on the phone a couple of days earlier; and he told me he had a big story. When he sat down, we first talked about his family. His mother was from the Netherlands, and his father was Italian, he tells me proudly. He is a high pitch in his voice, where sometimes I can hear an Italian accent. He confirmed this by saying that he spoke a lot of Italian and learned from his father's side of the family. He and his father were close. When I called him, explaining that I wanted to talk about his experiences with Tata Steel concerning health problems, this was the reason he was so eager to talk to me, for his father is ill. He got cancer in his lungs for the third time in his life, but this time, it does not seem that he will make it through.

Born in Italy, when he met Richards's mother, they fell in love and moved to Wijk aan Zee, he was happy to find a job so well-paid with the Koninklijke Nederlandse Hoogovens, which was started by the entrepreneur Henri Johan Eduard Wenckebach in 2007 called Tata Steel Ijmuiden in the municipal of Velsen which is part of the region Ijmond. Tata Steel is part of a global corporation: Tata Group and has now about 9500 employees. Tata Group is a multi-industry company, which means it has a parent company headquartered in Mumbai, India, and has 150 subsidiaries, among which Tata Steel Ijmuiden is one. Richard has worked there for forty years, and it was not until he reached the age of sixty that he realized it was the emissions of Tata Steel that made him this ill.

Outline

My thesis has three chapters to answer my research question: how is the risk to health affected by Tata Steel's pollution perceived to be contested in the region of the Ijmond? The Ijmond contains the towns of Beverwijk, Heemskerk and Velsen. The focus of my field work has been in Wijk aan Zee, which falls under the municipal of Beverwijk, because the tension between people perceiving the risk of Tata Steel's pollution on their health was the most imminent in that area of the Ijmond. The first chapter discusses how trust is essential while exploring the relationship between the people from the Ijmond and Tata Steel, and how the

notion of slow violence as described by Nixon (2011) and strategically deployable shifters as depicted by Stuart (2010) influences that relationship.

Trust connects to how risk to health is perceived in polluted industrial towns and the everyday experiences of living in these towns (Phillimore & Bell 2007, 311). I will explore this link in the second chapter, where I will look at how health is perceived to be at risk by different actors in the contested area of Tata Steel's pollution. Furthermore, I investigate how health and the risk of health are used as a commodity for a lower-class society to gain access to more welfare and better housing. Finally, I study how Frisse Wind perceives their health as being at risk and how starting in a higher sociological and economic class makes prioritizing health over money and resources more accessible.

These various perspectives on risk and trust finally bring chapter 3, which discusses different perceptions of the by Tata Steel contested future living in the Ijmond. This chapter shows how having different priorities are critical indicators of how people perceive the contested future to look like and how it shaped a form of citizenship. This form depends on the sociological and economic class they connect to and how they perceive Tata Steel's pollution risk to their health. Also, I discuss how social justice differs per social-economical class and how these classes reflect the framework of how different classes perceive what social justice should look like.

Operationalization

Although there have been studies on the pollution of Tata Steel in India and the effects on it on people's health and how it leads to the contestation of the community that is affected by Tata Steel's pollution (Shreeda & Shah, 2020) in the Netherlands, we do not have research on this. It is essential to put this research on the map because the media want to divide pollution experiences in Wijk aan Zee based on polarization, but actually it has multiple layers influencing the perspectives of risk to health. To understand how societies, form in industrial towns contested by the pollution of industries and factories, it is necessary to break down these different layers so we can address them accordingly.

During my fieldwork, I have looked at how the risk to health is perceived and formed concerning Tata Steel's pollution. I have found that some of my respondent's perceptions of the risk to health are built upon their trust in Tata Steel. Trust embeds in the everyday experiences of citizens living in a town with an industrial corporation (Philimore & Bell 2007, 311). These experiences are what Auyero et al. (2009) described as toxic experiences and often connect to uncertainty and confusion about how Tata Steel communicates its

perception of risk to health and how this is perceived by the people affected by Tata Steel's pollution (Boholm 2019, 165). If there are misinterpretations of information about how they should experience toxicity, it will affect the trust people have in Tata Steel and how they perceive the risk to their health. To understand and explain why citizens feel flammable, toxic experiences, there must be an inquiry into these companies' understandings and how they present them., because how people perceive the risk to health connects to how they consider the corporation trustworthy (Auyero et al. 2009, 311). I discovered in the field that trust in Tata Steel is formed first by the notion of strategically deployable shifters. This notion is considered a tool for companies such as Tata Steel to promote themselves as sustainable according to Stuart (2010). In my fieldwork, I have examined if Tata Steel uses marketing strategies by looking into the Roadmap Plus project, a project that Tata Steel set up to become more sustainable. Whilst talking with Tata Steel's board of sustainability, I have tried to uncover if this project is an example of strong sustainability, so a plan prioritizes the people's health and the conservation of the environment above economic gains or weak sustainability, where the focus is more on profit (Stuart 2010, 88). The promises a company makes to the people affected by their pollution shape their trust and their perception of how their health is at risk by this company (Philimore & Bell 2007, 311). Second, I have used the notion of slow violence, described by Nixon to explore how trust connects to perceptions of risk to health. Violence depicts, according to Nixon, as immediate actions that have instant effects, but some violence is done over a longer time (Nixon 2011, 2). This violence is what Nixon describes as slow violence and is often invisible (Ibid.). Slow violence links to trust with the people affected by Tata Steel's pollution, for when Tata Steel's contestation in the Ijmond is made visible, it will lead to more understanding of the harm done to them. This physical evidence of harm can lead to losing trust in Tata Steel as a company, shaping how they perceive Tata Steel as a risk to their health.

Furthermore, when I explored how Tata Steel's employees perceive their risk to health by Tata Steel's pollution, they are using their health to gain access to money and welfare. They are born in a lower social class, which connects to their education, and want to work at Tata Steel because they pay a higher salary than other companies. To use health as a commodity to gain access to money and healthcare is what Petryna (2012) defined as biological citizenship. To put the worker's health at risk by transforming it into a commodity and fighting for equal economic rights, I found in my fieldwork. Tata Steel's employees perceive the risk to health not as a fear of illness but as a gateway to more monetary funds (Ibid.)

Methodology, Ethics, and the role of the researcher

I have used participant observation and interviews to research the region of the Ijmond in the Netherlands from the beginning of February 2022 until the end of April 2022. I conducted my interviews in Dutch, but I translated them when I was coding and analysing my data. I took the role as an observer and participant to gain access to my respondents so that I could explore and research their understanding and perceptions of the risk to health caused by Tata Steeks pollution. My respondents were people who worked or used to work at Tata Steel as factory employees and people from the board of sustainability, the Trade Union, or the social media department. Furthermore, I have followed the Frisse Wind foundation and I have talked to several individuals in Ijmond whose health, according to the RIVM, is being contested by Tata Steel's pollution to get a picture of how they consider and know this pollution a risk to be on their health. Together they form the social map I have explored to answer my research question. I used reflexivity towards the people I have researched, which helped to get to know my respondents, earning their trust and getting a thicker perspective on their opinion of Tata Steel's pollution linked to their health (Ibid.). By reflexivity, I mean that when I was doing an interview or was just in the field, I reflected on my thoughts, biases, and ideas, so people felt more comfortable expressing their opinion about industrial pollution and its effect they think it has on their health. Also, by spending much time with them and asking in-depth questions to get the answers that shape the ways they perceive the world, shape their identities, and form agencies, I felt I could get to their understanding of what they consider risk and a risk to health to be in everyday life of experiencing industrial pollution in the Ijmond (Ibid.).

Whilst there is no value-free way of researching (Bernard 2011, 61), I have reassured my research participants of the anonymity of their participation by using pseudonyms for everyone but the members of Frisse Wind, whom I got consent with to use their names, and the same goes for public figures that are on the sustainability board of Tata Steel or a politician. I kept the data that I had gathered safely behind locked passwords. Also, before I started with interviews, I asked for full informed and meaningful consent from the participants on paper and oral (O'Reilly 2012, 65).

I had to be aware of my position as a researcher whilst doing my fieldwork. Where observing whilst participant observing is the objective part. Within ethnographic research, however, it is impossible to be unbiased in the overall doing of social research, for it is always partly subjective (O'Reilly 2012, 96). I am biased because I am someone with my perspectives of reality, and when I notice things and observe them, I am biased in the way I

interpret them (Ibid, 95). Therefore, my thesis is a social product of my respondents and my being and perception of the world. As a citizen of the Ijmond affected by Tata Steel's pollution (Kreling & Schoorl. Volkskrant, 2022), I have felt biased against Tata Steel's contestation. When I talked to my respondents who got sick or had family members who got sick because they work or live nearby Tata Steel, their stories personally affected how I perceived the pollution. Throughout my research, I had trouble processing the decisions Tata Steel makes because they were insufficient to stop the effects on health they are now having. This feeling and working for Frisse Wind and their moral ideas about how health should be prioritized above money sparked the social activist in me.

However, I have learned that social activism does not necessarily mean to follow blindly the moral compass given to me by one institution but also listening to why other institutions opposing Frisse Wind have other priorities in understanding and where they come from. Frisse Wind, like many other contemporary grassroots social activist campaigns, starts in small towns, with citizens with no previous activist experiences with environmental movements (Thatcher, 2013).

Chapter 1. How does trust shape perceptions of the risk to health caused by Tata Steel's industrial pollution?

It was a windy Tuesday morning when I went to Wijk aan Zee for my first meeting with Jaap Venniker from Frisse Wind. It was a journey from Castricum, where I live, and Google Maps led me to a mountain bike path through the forest. The area around Wijk aan Zee is beautiful, with dunes and trees, plants and bushes, and many sandy dirt roads leading up to the different small towns in the region of Ijmond. Although I enjoyed riding my bike to an awakened forest, where the first tiny leaves showed up after wintertime, the headwind came on strong. This weather and the fact that my bike is leftover from my brother made the journey quite challenging. The old bike was not meant to drive up and down dunes, and I got passed often by real mountain bikers. After forty minutes, the forest cleared, and the first thing I saw was the Tata Steel factory rising on the horizon. It was so much bigger than I imagined, and it was like it was looking over Wijk aan Zee, like a grey guardian of pollution and smell and the promise of work and housing. Later in my research, I found this dichotomy not as profound as I initially thought. However, for now, I got an eerie feeling when I went past the different old fisher houses and extensive monumental premises. The town's vibe was that of a small artist village, where tourists can come and spend the day on the beach to surf or chill, and the people living here seemed lucky to be surrounded by the sea and the forest where I just came from.

I climbed up the dune facing Tata Steel, and a few moments later, I found myself at the foot of a gigantic, monumental house where Jaap lives. I put my bike away and climbed the stairs. I walked past stained glass with windowsills that seemed dirty with black dust. A tall man with long brownish hair and a messy beard answered when I rang the doorbell. He looked like he was in the early fifties and dressed very casually. Straight away, he welcomed me into his house, asked if I wanted coffee, and no, I could keep my shoes on. The house was like the Dutch say: *gezellig*, which means that the vibe of the house is laid-back and relaxed but also warm and cosy at the same time. A cat with only one eye and toys were lying around. We sat at his big wooden dining room table, where he explained that he had five kids. Jaap said: "The youngest two are below the age of twelve and are in danger of Tata Steel's emissions. I do not know what to do if I want to stay here or leave. Their mother also lives in Wijk aan Zee, so finding a place elsewhere is harder. Besides, I love living here. However, if you look at the numbers, people in Wijk aan Zee have a fifty per cent more chance of getting cancer than in any other town in the Netherlands. For now, I put my children in schools in a different city, which is not in this region. However, if we want to make a change for our

children, Tata Steel, even though they promise sustainability, can not be trusted to keep the future of our children and citizens safe."

> Photo of dust on windowsills taken by Charlotte Roosen

In this chapter, I will explore how the concept of trust connects to how risk to health is perceived and shaped in the context of Tata Steel's pollution. Jaap is a citizen of Wijk aan Zee, and because of his lack of trust in Tata Steel and his fear of Tata Steel's pollution affecting his and his family's health, he responded by joining a social activist group, Frisse Wind. I will show how the lack of trust in corporate sustainability leads to contestation among people affected by Tata Steel's pollution in the IJmond, but specifically in Wijk aan Zee, creating tension by fighting this pollution through the lawsuit of Tata Steel. Also, it shows how one actor, namely Frisse Wind, responded to what they perceived to be the risk to health caused by Tata Steel. In my fieldwork, I wanted to map out the different actors and how they perceive the risk to health caused by Tata Steel's pollution, and how the difference

in perceiving this is causing a clash and a division between the multiple parties, eventually leading to the creation to a new form of citizenship.

1.1 Making slow violence visible

One of the ways Frisse Wind is addressing Tata Steel's pollution is by making it visible. They show how a lack of sustainability leads to social and political contested experiences and events (Touhouliotis 2018, 89). I encountered these events throughout my fieldwork, where I encountered various social and political dilemmas. On the one hand, I have witnessed political debates about the sustainable projects of Tata Steel and whether these projects will lead to more sustainability. On the other, I also came across various social problems regarding the sustainable environment of Wijk aan Zee. By the latter, I mean the losing trust in Tata Steel, which has led to a division with the citizens of Wijk aan Zee.

