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Corporate Social Responsibility of Haze Weather

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Abstract: The persistent haze weather has brought great negative impact on people's physical and mental health which has attracted widespread attention. In this study, we take the deep cause of the haze weather, the lack of corporate social responsibility, as a starting point. Based on the analysis of the concept, cause and harm of haze weather, we analyzed in detail the fog haze weather background, resulting in the enterprise behavior (responsibility) that should be done by the adjustment and transformation. At the same time, we summarized and analyzed the successful practice cases of the corporate social responsibility in the weather background, thus providing beneficial guidance for the implementation of the corporate social responsibility both in theory and in practice.

Key words: Fog haze, sustainable development, corporate responsibility

INTRODUCTION

With the rapid development of our country's economy, the environment problem is outstanding, starting from the autumn/winter 2012, fog haze weather spread over half a China. In January 2013, most of central and eastern areas of China were covered by fog haze. Among the 74 monitoring cities in the country, 33 city parts of the monitoring sites were tested more than 300 which mean that the air quality of cities has reached the serious pollution. Haze weather seriously endangered people's life and health and it also caused the attention of scholars at home and abroad to the study of haze weather in various fields. The study managed by professor Michael Greenstone of Massachusetts institute of technology had found the residents of the north of Huaibei reduced the average life expectancy of 5.5 years, due to environmental pollution. Period to the Duan (2011) argued "temperature inversion" hanging over a lot of industrial waste gas in close to the ground and led to its inability to disperse. Yang and Tai (2012) analyzed the cause and control measures of the smog in Beijing area.

Fog haze weather attracted close attention of government, in 2012 our country issued new "ambient air quality standard" which added PM_{2.5} as the monitoring standard. Shandong province published the data of PM_{2.5} since 2013, becoming the first province published PM_{2.5} data. In December 2012, the environmental protection department issued a "management guidance of strengthening motor vehicle pollution prevention work process of PM_{2.5}" which clearly put forward, by 2015, the national motor vehicle emissions 10% lower than 2010, in

which nitrogen oxide emission reduction task should be completed, particulate emissions significantly should be reduced; and by 2020, the motor vehicle emission control level should be significantly increased.

The governance of fog haze weather, not only the support of government power is needed, but also the participation of main body of market economy, enterprise strength, is needed. Industrial pollution emissions are the main cause of the formation of haze weather, so enterprises should take its social responsibility. Now, the study of haze weather considered less scholars of the corporate social responsibility which is the deep-seated reason. Therefore, it has important theoretical and practical value by studying the change of corporate social responsibility and performance in the fog haze weather background.

OVERVIEW OF THE FOG HAZE WEATHER

Concept of fog haze: Fog is the mixture of fog and haze. Because of the deterioration of air quality, the appearance of fog haze weather has been increased and damage is aggravating (Li and Wang, 2011). Fog and haze will block line of sight, but there's a big difference in the reasons and conditions of fog and haze. Fog is floating in the air of a large number of small water droplets or ice crystals and the forming conditions require higher water vapor saturated. A haze in the air is relatively dry and air relative humidity is under 80% usually. Its formation is due to a large number of tiny particles of dust, smoke, salt crystals evenly suspended in the air, making a effective horizontal visibility to less than 10 km air mixed corrosion phenomenon.

To put it simply, Fog is the physical phenomenon a lot of small water droplets or ice crystals suspended in the air and the haze is the pollution phenomenon that a lot of minerals suspension to form atmospheric (Ruo, 2013).

Cause of the haze:

- **Weather reason:** There are two main reasons that result in haze weather. One is the increasing wind of horizontal direction. In recent years, urban construction has developed rapidly and high-rise buildings are becoming higher and higher, merry by urban area decreased significantly by detain and friction effects while horizontal wind increases, so it is unfavorable to atmospheric pollutants diffusion. The other is the inversion phenomenon in a vertical direction. Inversion layer is like a pot cover over the city, the inversion phenomenon is easier to happen when the air temperature is higher, making the atmosphere vertical low-altitude air movement restrict, causing pollution is difficult to float into the sky
- **Artificial reason:** Emissions of harmful material difficult to float caused by industrial production, motor vehicle exhaust, building construction, the coal for warm during the winter, Leading to a significant reduction in air quality, causing the atmosphere pollution which results in haze weather

Industrial production discharges: Industries provide raw materials and products for the economy and society, at the same time, they also consumes large amounts of resources and energy and emission a large amount of pollutants (Clarkson, 1995). In the process of factory production, various waste gas and dust is product, such as waste gas and dust discharged by the oil refining, metallurgy and mechanical electrical manufactures.

