Corresponding Author: Abida Hassan (Assistant Professor, Dr. Iqbal School of Law, Government College University, Lahore, Punjab, Pakistan.
Email: dr.abidahassan@gcu.edu.pk)

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The Effects of Coal-Based Energy Production on Local Community of Pakistan: Paris Agreement and Violation of Laws

Abida Hassan [*] Sadia Saeed Rao[†] Sara Arif[‡]

Abstract: *In Pakistan, for the electricity production sector; Coal- coal-based energy is preferred and it is not only in Pakistan but all over the world which is highly unfriendly for human health and high life risk is involved due to metallic pollutants and toxicological concerns. The purpose of this research is to study and examine literature on the topic and then to highlight the effects of emissions released from coal-based power production on the environment. The methodology used for this research was quantitative and qualitative, primary and secondary. Interviews with some doctors were also conducted to get their views. The study not only points out that there is a lack of appropriate assessment of these adverse coal-based energy production effects on the social and economic standards but also violating the laws and GOALS of sustainable development, green environment and health justice badly which is challenging for the future generation.*

Key Words: Effects, Coal based Energy, SO2, NO2, O3, Power Plant

Introduction

It is an admitted fact all over the world that the energy sector is an important factor in the development of any state economically and it plays an important role in the operation of industries, commercial and domestic use etc. presently, the energy sector is the most demanding area in many countries and Pakistan is also one of those countries whose economy is depending on industrial as well as agricultural source of income, therefore the development of the industry, business and growth of the population all are depending on energy-based projects (Grübler, A. et. al,1999). But it is a disappointing and alarming situation in Pakistan that the energy production is less but the demand is more than its consumption and this is not only in Pakistan but the same situation is prevailing all over the world which results in a reduction of production and creates huge crises in business as well as industrial sector.

If it is investigated and deeply examined in Pakistan then it has been noted that Pakistan is also facing this problem very seriously and has reached an alarming situation in the fields of agriculture, business and industry which are the basic growing areas and are the main cause of development in Pakistan but due to lacking of energy sources industrial sector is not giving the expected results and Pakistan is facing financial crises. This issue has not only been experienced in urban areas but also the rural areas of Pakistan. Natural sources can be more effective and less expensive comparatively if they are used to produce energy (Allis, R, 2001).

If the situation is not improved and serious considerations are not given to it then the economy of Pakistan may suffer a lot and this negative impact can badly affect our international trade as well as business. Oil-based production is very expensive and is also not affordable for the countries like Pakistan but the

[*] Assistant Professor, Dr. Iqbal School of Law, Government College University, Lahore, Punjab, Pakistan.
[†] Assistant Professor, Lahore Leads University, Lahore, Punjab, Pakistan.
[‡] Assistant Manager, Human Resources, Punjab Thermal Power, Ground Floor, 7/C-1 Gulberg III, Lahore, Punjab, Pakistan.

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current situation is also not satisfactory because it is not fulfilling the requirements of the industrial and commercial areas. So it is the need of time to go for any other option and choose any alternate method for proper and inexpensive production to fulfil the demands of the country.

Coal-based production is comparatively useful and less expensive than oil-based production and Pakistan is lucky to have rich sources of minerals, there is a need to utilize and discover these sources. Pakistan is situated in a region which has rich sources of coal, minerals and gold mines but despite all these natural resources, the government is asking for funds and financial support from other countries. Now there is a time to take serious steps and the government needs to be serious and is demanded to take serious steps to explore and discover these mines to be independent in the production of energy and to increase the export of the country. The government of Pakistan is looking for private companies to cooperate and to install the plants for energy-based production in the country which will not only be expensive but will also be less beneficial if the government starts to work on its own and installs energy production plants then it will not only be more profitable to grow up the revenue, energy and business of the country but the cost of electricity will also be cheap and less than the present rate. Pakistan is rich in reserves of coals which is in billions searched in the areas of Thar, Guddu and Qadirabad. The project for energy production was established at Qadirabad and Sahiwal was also part of the China-Pakistan Economic Corridor (CPEC) project it was a great source to group and raise the economy of the country along with the benefits of less expensive energy production.

Objectives

There were many objectives relating to this project at the time of data collection but later on, the study was limited and only specific objectives of the research were made part of it. The main objectives of the research were to find out the effects of Coal-based energy production, and its impacts on society, and also to highlight the violation of not only the Environmental Laws but also the Constitutional as well as Civil laws and liabilities.

Research Questions

1. What protocols are used to measure the effects of Coal Power Plant on Local Communities?
2. How Paris Agreement and other laws are being violated?