Pollution is an example of slow violence. Where the concept of violence links, according to Nixon, to immediate actions and exploding effects, it does not consider that violence also exists outside the temporal boundaries like an explosion (Nixon 2011, 2). Therefore, Nixon describes slow violence as the damage or harm done over a more extended period. Like in the ethnography of Touhouliotis (2018), it became clear that the millions of cluster bombs during the aftermath of the July Wars between Israel and the South of Lebanon have led to land pollution. The pollution has led to dead bodies because of cluster bombs that can still explode years after the war and because of the food people eat from the contaminated land (Ibid. 87). This harm is described as slow violence by Nixon, meaning it is often an invisible power that must be made visible within contexts of unsustainability (Ibid. 2). During my fieldwork, my interlocutor's experiences of pollution brought forth their experiences of contamination framed within such toxic temporalities, which Nixon calls slow violence. For them, the slow violence has been visible in the way carcinogenic dust and lead are evident in windowsills and the playground, but they felt it was still invisible to a bigger audience. To counteract this invisibility and make it feasible for citizens of Wijk aan Zee, politicians, and other institutions, people working in Frisse Wind, have taken pictures of what Nixon denotes as slow violence (See Appendix 1). Members of Frisse Wind include Jaap, whom I have mentioned above, Sanne Walvisch and Stephanie Dumoulin. Sanne is a woman living in Wijk aan Zee, in her early forties. She is a mother of two children under the age of fifteen and has curly brownish hair, glasses, and a scholarly look in how she dresses. I did not meet in person with Stephanie, for she was on an extended holiday away from Wijk aan Zee and

travelling around the world in a campervan. However, I know she is in her middle forties and has a son under ten years old. The picture they made, which has reached the biggest audience, and was an essential piece of evidence for Frisse Wind during their trial against Tata Steel, was a picture of black snow. In February of 2021, there was snow, and everyone linked to Frisse Wind; for example, in the app group 'Waz Ouders' (Wijk aan Zee parents), hereafter mentioned as Waz WhatsApp group, there were discussions about why the snow in the garden was black. Sanne and Jaap did some research, and it turned out the carcinogenic dust in the air from Tata Steel. The apparent blackness in the snow contrasting the white was for many residents in Wijk aan Zee, but there was a call for action on social media and in political parties. Never was the pollution of Tata Steel so imminent and the need to act upon it so urgent.

> Photo taken by Bart Vuijk from the Ijmuiden Courant

According to my respondents of Frisse Wind, slow violence is present in the lead in the sand of the town's dunes and the playgrounds. They perceived the pollution outside the temporal boundaries of violence, for like the picture of the black snow proved, the contamination is long-lasting. As one of my respondents, René, from the Waz WhatsApp group explained: "If

our snow is black, we do not know how long the pollution of Tata Steel stays in the air and contaminates our lungs." René and other respondents felt their health was in danger by Tata Steel's pollution, a violation of their health which they see as slowly but surely a danger for their health.

To make the pollution visible and show how Tata Steel is affecting their health, Jaap showed me a way to make the lead in the playgrounds visible with a white piece of paper and a magnet that separates the sand from the lead and can be responsible for neurotic disorders in children under twelve. Furthermore, a few times a week, carcinogenic dust is found on the window of the citizens of Wijk aan Zee. Dust that comes from the emissions of Tata Steel. There has been considerable research to prove that this sand and dust are coming from the Tata Steel factory. The RIVM report, an independent report published on January 21, 2022, shows that the high concentration of metals and carcinogenic dust in the air is proving to be originating from Tata Steel (Kreling & Schoorl, Volkskrant, 2022). This report was the follow-up report from the year 2020, where it already was shown that toxic emissions had already increased. The RIVM decided to do a second report to respond to media attention on Tata Steel and how they are not transparent about how much their emissions are. At the same time, there were suspicions about where the emissions in the Ijmond came from. The RIVM report confirmed what people already suspected: there are more and higher concentrations of toxic materials in the Ijmond (Kreling & Schoorl, Volkskrant, 2022).

1.2 Toxic experiences and uncertainties: The start of Frisse Wind

The toxic experiences the citizens of Wijk aan Zee encounter regarding the pollution of Tata Steel affecting their health have led to insecurities and doubts about the company's intentions and trustworthiness (Auyero et al. 2009, 141). Tata Steel must document its emissions in monthly and yearly reports to monitor its pollution. It is also necessary to see if they held on to policies written down in the permits given by the provincial government (Nos Nieuws, 2021). During my fieldwork, I discovered that these permits were drawn up years ago when Tata Steel was built and gave Tata Steel a broad and free field to expose their emissions. This space given in exchange for Tata Steel, allowed housing next to the factory for workers to create an industrial working town. This lenience in emission policies is rare in current policy, as Sanne entrusted me. Therefore, Tata Steel could work and build their steel empire freely for all these years without any complaints or restraints. Generations of Tata Steelworkers and families in Wijk aan Zee have lived in peace with the factory until people from outside the

town came to live in the town looking for adventure and the beach vibe the town promises. These residents first noticed the smells and the dust and started the movement called 'Stofmelder', a website where people could report Tata Steel's dust or smell in 2017. The goal of this website was to collect all reports to the police so they could see if Tata Steel was breaking its emission permits. Jan, was a volunteer that together with Sanne created the Stofmelder website. Both are parents concerned about their health and the health of their children. In 2018 Sanne started the "Wasvrouwen' WhatsApp group, consisting of mothers living in Wijk aan Zee who are concerned about Tata Steel's pollution and its effect on their family's health. When Sanne did not see enough progress and could not oversee the pollution that Tata Steel caused, she decided to stop with Stofmelder and start with Frisse Wind alongside Jaap Venniker and Antoinette Verbrugge in 2020. They are all citizens of Wijk aan Zee, and their main goal was to collect as many crimes reports from residents about Tata Steel's pollution as possible to sue Tata Steel. Next to the crime reports, the other goal of Frisse Wind was to get donations to pay Benedicte Ficq, a famous criminal lawyer in the Netherlands, to lead this prosecution. She has agreed with this, even giving her consent for a lower hourly wage. In 2021, Frisse Wind collected enough reports, namely 1300, to continue the prosecution. The case got so much media attention that government agencies and institutions responded. This attention led to the RIVM leading two separate investigations into Tata Steel's pollution compared to their reports. The second report published in January 2022 showed that the RIVM found a higher concentration of metal and carcinogenic dust in the air than Tata Steel acknowledged (Kreling & Schools, Volkskrant, 2022). The report proved that because of this higher concentration, the health of people in the region of IJmond is affected by these toxic materials, more than the Tata Steel reports say. The increase confirmed the suspicion that the residents of Wijk aan Zee, like the people from Frisse Wind, but also from the Waz WhatsApp group that I have talked to, experience a decrease in trust in the company.

1.3 Tata Steel's history with trust

The trust in Tata Steel as a company and how they are perceived to be risking people's health in the Ijmond has been affected by the lack of transparency about its emissions. The issue of trust was at stake in how the companies represented themselves, which was very visible during my fieldwork. During my conversations with residents of Wijk aan Zee, they mentioned how they were losing trust in Tata Steel because of the media and the growing

visibility of Tata Steel's pollution. Trust and pride in Tata Steel were part of the community of Wijk aan Zee, according to Arnoud, one of the key interlocutors I have talked to during my fieldwork. Arnoud is a man in his fifties, with a big stomach and a big smile, who has been a building constructor since he was 16 years old. He taught him everything he needed to know about the business and built an extensive clientele over the years. He explained that when Tat Tata Steel contracted him in the eighties, there was a trustworthy relationship between the employees of Tata Steel and the residents of Wijk aan Zee. The residents and employees were proud to have the metal factory next to their town and felt joy working there. He only worked there for a couple of months, but the only criticism he had of Tata Steel at the time was that they did not work as sufficient as he did. He finished his project, building the ceilings of one of the factories, three months before the deadline, for his way of working was faster and more efficient. My other key interlocutor, Jenny, confirmed this trust in Tata Steel by saying: "There was always trouble with smell, but Tata Steel always addressed our issues and did their best to solve it." She is a woman in her middle sixties who has lived her whole life in the Ijmond. She has short grey hair, glasses, and a sweet face that always smiles. While living in Wijk aan Zee in the nineties, her husband, a big fellow with a motor jacket on and a little older than she, added that the stanch problem was solved within a few months. They were both impressed by this, also because the stanch use to reach up to Uitgeest.

Furthermore, Tata Steel was considered trustworthy, for they always looked after their employees. They paid for welfare expenses if employees got sick and took care of medical bills if they are hospitalized. If an employee died, they financially took care of the family. It led to trust in the company based on financial security and social confirmation by solving the problems of the residents of Wijk aan Zee.

The distrust in Tata Steel became prevalent when the GGD Kennemerland started monitoring the health of the people in the region of Ijmond in 2012 (Gezondheidsmonitor Ijmond 2022). The reports showed for the first time how Tata Steel is putting people's health at risk in the Ijmond. Together with the RIVM monitoring of Tata Steel's emissions, so vigorously different from what Tata Steel claimed they were emitting, it led to a decline of trust from the residents of the Ijmond in the factory (Kreling & Schools, Volkskrant, 2022). Stephanie from Frisse Wind, whom I have talked to, was starting to doubt how safe it was to live next to a factory that lies about the amount and type of emissions they produce.

1.4 First encounter with becoming a social justice advocate

When Jaap showed me what they think is carcinogenic dust, they led me to the playgrounds and people's windowsills with the help of a white piece of paper and a magnet. It was a technique he thought about himself when he was curious what the black dust was on his windowsills all the time. When the dust kept sticking to his magnet, he realized that it had to be a metal, and he perceived this metal to be coming from Tata Steel. When I saw the dust, I had the same conclusion, and it triggered in me a rage and a determination to make such invisible danger more visible and aware to more than the residents of Wijk aan Zee. However, as a scientist and an anthropologist, I also thought I should listen to everybody's story, so I kept my opinions to myself at the start of my research. When I spoke to a woman who almost died of cancer whilst living in Wijk aan Zee but was healthy again after a few years when she left the town, this changed. She blamed Tata Steel and their pollution for her illness: "Moving was the only option to save my health from the sickness that is Tata Steel." I realized there were still people and children living in the region of Ijmond that are experiencing everyday threats to their health because of the toxic pollution caused by Tata Steel.

1.5 Sustainability Day at Tata Steel

The relationship between trust and risk of citizens living in an industrial town connects to the everyday experiences of citizens living in these towns (Phillimore & Bell 2007, 311). In the ethnography of a global chemical industry town in Germany, Phillimore, and Bell (2007) researched that the measurement of risk perception is bound to the ways people consciously and unconsciously perceive trustworthiness (Ibid. 315). Their ethnography showed that a company's reputation also affects how citizens trust them. Therefore, a company must present itself as healthy for its citizens and the environment (Ibid. 312). The RIVM report and the media attention have led to uncertainty about Tata Steel and its intentions. I experienced this uncertainty myself during my fieldwork, where I went to the opening of one of the newest sustainable cold rolling installations. I received Frisse Wind's invitation to see how Tata Steel presented this new installation and the Roadmap Plus project. The Roadmap Plus is the newest sustainability plan that has thirty-three projects that have a goal to produce less smell, less sound, fewer carcinogenic dust, and lastly, strive for more biodiversity. When I went to the opening of the cold rolling installation, there was also a presentation on this sustainability plan. However, not being able to answer my questions about certain aspects of this plan,

whilst at the same time I was told by the head of the sustainability board of Tata Steel that they are open and transparent, gave me a feeling of uncertainty about Tata Steel and its intentions. A feeling that should build on trust.

Trust about the safekeeping of health between Frisse Wind and the council of Tata Steel members broke ever since Frisse Wind sued the company. There have been online fights, and Sanne even received threats from two people for her work at Frisse Wind. Because at that point, I was not a visible member of Frisse Wind, I decided I felt safe enough to have the tour and see the presentation. It was possible to ask questions during the presentation even though I was the only young female among older men in suits; I dared to ask the question that expressed my dubious feelings about Tata Steel. Bram van Nugteren, the head of the board of the sustainability program of Tata Steel, a man with a beautiful suit, grey hair, and intelligent blue eyes, noticed my questions. Before he came to me during the sustainability tour, I felt he had already watched me during the whole of the tour and the presentation after. He came straight for me and asked if I had more questions. Even though other people were asking for his attention, we spent an hour talking, but he seemed focused on changing my mind. I had asked what they would do about the Cokes 2 factory, which has the highest Tata Steel emission pollution rate, namely seventy percent goal of his conversation seemed to be to assure me of the good intentions of the Tata Steel sustainable projects whilst emphasizing how important they think the relationship between Tata Steel is with Wijk aan Zee. As an outsider, not the researcher, I know all the institutions he mentioned in our conversation. I was convinced easily of the good intentions, so it felt like trust in Tata Steel's sustainable project could form.

Nevertheless, I had the feeling that it was Bram's way to re-establish the trust, for he saw me talking to a journalist after the tour, who gave me an interview. This interview and the critical question I asked during the tour made him uncomfortable about my position regarding Tata Steel. His attitude towards me seemed to be trying to convince me of the good intentions of Tata Steel and how important they think it is to maintain in good relationship with the residents and the different institutions in Wijk aan Zee. However, I have talked to the city council and Frisse Wind, who are aware of the questionable actions and behaviour of Tata Steel. How in conversations with Tata Steel, in the news, or on television programs, people's opinions are dismissed by members of the union of Tata Steel or by the sustainability representatives. So, even though Bram assured me about the transparency and open-mindedness of Tata Steel, the opposite is often found.

