

Environmental Justice and Racism: Cases from the United States and Taiwan

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Abstract

現代社会には様々な環境問題がある。急激な人口増加により、食糧や水不足、地球温暖化、大気汚染などの問題に直面している。世界保健機関により、2012年に悪質な環境に囲まれ約千二百60万人が死亡したというデータがある。その中に、ある地域の人種は他者と比べ、環境問題との衝撃が最も直接で、最も深刻である。例えば、1982年の9月、主にアメリカの黒人が住んでいたノースカロライナ州のウォーレン郡での廃棄物の埋め立て処分場選ばれた事件である。その廃棄物の中にはPCBsという有害物質が含有されていた(Energy.gov 2017)。PCBsに汚染された水を飲用した際には、その有害物質が体内に蓄積され、目やにや爪、口腔粘膜の色素沈着などが始まる。それに連れ、座瘡様皮疹(塩素ニキビ)、爪の変形、まぶたや関節の腫れなど、人体への影響が報告されている(JESCO 2017)。また、米国の会計検査院のスタディーにより、辺鄙な地域にある住宅街の4つの中に、3つは有害物質の廃棄場で選ばれていた。その廃棄場の場所はほぼアメリカの黒人が住んでいた。しかし僅か20パーセントの黒人がこの地域にある。つまりそれらの地域の黒人の人口が少ないにも関わらず、有害物質の処分場はほぼ黒人の住宅街で設置されていた。

1988年の台湾において有害物質により起こったデモがあった。台湾のランユーという本島と離れた場所に放射性廃棄物の処分場となった。ランユーの住民のほとんどは台湾の先住民族である。処分場を設置する前に、住民たちはそれが放射性廃棄物の処分場であることを知らなかった。処分場を建設する会社側は、工場を建設しこの地域の住民たちに仕事機会を与えて、双方にとって利益のあることだと説明していた。その後、放射性物質が漏れにより、住民は騙されたことに気づいた。アメリカの学者 Bullard は以上のような環境問題は、人種により環境汚染の格差が生じると主張した。さらに、人種差別がそのような格差を深刻にさせると考えた。しかし、Bullard の主張は本当なのかを私は気になっていた。

様々な人種で構成された多民族国家のアメリカに対し、台湾は人種が大まかに分けて漢民族と先住民族しかない。アメリカの学者の考えは、人種の少ない台湾にも適用なのか考察したい。公共施設から有害物質の排出、地価の下落、地域のイメージを悪くさせるといった環境に関わってデメリットな出来事で、生じた社会的な問題が環境正義という。この論文では 6 章に渡りアメリカの学者 Bullard の考えを振りながら環境正義について分析する。さらに、台湾とアメリカの環境正義に関わるケースを挙げ、環境不正義の解決策を述べる。

第 1 章では、環境正義の幕開けと背景を紹介する。そして、アメリカ合衆国環境保護庁の資料による環境正義の定義を定める。第 2 章では、アメリカと台湾の人口構成を取り上。其々の違いを分かれ、Bullard の人種差別が環境格差を悪化させるという論点は客観的に分析する。第 3 章ではアメリカの二つケースを取り上げる。一つ目は 1988 年にナバホ族 (Navajo) の地域発生した事件である。高失業率のこの地域はウェストテックという会社に有毒な廃棄物を収集するリサイクル・プラントとして狙われた。しかし政府は住民に健康を為害する恐れがあることを知らせずに、ウェストテックと契約を結んだ。二つ目のケースはルーイージアナ州にある貧困な地域の出来事である。この地域の高発癌率に米国で知られている。不思議なのは、この地域の多数の住民は黒人である。正に Bullard の主張した人種による環境格差であることに思われる。第 4 章は同様に台湾の二つケースを考察したい。一つ目はランユー核廃棄物所の事件である。ランユーは台湾の一つの島でほぼ台湾の先住民族が住んでいる。1980 年にこの場所は核廃棄物所で選ばれた。アメリカの例と似ていて、最初の頃その危険性は住民に知らされていないようである。二つ目は 1990 年代ユーリンという台湾の最貧乏な地域で石油原材料の工場の事例である。第 5 章は環境正義を果たすための解決策を台湾とアメリカの論文から収集した。主に 3 つのカテゴリーに分類した。人々の環境正義に関わる物の見方、運動の行為を実践する民衆の重要性と政府の政策。例えば、ニンビー（我が家の裏には御免）の問題を解決には物の見方はどうするべきか、民衆の参加は環境正義を果たす大事の役割、政府は政策を決定する時の平等性などのソリューションを当卒業論文に提示した。第 6 章は第 1 章から第 6 章をまとめし、結論を付けた。