Research Methodology

The research methodology used for data collection and writing of this article, the structure and design of the present research were descriptive, evaluative and analytical in nature, and the qualitative data based on the research was also a part of this study. A mixture of data was utilized from various primary and secondary sources. The primary research includes interviews and opinions, and some secondary research was done through scholarly articles, books, newspaper articles, authentic websites and legal databases. To make this research more effective, interviews were conducted with the doctors of Sahiwal and their valuable opinions are part of this article.

Environmental Repercussions

A green environment is not a requirement of any country or population but it is a basic need to live a quality life because fresh air, clean water and a healthy life can complete the life. Air pollution, water pollution, agricultural land waste, and global warming have been increased by dint of coal combustion (Grübler, A. 1999). The Sulphur in coal is emitted into the atmosphere during combustion, causing contamination of the air, water, and land. In most of the power plants, during the process of energy production; Sulfur is produced in a huge quantity which is a result of the coal combustion and which is utilized to produce the electricity. Sulfur oxides and their particulates were found to be released into the air by unregulated coal power plants (Paters et al., 1999). During the coal burning, oxides such as SO2, NO2, and partially O3 are produced, which when hydrated produces acid rain and acid rain begins to pour in the areas. However, acid rain is carried out throughout the world in rivers and water reserves due to high emissions of SO2 and other pollutants in the process of power generation and energy production (Galloway & Whelpdale, 1980). No doubt, these projects and energy production sources are beneficial for the development of countries but it is also a fact that such pollutants or waste produced during this process result in high-risk health issues and diseases (Van Dijk, 2011).

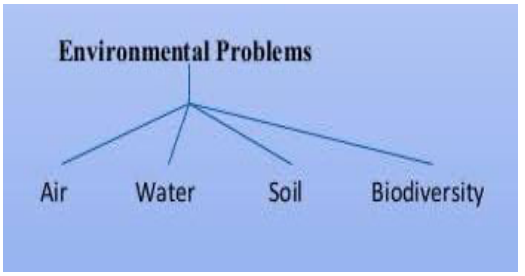
Environmental Issues and Problems:

The environmental impact of coal-based energy production plants includes some serious and high-risk-life issues such as: no doubt, Coal based energy production power plants are useful in terms of expenses but there are some adverse effects on society especially on the local community living alongside the premises as well as on the environment which

environmental issues on local as well as global communities such as agricultural loss, water pollution and air pollution.

Not only the above-mentioned factors are involved in polluting the environment but it produces a huge amount of fly ash, land ash, and pipe gas desulfurization slop during the process of energy production (Hansen, L. A., 1999).

Figure 1



Health Repercussions

Coal is a major source of energy all over the world; (Nataly Echevarria Huaman, 2014) from studying literature on the issue under discussion, it is very clear that the amount of feasible coal heating in outdoor power generation is mostly determined by the amounts of CO2, and H2, with SO2 playing a minor role and the ratio of these components, on the other hand, differs by the coal rank (Werther, J., et.al 1999). The proportion of coal in different coal rankings varies: lignite coal has more than 60% carbon, while anthracite coal contains up to 80% acid chemical processing (Slatick, August 1994). Some of the factors involving air pollutants such as SO2 air cause heart attacks in people living in the local community of the area where coal-based power energy is produced (Paters et al., 1999). It can also cause diseases of the lungs due to air pollution SO2 passes through the air to the lungs (Pourgholami et al., 2005). A huge quantity of coal fly ash (CFA) and coal dust were produced during the process of energy production which is again a danger to the lives of people (Miller et al., 2007). In addition, it can cause several diseases like brain damage, heart problems, cancer, neurological disorders, and premature death etc.

Economic Repercussions

At the time of planning and establishing such projects people accept easily because it becomes a source of income for them and in fact, it is helpful for those people living there (google source). In the Qadirabad power plant project about 1683 jobs were created, and the locals are enjoying the benefits which are in number of 1033 only (google source). The plant is situated in the heartland of Punjab, within the most fertile land of Pakistan which has badly affected the agricultural products, and the economy has not been boosted, moreover, it has generated serious challenges for locals by disturbing their lives concerning land, health issues, as well as environmental issues and downing the scale of economy. It was said by different sources that the latest technology, "Super Critical Technology" was being used and coal would be imported from different countries.