However, Tata Steel had a neighbourhood meeting point stationed in Wijk aan Zee to open the conversation between residents who are unsatisfied with Tata Steel and their pollution and members of the Trade Union of Tata Steel. It is a small office, with a few tables and a drink machine that seemed a bit clinical but also inviting if there were more people to discuss issues regarding Tata Steel. Sadly, the counter was often empty, so there was little conversation. If I went there, often there was nobody, so the few people I talked to seemed happy to give me answers about Tata Steel and their sustainability project. Bram intended to bring togetherness and build more trust, and he seemed to want to build this trust and transparency. He showed this building of trust to me by approaching me during sustainability day when he heard me asking critical questions about how legitimate the claims of sustainability Tata Steel presenting are. During our conversation, Bram mentioned multiple times how Tata Steel's goal towards Wijk aan Zee and the social media is to be transparent about their plans regarding sustainability. According to him, he wants an open and transparent relationship with every institution and person affected by Tata Steel's pollution. For him, this kind of relationship means building trust: "I know that we have lost some of the trust from people {in Wijk aan Zee}, but being transparent about our plans, and having a space to talk about this {namely the meeting point in Wijk aan Zee}."

> Opening of cold rolling strip installation on Sustainability taken by Charlotte Roosen

1.6 The Political issues regarding Tata Steel and Sustainability*: Strategically Deployable shifters*

In my fieldwork, I have observed how Tata Steel as a corporation responds to the critiques, they have received from Frisse Wind, the City Council, and other institutions accusing them of pollution. To manage this critique, Tata Steel has adopted a technique that promotes the language of social responsibility, transparency, and accountability by using corporate oxymorons (Benson et al. 2009, 45). The corporate oxymoron is, according to Stuart, used as a figure of speech promoting sustainability by addressing the critical institutions or consumers to convince them of its sustainable nature (Stuart 2010, 88). These strategies are marketing promotions used by corporations to conceal the harm caused by them to people and the environment, according to the RIVM report (Kreling & Schools, Volkskrant, 2022) It is a strategy that responds to critique and is often used to nullify the opposition assessment of sustainability but also to gain the trust of the people they are affecting (Benson et al. 2009, 45).

Jaap called the way Tata Steel presents itself conflicted because it has contradictory beliefs and meanings (Benson et al. 2009, 45). An example of this is in the ethnography of Stuart (2010, 88) with clean coal, which is contrasting because there is no such thing as sustainable and clean coal. Frisse Wind perceives the Notion of doublethink with Tata Steel as Stuart explained in how they present their goals, namely with the numbers of emissions they have measured. When this plan was made, their goal was a 50 percent reduction in carcinogenic dust at the end of 2023. However, this reduction comes from Tata Steel's measurements, which are different from the number of emissions of carcinogenic dust from the RIVM report (Kreling & Schools, Volkskrant, 2022).

On the one hand, Jaap says, they are busy making parts of Tata Steel more sustainable, but on the other hand, they are still leaving the most significant source of pollution intact, namely the Cokes 2 factory. In the interview with Bram, he explained how the sustainable board of Tata Steel wants to be sustainable, but only if the expenses in terms of money and labour are the bare minimum. He says he is responsible to his employees and clients who buy from Tata Steel. Therefore, if he talks about making Tata Steel more sustainable, it has a double meaning.

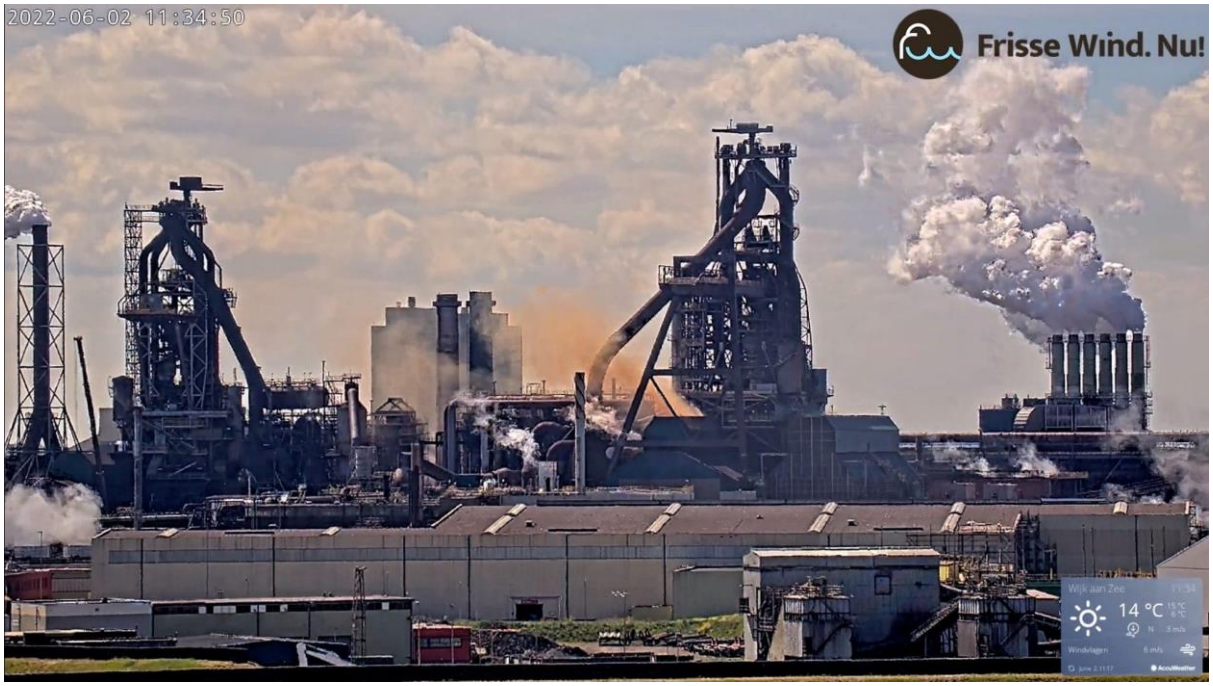
Stuart (2010, 88) argues that sustainability is more a matter of speech and promotion than an enacted promise of a project or policy, and the policies that Tata Steel uses to promote itself as sustainable are what she called strategically deployable shifters. These

marketing strategies are open for interpretation of what considers to be sustainable, and therefore sustainability as a word can have an empty meaning, according to Auyero et al. (2009, 141). During talks about sustainability day to Sanne and Jaap, they saw this day as a marketing strategy for representing themselves as sustainable. They argued that even though Tata Steel has made Roadmap Plus as a project to become more sustainable, it is not as sustainable as it promotes itself. Like Sanne says: "It is based on their emissions measurements, which differ immensely from the emissions that the RIVM found or the number of times we find dust in our windowsills". To Frisse Wind, Tata Steel is using the word sustainability to promote their newest greener plans, which promise a cleaner and safer environment, but they feel that they are using this word freely and open for interpretation. They think the meaning of sustainability goals made in the Roadmap Plus projects during sustainability day is open for interpretation, for they depend on which measurements they use to make this plan. The strategically deployable shifters that Kirsch (2010) uses as an open interpretation of sustainability and using this within policies are what they see as marketing strategies to earn the trust of the people living in the region of Ijmond.

1.7 Frisse Wind's response to the distrust by monitoring Tata Steel's emissions

The differences between the measurements taken by Tata Steel and the RIVM have led to distrust by the citizens of Wijk aan Zee. "Distrust leads to more division in the people from Wijk aan Zee!" Stephanie said, "And where we once were a peaceful village, now families and friends clash." Tata Steel explained the difference between the measurements to the media that they have measured on different spots and at various times than the RIVM did (Noord Holland Provincie, 2022). "Yeah, this is bullshit! Some measurements differ with a one thousand more times difference in emissions. They are trying to win back our trust, but they do not have mine," Laura from the Waz WhatsApp group said. Laura is a young mother of three kids who lives and works in Wijk aan Zee and often joins in conversation in the Waz WhatsApp group about her concerns about Tata Steel's pollution and its effect on her health. In March 2022, in the second month of my fieldwork, Frisse Wind wanted to know more what the actual emissions of Tata Steel were by placing a webcam called the 'TataCam' on top of the dune facing Tata Steel. The dune is the property of Jaap Vennikers' house of residents in Wijk aan Zee, where a bunker from the Second World War still stands. He got ownership over this bunker from the municipal because he promised to take care of all the maintenance and restorations. His plan is eventually to make a Frisse Wind headquarters

there, but it is still under maintenance for now. The goal of the TataCam was to monitor Tata Steel's pollution and report these to the environmental service, which oversees Tata Steel's emission reports. With all these reports, the environmental service can act punitively against Tata Steel, for they are responsible for monitoring that Tata Steel does not have more emissions than they are allowed in their contract. The lawyer of the Frisse Wind foundation had checked on the Webcam's legislation and concluded that the TataCam is legal. He feels he is an expert on recognizing Tata Steel's types of emissions and what can be considered dangerous because of his years of experiencing toxicity. He took it upon himself to teach himself to recognize pollution because of his lack of trust in the company (See Appendix 2).



< Screenshot photo made on the TataCam of the orange smoke which contains pure lead according to Jaap, taken by Sanne Walvisch

Although Tata Steel has permits for flaring, there are limits to how often and how much is allowed. The live stream of the TataCam was available at the beginning of April and got a lot of media attention. In the popular Dutch national television program, Sophie and Khalid, Frisse Wind, Benedicte Ficq, and Linda Valent of the city council of Wijk aan Zee were invited together with a representative of the province of Noord-Holland; Jeroen Olthof. He is a middle-aged white bolding male politician who always wears a suit and tie that always seems to be a little too tight for his body. The story of Jeroen is an example of trust in a

provincial government representative that has changed because of how he talked and acted in private to the citizens of Wijk aan Zee versus how he talked in public. Jeroen, therefore, is an example, for he, just like Tata Steel, had the trust of the residents of Wijk aan Zee for years as a politician. He used to talk a lot with the residents, asking about their opinions and promising them a cleaner and safer future for them and their families. This trust changed when Jeroen officially announced his support of Tata Steel and seemed to be more worried about the economic consequences of Tata Steel's sustainability projects than the health of the people of Wijk aan Zee. During the television program of Khalid and Sophie, this mistrust in him was confirmed, for he defended Tata Steel and its intention to be sustainable.

Moreover, even more proving how different Jeroen's opinion is in public versus in private was that he told Sanne privately after the program: "In the Ijmond, a sand lizard is better protected than your son Boris." By saying this lyrical quote, he confirmed that he knows how toxic the air surrounding Tata Steel is and that her son's health is in danger from Tata Steel's pollution but does not stand up for them in public. Sanne has known Jeroen for years and explained how his thoughts and ideas changed over time. First, he was known in Wijk aan Zee for politically standing up in his campaigns for residents of the region of the Ijmond by stating Tata Steel's pollution is terrible for the people's health and should be changed. However, although he still privately mentions to Sanne how worried he is about her son's health, in public, Jeroen supports Tata Steel and states that he wants to protect their economic interests. The difference in private and public behaviour led my respondents from Frisse Wind, the Waz WhatsApp group and other individuals of Wijk aan Zee to distrust Tata Steel and the provincial government representatives and their sustainability policies. They see sustainability politics as what Stuart (2010) describes as another example of strategically deployable shifters.

The distrust they have influenced how they perceive the risk that Tata Steel's pollution has on their health. Like Laura said: "I used to think I could trust what Tata Steel was saying on the media and in our local newspaper (red.), I felt safe living next to the factory, although it smelled, and I had to clean my windows twice a week. However, ever since the report of the RIVM (Kreling & Schoorl, Volkskrant, 2022), I have been doing some research on my own, and I feel betrayed. I feel like I have lied to the company that gave my grandfather work and always promised our safety. I do not feel safe anymore. My health and that of my children are at risk!" The division caused in the population of Wijk aan Zee leads to small communities with their own bias, beliefs, and priorities. The positioning against one another is one of misunderstanding, non-communication, and mistrust regarding perceptions

and forming of risk to health by Tata Steel's pollution. I will further explore these tensions and their influence in the next chapter.

Chapter 2: Risk communication and assessment of Tata Steel

It was a particularly windy day when I decided to meet with Billy. I just came from a meeting from Frisse Wind, still warm and energized to bring knowledge to the world about Tata Steel's pollution. I had a tour through Wijk aan Zee, where Jaap showed me the playground only a couple of meters from the Tata Steel factory. We had walked down to this playground from the dune with the TataCam to the grey fields. When I asked Jaap about what and how he thinks the natural diversity has been in the area surrounding Tata Steel, one Greenpeace research has shown how there can only live one kind of plant on the dunes that are resistant to Tata Steel's toxics. Sanne later explained that these plants have flowers that Tata Steel uses to promote sustainability. However, this plant only grows on polluted ground, so here again, it seems that Tata Steel uses market strategies to endorse its sustainability.

When we arrived at the playground, Jaap told me that it had to be cleaned by Tata Steel, for all the dust and the lead that falls on it daily can cause neurotic dysfunctions in children under twelve. However, with a white piece of paper and a magnet, he showed how there is lead in the sand where children play for meters on end. So, we argued, who is going to clean that? Moreover, how are his children at risk when playing in the playgrounds near their house? Fuelled with outrage and on a mission to stop Tata Steel's pollution, I went to my interview with the first Tata Steel employee, Billy, whom I got to talk to during my fieldwork. We met in a small café in the middle of Wijk aan Zee. He is a man in his mid-twenties, slim and with long blond hair tight in a knot. He smiled when I came in and seemed good-tempered. For the first hour, we talked about his life as a child in the Tata Steel factory; his uncle, father, cousins, and friends are all working at Tata Steel. It felt like a second home, taking care of his family and friends with a devotion that has earned his loyalty. He felt economically at risk, for without Tata Steel, he said, he could not afford his house.

