

Explaining the Soil Pollution in China: Industrialization, Government Regulations and Realism

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ABSTRACT

The essay is to explore the reasons for soil pollution in China. In recent years, this phenomenon has been observed after the reform of the opening-up policy with the development of manufacturing and heavy industry. The essay uses the case study method. Through the case study of China, the essay hopes to have broader lessons on the soil pollution problem in the global. The result of the essay reveals that fossil burning and industrial waste are an important reason for the soil pollution in China and water and air pollution. Another reason is the weakness in technology to clean the pollution. Also, there is no good and comprehensive policy, regulations, and plans from the government to adjust the issue. Moreover, the essay finds out that the deep reason for soil pollution is realism. In other words, people pursue economic profits ignoring the environmental price. In conclusion, the essay deepens our understanding of how serious soil pollution has developed so far. It also contributes to the theory of the cause of soil pollution. And the essay makes a links soil pollution to realism in international relations. Moreover, the essay can be useful to propose a solution to soil pollution based on the analysis of realism. Admittedly, the essay is limited because it does not stress the importance of economic development, which is facilitated by burning fossils. Also, this essay is too ideal and does not highlight the limitation of the technology. Further studies can look into fossil burning and soil pollution globally, especially what will happen if countries like Russian do not sell fossil.

Keywords: *China, Soil Pollution, Cause, Realism, Potential Solution*

1. INTRODUCTION

The essay's research question is the reasons for the emergence and the continuing worsening of soil pollution in China. This research question is puzzling because there are big changes in the soil environment, which factories increasingly pollute. These changes have not been researched in detail. Besides, this question is complex and unique because people have not yet fully realized the seriousness of this problem, especially how people can be got too sick from soil pollution. Moreover, soil pollution has not been solved yet.

The essay question is located in the research topic of global environmental politics and international relations. To give background information, the soil on the earth has been worsening. Soil pollution will make pollutants accumulate in plants and animals and accumulate in humans and animals through the food chain, which will endanger human and animal health, cause cancer and

other diseases. Also, the animals the plants are facing danger in their living environment.

This essay will focus on soil pollution in China. China is a unique case because China is developing very fast and has burned many fossils and produced very much industrial waste compared to Europe. This case applies to situations in South East Asia, Latin American, and other developing countries. There has not been much research on soil pollution in China.

This topic matters because the essay deepens our understanding of how serious soil pollution has developed so far. It also contributes to the theory of the cause of soil pollution. And the essay makes a links soil pollution to realism in international relations. Moreover, the essay can be useful to propose a solution to soil pollution based on the analysis of realism. To be concrete, the essay is advice and recommendations to the government when making policies.

The essay is divided into several sections. After the introduction, Section I will first describe the problem of soil pollution. Then, Section II will explain this phenomenon from the aspect of the manufacturing industry and heavy-industry factories. After that, Section III will focus on the perspective of government regulations. Next, Section IV will be an analysis of soil pollution from the perspective of realism. Section V presents the soil pollution in the Chinese village. The final conclusion will discuss the soil pollution problem worldwide and provide directions for the solutions and further studies.

2. THE PROBLEM OF SOIL POLLUTION IN CHINA

The soil pollution problem is a global problem. The study has found a serious of problems in other countries in Europe and Asia. For example, in South Korea, around a though mines have been abandoned, which caused severe soil pollution in South Korea [1]. Even though soil pollution is a global problem, China is a striking case because it has a relatively high level of soil pollution from heavy metals compared to other countries. Crops grow in the soil, and therefore soil pollution problems can lead to food quality problems. Although people have already known the food quality problem, they do not know the extent of the food quality and soil pollution problem. The report shows that heavy metals and chemical substances have polluted 16.1% of the soil. China has severe problems with soil pollution. Therefore, this essay will discuss the soil pollution problem in China.

Heavy mental has caused serious problems to the soil, affecting human beings through the food chain. CSC (China State Council) found that the soil problem in China has a lot of causes, such as agriculture, industry, and mining [2]. For example, Wu et al. found out that in Shan Xi province in China, 49.62% of soil has been revealed to cause risk to the environment [3]. In terms of geographical distribution, soil pollution has been found out according to Li et al. in all over China from west to east. Li et al. also argue that mining is the major cause of soil pollution in China [4].

I agree with Li's statement because they have evidence of how soil is polluted in different mining places. However, this argument is not complete because mining is not the only reason for soil pollution. Industry waste, air pollution, and chemical pesticides can both cause pollution in the soil.