Introduction

According to WHO, 12.6 million people died as a result of living or working in an unhealthy environment in 2012. There are a lot of factors to cause environmental risk, such as air, water and soil pollution, chemical exposures, climate change, and ultraviolet radiation, contribute to more than 100 diseases and injuries (WHO 2016). However, some communities are lucky enough to escape from environmental pollutions, whereas some are vulnerable to be exposed to those unhealthy environmental problems. For example, in 1982, an African American community in the United States was found becoming a dumping ground for poisonous substances. A U.S General Accounting Office study revealed that three out of four of the remote areas, commercial hazardous waste landfills were located in African-American communities, although African-Americans made up twenty percent of the region's population (Bullard, 2011). Around the same period, in 1988, Orchid Island, Taiwan, mostly dwelled in by Taiwanese indigenous people, held a demonstration shouting for a clean homeland. It is because their homeland was chosen to be the place where to store radioactive wastes. Robert Bullard¹, an American professor also called the father of environmental justice, believes that these environmental problems are exacerbated by racism (Bullard, 2001, p.2). With regard to his statement and the environmental justice issues I have encountered, I started wondering and will try to find out: what triggers Bullard to make such a statement? Is his statement true, that racism worsens the problems related to environment, when we consider two different social structures, Taiwan and the United States? If his statement does not work for different social structures then how are they different?

For the first chapter of this thesis, I will introduce what is environmental justice includes its background history and the meaning of it. I will provide the definition which comes from United States Environmental Protection Agency.

¹ He is an author of seventeen books focusing on environmental racism, climate justice, and urban land use and so on. He has also been a leading campaigner against environmental racism

Also the value of environmental justice. In the second chapter, I will provide a general view of social structures regard to both countries, the United States and Taiwan. From example, the United States is a mixing culture with various ethical groups. However, Taiwan is simpler with 98% of its population with Han group. After we know how the structures and the population compositions are different in both countries, we are able to further discuss if Bullard's statement fits in both countries. Third chapter will discuss 2 environmental injustice cases which happened in the United States. First one is the case happened in 1988 in a Navajo community and the second one is a place where is called Cancer Alley located in Louisiana. Also, an example of African American children's lead poisoning problem. Fourth section will look into 2 cases occurred in Taiwan as well. First one is about radioactive wastes dumping in Orchid Island, Taiwan an indigenous people's homeland. Second one is about Sixth Naphtha Cracking Project happened in a Han group's community. In chapter five, I will discuss some possible ways to improve this issue from three dimensions: mindsets, government policies and the public. For instance, the government should improve the equity of civilians' right and create regulations in a nondiscriminatory way in order to make sure the procedure is fair to everyone. The public should participate in the matter, too. Besides, NIMBY² is an issue in environmental justice movement so I will also discuss it and see how we can avoid it. By providing the solutions, I wish our society can realize environmental justice. In final chapter, it will be my conclusion to sum up my points and statement.

Chapter 1: Introduction of Environmental Justice

1-1 Background

Environmental justice was not a popular topic in Taiwan. To say it

² The phrase stands for not in my backyard. Definition provided by Dictionary.com, the term is used to express opposition by local citizens to locate something considered unsightly, dangerous, or likely to lead to decreased property value in their neighborhood. Such as a jail, garbage dump, or drug rehabilitation center, that, though needed by the larger community.

accurately, little people knew about the issue so no one really cared about it. It was not until a series of environmental justice movements happened in the United States that Taiwanese started to be aware of this topic. In fact, in the United States this issue did not attract much attention in the first place, either. It was just scattered protests held by individual colored people who fought for equality and a clean living environment in their communities. However, the matter drastically changed in the 1980's.

In 1982, Warren County, North Carolina, an African American community in the United States, was chosen to be a dumping ground for poisonous substances. The trucks came in with tons of PCBs³-contaminated soil, the people were forced to accept it and drink the water which contained a high possibility with leaching toxic substances in it. In order to stop the further tragedy happening in their beloved community, the people stood out against the decision. After weeks of protests, they failed to win the state's decision. However, the movement successfully attracted media attention, and widely spread across the nation. Some people discovered that they were in the similar unjust situations. Because of that, the isolated protests seeking for environmental justice became a nationwide movement. In 1991, the movement attracted more attention and the First National People of Color Environmental Leadership Summit was held in Washington, D.C. The summit expanded the concept of environment justice. It is not just simply focusing on anti-toxic's distribution but including the issues such as public health, worker safety, lands usage, transportations, housing, resource allocation, and community empowerment. It inspects every distribution of profits and losses related to environmental use. When the profits and losses allocate unequally, this will be violating the concept of environmental justice. In 1994, Environmental justice grew even further. President William J. Clinton signed the

³ PCBs have been shown to cause a variety health effects in animals such as cancer, as well as a number of serious non-cancer health effects, including: effects on the immune system, reproductive system, nervous system, endocrine system and other health effects. Studies in humans support evidence for potential carcinogenic and non-carcinogenic effects of PCBs as well.

Environmental Justice Executive Order to address the issue of injustice in minority and low income group's communities. "Its purpose is to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities" (United States Environmental Protection Agency, 2017). After that environmental justice was not just a movement in the United States, the matter was showering in attentions from the global. Taiwan was also influenced by the movements from the United States, and took on its idea. More and more Taiwanese were beginning aware of this matter and in the following years, several movements were held to address the issue in Taiwan.