Furthermore, his social circle centres around other Tata Steelworkers, and formers workers, and the many activities and events that Tata Steel organizes are shaping his social life. When I asked him if he is worried about health risks whilst working under and living with Tata Steel's pollution, he responded: "I am past the age of twelve, so if I am not sick now, I consider myself safe." He does acknowledge that people around him are getting sick, but he does not necessarily connect it to Tata Steel. Instead, he connects people being ill to living next to the A9 Highway, close to Schiphol Airport and Tata Steel. So, Billy sees Tata Steel as part of the problem and thinks Frisse Wind and other institutions are exaggerating the connection between industrial pollution and the health of the people of Ijmond.

< Photo of the playground next to Tata Steel where a lot of children, including Jaap's children, living in Wijk aan Zee play, taken by Charlotte Roosen

2.1 How does Tata Steel address risk communication?

To understand how perceptions of risk to health form, it is essential to determine what risk communication is imminent between the industries causing harm to health and the people affected by it, according to Boholm (2019). Tata Steel has a social media board and representatives who communicate about the risk to the health of employees and citizens of the Ijmond every day. It is part of their duty to speak about the risk to government agencies, non-governmental organizations, other industries, and the media. The communication between Tata Steel and the citizens affected by their pollution and their employees is what Boholm (2019) considers risk communication to be.

One key interlocutor, Arnoud, worked in Tata Steel in 1984 as an employee in one of the steam rooms. There were Hoogoven (a blast furnace): 4, 5, 6 and 7, whilst nowadays, only Hoogoven 6 and 7 are left. They worked with black coal, and the temperatures got so high that some of his colleagues had to transfer to the schonere (cleaner) side of Tata Steel after a few years. If this was cleaner was not evident, for the workers still came home with

black faces and clothes. Arnoud told me they did not have the technology yet to check the amount of gas and dust in the air coming out of the steam ovens, so they had one manager who checked all Hoogovens. This check-up was done only at the beginning and end of the day and only by one person. The man in charge of this job, Arnoud said, was a talkative person, so when he did his round starting at the Hoogoven 4, it took him some time to get to Hoogoven 7. It, therefore, happened sometimes that the amount of gas and dust present in the room where the men used to work was higher than was safe, so they had to evacuate immediately. The risk to Tata Steel employees' health used to be very visible, and all employees were aware of it.

"Tata Steel always listened to the wishes of the citizens and the employees to be safer and take into account people's health when it comes to their pollution." a former employee called David told me. Most of the Tata Steel employees I have talked to during my fieldwork have acknowledged the empathy and consideration Tata Steel has for their employees' wishes and opinions and the citizens who live near them. In the nineties, we got equipment to monitor the levels of gas and dust in the air, so the risk of passing out or brain and lung damage decreased. Within the anthropology of risk, it is essential to practice risk communication (Boholm. 2019, 165). Government agencies, as well as factories and industries, are responsible for communicating potential hazards and managing this to affected groups, stakeholders, and the public and are shaping how risk to health forms with these groups.

2.2 The problems of risk communication

There is, however, in the scientific area little agreement on what the goals of risk communication look like (Boholm 2019, 1695). Despite 40 years of academic study on risk policies and advice practices, there has been slight improvement by government and industry. There can even be a gap between the scientific recommendation of risk policies and the risk communication of agency practices (Ibid.). There are several reasons for risk communication to fail by organizations. The first reason I found is that agencies of risk lack shared perspectives (Ibid.). Tata Steel's risk communication differs, for example, from the ethnography of Markowitz, Gerald & Rossner (2013), where people are not being listened to in their demand for a safer and healthier environment. The ethnography is an example of dialogue from a factory with the public where issues of risk are minimal (Boholm 2019, 1695). Their research linked industrial pollution with a lower social-economic class, using the example of the 'Industrial child (Markowitz, Gerald & Rossner 2013, 20). The Industrial

children were the children of mineworkers during the Great Depression in the United States. The wives of the mineworkers had given up on the health of their husbands but fought for child rights. They want to be heard by the factory and the government, so they speak up about their children's rights and everyday risk experiences. Mineworkers have had, like Tata Steel employees, lower education and belong to the lower-class systems of society. Risk communication framework mostly took place between the factory and government agencies or other stakeholders implementing policy goals (Boholm 2019, 1695). This framework of risk communication differs from what I have found during my fieldwork when the sustainability board of Tata Steel is holding online and offline conferences to address questions of concerned citizens of the Ijmond.

However, when I talked to Rob, who is in his thirties, living in Ijmuiden, and filed a report to help Frisse Wind sue Tata Steel, he described his experiences with the online and offline conferences. He went to two online question hours but felt overwhelmed with the representation of Tata Steel employees, making it hard for him to ask his questions. When I asked him to elaborate, he just said he felt outnumbered by Tata Steel supporters and did not feel safe enough to voice his opinion. I also found this fear of voicing opinions with people from the Waz WhatsApp group or Laura and Jenny. Laura and people from the Waz WhatsApp group mentioned how they were careful with their opinion about Tata Steel's pollution and the risk it has on their health. So, they only talk about this with their close circle and like-minded friends about this subject. However, Jenny raised the concern that she feels that the Frisse Wind foundation and the social media criticizing Tata Steel's sustainability make it harder for people working at Tata Steel to voice their opinion. "Tata Steel employees' main concern is to make money and look after their families. All this criticism from Frisse Wind is obstructing them from taking care of their lively hood, and it is so hard that Tata Steel and their employees can not react properly to it." When I interviewed Billy about this, he mentioned that he did not have any trouble stating his opinion of Frisse Wind and other critical actors of Tata Steel, whom he sees as direct opponents and a threat to his livelihood: "They {Frisse Wind} want to take away our jobs, our money, and our homes. It is about time they a get a job from themselves, so they do not have to watch us all day long, working hard, but judging us. Just because I am not born into a wealthy family, this does not mean that I do not know how to make money or work hard." He says his opinion is formed by Frisse Wind's goal to shut down the Cokes 2 factory. Frisse Wind's opinion of Tata Steel's risk communication was clear from the moment I arrived at my field site; they consider Tata Steel as not honest about the risk their pollution has on the health of the people living in the

Ijmond. They communicate about this risk by stating facts. As the marketing and social media strategist of Frisse Wind, Sanne has emphasized this from the start of Frisse Wind. "I know that Tata Steel's employees see us as directly opposing them, but by staying with the facts of Tata Steel's pollution, we are actually positioning ourselves in the middle ground, between left activists and Tata Steel." How risk communication is shaped in the Ijmond when it comes to risk to health by Tata Steel's pollution, I have found during my fieldwork a division, which leads to a clashing point of view from different actors, like Frisse Wind and Tata Steel's employees. However, this is no polarization but more a complex segregation of how people living in the Ijmond are perceiving the risk they think Tata Steel's pollution has on their health.

Risk communication depends on multiple variations, namely whether a company or agency decides to include public participation, how transparent they are about their risk hazard, and the role of expert/scientific information (Boholm 2019, 1966). I found that during the sustainability day, where Tata Steel presented itself as sustainable, they decided not to be transparent about every risk the factory has on the employees and the people living in the region of the Ijmond. So, within discourses of industrial pollution, risk communication is like the corporate oxymoron, a fluid concept where it is open for interpretation (Stuart 2010, 88). In reality, the 95 per cent emission was based on only the cold rolling strip department and not on the overall emission of Tata Steel. Furthermore, these emissions came from the measurements that Tata Steel reported, but not on the sometimes between 5- or 1000-times higher measurements found by the RIVM (Kreling & Schoorl, Volkskrant, 2022). When I confronted Bram with both dilemmas, he avoided my question by answering that Tata Steel represents transparency and that the media wants to put them in a bad light. The questions themselves remained unanswered, although he invited me to contact him with more questions when I felt the need for this.

2.3 Different perspectives of risk

Employees of Tata Steel led the Tata Tour during sustainability day, and the pride in the company's sustainable progress was imminent. The tour guide was a woman in her fifties called Suzan, the leading manager of the renewed cold rolling strip installation, and she told us that after many years of demanding work, they had produced an installation that produced 95 per cent lesser emissions. She talked about her concern for her colleagues working for years in the factory's pollution and how happy she was that this problem did not exist

anymore. She claims the health of the employees of Tata Steel was barely or not at risk anymore.

> Photo of the lead manager Suzan, at the opening day of the new and sustainable cold rolling strip installation taken by Charlotte Roosen

So, although the sustainability day sounds promising, the risk to Tata Steel's employees was still imminent, according to Jaap. As he mentioned, the biggest threat to people's health is the Cokes 2 factory, causing more than seventy per cent of the overall emission Tata Steel produces. The factory is more than fifty years old and is more colloquially known as 'Old Stinky'. The name is famous for the horrible smells it produced that spread miles away even to Uitgeest, as described by one of my interlocutors, Jenny. She and her husband have lived in Uitgeest for over sixty years, and they remember the smell well when they were kids. They considered it part of the town and a normal consequence of living near Uitgeest. Although they have had these experiences with the factory, they consider Tata Steel an essential part of the society of the Ijmond.

Jenny: "The unemployment rate is high in Beverwijk and Ijmuiden. Before, in the seventies and eighties, workers were transported from Italy and Spain to work at the Hoogovens." The Hoogovens was the name for Tata Steel when it was still Dutch and not taken over by India. "The second and third generation of people still live there; they have settled and consider themselves Dutch. So, you can not just close off the Cokes 2 factory because Tata Steel is where they and their whole family have built their life around for these people. You can not worry about your health if your family's economic health is at risk." Jenny mentions here another form of risk that does not connect to health and the effect Tata Steel could have on this, but the risk of people losing their jobs, houses, and community.

During my first interviews with Sanne, she talked about another part of the community that can be affected if Tata Steel must close parts of its factories due to sustainability issues. She made an overall statement about the social-economic class and position of the Tata Steel employees. Most employees have an MBO background, which loosely translates to a lower-class education comparable to community college. The salary they offer for the position they ask for MBO-educated people is consistently higher than for the same position anywhere else in the Netherlands. Because of this higher salary, Tata Steel employees can buy larger houses with more outstanding mortgages and have a higher living standard. Some families prioritize economic health above physical health, which is evident throughout my experiences with Tata Steel employees in the field. Billy left Tata Steel two years to follow his dream and become a police officer, but when the wages Tata Steel offers were raced this year, he left his dream job to go back and work at Tata Steel. When I asked him about his concern about his health, working in a factory that has proven to be a risk, he considered himself safe if he got paid the salary Tata Steel offers. The police academy pays a standard MBO salary, so he considered himself more at risk financially and socially. Living in Ijmuiden and working for Tata Steel gave him a sense of safety, that the promise of sustainability can be achieved not.

So, Billy's perception of risk differs from the risk perceived by Frisse Wind. He perceives this risk to health because he is from a different social class than the people from Frisse Wind. As I mentioned, risk communication differs per agency, which decides how transparent they want to be and to which other agencies they discuss their risks and hazards (Boholm 2019, 1699). Tata Steel claims to be open about its sustainability plans, but any critical questions get rejected, as I have seen during the sustainability day or during the television program of Khalid and Sophie, where Sanne asked these critical questions, but they remained unanswered. So, the risk communication from Tata Steel in social media, in politics

or two institutions like the City Council is not as transparent about risk hazards to health as they claim to be.

Moreover, what also dictates risk communication is how scientific and expert knowledge is perceived. From Billy's point of view, there is more of a risk in having a job paying for a house he could not afford whilst working other jobs. This point of view concerns how environmental risk experiences link to class (Checker 2007, 112). The working class in the Netherlands looks like people with an MBO education background, making a living in industries, primarily doing physical labour. Like Billy, born in a family where his parents and other relatives also work in physical labour, many of them at Tata Steel have an MBO education background. The experiences gained from being in a different class, whilst simultaneously having different perceptions about scientific knowledge, shape everyday practices of the risk to health in the region of the Ijmond (Ibid.). These different experiences and perceptions explain why Billy feels like he can not talk about Tata Steel's pollution of people's health. He is an economically lower class than the members of Frisse Wind, where especially Sanne and Jaap are from upper-class society. The upper-class society in the Netherlands are people who have graduated from a university or the university of applied science, which is lower than the university. The members of Frisse Wind do not consider money a problem and not something they will put at risk whilst fighting against Tata Steel's contestation. Their perception of risk is more tied to their health and the health of their families, and how this is affected by Tata Steel's pollution.