Motor vehicle exhausts emissions: The harmful gas such as Motor vehicle tail gas of nitrogen oxides (NO_x), hydrocarbons (HC), carbon monoxide (CO) and suspended particulates (PM) are the important source of the fog haze weather (Davis, 1973). The large cars using diesel, such as buses, trucks, etc., because of incomplete combustion, make a lot of particulate matter emissions into the atmosphere. In addition, although small cars use gasoline and their emissions of particulate matter are less, the quantity is big, so overall emissions quantity is big. So once meet heavy fog weather, nitrogen oxides in the exhaust gas can easily be converted to secondary particle pollution, resulting in haze weather.

Coal: When winter is coming north China (usually in the north of the Huaihe) will be for centralized heating. Centralized heating by coal to heat hot water which will provide heating hot water to families for warm. Lots of coal combustion and substandard treatment of emissions lead to a large amount of coal dust and sulfur dioxide in the air.

In addition, dust products by construction sites and road can also result in a fog.

Haze hazard: the impact of fog haze weather on us is very large, the main is the influence on our physical and mental health and it also has a significant negative impact on crop yields and traffic safet:

- **Impact on the physical and mental health:** Fog haze weather, inhalable particulate matter increased which PM 2.5 small size which can provide some carrier for chemicals, bacteria and virus, because PM 2.5 particle size is small, the quantity is more, slow and settling velocity, transmission distance. Experts found that Fog haze weather had a adverse effect on human respiratory system, skin, cardiovascular making people more easier to develop lung, causing bronchitis, pneumonia, trigger asthma, chronic bronchitis and emphysema aggravated old acute and chronic respiratory diseases; skin may appear itching, erythematic, papules, the occurrence of atopic dermatitis; and the fog haze weather increased in patients with existing cardiovascular disease, actuating respiratory infection and affecting the function of the heart, increasing the burden on the heart that can lead to heart failure (Wu, 2010)
- **Impact on agriculture:** Haze weather impact on agriculture is mainly manifested in two aspects: one is affect crop photosynthesis (Christainsen and Haveman, 1981). Fog haze weather will hinder the illuminate of sunshine, as a direct result of crops absorb sunlight intensity and time is not enough which will affect agricultural production and plants have a adsorption to dust, but once exceeds the ability of the plants can bear, dirt clog pores on the plant leaves which will affect plant respiration and the photosynthesis; the other is fog haze of dust contain acid such as sulfuric acid, nitric acid may corrode the crops and affect the normal growth of the crops
- **Impact on traffic:** Fog haze weather influences the traffic is very direct which will cause traffic jams or even accidents, on highway and airport. Because of the fog weather, air quality is poor, low visibility

which will directly lead to the highway and the airport close and affect passenger travel, causing stranded (Delmas and Toffel, 2004)

ENTERPRISE BEHAVIOR ANALYSIS OF FOG HAZE WEATHER

At present, the continuous the emergence of environment problems, such as fog haze weather, makes people no longer ignore environmental issues, but actively involved in the process of environmental protection, mainly embodied in the following: one is the citizens' environmental protection consciousness enhancement, no longer ignore environmental issues; second, the public's environmental demands continue to increase; third, the benign interaction mechanism has been formed between the environmental protection department and the social public transparent (Elkington, 1994).

In order to improve the fog haze weather situation and reduce the negative effect on the environment, the enterprises should adjust their operation and management behavior; actively fulfill its responsibility to social environment. Specific reflect in the following.

Firstly, enterprises should change management objectives and management thoughts. While fog weather is becoming more and more serious, people's environmental awareness has greatly increased and the market behavior of enterprises also put forward requirements of protecting the environment, thus to seek development in the fierce market competition of the enterprise, the most rational choice is to improve economic efficiency as the goal. In market competition, enterprise can set up good enterprise image which in line with the trend of environmental protection, energy conservation and emissions reduction (Han and Gao, 2012). So, one of the key factors that enterprise will win the competitive advantage of is to build a good environment management and the enterprise the management goal should be the pursuit of win-win of economic benefits and ecological benefits rather than simply the pursuit of economic benefits.