1-2 Definition

Environment can be so vague and contain different meanings to different people. As a result, before we take a look at the definition of environmental justice, it is important to define the meaning of environment first. Environment broadly stands for nature, such as the air, water, and land in or on which people, animals, and plants live according to Cambridge English Dictionary. It can also mean surroundings which are the conditions you live or work in and the way that they influence how you feel or how effectively you can work. Through the latter one, environment can be your work place, your home, school, or even the parks near to your house. It includes the places that are so important to you and so connected with you in your everyday life. According to the United States Environmental Protection Agency, environmental justice is a fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation and enforcement of environmental laws, regulations and policies (United States Environmental Protection Agency, 1998). To put it another way, no one should suffer because of the unfair distribution of environmental cost to the place where you live or work at; everyone should have the same right to live in a clean environment or equally bear the cost of environmental problems. Now environmental justice is a

worldwide-known matter, and governments around the world have legalized some regulations about it. In spite of that, some minority communities are still treated unequally when it comes to environmentally related issues. To have a comprehensive understanding toward this matter, the next chapter will provide a brief account of the social structures in the United States and Taiwan and see the factors that trigger the problem.

There are so many environmental problems happening nowadays. The problems such as pollutions, poisonous gas emissions are worsening the harmony in our society. Minorities and disadvantaged groups suffer a lot especially. Environmental justice is important because it involves the relationship between humans to humans and humans to nature. Bullard pointed out:

The environmental justice paradigm embraces a holistic approach to formulating environmental health policies and regulations, developing risk reduction strategies for multiple, cumulative and synergistic risks, ensuring public health, enhancing public participation in environmental decision-making, promoting community empowerment, building infrastructure for achieving environmental justice and sustainable communities, ensuring interagency cooperation and coordination, developing innovative public/private partnerships and collaborative, enhancing community-based pollution prevention strategies, ensuring community-based sustainable economic development, and developing geographically-oriented community-wide programming (Bullard, 2001, 7).

As Bullard has pointed out, the value of environmental justice is that it addresses the problem of unfair resources distribution among groups. Principles of environmental justice against certain groups of people get to enjoy the benefit from toxic industries or factories whereas some groups have to take on the price. The principles also strengthens environmental related laws and regulations which

can help to conserve natural resources and create a sustainable world. In short, it respects every ethical group and ensure everyone to be protected from exposing in unclean environment by unequal decision making. It also advocates for a cleaner world. I believe the possibility to reach a just and sustainable world if we can realize environmental justice.

Chapter 2: Social Structure in American and Taiwan

2-1 The United States

As we all know, the United States is composed of different ethnic groups. Before Europeans arrived, there were native people settled in America. In 16th and 17th century, pursuing religious and economic freedom, people fled to America from Europe. Those Europeans brought in deadly diseases and caused Native Americans' population to drop sharply. They even brutally forced Native Americans to move out of their lands. This is the sign of white people's dominating position in the States from then on. Due to the need of laborers to help out building their home and farm works, the Europeans (or White Americans) brought slaves back home to the states from Africa. Those unwillingly-brought-in Africans were slaves so they had lower social status than others, and even until now the descendants are still treated unequally. Also, people who sought for opportunities and hoped to have higher life standards, or people who wanted to escape from the wars, arrived in the United States. Such as Chinese immigrants, Hispanic, Latino Americans and other ethnic groups also help the composition of American populations. "In 1815, the population of the United States was 8.4 million. Over the next 100 years, the country took in about 35 million immigrants, with the greatest numbers coming in the late 1800s and the early 1900s. In 1882, 40,000 Chinese arrived, and between 1900 and 1970 there were more than 30,000 Japanese immigrants" (Datesma, Datesma and Kearny 2005, 4). There are so many immigrants from all over the world. They brought in new languages and cultures and formed the current United States.

2-2Taiwan

Compared to the United States, Taiwan's population composition is much simpler. We can roughly categorize those people who originally came from China as the Han group. Those who were originally living in Taiwan, having different rituals and cultural practices from the Han group, as indigenous people. Han group composes 97 percent of the population, the native Taiwanese composes two percent and one percent is composed by foreign spouses (Executive Yuan, 2017). Currently, it is common that one group member marry to another group member, so the differences between them are lesser and lesser which also means they are gradually assimilated into a big culture.

Bullard tells us:

People of color around the world must contend with dirty air and drinking water, and the location of noxious facilities such as municipal landfills, incinerators, hazardous waste treatment, storage, and disposal facilities owned by private industry, government, and even the military (Bullard, 1993a; Alston, 1993; Westra and Wentz, 1995; Robinson, 2000; Cole and Foster, 2001).

There are so many racial related environmental problems occurred in the past years in the United States. However, only around three percent of colored people or non-Han people live in Taiwan. Therefore, would the American scholar, Bullard's colored people bear more environmental costs saying fit in the situation in Taiwan? In the next chapter, I will provide environmental justice cases from the United States and find out if there is any difference.

Chapter 3: Environmental Justice Cases in American

3-1 Case One in the U.S.

In 1988, in Arizona, a remote Navajo community of Dilkon was suffering

under a high unemployment rate, up to around 75 percent. Just right at this point, a company called Waste Tech Incorporated offered a deal which seemed right up the residents' alley. The company told the tribal government that they would build a recycling plant and this would provide more than a hundred jobs in the community. Also, the company promised that they would pay hundreds of thousands of dollars in rental fees to the Navajos, so that they could use the money on education, to attract young people to return and stay in the community. Without informing the residents, the tribal government accepted the deal, and thus the company started to work on the plant in the community. Residents were shocked about this black box deal and were wondering what exactly the proposal was. As they dug in deeper and deeper, they realized the seemingly good deal was not as great as it looked. Instead of a recycling plant, it was designed to be a toxic waste dumping ground and would accommodate polluted substances from California, Nevada, and Colorado.