Furthermore, Billy's social connection to the company makes a difference in perceived risk. He considers leaving Tata Steel a risk because of the social engagements that tie him to this company. "Without the day-to-day life working in Tata Steel, I would be the guy standing alone at every family barbecue." The risk of being socially and economically marginalized mattered more to him than being physically healthy. Jenny later added in one of our next meetings: "If people from a lower social-economic class have to worry about their health while struggling for money, food, and housing, there is no space for that." With a lower social-economic class, Jenny means the middle class in the Netherlands of people with an MBO educative background and perceive being a social activist as a privilege of the upper-class where for example, Frisse Wind is part of. To her and Billy and other Tata Steel workers and community members, the basic need to live a safe life is having a job and a house. They considered having clean and fresh air in their lungs an elitist problem. "That does not mean we do not appreciate the elitist help and protection against pollution. It means we do not have the time or energy to invest in this." As the social activism of risk to health by

Tata Steel's pollution is perceived by Tata Steel's employees as an elite privilege, class thus shapes perceptions of health risk. With Billy and other employees of Tata Steel, they perceive the risk to health, more concerning fear of losing their job and a steady income, which will lead they can not keep their house or provide for their family. The upper social class of the region of the Ijmond, for example, Frisse Wind, perceive the primary risk to their health to be the pollution by Tata Steel. Thus, Frisse Wind considers having fresh air in their lungs a basic human need. Their priority is proving through scientific research that the air and soil surrounding Tata Steel are contaminated. Where Billy and other employees of Tata Steel dismiss scientific knowledge, like the report from the RIVM (Kreling & Schoorl. Volkskrant, 2022), or the GGD 2012 (Gezondheidsmonitor Ijmond. June 9, 2022). When I often asked my respondents working at Tata Steel about their opinion of these reports, they all denied their findings and conclusions. Like Jenny, who does not even work at Tata Steel, but represents an opinion of people living in the IJmond: "The people only getting ill, because of their habits like smoking or drinking." This opinion was until the GGD report from 2012 2012 (Gezondheidsmonitor Ijmond. June 9, 2022), the common opinion of citizens of the Ijmond, according to Sanne. The lower social classes working at Tata Steel had the prejudice that they were unhealthy, to begin with, by smoking and not having the money to buy proper food. Not all employees of Tata Steel are from a lower social class; only the people that I spoke to during my fieldwork working in the factory of Tata Steel are from a lower social class than the directions or management of Tata Steel. The people with office jobs at Tata Steel are from a higher social class than those working in the factory, noticeable in their salary, housing, and higher education background than MBO.

When I asked Jonathan, a member of the sustainability board, about his opinion about Tata Steel's risk to the health of people living in the Ijmond, he said two things. The first thing was that he thought that the risk to people's health gets exaggerated by social media and that the Roadmap Plus project is more than sufficient to keep people's health safe. Secondly, he argued that Tata Steel has been aiding people's health long since it has been an essential source of income for many people in this region. Tata Steel was creating welfare in the Ijmond and is therefore automatically responsible for feeding families and ensuring they are taken care of: "Without us {Tata Steel} many people would not have the good life they are living now. We provide for our employees, give them fair housing, and healthy food on the table, and help them when they are in the hospital. If anything, we are making the lives {of Tata Steel's employees} better, and we help the people living in the Ijmond financially and their physical health. Because with us, they have good health and life insurance." Although

Jonathan is from the same social class as Sanne and Jaap, for he also has a university degree and does not do physical labour, he does not live in the Ijmond and is not directly affected by Tata Steel's pollution. "Easy for him to say that pollution does not matter, Sanne says; he goes home every day to his safe small town far away from the stench and dust we must endure."

2.4 The uncertainty of scientific knowledge

Environmental science and knowledge can help build safer and healthier environmental communities through sustainability policies. However, scientific knowledge often differs per agency, where the perception of risk contrasts severely with official risk evaluations (Checker 2007, 113) This contrast is also imminent in the case of Tata Steel, where the report of the RIVM (Kreling & Schoorl. Volkskrant, 2022) shows different numbers of emissions than Tata Steel's measurements and is therefore responsible for the uncertainty of what scientific knowledge of risk is valid. The uncertainty the different opinions about Tata Steel's pollution create is a communal problem facing environmental risk (Checker 2007, 113). It is shaping different realities of risk.

How people in the discourse of industrial pollution perceive scientific knowledge, is depended on the social class they are in. In my case of Tata Steel, how scientific knowledge was perceived differs in how much of a risk to the health people think Tata Steel's pollution is. In the case of Frisse Wind, they were relying on scientific knowledge about Tata Steel's pollution to win the lawsuit against them and spread awareness of this on social media. They were very aware of their reputation as a social justice company and used scientific knowledge to gain the trust of their social media followers and politicians regarding facts about Tata Steel's pollution. Next to trying to monitor the pollution coming from Tata Steel through the Tata webcam, Jaap also bought a particulate matter meter that measures how much fine dust is in the air Wijk aan Zee. Although he is not a scientist, he wanted to use the meter at a couple of spots in Wijk aan Zee for some months and then send the data to the environmental service. The latter is namely responsible for monitoring the emissions of Tata Steel. How members from the middle class, or the lower social class, compared to Frisse Wind and the board of Tata Steel, saw scientific knowledge was more based on their day-to-day and physical experiences of pollution. For Billy and other Tata Steel employees, the scientific knowledge, like the data from the RIVM report (Kreling & Schoorl, Volkskrant, 2022), was dismissible for they did not think that they were physically affected much by Tata Steel's

pollution and therefore did not consider scientific knowledge of Tata Steel's pollution as proof of the risk it can have on health.

So, class experiences intensify community members' intake of risk and their risk perceptions (Checker 2007, 113). In the risk assessment process, there is hazard identification to determine the health effects of pollution (Ibid. 115). However, even though the residents can see the dust on their windowsills, some people often observe this as a nuisance and say to me that they are just living their daily lives. The presence of carcinogenic dust is normalized. Also, what places a part of residents of colour is that they do not prioritize the environment on their agenda but are more concerned about employment and housing (Checker 2007, 116). It is the same with the employees of Tata Steel, who are primarily white and male but from a lower social-economic class. Being from a different class made the employees think of the contestation of pollution as another civil rights issue if they even considered it an issue.

2. 5 Second encounter with becoming a social justice advocate

During my fieldwork, I found that it did not matter if I showed employees of Tata Steel pictures of what I considered evidence of Tata Steel's pollution, such as the black snow, for they barely recognized it as a threat to their health. "It is not much worse than smoking a cigarette, Simon says whilst taking a puff of his cigarette, the tobacco industry is not shut down as well?" When I spoke to Simon, it was in the latter stages of my fieldwork, so I felt confident enough to talk about the emissions I have seen through the TataCam and what Jaap taught me. Simon is a man in his forties with greyish hair and an Italian accent and has worked for Tata Steel for twenty years. His uncle before him was the first wave of immigrants that worked for Tata Steel in the eighties and convinced Simon to stop working in a factory in Alberobello, Italy, and start working at Tata Steel. "I came because not only the wages are better, but also the social welfare and healthcare services. In my town, I also came home with black dust on my hands, but at least here I am being taken care of when I am sick." Hence, he was not impressed with my knowledge of Tata Steel's pollution and the effect it can have on health but felt safe because of the healthcare Tata Steel promises. Their responses only made me more determined to gather more information and facts about Tata Steel’s pollution so I could show it to the Tata Steel employees, and I could convince them to put their health a priority as well.

2.6 The lower social-economic class of Tata Steel employees

In my fieldwork, I have perceived this question of corporate responsibility by looking at the strategically deployable shifters Tata Steel uses to present itself as sustainable. I found that sustainability within the context of the industrial pollution of Tata Steel means that the citizens of the region of Ijmond, but especially the employees of Tata Steel, must be physically protected from their contestation. In the conversations I had with Bram van Nugteren, it became clear that his and Tata Steel's primary goal of the Roadmap Plus sustainability project was to secure the health of their employees. The Trade Union is in conversation with the city council of Wijk aan Zee and the employees of Tata Steel to ensure that the health risks of living and working nearby Tata Steel will become a bare minimum. To achieve this goal, however, Tata Steel as a company, and Tata Steel's employees are subject to other forms of risk. First, the City Council of Wijk aan Zee and Frisse Wind, and other political activism organizations are demanding that the Cokes 2 factory closes, for it is the most harmful industrial unit that Tata Steel owns. The Cokes 2, however, is responsible for making the raw materials processed into 'Cokes', which will then be fuel for other factories of Tata Steel. It is an essential process to make the steel that Tata Steel produces. To close it down, for the reconstruction of the factory is not possible, as it is too old and fragile, would, first, mean an economic risk for Tata Steel, who must get the cokes from other parts in the Netherlands or even the world. Also, as Jenny mentioned in one of our interviews, you will move the problem of having a cokes factory, contesting the Ijmond in another part of the world. So not solving the sustainability problem, but just relocating the problem. Second, if the Cokes 2 factory closes, this could lead to loss of jobs and employment for some of the Tata Steel's employees, leading to financial and social risks like Billy mentioned. The controversy regarding closing the Cokes 2 factory is because of differences in risk priorities by all parties. Whereas Frisse Wind is striving for the closing down to happen, Tata Steel and its employees do not want this. Tata Steel, as a company, feels they risk losing profits, and employees are afraid of risking their jobs and housing.

During sustainability day, Bram did seem to want to be open about their plans. How transparent they were is debatable, for they did not want to discuss closing the Cokes 2 factory. Nonetheless, Bram was open to communicating about their risk assessment to me, their employees, and residents of the Ijmond, regardless of their class. This way of communicating risk differs in other industrial polluted and chemical factories worldwide. For example, in the ethnography of Spears (2014), there are also other ways of risk

communication in polluted industrial towns in the case of Anniston, United States. A chemical industry that has connections to the military and was first, in the early 2000s, a storage place for chemical weapons (Ibid.7). However, in the years that followed, the army wanted to destroy these chemical weapons, even though many public protests from people living in the area feared their health. Unfortunately, their protests were fruitless because of the deep connection between the state, the military, and the chemical industry. There was no talk about potential risks to health from the chemical industry to the citizens of Anniston, and it became known as 'the worst city in America (Ibid. 8). The military and the United States government also refused to talk to the citizens of Anniston about their risk hazards, even though there was overwhelming evidence of chemical weapons' effect on citizens' health. The lack of risk communication and assessment from the government also seemed to be because the people from Anniston were from a lower social-economic class. 'The division between poverty and poison' was the slogan for this debate (Ibid.). Comparing my experiences in the field with Anniston, Tata Steel is at least in conversation with the institutions and individuals addressing their issues with health contested by pollution. Tata Steel claims to have the people's first interest at heart and responds to this with sustainability projects. However, during my fieldwork, many citizens of Wijk aan Zee and Frisse Wind and other social justice foundations did not feel heard by Tata Steel.

Moreover, because the greatest threat to their health, the Cokes 2 factory, is not being closed. As Jaap said, when in 2029 they finally make the Cokes 2 factory more sustainable, they will first put another factory that processes the raw cokes next to it to take over the work of the Cokes. The two factories will lead to an even more tremendous number of emissions, where people's health will be considered even more at risk. When asked about this, Bram tried to point out the plans on the Roadmap Plus that finished before their deadline, which felt like a distraction from the actual question I was asking. Evasive answering to questions is a form of strategically deployable shifters according to Stuart, for it provides a language that only talks about the things that the company wants you to see, not the ones you are critical about (Stuart 2010, 90). So, even though Tata Steel is communicating with the people affected by their contestation and is making plans and policies to be more sustainable, Frisse Wind sees Tata Steel as an example of weak sustainability as defined by Stuart (Ibid.). Strong sustainability is using the word sustainability within a company's policies and plans that acknowledge the interdependency of human economies and the environment without treating them interchangeably (Ibid, 91). "They {Tata Steel} say that they want the best for us and our health, but their decision to leave the Cokes 2 factory open shows how not sustainable they

actually are and are striving for", Sanne explained. According to her, Tata Steel prioritizes money and profit above the many lives of people who every day is still affected by Tata Steel's pollution and are experiencing loss of health, which is what makes the plans of Tata Steel, however, portrayed as sustainable and weak.

2.7 An answer to poverty: Commodity of health

In Wijk aan Zee, the MBO-educated class has found a way to uplift themselves to a higher economic class by working at Tata Steel. Their salary is higher than most MBO graduates do at other jobs, mainly because they risk their health whilst working at Tata Steel. Tata Steel is paying the MBO-educated, lower social class a salary that the Netherlands gives to people that have graduated with a degree from the University of applied science or higher. Therefore, this class can afford houses they usually could not when they worked someplace else with their degree and would not get the mortgage. Also, because of their higher salary, they can maintain a lifestyle of more luxury they could otherwise not afford. "I would not want to miss my subscription to the gym or not be able to afford my car, I am used to this lifestyle now, and a little cough now and then seems worth it," Simon says, smiling. The other employees I have talked to do not have the same to mind; they must trade some of their health in for access to more money and wealth.

The use of the body's health to gain access to welfare is the commodification of health (Petryna 2013, 4). Petryna's ethnography about the aftermath of the Chornobyl explosion in 1985 revolves around what she considers biological citizenship, which evolved in the Ukrainian community after the disaster. The community that stayed behind after the disaster created a new society that brought about the rise of social membership called biological citizenship (Ibid.5). The foundation of this society is to make a market transition from the damaged biology (health) of the population that has become the ground for social membership and citizenship claims (Ibid.). This new society has a new infrastructure, where everyday experiences of health came to be and are fundamental for forming bureaucracy, medical and scientific procedures.

Furthermore, workers use their health to gain access to welfare, a tool for citizens to fight social inequity and gender, class, and social status (Ibid.4). Therefore, a worker's health has been transformed into a commodity and became a cultural resource by fighting for equal economic rights. Also, they were risking their health from the leftover radiation after the nuclear disaster of Chornobyl in exchange for money and welfare. In the case of Petryna and the society that claimed biological citizenship, just like in the Tata Steel's employees in Tata

Steel's case, the risk to health is not prioritized as protecting the body from illness but seen as a gateway to increase financial status.