Secondly, enterprises should innovate environmental management system, so as to promote the energy conservation and emissions reduction of the production process. Establishment and implementation of innovative environmental management system is beneficial to improve enterprise's environmental protection consciousness, the level of enterprise environmental management, the mobilize enterprise initiative of prevention and the control of environmental pollution. Environmental management system is the behavior

expression of their own environment which also reflects the awareness that enterprise to the environment and the ability to implement environmental protection. At the same time, the environmental management system of the innovation will not only give priority to with enterprise's environmental protection department, but the enterprise from the senior leadership to first-line production staff all together into the enterprise's environmental management system, making the enterprise internal integration, forming a complete environmental management system.

SOCIAL RESPONSIBILITY PRACTICE OF THE CORPORATE UNDER FOG HAZE WEATHER

Iron and steel industry: Smog is made up of the dust in the air, sulfuric acid, nitric acid, nitrogen oxides, hydrocarbons and other organic particles. Steel industry's influence on the fog haze weather is mainly manifested in the discharge of atmospheric pollutants such as sulfur dioxide, smoke and dust.

Under the background of the fog haze weather and growing concerns for the environment, China's largest and most modern steel joint enterprise-Baosteel guided by the concept of sustainable development, the company developed the following green development strategy. The company implements green procurement policy: Prior purchasing the products that could increase longevity, reduce consumption, save energy, reduce emissions, recycled. And encourage suppliers to adopt clean energy, raw materials, production processes and technologies. On the production side, Baosteel implements clean energy audi through strengthening the construction of energy and environment monitoring ability and realizing green production through the measures of strengthen technology and energy saving, emission reduction technology application. The company is paying more and more attention to the recycling of waste materials to reduce environmental pollution caused by discarded waste materials and manufacture again. Moreover, in order to make employees aware of the importance of environmental protection and green production, Baosteel increased the propaganda environmental protection and green education to the staff.

To fulfill its social responsibility to the environment, Baosteel effectively reduce the smog elements such as sulfur dioxide, smoke and dust emissions.

Auto industry: In modern cities, large polluting enterprises has became less and less, but its pollution degree has not been fundamentally reduce and the pollution levels even increased in many cities, the rapid growth of urban car ownership is one of the main reasons.

So it is particularly important for the auto industry to fulfill the corporate social responsibility in fog haze weather, the BYD Company made many attempts.

In terms of energy storage power station, BYD hopes to solve the world problem of electricity storage and thus realize the effective utilization of power resources. BYD effectively solved the difficult problem of electricity storage through advanced cell technology, at the same time has increased the output power of wind, solar and other new energy, made the conversion efficiency of 90% or more. Moreover, BYD has launched a home energy management system, this is a new system, it entered the ordinary families as the goal, solve the power problem.

In terms of solar power station, BYD significantly reduced the production cost of solar cells, solar power and thermal power generation is the cost, enables the solar power to spread through using unique technology, in polycrystalline silicon as raw material and adopting advanced technology and craft. BYD solar cells on the technique and technology has more obvious advantages, the BYD solar battery products have been applied in solar street light, solar mobile charger, electric car, photovoltaic power station and many other fields. At the same time, BYD is committed to build the solar cell industry chain.

Oil industry: Petrochemical industry is a pillar industry in our country, but the petrochemical industry is not only has large energy consumption, but also has large pollution, it is the key areas of promoting energy conservation and emissions reduction work. The main air pollution of Petrochemical industry are sulfur dioxide (SO₂), nitrogen oxides (NOX), dust, volatile organic compounds and so on, these are the important source of the fog haze weather. In the management of the fog haze weather, Shell Group has increased practice the concept of sustainable development in China.

For shell group, sustainable development means that both short-term and long-term interests and in the process of decision making comprehension take economic, environmental and social benefits into consideration. In the sustainable development of energy system, establish close relationship with the community, customers, government and nongovernmental organizations, it is the foundation of the Shell Group. Shell attaches great importance to play role in the sustainable development of the energy system.

Shell group's corporate social responsibility activities in the governance of the fog haze weather mainly include the following: one is the construction of the sustainable development of energy system, such as the production of clean energy, improve fuel efficiency, increase energy efficiency, clean energy, carbon dioxide emissions control, etc., Second, Shell (China) company release social responsibility report in 1999 and it is the first corporate social responsibility report in our country; third is to complete corporate social responsibility management organization, Shell set up social responsibility committee in 1999, become one of shell's board of directors consists of four panel.

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