A book called *Confronting Environmental Racism: Voices from the Grassroots* points out that Native Americans have become prime targets of waste disposal firms, as environmental regulations have become more and more strict. It is because Native American's reservations do not have to follow state environmental regulations (Bullard, 1993, 29). Another book also states that there is a direct relation between exploitation of land and exploitation of people, therefore it is not surprising that Native Americans have to struggle with toxic substances more than rest of the residents. More than three dozen Native American' reservations have been targeted for landfills, incinerators, and other waste facilities (King and McCarthy, 2005, 129).

3-2 Case Two

In the United States, there is a place dubbed as Cancer Alley which is located in Louisiana, particularly the area along the Mississippi River from New Orleans to Baton Rouge, where the African Americans make up ninety-three percent of the population. This place has attracted numerous factories such as

petrochemical plants, chemical industries, and plastics industries, due to its cheap and accessible features. Because of its high amount of facilities and extremely high level of toxic emissions, this area has become one of the places with the highest rates of cancer mortality among all states, according to the book, *There is No Such Thing as a Natural Disaster: Race, Class, and Hurricane Katrina*. Also, data from Louisiana Health Report Card shows that blacks are at higher risk than whites for death from heart disease, cancer and other diseases (Squires and Hartman, 2006, 169). Also from Lew, an online magazine author, some studies have shown that some communities in this area had dioxin levels in their blood three times higher than the national average (Stone, 2017).

To give another example, lead poisoning affects around three to four million children. Most of them are African Americans and Latinos who live in urban areas. Bullard's article published in 1993 based upon data collected by the federal Agency for Toxic Substances and Disease Registry, found that more than one million African American children five years old or younger living in urban areas had excessive levels of lead in their blood. That was far more than the percentage of whites with excessive levels. Moreover, within those low income families earning less than \$6,000 per year, only 36% of white children have shown to be poisoned by lead, whereas up to 68 % of African American children have been poisoned. We can discover the same situation when we look at those families with higher incomes. Of families with annual earning more than \$15,000, 38 % of African American children suffer from lead poisoning, whereas only 12% of white children suffer from it. It is certainly not just a coincidence that blacks are more vulnerable than whites. "Even when income is held constant, African American children are two to three times more likely than white children to suffer from lead poisoning"(Bullard, 1993). Institute of Medicine also revealed that people of color and low-income communities are exposed to higher levels of pollution than the rest of the nation, and experience certain diseases in greater number than the more affluent, white communities (Institute of Medicine, 1999). From above, we

can know that financial situations and areas can be factors in terms of exposing in a hazardous environment. It is obvious that people with lower income, no matter the white or black, suffer more than those with higher income. However, people who live in the area with similar geographical features and have similar financial situations, African American is more likely to be targets than the rest of white Americans. When the societies is deciding where to throw the unwanted and toxic substances away, communities of African American will first be elected. There is no exception for African American children as well. That is why only 36% of white children suffering from lead poisoning but African American children are up to 68 % among those people with lower income. These unfairness and unequal distributions are caused by a long term discrimination that exists in the United States. Bullard told that although the nation was founded on the principles of “free land”, “free labor”, and “free men”, the lands were stolen from Native Americans and Mexicans, and only white men with wealth had the right to vote. As a result, in the United States dominate culture shaped the economic, political and ecological landscape and cause racism (Bullard, 2001).

In the United States, race is a scale to decide who will suffer more in an unsafe environment and the degree of exposing in a dangerous place. Generally speaking, white Americans have more power than other races because most of politicians and the rich are the white. Therefore, when comes to make public facilities to benefit the society, they will be partial to the white and sacrifice the other races. Although other factors such as social status, local economy and personal finance effect the process of decision making, races will regularly take into consideration for sacrificing.

Chapter 4: Environmental Justice in Taiwan

In Taiwan, we have laws to regulate human activities in order to protect the environment. Such as, in Article 10 from Additional Articles of the Constitution of the Republic of China clearly states that “environmental and ecological protection shall be given equal consideration with economic and technological

development ” (Laws and regulations database of The Republic of China, 2017). However, the definition of environment is very vague, hence it is further explained in the Basic Environment Act:

The term ‘environment’ in this Act means collectively the natural resources that influence human survival and development and the human impact of natural factors, including sunlight, air, water, soil, earth, minerals, forests, wildlife, scenery, recreation, social economy, culture, historical monuments, natural monuments, natural ecological systems, etc. ‘Sustainable development’ means satisfying contemporary needs without sacrificing the ability of future generations to satisfy their needs (Rootlaw, 2017).

Although we have these regulations, it is so hard to balance between economic activities and environmental protections. We need the benefits from electricity, energies, infrastructures and factories for all kind of products in order to have a better and convenient life. So, where can we get rid of these unwanted by-products when we are creating a better life for the society? Let’s bring the issue of environmental justice back to the table and look into the cases in Taiwan.