Li et al. also argue that small-scale mining causes a more serious problem to the soil than big-scale mining due to the limitation of the technology or facility. They point out that small-scale mining is the main cause of mercury pollution in the soil. I think this argument is powerful because they reveal that small scale mining is

not likely to be equipped with high technology to deal with soil problems.

To address this issue, Li et al. propose that forests should not be only used. To generate income, but should also be protected as wide life habitat. Also, Li et al. suggest that children who live in the mining area should reduce play outdoor time. From my perspective, these measures are effective because they can reduce the dust that may be taken by children when they play outdoors.

3. FROM THE PERSPECTIVE OF INDUSTRIALIZATION

The process of industrialization requires coal mining. In fact, China's 12th five-year plan (from 2011-2015) aims to build sixteen coal power stations. In this way, China can meet the demand for energy consumption. Delang argues that coal mining activities will blast apart mountains, and if it is dealt with, it can leave permanent scars in the mountains [5]. Also, Delang claims that burning coal will cause air pollution. The harmful substance from the air will enter the soil. And cause soil pollution problem.

I think Delang's argument makes sense. Because he points out a driving force of coal mining, this driving force is industrialization. However, what is missing in this argument is that it does not deeply analyze how industrialization can generate harmful air and then pollute the soil. I think that on the one hand, industrialization needs coal mining. Still, on the other hand, industrialization itself is producing waste and harmful substances in the air, which lead to soil pollution.

In China, iron and steel industries contribute to air pollution in various regions in China. Also, Green peace found out that crops producing areas also have serious soil pollution problems [6]. Nitrogen is an important element to help crops to grow stronger. Therefore, farmers use nitrogen fertilizer to increase the field output. However, if this situation remains untreated, it will cause an increase in the metal content in the soil.

I think it makes sense to argue that emissions and farming activities release soil pollution. Because it overcomes the shortcoming of limiting to coal mining. The weakness is that it is still not complete. The pathogenic microorganism from the faces and polluted water is also harmful to the soil.

Besides, dealing argues that Conte is also an important cause of soil pollution. Urbanization can cause soil pollution because it concentrate pollutes. An overcrowded city means that the same land will have to take care of more intense waste produced by the activities of human beings.

4. FROM THE PERSPECTIVE OF GOVERNMENT REGULATIONS

The Chinese environmental regulations are largely about water and air pollution. Comparing to water and air pollution regulation, soil regulation seems too behind. Specifically, the action plan on prevention and control of soil pollution was published in 2016 and the first soil Pollution Prevention and Control law in 2018. The law is too late to solve the soil problem, which has already been polluted severely. Besides, this legal document is not enough to currently deal with the severe soil pollution situation and prevent the soil pollution problem from happening in the future.

The Chinese soil management system is gradually established and enriched, which from a high level to a low level includes law, action plan, regulations, risk control rules, and technical guidelines. The soil in China is divided into agricultural land and development land that includes contaminated land, industrial land, and mining land. Also, the law is focused on pollution prevention. The local government supervises and manages soil pollution. Land-use right holder is responsible for implementing the method to control the risk. The central government and local government are responsible for organized funds. This responsibility distribution is comprehensive and includes a different level of government. However, they do not deal with the existence of pollution due to the limitation of the technology and funds.

According to Measures for Soil Environmental Management of Agricultural Land, the objective is to guarantee that the cereals and other crops growing on the land are safe [7]. For contaminated land, the government established a national information system to control the spread of pollution and ensure the safety of using public land like residential buildings, schools, and hospitals. Last for industrial and mining land, and the government requires investigations on soil quality before the mining enterprises exit from the production activities.

According to China Dialogue, in the 2018 new law on soil pollution, one problem is that the funding to clean up the polluted land is not in place [8]. The agriculture itself cannot generate to clean up the land because they are unwilling to spend financial resources on this and prefer high profits. From my perspective, China can learn the experience from the US who has a “superfund” that collects tax and fines on pollution activities from the firms. Li et al. argued scientific approach, soil pollution survey, and public participation should be used to solve the soil problem in China. I think his statement is comprehensive and executable [9].

5. FROM THE PERSPECTIVE OF REALISM

People who try to maximum interest do not want to spend money and energy to solve the soil pollution problems. Therefore, to solve this problem, more time should be spent on technology to deal with industrial pollution like industrial waste.

Realism research aims to point out some scientific explanations have weaknesses because for ignore social groups. From my perspective, I agree with this statement. Because it highlights how complex this process is, it also stresses the important impact of social groups. From my perspective, I agree with this statement. Because it highlights how complex this process is, it also stresses the important impact of social groups.