The use of a worker's body to gain access to more economic wealth and welfare is therefore present with the Tata Steel employees. The commodity of health, where a worker uses one's body to receive money or welfare, is called biological citizenship, which I detected during my fieldwork. It raises questions about how much value a person has and whose life is at stake in doing the dangerous job to a person's body (Petryna 2013, 4). Observing employees at the sustainability day at Tata Steel during the speech of Suzan, the leading manager of the renewed cold rolling trip installation, there were many emotions with them when she talked about how the installation would help safely keep the health of the employees. When I spoke after her speech with Ronald, an employee that works at the new cold rolling strip installation and asked about why he thinks that people got emotional, he smiled. "We all love our jobs, and we are proud to work at the progressive company, but at the same time, we all know someone who had worked at Tata Steel and died from cancer. I know working here is a risk, but {Tata Steel} takes such loving care of my family and me with social welfare and their retirement plan that I can not picture myself working elsewhere." He then told me about the minor pains in his chest he is experiencing and that the doctor has advised him to reconsider working at Tata Steel. However, he explained to me how Tata Steel helped him pay for his children's school and how he could afford to have a motorcycle and a car. Something he never thought possible when he graduated with an MBO degree. The pain and suffering of employees of Tata Steel are, in a way, commodified and used as a social instrument to get more welfare. The way they perceive a risk to health defines more by a lack of economic resources than health. Again, my respondents explained that without Tata Steel, they could not access welfare, housing, and lifestyle. Although some of my respondents, like Ronald, recognize the risk to health Tata Steel’s pollution can have when they connect their coughs to the polluted air around them, they often dismiss these pains as part of the job. "We are being paid to take a minor risk, Ronald laughed and added: my motorcycle is worth it."

I have talked to several people in the field who became ill while working for Tata Steel. They were compensated for their illness by Tata Steel, paying all their medical bills, and if they could not work anymore, given them an early retirement or other forms of compensation. One man, whom I have spoken to twice, is now 62 years of age and has spent thirty years working for Tata Steel. He is now on his fourth round of chemo, for he is experiencing lung cancer for the second time in his life. He is loyal to the Tata Steel company

and grateful that they are paying his medical bills, but also, he is scared. He was scared for his grandchildren living in Wijk aan Zee and Ijmuiden, worried for his wife, which must take care of him for the rest of his life, and afraid of the future. A future in a region is contested by an institution's pollution that affects people's health. I will explore how this future is perceived in connection with perceptions of risk to health by Tata Steel's pollution and how it shapes a new form of citizenship in chapter 3.

< Photo taken during sustainability day, a proud Tata Steel employee talking about the new aspects of the cold rolling strip installation taken by Charlotte Roosen

Chapter 3: How will citizenship look like within the future of Tata Steel's contestation

On a sunny Friday afternoon, I had an appointment to talk to Stephanie from Frisse Wind on the phone. We did every couple of weeks to see if there were any tasks, I could help Frisse Wind with, but in the first hour, we mostly exchanged personal stories. I had just been to Wijk aan Zee to talk to the general practitioner, Lucas, who treats patients there. He is a man in his fifties, who has a slim build and brownies-grey hair, who seemed emotionally invested in the Tata Steel case. In this interview, he explained to me how in Wijk aan Zee, there are many cancer cases, more so than in other parts of the Netherlands. We met at this office, where they hung pictures of children next to health charts for cancer and other diseases. Furthermore, he treated many children with asthma or neurotic diseases. According to him, this is due to the lead spread by Tata Steel and the carcinogenic dust they are inhaling. He has close ties with Frisse Wind and joins even the television programs where Frisse Wind gets asked for. He is an outspoken medical expert regarding the effects of the pollution of Tata Steel on the health of people living in Wijk aan Zee. During my bike ride home from the general practitioner, I pondered how health was a returning topic when I talked to people in Wijk aan Zee and an essential part of the Ijmond in connection to the industrial pollution of Tata Steel. The risk to health by Tata Steel's pollution is not only affecting the lives of employees of Tata Steel, nor the people living in the Ijmond but is also shaping the future. "Already, the community of Wijk aan Zee is affected by different opinions, and there are many different points of view about the risk to health Tata Steel's has, which has led to frictions in our village. How will the Roadmap Plus project help clean Tata Steel from its pollution will determine how the future in Wijk aan Zee with this contestation will look like," Sanne said in one of our final meetings. We discussed how the RIVM found an increase in every kind of emission from their first report in 2020 (RIVM, Depositieonderzoek Ijmond 2020) until the second report in 2022 (Kreling & Schoorl, Volkskrant, 2022). If the increase in emissions stays, this could mean that there will be many more children with neurotic diseases in the future; this could mean that generations of people must get more healthcare and welfare. "This future will require more healthcare workers and money to afford the needed care," Lucas predicted during our meeting. "Without the closing down of the Cokes 2 factory, more and more people will get sick, and the ones that already will stay sick or worse. Already there is a division in the Wijk aan Zee where families and friends do not agree with each other regarding Tata Steel's pollution and the risk It can have to their health."

3.1 Third encounter with becoming a social justice advocate

When Stephanie called me at two o'clock in the afternoon, my thoughts were still on the ordeal of what a contested future would look like. Stephanie talked for the first hour about her travels, like always. Since I met her, and she was my first interlocutor in the field, we have had many conversations on the phone that lasted for hours. She is also a member of the Frisse Wind foundation but travels with her husband and son for a couple of months to escape the problems they have faced regarding Tata Steel's pollution. Stephanie is a young-looking woman in her forties who have lived her whole life in Wijk aan Zee and feels deeply connected to the town. However, she is experiencing everyday nuisance because of the Tata Steel factory. These disturbances can be a smell that is so bad that Stephanie can not sit outside or find carcinogenic dust on her windowsills. After an hour, she spoke to me about how much she enjoys her time away from Wijk aan Zee because she can relax more with her son. Stephanie explained that he had dropped a sandwich today on the grass where they were staying and how he looked frightened at her; most of the time, his mother would get angry that this would happen. If this were to happen in Wijk aan Zee, it could mean her son was eating a sandwich that could be full of lead and carcinogenic dust, so she was cautious that did not happen. After telling me her story, she asked me how I would feel about having children whilst living in the region of the Ijmond that is affected by the pollution of Tata Steel. I told her that I did not know, and that Tata Steel's pollution was influencing my decision if I wanted to be a mother. I only want to have children if they can grow up in a safe environment. By safe, I meant I told her whilst lying in the sun on my bed in the meantime that I consider myself mentally, emotionally, and financially sustainable enough to have a child. Stephanie responded with this: "Women always have to think about if they are mentally, emotionally, and financially stable enough to have a child, but we are living in Tata Steel's pollution, also have to think about if the environment our child will grow up in is clean enough. When I had my baby six years ago, I did not worry about this. Now every day, I think about his wellbeing being contested by Tata Steel's and worried how the future of his health would look like." We ended our conversation by questioning the promise of sustainability with the Roadmap Plus by Tata Steel; the future feels too insecure and too congested with pollution to decide if I can live up to assure my child a safe and clean life." I understand you see your future as contested because of uncertainty," Stephanie added. It made me realize that I was also part of the social map that I had carefully made for myself at

the start of my research, and I had formed my own perception of the risk to health Tata Steel's pollution has. More then ever, I wanted answers.

During my fieldwork, I found that nowhere, not with Frisse Wind, Tata Steel employees, or even Bram, head of the sustainability board of Tata Steel, could give me a clear answer of how Tata steel will further affect our health with their pollution. Frisse Wind, as well as Billy, did not have an answer to this when I asked them about this but responded in ways connected to how they perceive Tata Steel is putting a risk on their health. Jaap: "I have a feeling that in the next ten years are health will still be at risk because the Cokes 2 factory does not close any time soon, so if living here will ever be safe for our health, I do not know." Billy's opinion was more concerned about his financial wellbeing: "The Roadmap Plus project will help get Frisse Wind and other people {on social media} off our back; I just hope my money is not at risk." In my fieldwork, I have found there is uncertainty about how the risk to health caused by Tata Steel's pollution of people living in the Ijmond now is perceived by the different residents and agencies I talked with. Looking at the future, it will lead to even more social division between all these different people and their perception of this, creating a new form of citizenship. This new form is linked to how the risk to health is perceived living in a polluted industrial town, where there are people on a spectrum reaching from using this pollution to make money and fight class inequality, like with biological citizenship (Petryna, 2012). On the other end of the spectrum, people are fighting within or without social justice foundations to stop this pollution which they deem harmful to their health.

< Photo of Jaap Venniker and his daughter during Easter, taken by him with the TataCam

3.2 Contested futures and toxic communities

Whilst linking contested futures with toxic communities, there has been much uncertainty regarding how pollution is perceived. This uncertainty of the future of the contestation of Tata Steel is perceived and how much it will be considered a risk to health was imminent throughout my fieldwork in the IJmond. It is present when I talk to members of Frisse Wind, and they express their concerns about whether they need to move, now or in the future, if they consider the risk to their health by Tata Steel's pollution too high. It is evident in my interviews with Bram, who talks a lot about the different projects of sustainability from the Roadmap Plus, but now how it will change Tata Steel's contestation. Finally, I also found uncertainty in the employees working in the factories of Tata Steel, who feel their job to be at risk if Frisse Wind wins the lawsuit and the Cokes 2 factories must shut down. Ronald: "Without my job at Tata Steel, I can not properly care for my children. I consider this my risk to health to be."

Furthermore, I found in my research unclarity about how far the region of the IJmond that Tata Steel pollutes extends. The report of the RIVM (Kreling & Schools, Volkskrant, 2022) is the only one that has measurements beyond the borders of the IJmond. However,

there is no straightforward evidence on how the bodies of the people living in the area affected by Tata Steel's pollution have changed. The lack of evidence contributes to how people in the Ijmond perceive the risk to their health caused by the pollution of Tata Steel and how they act upon this.

What also affects how my respondents consider Tata Steel's pollution is the normalization of this contestation they have. Laura from the Waz WhatsApp group said, "It took me so long to recognize that the snow I have been playing in since I was a child is not supposed to be black. Moreover, it is not normal to clean my windows or my windowsills as often as I do now." In the daily lives of the residents in the region of the Ijmond that I have followed, they have the familiar routines of going to work, bringing their children to school, preparing their meals, working, and putting babies to bed, which has an ordering effect (Auyero et al. 2009, 142). The ordering effect shapes routines that help them navigate the uncertain moments of toxic experiences and find security in what is familiar to them (Ibid. 142). In one of my conversations with Sanne, she even mentions the coping mechanism for what I consider to be the toxic uncertainty of the residents of Wijk aan Zee by ignoring the problem altogether. Sanne has friends and acquaints in her town that deliberately has asked her not to tell any more about Tata Steel's pollution, for they want to avoid the confrontation and reality of the toxic exposure. So even though Sanne and Frisse Wind are collecting more evidence of Tata Steel affecting the health of the citizens of Wijk aan Zee and their families, they do not want to know how this can affect their children's health in the future. It is not a matter of distrusting Sanne, and Sanne explained it as a coping mechanism to deal with the daily life contestation of Tata Steel affecting their family's health. By denying its reality, it is easier to live with. Sanne explained this by saying that they do not want to be responsible for any lack of health of their children in the future, so they do not have to blame themselves for not knowing. "To live in this paradox of subconsciously knowing that health is being at risk by Tata Steel's pollution, but at the same time do not want to be stressed out about it, it helps to deny its reality," Sanne said. It also means, she told me, that citizens could stay in Wijk aan Zee, even though they are aware of the threat to their health. "I know a woman who denied the reality of Tata Steel's pollution so much that when she finally from Wijk aan Zee to another town, she did not say it was because of the pollution, but because she was able to get a nicer house. While years ago, she was complaining so much about Tata Steel's pollution and talked to me all the time that because of this, she desperately wanted to move." Also, Laura explained to me how it is easier to maintain relationships in Wijk aan Zee when you do not know or ignore the facts concerning Tata Steel's pollution. Many fights between family

members and friends started with disagreements about this topic; thus, knowing the more and latest information about Tata Steel's pollution can be helpful to keep peaceful social relations in Wijk aan Zee.

Auyero, Javier & Swinstun (2009, 140) discuss the social production of toxic uncertainty in their ethnography of environmental suffering in Argentina. Their research findings were about making sense of the collective construction of meanings and making decisions by the people in the neighbourhoods affected by air, soil, and water pollution (Auyero et al. 2009, 140). The unfolding of the long and short-term effects of pollution describes through gossip and within the toxic communities of Argentina and are the factors that contributed to people's decision to stay in the polluted area or move to a cleaner city. The researchers found during their fieldwork contradictory opinions on how people's perceptions of their surroundings were perceived. These different opinions are because some aspects of the toxic experiences the researchers also encountered are the uncertainties given by authorities or politicians. These uncertainties concern how residents of polluted areas think and feel about pollution, perspectives shaped by location, contamination, and health that are intrinsically ambiguous and controversial (Ibid, 141). Also, the activities of big companies are fuelling toxic uncertainties by not being clear about the type or number of emissions they produce. This lack of clarity leads residents of a toxic environment to confusion and uncertainty, also caused by waiting for companies to decide to be more sustainable and their submitted position as residents.

The residents in the ethnography of Auyero, Javier & Swinstun (2009, 141) are waiting for the decision if the plant that is affecting their health by causing air, soil, and water pollution, to go to another place where it will not cause any harm. In my ethnography, the residents are still waiting for Tata Steel and its sustainability policies. In particular, many of my respondents eagerly await the closing down of the Cokes 2 factory, as it is considered to have the most harmful emissions. This waiting has led to uncertainty about the future for these residents. This uncertainty causes residents to consider if they should stay in the polluted region of the Ijmond.