4-1 Case One in Taiwan

In the 1980s Orchid Island, a small island of Taiwan, mostly dwelled in by the indigenous people, was chosen to be the place to store radioactive wastes. The project was proposed by Atomic Energy Council of Executive Yuan, a government organization which in charge of every atomic related affair. After a series of estimates, Orchid Island was elected to be the place to store radioactive wastes from all parts of Taiwan because of its geographical features and isolation. The project was then assigned to Taiwan Power Company, because they own the nuclear power plants. A few years later, the facilities were completed and started to function, and a radioactive leak accident happened. Local residents

were so furious and asked the facilities to get out of their homelands. They asserted that in the very beginning, the government approached them saying that they want to build canned fish factories to promote the local economy. That is why they signed the contract. They did not know it would be a radioactive waste storage site, not to mention that the substances would cause great harm to human beings. On the other hand, the government claimed that when they brought the proposal to the local people, they stated very clearly that the facility would store radioactive waste. It is difficult to know whose lying and whose telling the truth between the government and local people. It is because there are only little documents left behind. However, if the government really said it clearly and told the resident the truth, then why would the local held demonstrations to against the facility several years after if they already knew what the facility would be?

4-2 Case Two

In 1990, Sixth Naphtha Cracking Project was started up at Yunlin, one of the poorest cities in Taiwan. The project was ran by the Formosa Petrochemical Corporation. "The Sixth Naphtha covers an area of 2603 hectares and includes numerous construction projects such as an oil refinery, naphtha cracking⁴, and gas and electricity congregation plants" (Tu, Shih, and Tsai, 2014, 2). After two decades of operation, it has grown so big that it creates 1.6 trillion New Taiwanese dollars per year. Petrochemical Industry is very important for Taiwan, without it Taiwan's economy may collapse (Wang 2015). This project supports Taiwan's economy but meanwhile it also generates a lot of environmental problems. Who is going to take on the environmental costs? Of

⁴ Naphtha cracking is an upper stream process. It is a method to refine oil and turn less valuable products into more useful and valuable products. After cracking, they can get raw materials which can be applied in petrochemical, or plastic industries and so on.

course, the local residents and people from surrounding areas.

A study was reported by Liberty Time Net, online news running by one of the four biggest newspaper companies in Taiwan, showed that after the Sixth Naphtha began operating, the rate of local people and its neighbors to suffer from cancers and other diseases increased significantly. During 1996 to 1998, three years after the Sixth Naphtha started to send out toxic substances, per ten million people, 69.4 people were diagnosed with cancer; during 1999 to 2001, per ten million people, 76.3 people were diagnosed with cancer; 2001 to 2003, 91.4 were diagnosed with cancer. This has made Yunlin to be ranked one of the top cities in cancer mortality (Liu, Tseng and Lin, 2009).

Although two cases above, one is related to indigenous people and the other is related to Han people. In fact, when I am searching for environmental justice cases in Taiwan, unlike what Bullard has claimed, I discovered that more cases happen on the poor, who live in the remote areas no matter they are the Han or indigenous people. Such as in 1998, Tainan was chosen to be a landfill site and most of the residents are Han. They are farmers and the economy situation was far behind than other regions. Lin-yuan in Kaohsiung City, a place famous for its farming and fishing industries, became the site for petro-chemistry industry. In 2009, the government decided to build a nuclear power plant in a remote area in Taipei. All of these cases are in Han group's communities, and they have lower income than the rest of Taiwanese. Compared with the United States, race seems not a crucial factor when we choose the sites for contaminated materials. I have come up some reasons: first, generally, indigenous people have a lower education. Therefore, they may not know the ways to speak out for themselves, so the information of environmental injustice on the indigenous people is less. Second, most of indigenous people are suffering from the other kind of environmental justice issue. Instead of living and taking on the poisonous substances in their communities, they are forced to move out from their homelands which is the other kind of environmental injustice I am not going to focus on. As a result of that fewer indigenous people suffer from environmental

pollutions but ending up losing their homes and cultures. Third, different from the situation in the United States, environmental injustice is because of wealthy inequality in Taiwan, not doing much with the race.

Here, I want to mention some cases from Japan to support my idea that races is not the crucial factor worsening environmental injustice. Japan's racial composition is much simpler than Taiwan. As we all know, Japan is rather a mono-ethnicity country, approximately 98% of its population are composed by Japanese ethnic. Therefore, through the environmental justice cases from Japan, we can find some commons between Japan and Taiwan to support my point. Around 1950s, Minamata disease was discovered in Minamata city in Kumamoto prefecture, Japan. According to the website of Boston University Sustainability, **minamata disease is a neurological syndrome caused by severe** mercury poisoning. It includes the symptoms such as ataxia, numbness, muscle weakness, a decreased ability to see and damage to hearing and speech. In some cases, insanity, paralysis, coma and even death will happen within weeks. The disease can also affect fetuses (Boston University Sustainability, 2018). At the Beginning, the residents noticed that some animals were abnormal. They walked strange, suddenly ran around beyond control, or even jumped into the sea and killed themselves. The residents though it was not a big deal; however, the same symptoms started to happen on the local residents. In 1956, Japanese scholars revealed that the sea near to Minamata city was contaminated by Chisso Corporation, a chemical factory. The local economy was based on catching fish and harvesting seafood from the nearby seas. But because of the contaminated substances, the price of the products dropped, the residents became poorer than before. Next example is Fukushima Nuclear disaster which happened just few years ago. It is known as the second worst nuclear accident in the history of nuclear power generation. The accident happened in 2011 in northeastern Fukushima prefecture. Tokyo Electric Power Company owns the nuclear power plant which is composed of six boiling-water reactors. The facilities were