Bryant and Bailey claim that some non-governmental organizations and grassroots resistance will go against state policies and industrial activity [10]. I do not agree with this statement because it is a big challenge to go against and change the policies in China. Therefore, this approach is not effective in solving the problem.

State policies may be incomplete to address soil pollution due to their focus on economic growth. In this case, it is hard to change the policies. Thus, soil pollution has become more and more serious. It should be taken from the top to the bottom, which the government should first realize they should give up some economic profit to solve the severe problem. Then the government can guide the citizens and no-government organizations to reform.

Latour thinks scientific research should base on historical political, and social relations instead of focus on scientific studies [11]. I agree with his perspective because pearly from a scientific perspective, the industry factories should be shut off. However, it is impossible for some areas that depend on the industry. Therefore, soil pollution has become more and more obvious in many regions. These polluted areas can properly deal with industrial waste, develop the service industry or clean industry.

Forsyth uses “deforestation” as an example to suggest that there are different impacts on the different social groups, including some benefits [12]. Then Blaikie and Brookfield also propose that a bad thing for a social group may be a good thing for another social group, so there is a different impact on the different social group [13]. I agree with his statement because he divides society into different groups and has different perceptions of them. Soil pollution is hard to solve because it is hard to persuade all the social groups to reach an agreement. It is crucial to consider different impacts on the different social groups and lower the harmful damage to the least for all the social groups.

Russell thinks that we should judge whether the sentences are true or false to learn about the “facts” [14].

I disagree with this statement because the perspective where the speaker starts is irrational. Because their many people evaluate the soil problem from final interests perspective, which leads to the soil pollution more and more severe. People and government should view the soil pollution problem more comprehensively instead of just focus on final interests.

In conclusion, people should spend more time on technology to deal with industrial pollution like industrial waste. To begin with, realism research is to find out the weakness of some scientific explanations due to the ignoring of social groups. First, Bryant and Bailey state that some non-governmental organizations and grassroots resistance can go against the state policies. However, this method may not solve the policies problem the state's policies problem in China because it is hard to challenge the policies in China. Second, Latour proposes that the historical political and social relations should be the foundation of scientific research rather than just base on scientific studies. Because it is impossible to close the industry factories in some areas that depend on the industry. Third, Forsyth suggests that there are different impacts on the different social groups. Because it is difficult to persuade all the social group to reach an agreement and we need to consider different impacts on the different social groups. Last, Russell thinks that we should judge whether the sentences are true or false to learn about the "facts". But sometimes, the perspective where the speaker starts is irrational.

6. SOIL POLLUTION IN THE CHINESE VILLAGE

To be more specific to explain the soil pollution in China. For example, In Hunan province, at least 26 people have died in the last four years, which includes 20 people who were died of cancer.

Guilford thinks the chemical plant causes their death. The soil samples from the village showed levels of cadmium toxicity [15]. Besides, the health officials found that one-sixth of the 3000 villagers have been tested positive for cadmium toxicity. The South China Morning shows the reason for this severe situation is that the industrial waste was never cleaned, although the plant was shuttered in 2009.

In summary, the existing soil pollution due to industrial waste or other reasons is harmful to people's health. Thus, it is very important to deal with this soil pollution that has been already existed.

7. CONCLUSION

In summary, the essay firstly has described the problem of soil pollution. Then is has explained this phenomenon from the aspect of manufacture and heavy-industry factories. After that, the essay has focused on the

perspective of government regulations. Following that, its analysis of soil pollution from the perspective of realism. The conclusion will discuss the soil pollution problem worldwide and provide directions for the solutions and further studies.

The essay has several limitations. The analysis may be incomplete, and maybe there are other reasons. The single case provides limited explanations and may not fully explain other cases. Admittedly, the essay is limited because it does not stress the importance of economic development, which is facilitated by burning fossils. Also, this essay is too ideal and does not highlight the limitation of the technology.

This topic matters because the essay deepens our understanding of how serious soil pollution has developed so far. It also contributes to the theory of the cause of soil pollution. And the essay makes a links soil pollution to realism in international relations. Moreover, the essay can be useful to propose a solution to soil pollution based on the analysis of realism. To be concrete, the essay advice and recommendations to the government when making policies.

Further studies can look into fossil burning and soil pollution globally, especially what will happen if countries like Russian do not sell fossil. Moreover, further studies can explore climate change and sea-level rise.

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