3.3 Tata Steel’s view about the contested future and their opinion about social justice

How people working with Tata Steel respond to these accusations online and offline are different. In my fieldwork, I have followed Tata Steel's response to the RIVM report (Kreling & Schools, Volkskrant, 2022) and the lawsuit against them by Frisse Wind. Offline, I have interviewed people who have worked at Tata Steel and talked more about how they

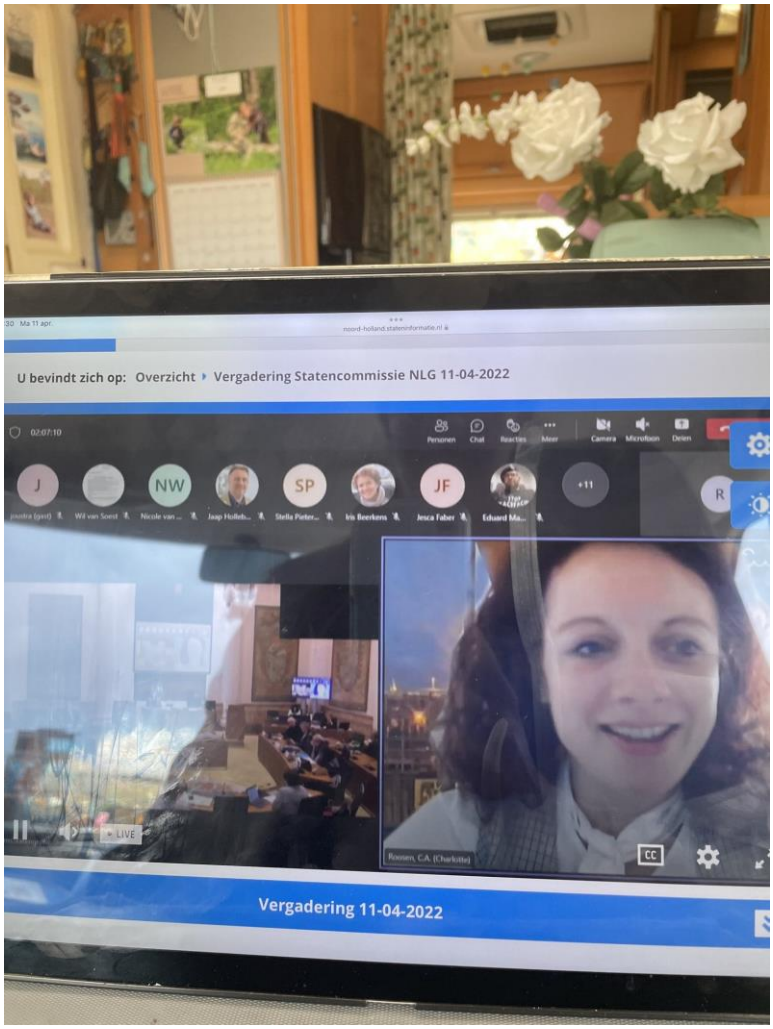
appreciate Tata Steel and consider it a safe work environment. However, when I looked at online debates and responses to Frisse Wind on social media, Tata steel employees were aggressive and outspoken about their opinion of Frisse Wind. In particular, the social media that I followed were the Twitter account of Frisse Wind and the Facebook pages of local newspapers that posted about the lawsuit and the findings of Frisse Wind. When Frisse Wind posted about the TataCam after they had announced its launch during the television program of Khalid and Sophie, employees of Tata Steel responded with outrage. Accusing Frisse Wind of being leftist passivists, which they meant as an insult, which do not have a job and are: "People who live from the government money, our money because we are earnest, diligent people that pay the taxes that ensure their (Frisse Wind's) income." To be a leftist passivist is not a good thing in Dutch society, for they are often seen as lazy, jobless, and using the money of citizens that are paying taxes for the social benefit you get in the Netherlands when you do not have a job. Although Sanne and Jaap have a job, there is a rumour amongst the Tata Steel employees that Frisse Wind has many more members than just Jaap, Stephanie and Sanne. This rumour is also present in social media, for Frisse Wind is accomplishing a lot by creating a big social media platform on Twitter and Instagram about Tata Steel's pollution and are writing many letters to politicians to ask for help. Billy explained this rumour: "Everywhere I go on social media, there is Frisse Wind, no way that only two or three people work there. A whole group of people are watching every step we do and judging us. No wonder they do not have a job, wasting all their time trying to make our lives miserable!" This insult shows how people working at Tata Steel prioritize money, for they are from a lower class than those from Frisse Wind. They feel threatened by Frisse Wind that they will go after their jobs and take the higher income they receive from Tata Steel away from them. Again, Tata Steel pays more than their education level used to pay, and therefore, according to Billy and other employees, when they lose their job, they will not be able to get this high a salary anywhere else, which will lead to losing their houses, which they can have because of this higher salary. During my fieldwork, I wondered if they were being paid less or born in a higher social-economic class of employees of Tata Steel would have allowed this attack on their health by Tata Steel's pollution.

During interviews, the Tata Steel employees are most concerned about job security when discussing the future. They are proud of their work and feel attacked whenever I ask about their opinion of Tata Steel's pollution. Like Billy said: "We are already making improvements for the environment, with the help of the Roadmap Plus; what more do you want from us?" Billy's friend, John, who joined us in one of our later conversations, felt even

more violated by the Frisse Wind lawsuit, the social media, and the politicians that want to change the sustainability policies of Tata Steel. The Frisse Wind lawsuit is offensive to him, for his family of uncles, cousins, (grand)fathers, nephews, and brothers have worked there, and he considers the lawsuit an attack on Tata Steel, an attack on him. "We as a family had build Tata Steel into the powerful giant it is now, and we will continue doing so for generations to come." John sees social media as a tool for Frisse Wind and other social activist institutions to bring Tata Steel down. Bram, the head of the board of the sustainability department of Tata Steel, confirmed this suspicion in one of our interviews, saying that social media is always ready to put down Tata Steel when it comes to Tata Steel's intentions regarding sustainability policies. He explained this further by saying that every quote he ever said on social media gets transformed and put in a negative perspective, so his true intentions for Tata Steel are not transparent. "My intention for the future is all about compromise. We want to stay in contact with the people living in Wijk aan Zee, but at the same time, we do not want to let our employees down and have to look realistically at how fast we can become even more sustainable." Bram sounds very hopeful regarding the future of Tata Steel in the region of the Ijmond. "Some plans of the Roadmap Plus are already done, way before their deadline," he says. So, in the opinion of Tata Steel, they are moving smoothly and fast down the path of sustainability. Tata Steel's representation of the future regarding their current contestation is that it will not be there anymore, according to Bram. His point of view about the future of Tata Steel's pollution differs from the employees working in the factory. The employees are addressing their concern about losing their job working at the Tata Steel factory when the Roadmap Plus project or other future sustainability projects would mean that, for example, the Cokes 2 factory will close, which will, in their opinion, lead to a loss of jobs. They consider the future of Tata Steel's contestation linked to their risk of losing their jobs, which means their livelihood and is what they understand as health. The social security, the health insurance, and the wealthy status Tata Steel employees say they enjoy now is what they understand as living a healthy life. John: "Without Tata Steel to look after my family and me, I would have had a smaller home, I would not be able to go on holiday, nor provide as well as I do now for my family." Finally, as John mentioned, Tata Steel employees feel attacked by politicians meddling in the future sustainability plans for Tata Steel. When I joined the provincial political debate and gave a presentation about the perspective of Frisse Wind and a call to aid the politicians in closing the Cokes 2 factory, I found multiple politicians with different opinions. The majority was concerned about the citizens in the region of Ijmond but praised Tata Steel's sustainability plans and the effort they are putting

into this. Besides my presentation, there also was a presentation by Antoinette Verbrugge, an old member of Frisse Wind, who has now her organization, and the spokesperson from the City Council of Wijk aan Zee. We mentioned that Tata Steel could not be sustainable whilst the Cokes 2 factory is still there. The politicians did not seem to be concerned about this matter. Ines Kostić from the political parties Partij van de Dieren (the Political Rights Party for Animals) and Eduard Mangal from Denk (Think) had critical questions for the others giving the presentation and me. Eduard Mangal asked me, for example, if Tata Steel is aware of them breaking their emission permits. He asked me this question after I told in the presentation how daily, especially during dawn and dusk, many emissions came from Tata Steel, as spotted on the TataCam.

Furthermore, Ines Kostić expressed her surprise that the other political parties seemed pleased with Tata Steel's plans. Significantly when Eduard Mangal raised questions from the political party of Denk about how sustainable hydrogen is and the energy transmission from fuel that Tata Steel wants to make more sustainable. Research showed that there is an amount of electricity and fuel necessary to generate as used in all households and industries to use hydrogen. So, the question was if even hydrogen could be sustainable in the future? They considered Jeroen Olthof, who also gave a presentation during the provincial political debate that I joined as an ally to their cause, coming back to John and Billy. They consider hydrogen the solution to Tata Steel's contestation of the environment and people's health and feel angry with anyone who questions this. "We are rebuilding the Tata Steel power engine from scratch; what more can they (the other political parties who are challenging this) want?" The division of the perceptions of the politicians regarding Tata Steel's risk to health seems to represent the division in Wijk aan Zee. I have argued that there is a spectrum of how risk to health is perceived where on the one end Tata Steel's employees perceive the risk to their health to be when they lose their job. The board of sustainability talks about the risk to health as a solved puzzle, where they do not deny the effect Tata Steel's pollution has, but with the Roadmap Plus project foresee what they call a sustainable future. Frisse Wind, on the other hand, is positioning itself on the other end of the spectrum where they consider the Roadmap Plus projects as the end of the risk to their health by Tata Steel's pollution. And furthermore, perceive the risk to their health to continue in the future, leading to more division in the town of Wijk aan Zee.



> Photo of the political debate of the Provincial States in the Netherlands that concerns the region of the Ijmond that I joined representing Frisse Wind, taken by Stephanie Dumoulin

3.4 Frisse Wind's view about the contested future and their opinion about social justice

Although Bram and his employees I have talked to at Tata Steel are optimistic about their future as a sustainable company and are praising themselves for the Roadmap Plus plans, not all agree with this. Sanne from Frisse Wind wants to move to another city, for she does not have faith in the future of Wijk aan Zee. Sanne has two children, both under eighteen, that are still living at home, and she feels obligated to think about the future of their health. Although Frisse Wind made progress in getting Tata Steel to be more sustainable, she does not consider the Roadmap Plus plan sufficient to guarantee a safe future for her children. With a safe future, she means a future with clean air and lungs, a future without carcinogenic dust on the windowsills, and no more smells coming from Tata Steel. A future where she does not constantly have to worry about the direction of the wind every morning to see if it will go in the direction of Wijk aan Zee or Beverwijk. When she feels a pang of guilt is relieved that the

wind is southwest and not bothering her town. For her, a safe future is equal to the closing down of the Cokes 2 factory, which is considered the most significant source of pollution. Therefore, to Sanne, Tata Steel is sustainable when the Cokes 2 factory is shut down, and no more flares are coming down from the Hoogovens. Both improvements would mean that Tata Steel would work on hydrogen as the Roadmap Plus plans will continue. Whether or not this will be a sustainable way to produce steel is still unknown but not explored. Politicians and the City Council of Wijk aan Zee spokesperson are questioning this dilemma, concerned that hydrogen would lead to a loss of energy-generating in the Netherlands. To them, therefore, a sustainable future for Tata Steel means something different from what Jaap and Sanne from Frisse Wind consider. Their opinions about what Tata Steel should do to be a sustainable factory link to their social justice cause: fresh air for everyone. Frisse Wind translates in Dutch to clean and fresh air, and it is no coincidence that the foundation is named after that. Frisse Wind's social justice call is for a clean environment, for which they fight. Sanne even mentioned before that the Cokes 2 factory can close because the material processed from raw iron to cokes can also occur in other factories in other countries. Her social justice cause stops at the border of the region of Ijmond and focuses on her living environment. The way she perceives social justice is different from my ideas as a social justice advocate, by not wanting any area in the world polluted by the process of making raw iron for cokes.

Jaap and Stephanie both feel like they want to stay in Wijk aan Zee, regardless of what the sustainability plans from Tata Steel will lead them. With Jaap, there are social reasons and Stephanie, the only member of Frisse Wind born in Wijk aan Zee, considers it her home and her people. Jaap has five children, two under twelve, but because their mother also lives in Wijk aan Zee, he does not want to move. However, they all have in common that they consider that the power of money is the reason that Tata Steel does not want to close the Cokes 2 factory and that they still will live with the pollution of Tata Steel for another ten years. The Roadmap Plus states that it will take ten years to replace this factory, which the members of Frisse Wind are not buying.

The division in the town of Wijk aan Zee and the Ijmond regarding the perception of the risk to health by different agencies has shaped a new form of citizenship. This citizenship is based on how people perceive the risk to their health and connects to their social class, which can affect how people prioritize money over health, how risk is communicated and assessed, and how trust is built. These facets have created multiple layers which have caused social division in the region of the Ijmond, specifically in Wijk aan Zee, when it comes to how people perceive their risk to health by Tata Steel’s pollution.