damaged by the tsunami waves caused by The Great East Japan Earthquake of magnitude 9.0 on March 11, 2011. On the other day because of the damage, the cooling system failed its work and the power plant exploded. The radioactive leak damaged the region and because of worrying about exposure under radioactive, government officials established a no-fly zone around the facility, and asked the residents who were nearby the area to evacuate. In the following days, 47,000 residents left their homes. The similarity of most environmental justice cases between Taiwan and Japan is that they involve unequal distributions which are non-racial related. Japan's first case was in the period that Japanese economic grew rapidly, and Chisso Corporation was one of the biggest firms which supported the economy. Second case was caused by Tokyo Electric Power Company one of the companies which supports nowadays Japan's economy. Their facilities and products benefit some areas whereas some areas had to take on the price. That is, people live in the big cities got to enjoy the convenience and the good side of it, but people in rural areas have to be sacrificed.

Environmental justice is a very complex issue. Countries with different backgrounds are possessed of different factors to generate environmental injustice problems. Environmental justice sometimes is called environmental racism in the United States because racism issue in the country is so serious and hard to fix just in one day. That is why leaders from all over the world came to Washington, D.C. to attend the very first National People of Color Environmental Leadership Summit to address the issue because the issue is just associated with racism so much. However, we rarely have environmental justice movements associate with different ethnic people in Taiwan or in Japan. The factors generate the problem are prone to the gap between cities and rural areas, the gap between the rich and the poor and unequal resources distribution.

Chapter 5: Possible Solutions

5-1 Three Types of Environmental Justice

A lot of principles from environmental justice address that every group

should have the same right to decide the matter related to their own environment. Everyone should have the right to participate the process of decision making and the right to acquire fully information from it. Meanwhile, some groups are taking on the costs which are generated by the unequally decision making, they should have the right to receive equal price of compensation and make up. In other words, no group should be excluded by any kind of environmental related process and take on unequal environmental costs. However, the meanings of environmental justice differ from groups to groups. In order to see through this matter and understand its concept Bullard has identified three broad categories in the field of environmental justice and it can be divided into: procedural, geographic and social equity.

Procedural equity refers to the 'fairness' question: the extent that governing rules regulations, evaluation criteria, and enforcement are applied uniformly across the board and in a nondiscriminatory way. Geographic equity refers to location and spatial configuration of communities and their proximity to environmental hazards, noxious facilities, and locally unwanted land uses such as landfills, incinerators, sewer treatment plants, lead smelters, refineries, and other noxious facilities. Social equity assesses the role of sociological factors (race, ethnicity, class, culture, life styles, political power, etc.) on environmental decision making (Bullard, 2001).

Nowadays, when it comes to environmental issues, governments will take justice and fairness into consideration but inequity still continues to happen. It is because most of us are utilitarianisms, and is rooted in the idea of pursuing happiness for the overall good. The problem is that the overall (majority) benefits from it, and the minority has to be sacrificed and their voice will be ignored in the process of decision making (Liu, 2010, 9-15). So, how to address this issue and what actions should we take?

5-2 Solution

In this part, I will summarize some solutions by picking up the ideas from Taiwanese and American essays. I will categorize them into three dimensions which are the public's mindsets, government policies and the public's participations and NIMBY. These three categories will fit in with the three types of equity I have mentioned in the previous paragraph and hope that three types of equity can be realized. Public's mindsets is aimed at social equity, government policies is for procedure equity; public's participations and NIMBY is the practices for geographical equity.

From the aspect of public's mindsets, Chun-Chieh Chi⁵ believes the idea that how humans deal with the nature will be the same as how humans treat other humans. When people exploit and destroy nature, there must be someone to take on the consequences. Therefore, the entire society must pick up on a whole new attitude toward nature and treat it in a sustainable way so that the situation of exploitation of other people or the minority will have the chance to be improved (Chi, 2006, 25-40).

On the other hand, Bullard proposes some strategies to help the matter from the aspect of government policy. Firstly, he suggests that legislation and regulations should be strengthened. When laws and regulations are weak or do not exist, a legislative approach is required. What is more, laws and regulations are only as good as the degree to which they are fully implemented in the society. Next, he suggests that we should create a holistic approach to environmental protection. When political power is not distributed equally the problem of procedural inequity shows. It allows the rich and majority to dump the toxic substances on the minority. Therefore, we should create and enforce

⁵ Chun-Chieh Chi, a Taiwanese professor at National Dong-Hwa University. His research is focusing on ethnic relations, environmental sociology, social movements and sociology of development.

nondiscriminatory laws in all aspects such as environmental laws, civil rights laws, health laws and etc. This could eliminate the situation wherein only some groups or individuals participate in decision making and trigger exclusionary policies (Bullard, 2001, p.22).

We should not overlook the power of the public as well. Both Bullard and Chi pointed out that to make the public get involved in the movement is very important. Chi said “not only the minority should participate in this issue, but every citizen should get involved in it. By taking action, people are actually watching over the government and realize the idea of democracy”. On the other hand, Bullard pointed out this solution on a bigger scale. He said we can build a global size environmental justice movement. Internet has become a powerful and efficient tool to communicate with people from around the world. We should eliminate digital divisions so that everyone can access the information and get involved. We should combat the issue by gathering voices from different countries. This is why both scholars believe that the public’s participation is one of the most important factors to realize environmental justice. Because when people work together, we are not only putting pressure on their own governments, but also raising the awareness among international communities.

NIMBY which stands for “-not in my backyard” is a common problem when we discuss about environmental justice. The problem is when we choose an area as dumping ground or site of incinerator to improve our life as a whole, no one would like those facilities to be located in their communities or surrounding areas. Yet, everyone wants to enjoy the benefits from them. NIMBY is definitely not an easy problem to solve, as there are many factors which cause it, such as economic factors (fear that the value and land prices of the area will drop), mental factors (distrust of the government and worry about pollutions), political factors (government wants to get votes from the public so sacrifices the minority) and so on. However, the main reason why people find those facilities hard to accept is because citizens do not trust the government and the constructor of the facilities. To further explain it, citizens are afraid that the government does not tell them the

truth so that they will have to take on the toxic substances produced by the facilities without knowing it (Lin, 2010, 13). Lin's study states that compensations and building a trust-relationship with residents might improve the problem. When the procedure is transparent and the residents can know what is going on in their community right away, they will be less likely to rule out the decision. Moreover, the government will have to show the possible risks in advance and make compensations for them which they also agree on. In short, when dealing with NIMBY, the priority is that the government needs to have a good communication with the residents and build a firm trust-relationship with them.

It is very difficult to solve this problem although there are so many scholars trying to provide the solutions for it. The inequity is rooted in the society, and the way we treat the minority groups is already determined. Everyone must work hard to terminate discrimination in society and companies should not put the profit as their top priority. Government should enforce a stricter restriction, and citizens should raise awareness of the problem. As long as there is pollution, environmental injustice will not disappear, therefore we need to find a more environmental friendly solution as soon as possible.

Conclusion

Although the term "environmental justice" is originally from the United States, Taiwan has taken on the phrase and used it for decades as well. However, what triggers the issue is different in Taiwan and the United States. There are so many reasons that can cause environmental injustice, such as geographical features, social status, and economy. In the United States, race plays a big role in every aspect in the society. Financial situations and the social status of African Americans and Native Americans have improved a lot, but social systems, opportunities in any kind or government decision-making processes still not in their favor. Bullard and Beverly said:

There is a large share of the black workforce remains overrepresented in

low-paying, low-skill, high risk blue collar and service occupations where there is more than an adequate supply of replacement labor. Black workers are twice as likely to be unemployed as their white counterparts. Fear of unemployment acts as a potent incentive for many blacks to stay in and accept jobs they know are health threatening (Bullard and Beverly, 1987, 21-37).

The long term discrimination has existed in the United States and causes these unfairness and unequal distributions. Although there is a high link between yearly income and locations for toxic substances, discrimination against non-white Americans plays a big role and makes them vulnerable to hazardous environments. Most of the nuclear-test explosions have taken place in Indian reservations. 11 out of 14 sites which are considered to be the place to store nuclear wastes are Native American's communities. Because they are too poor and lack the power to hold any demonstration, the situation of injustice is still developing. Unequal distributions caused by racism have a huge impact on people of color.

Bullard's statement that racism worsens the problem of environmental injustice is partly correct in Taiwan. We cannot deny that the whole society and governmental systems are more on majorities' side but comparing the issue with the United States, the gap between the rich and the poor seems to be the main factor. Taiwan is a small country approximately 35,980 square km which is 269 times smaller than the United States. Also, ethnic backgrounds are much simpler in Taiwan. Unequal resources distribution and treatments based on racism sometimes happen as Bullard has claimed, but Taiwanese government and companies do not have much choice to pick on indigenous people because their population is relatively few and the site to get rid of unwanted materials is less. As a result, dumping on the poor who live in country-side plays a big part.