Concluding chapter

In my thesis, I have explored my research question: how is the risk to health affected by Tata Steel's pollution perceived and shaped in the region of the Ijmond? To answer my question, I have first looked at how trust shapes the relationship between Tata Steel and the people they affect with their pollution. Tata Steel's trustworthiness shaped people's perception of the risk to health caused by their pollution. Tata Steel's trustworthiness shrank when the RIVM report (Kreling & Schoorl, Volkskrant, 2022) showed that there is lead and carcinogenic dust come from Tata Steel, which differed from the amount of emission that Tata steel measured. Therefore, the lack of transparency about emissions has affected the trust in Tata Steel as a company. During my conversations with residents of Wijk aan Zee, they mentioned how they were losing trust in Tata Steel because of the conflicting information about it on social media and the growing visibility of Tata Steel's pollution. The way that Tata Steel communicated its risk to people's health was not considered trustworthy anymore, which caused a division, which was already there in the town of Wijk aan Zee in how different people perceived the risk to their health. To manage this decrease in trust, Tata Steel adopted a technique that promotes the language of social responsibility, transparency, and accountability. Techniques that are called strategically deployable shifters. Tata Steel has developed the Roadmap Plus sustainability projects to answer the RIVM reports and overall complaints about their pollution. However, as seen in my research, their way of presenting themselves as sustainable can be questioned and are ways for companies such as Tata Steel to earn people's trust. Their Roadmap Plus is based on the amount of emission found in Tata Steel's measurements, which is 5 to 1000 times smaller than the RIVM. Frisse Wind's answer to Tata Steel's Roadmap Plus is installing the TataCam and monitoring the reality of the daily amount of emission. Also, it will take ten years before they change the most significant source of emissions, which is the Cokes 2 factory, giving it years to pollute further the region of the Ijmond (Krelig & Schoorl, Volksrkant 2022). Therefore, I have seen that with the Roadmap Plus project, Tata Steel is an example of weak sustainability (Stuart, 2010), which means that they prioritise money over sustainability and health.

Another way the trust of the citizens of the Ijmond towards Tata Steel is shaped by what Nixon defines as slow violence. The Frisse Wind foundation has made slow violence visible on social media through content about the carcinogenic dust on window deals and the lead in the sand of the won dunes and the playgrounds in the area. In the field, I have seen how citizens of the Ijmond are losing faith in Tata Steel and how they promote themselves as sustainable because of their pollution being made visible and the contradicting social media

stories. Misleading or misinterpreting information from Tata Steel leaves people uncertain about how they should experience toxicity and thus how they perceive the risk to their health.

The risk to health by people in the Ijmond is also shaped by how risk communication is perceived. Within the anthropology of risk, it is essential to practice risk communication (Boholm 2019, 165). Government agencies, as well as factories and industries, are responsible for communicating potential hazards and managing this to affected groups, stakeholders, and the public. Tata Steel has a social media board and representative who communicates about the risk to employees and citizens of the Ijmond every day. The communication between Tata Steel and the citizens affected by their pollution and their employees is what Boholm (2019) considers risk communication to be.

The problem with risk communication is that it links to social class, where people that are experiencing the pollution and are from a lower social class do not get into the conversation of risk assessment (Markowitz, Gerald & Rossner 2013) & (Spears 2014). In my fieldwork, I have witnessed this with Tata Steel employees from a lower social-economic class. Their background is mostly MBO-educated, but because Tata Steel pays them a salary fitting for a higher education level, they feel their risk is already being paid for. In doing so, Tata Steel's employees are using their health as a commodity to have a bigger salary than they can have anywhere else and are creating biological citizenship (Petryna, 2012).

Finally, I have found that the diverse ways people in the Ijmond perceive the risk to health caused by Tata Steel's pollution is causing a social clash, especially in Wijk aan Zee. Where years ago, this was just a peaceful surf town where the community was tide and proud of their town, now it is contested by the many ways people perceive Tata Steel's pollution and the risk to health they encounter daily. This contestation has created a new form of citizenship based on how the risk to health is perceived and connected to social-economic class. Because of the many different ways, the future is perceived by people and agencies as contested I have spoken to in my fieldwork, the division will likely grow, putting even more emphasis on citizenship, which divides the town on how risk to health is perceived. I found in my research lacking details on how this citizenship will further grow into, looks like, and is experienced in the town of Wijk aan Zee and in the whole region of the Ijmond. To get in-depth about citizenship, and further research on it, it is necessary and essential to bring more understanding and togetherness and fight social contestation.

Throughout my fieldwork, I grew into being a social justice advocate for the environment while keeping my role as an anthropologist researcher. I have learned from Frisse Wind how, if you stick to facts during debates, you can change how people perceive

things. As an anthropologist, I will continue to respect that everyone has a whole diverse set of making sense of the world and creating their reality, and I will continuously pursue to understand the meaning of this world and how they are shaped. In the future, with the skillset I have learned from Frisse Wind, I know that I with allow people to share their world with me and the way they perceive it, whilst at the same time knowing how to use my voice as a social justice advocate I can bring more understanding and togetherness in a world divides by social inequalities, misunderstandings, and clashes.

Afterword

My research gives a platform to discuss risk communication and risk assessment within industrial pollution towns and how it creates perceptions of the risk to the health of people living in these towns perceive. Between anthropological research and sustainability policies, there is a gap that I have hoped to fill with my insights into industrial pollution in the industry of Tata Steel in the Netherlands. However, globally, there are many more towns like Wijk aan Zee, with social clashes regarding risk perceptions on health which connect to social inequalities like class. By linking trust and risk with industrial pollution, my study can lead to other research that will go in-depth into relationships and different stakeholders that live within this context. Furthermore, the chapter discussing contested futures can be seen through the scope of the Ukrainian-Russian war, which leads to a shortage of natural resources like gas. The gas shortage can lead Tata Steel to not go through with its sustainability plans, and how will that affect the community? Priorities can be shifting again, leaving the region of the Ijmond with pollution rather than sustainability. In the Netherlands, money has been cut off from environmental and sustainability projects; instead, it is going to the Ministry of Defence and the Dutch army. This research can also help further study different forms of citizenship concerning notions of risk with class in polluted industrial towns.

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Appendices

Appendix 1. Tinkersbells Art

> Photo comes from https://www.tinkebell.com/news/projects/flora-tata-metallica-23123.
Tinkerbell is an artist and social justice advocate. By using Tata Steel things from the environment that Tata Steel pollutes she creates pieces of art to create awareness on social media and to the public about this. The art she created on the image on top, I have helped creating, for together with Sanne and Laura I picked the flowers she used to make this piece of art. Normally she carries kilos of sand to her atelier and put it through a sift, so that only what she perceives to be the carcinogenic dust remains. After months of working with it, she fell extremely ill, and could almost not finish her project which was a gallery with as a theme to show Tata Steel's black dust. To help her we picked the flowers that grow in the dunes right next to Tata Steel, which she uses to create for example the art you see here. I find Tinkerbell's art another example of how Nixon (2011) perceives slow violence to be, for it shows the harm to the environment in the dunes, as well as in the air, for it ends up in the sand of the dunes, and therefore also in the lungs of the people living in the region of the Ijmond.

Appendix 2. TataCam instruction Manual (translated from Dutch) made by Eva van Dijk & Charlotte Roosen

TataCam Instructions

Thank you for helping with monitoring Tata Steel's pollution. The TataCam looks at the whole of Tata terrain and with this we can check up on the different factories. In this manual we will explain to you what you see on the cam, what you should be attention to and how you register this. Incidents happen daily and are not all illegal or outside the permits of Tata Steel. Therefore, it is important we capture these incidents: we will report them with the environmental service and so we can show the rest of the Netherlands what all goes wrong at Tata Steel. All incidents are important, but we mostly focus on the graphite rain coming from the Cokes 2 factory. This rain must be stopped and therefore we need you!

General

The TataCam rotates between seven different images. On the below right you can see the time, the direction of the wind and other information about the weather. Rain will make it more difficult to see the camera clear, because then its get's wet. At night, the images are at it's best, because the terrain is lit, and the fires and fumes are clearly visible. We will explain where you need to pay attention to per factory.

The most common incidents are: Graphite fires (at the Coke 2, which looks like blue and orange fire, slobbers (at the Oxystaal factory, Hoogoven 6 and 7, which looks like orange smoke), dust blowing up (Ore Mountains which looks like black dust), flaring (which is not an incident, but an indicator, which are orange torches spotted at the Cokes 2), and other disturbances. De Harsco and the Cokes 1 factory can not be spotted by the TataCam.

Again: Our highest priority is to capture the graphite rain and fires from the Cokes 2 factory, because they cause the most pollution.

How to spot?

Step 1: You can use the Axis Companion to look at the TataCam. Jaap will send you the login details.

Step 2: The program works with a windows computer and a smart phone. Whatever you like. You can go fast-forward through the takes to spot incidents. Then you can record the incidents in the program, save them on your computer and send it to the environmental service.

Overview factories and emissions

Factory	**Can be spotted**	**Incident**	**Emissions**
Hoogovens 6 en 7	V	• Slobbers • Flaring	• Orange and brown smoke • Red fire
Cokes 2	V	• Graphite fire and rain • Flaring	• Blue and orange fire • Red fire
Oxystaal	V	• Slobbers	Orange and brown smoke
Cokes 1	-	-	-
Harsco	-	-	-

Now follows an overview of every take of the TataCam and what you see and what you should be attention too, included with examples to help you get going.

1. Overview Cokes

What do you see?
This image gives an overview over the two chimneys of the Cokes 3 factory, with in the middle the extinguishing tower. At the right you see the Ore Mountains.

Where do you pay attention to?
Pay attention to black smoke coming from the chimney's, as seen below, which is an error in the factory.

Example
Black smoke coming from the Cokes 2 factory.

> Picture of Cokes 2 factory taken by Charlotte Roosen on TataCam

2. Oxystaal factory

What do you see?
On this image you see the Oxystaal factory. By transforming raw iron into steel, it can happen that the steel retainer overcooked, which creates slobber. When this happens the roof of the Oxystaal factory opens, allowing smoke to exit. Tata Steel has only a permit to do this ten times per month, so it is important to capture this incident.

Where do you pay attention to?
Pay attention to orange or brow smoke fumes coming from roof of the Oxystaal factory.

> Picture of Oxystaal factory taken by Charlotte Roosen on TataCam

3. Hoogoven 6, 7 and the pellet factory

What do you see?
On this image you see the top half of the Hoogovens 6 and 7. We pay attention tot he slobbers which are coming from the roof. The raw cokes can be causing black smoke, so pay attention to that, although it does not happen a lot anymore. Overcooked steel retainers can cause orange or red smoke. On the bottom right there is the pellet factory, which we can barely see, so you do not have to do anything with that.

> Picture of Hoogovens taken by Charlotte Roosen on TataCam

Where do you pay attention to?
Important are other colours of smoke with the Hoogovens 6 and 7. White smoke does not count, only brown, orange, red or black smoke.

Example
Bellow an image of orange smoke caused by slobbers.

> Picture of Hoogoven taken by Charlotte Roosen on TataCam

4. HHoogoven 6 (zoom)

> Picture of Hoogoven 6 taken by Sanne Walvisch on TataCam

What do you see?
The image is zoomed in on Hoogoven 6. We pay attention to slobbers coming from the roof. The raw cokes can be causing black smoke, so pay attention to that, although it does not happen a lot anymore. Overcooked steel retainers can cause orange or red smoke. Tata Steel has a permit for flaring, but with no more then 2 or 3 chimney's. If you see more, capture this!

Where do you pay attention to?
Important are other colours of smoke with the Hoogovens 6 and 7. White smoke does not count, only brown, orange, red or black smoke. And, if there are more then 2 or 3 flares burning at the same time.

Example
Example of orange smoke coming from Hoogoven 6.

> Picture of Hoogoven 6 taken by Sanne Walvisch on TataCam

5. Cokes 2

> Picture of Cokes 2 factory taken by Charlotte Roosen on TataCam

What do you see?
There are two cokes factories on Tata Steel's terrain, but only the Cokes 2 is visible from Wijk aan Zee, where the TataCam is positioned. Cokes 1 is only visible from Ijmuiden. In the Cokes factory that are regular graphite fires. At the image on top, you see in the middle the extinguishing tower of the Cokes 2 factory and the factory itself on the right next to it. The Harsco factory at the bottom we could not capture on the TataCam, for otherwise we would also be filming the garden of Jaap's neighbour, which is a violation of the privacy law.

Where do you pay attention to?
Black or grey smoke is bad. A graphite fire starts small but is noticeable by orange and blue fires with sometimes black smokes coming from the roof of the factory.

Example
The image below shows how to many flares look like.

> Picture of Cokes 2 taken by Jaap Venniker on TataCam

6.Cokes 2 (zoom)

> Picture of Cokes 2 taken by Jaap Venniker on TataCam

What do you see?

This is an image of the zoom in on the Cokes 2 factory, where there are regular graphite fires.

Where do you pay attention to?

Fire coming from the Cokes 2, which can be blue or orange and often has black smokes. Again, pay attention if there are more then 2 or 3 flares, which is a small orange fire coming from chimney's.

Example
On this you can see how a graphite fire looks like.

> Picture of Cokes 2 taken by Charlotte Roosen on TataCam

7. Ore mountains

> Picture of Ore Mountain taken by Jaap Venniker on TataCam

What do you see?
On this image you see the Ore Mountains. On the ore there is a layer of paper pulp which makes sure the ore does not get blown away. If the pulp does not stick then the dust does blow away and is creating pollution, like in the example of the black snow.

Where do you pay attention to?
Black or dark grey dust clouds. It is hard to see them, so please let somebody else check them first before you report it.