Humans exploit the resources from nature to satisfy the material conditions in their life. Meanwhile, they are producing unwanted by-products, let's

say, nuclear wastes, rubbish, or toxic substances, and the minorities are forced to take on the environmental costs. Suffering from the unequal distributions in the society, they are powerless to fight back. Although the main reason triggering environmental injustice is different in both countries, American scholar, Bullard, and Taiwanese Scholar, Chi, pointed out some similar ideas to improve the matter. Firstly, they believe that institutional discrimination is one of the factors that generates environmental injustice. Bullard wishes the government can create a more holistic system for every race in order to reach the value of equality of opportunity and equal distribution. Chi also agrees with this viewpoint but because racism is not the main cause, he wishes people can take part in the movement automatically. This brings out the next idea, they believe that not only the residents need to take actions against the environmental injustice, but all human beings need to be aware of it and participate in the movement. Chi focuses on smaller scale that all citizens should take action in the nation whereas Bullard hopes to build a network for all humans to take part in the environmental justice movement globally. When people take part in the movements and practice their civil rights, procedural justice will be more possibly realized. To avoid the thought of “not in my back yard”, communication between the government and the residents is very important. When the residents know that they can trust their government and the whole decision making process is clear for them, they will be less restless. Paying them enough compensation is one means to relieve the problem, too. Although the environmental burdens are allocated unevenly, paying fair compensation is a correction for environmental injustice. In other words, communication, fair compensation and firm trust-relationship between stakeholders is the key to avoid NIMBY. Every solution goes hand in hand, and everyone should work together to fix the problem. Not only the government should take on the problem but all citizens are responsible for it as well.

Bibliography

Bullard, Robert D. 1993. *Confronting Environmental Racism: Voices from the Grassroots*.

South End Press.

Bullard, Robert D., and Beverly H. Wright. 1987. "Environmentalism and the Politics of Equity: Emergent Trends in the Black Community". *Mid-American Review of Sociology*. Social Thought and Research

Boston University Sustainability, "Minamata Disease". Accessed January 3, 2018.

<http://www.bu.edu/sustainability/minamata-disease/>

Chi, Chun-Chieh (紀駿傑). 2006."Environmental Justice (環境正義). Biodiversity: Socioeconomics Regulations (生物多樣性:社經法規篇). Accessed October 29, 2017.

<http://blog.ncut.edu.tw/userfile/5142/%E7%92%B0%E5%A2%83%E6%AD%A3%E7%BE%A9.pdf>

Datesman, Maryanne Kearny, Crandall, JoAnn and Kearny, Edward N. 2005. *American Ways: An Introduction to American Culture*. Pearson Education ESL.

Energy Gov. 2017. "Environmental Justice History." Accessed April 22, 2017.

<https://energy.gov/lm/services/environmental-justice/environmental-justice-history>

Jesco, 2017. "Do you know what PCB is? (PCBってご存知ですか?)." Accessed April 22, 2017. http://www.jesconet.co.jp/business/PCB/pcb_03.html

Laws and regulations database of The Republic of China. 2005. "Additional Articles of the Constitution of the Republic of China." Accessed October 27, 2017.

<http://law.moj.gov.tw/Eng/LawClass/LawAll.aspx?PCode=A0000002>

Liu, Li-Ren, Tseng, Hui-Wen and Lin, Kuo-Xian (劉力仁,曾慧雯,林國賢). 2009. "Study shows: A significant association between Sixth Naphtha and cancer rate in five counties (學者研究：5鄉鎮罹癌率六輕「顯著相關」)" Liberty Times Net, June 8.

Accessed October 29, 2017. <http://news.ltn.com.tw/news/focus/paper/309542>

Liu, Ya-Wen(劉雅文). 2010. "The Study of Compensation Mechanisms of Hsinchu Science Park: A Perspective of Environmental Justice (從環境正義觀點論新竹科學園區補償機制之研究)". Accessed October 29, 2017.
<http://chur.chu.edu.tw/bitstream/987654321/6440/1/GM096170060.pdf>

McCarthy, Deborah and King, Leslie. 2005. *Environmental Sociology: From Analysis to Action*. Rowman & Littlefield Publishers.

Rootlaw. 2012. "Basic Environment Act." Accessed October 27, 2017.

<http://www.rootlaw.com.tw/en/LawArticle.aspx?LawID=A040300020004600-0911211>

Shen, Shi Hong (沈世宏) 2013, *10 Lessons Environmental Justice Taught Me (環境正義教我的 10 堂課)*. Environmental Protection Administration Executive Yuan of ROC

Stone, Les. "Cancer Alley Louisiana." Witness. Accessed October 26, 2017.

http://www.visionproject.org/images/img_magazine/pdfs/canceralley_louisiana.pdf

Squires, Gregory and Hartman, Chester. 2006. *There is No Such Thing as a Natural Disaster: Race, Class, and Hurricane Katrina*. Routledge.

Tu, Wen-ling, Shih, Chia-Liang and Tsai, Wan-Ju. 2010. "The petrochemical lesson for the agricultural county: reviewing Yulin county's environmental supervision on the sixth naphtha cracking plant." Accessed October 29, 2017.

<http://www.airtilibrary.com/Publication/alDetailedMesh?docid=16064682-201405-201406190019-201406190019-59-90>

Wang, Yi Shing (王逸芯). 2015. "Can Taiwan's economic survive without Sixth Naphtha?"

(沒有六輕, 台灣的經濟承擔得起嗎?)” Chinatimes. December 7. Accessed October 29, 2017. <http://www.chinatimes.com/realtimenews/20151207002908-260410>

World Health Organization. 2016. “An estimated 12.6 million deaths each year are attributable to unhealthy environments.” Accessed June 24, 2017. <http://www.who.int/mediacentre/news/releases/2016/deaths-attributable-to-unhealthy-environments/en/>