Paris Agreement and Violation of Laws

The Paris Agreement is a landmark international treaty which aims to limit the temperature, global warming and 197 countries were the signatories of this agreement as per the requirement of this arrangement, every signatory country had to submit its plan of action which was named Nationally Determined Contributions (NDCs). In 2016, Pakistan also became a member and put its signature on the Paris Agreement. It is also very much clear from the studies that coal-based projects are not environmentally friendly projects, they cause great damage to the trees, air, and environment and they bring a huge change in the atmosphere and weather such as the glacial lake outburst floods, the cyclones and the sea intrusion. Despite all such risk factors involved in such projects, it is to be noted that most of the countries, especially developing countries prefer this system and Pakistan is also one of those countries opting for and continuing such projects. The National Determined Contributions of Pakistan (NDC) mentioned due to such planning and projects the environment of the country will be changed by 2030 at a four-fold level, and Pakistan will need almost 14 billion US dollars every year for climate change in the country.

Keeping in view the situation, it has become necessary for Pakistan to "exploit all its domestic sources of energy, including coal, hydro, wind and solar," and to discover some alternatives like nuclear and local coal-based energy in the power sector would be "inevitable" in the future. There is a clear-cut violation of laws, these sections prescribe the penalty and the construction of a power plant is an express violation of these laws. Locals are facing health issues, the natural environment is disturbing day after day, and economic conditions are also lowering because there will not be friendly environmental policies and laws coupled with the enforcement of those laws would be severe and harsh. The Environmental Protection

Act, of 1997, is clearly describes that Environmental Impact Assessment reports are mandatory but they are hidden and not in the access to the general public and it has violated the Constitutional and Fundamental Right to Information under Article, 19-A of the Constitution of Pakistan 1973. Section 91 of the CPC also prescribes the Public Nuisance and the section is only procedural in nature but who would be responsible for these severe repercussions?

Interviews from Doctors

When it was inquired from Dr Rida Usman, who is a doctor in District Head Quarter Hospital, Sahiwal. She expressed her views that coal-based energy production projects are not only unfriendly to the atmosphere but are also dangerous for the health and life of people living in the local areas of such projects. She said that due to environmental issues, human health is disturbed at a high rate and power plant has contaminated air, and water and life is suffering. Coal combustion in particular contributes to diseases affecting large portions of the population, including asthma, lung cancer, heart disease, and stroke, compounding the major public health challenges of our time.

On asking from Dr. Mozzam Hussain, expressed his ideas that not only human health but also the life of plants and other organisms are facing challenges. He further stated that the primary fuel used in coal-based energy production projects is bituminous coal, which contains sulphur dioxide, nitrous oxide, particulate matter, the mercury, and they cause the diseases of asthma, bronchitis, brain damage, cardiovascular problems, cancer, neurological disorders and premature deaths, the Sulphur dioxide and the nitrous oxide cause formation of ground-level ozone and the particulate matter leading to respiratory and cardiovascular problems.

Dr Akram Ahmad, who is currently serving in the District Head Quarter Hospital Sahiwal, expressed that due to coal-fired power plant projects, human health is facing serious issues of the lungs, sudden deaths due to heart attack, and premature deaths, as well as the mortality rate, is higher in infants due to the ash and contamination of power plant.

Dr. Kamal Asim, also stated the same issues of the same kind and the local community is facing serious health issues which include heart attack, cancer, mortality and infant death.

Dr Aleeza Rehman, serving doctor in District Head Quarter Hospital in Sahiwal, according to her views, the coal-fired power plant in Sahiwal is creating serious health issues like skin problems, throat issues, heart attacks, infant mortality etc., (Dawn News).

Conclusion

In a nutshell, to recapitulate as the whole Science is clear on the fact that coal is exacerbating climate change which leads to catastrophic weather events such as glacial lake outburst floods, cyclones and sea intrusion. What are the reasons that the countries despite all these health issues, environmental issues and life risks, prefer coal-based energy production projects and why is the Government of Pakistan venturing into coal-based projects? Contrary to the endings of the Punjab EPD, the local residents of Qadirabad, Sahiwal, had complaints about the negative health impacts of this project; they mentioned that this project is causing bad air quality, depleting and deteriorating groundwater and impacts on agriculture. Not only are the environmental and health issues created during the coal-based energy-based production projects but the laws are also being violated openly and the whole community is disturbed especially the residents of the local community. It is now dependent on the government and the other related authorities to look into the pros and cons of such projects and then investigate the matter and address the environmental concerns that the local communities have been raising for years and years. It is also important for the government to think about alternate projects for this purpose which may be environment friendly, less expensive and more beneficial. Pakistan is a rich country in this sense and it has vast sources of minerals, mines and other natural sources which can be utilized for such projects. If such projects and not substituted with alternate sources then Pakistan will suffer not only the environmental and health issues but will suffer financially which is not affordable for this country.

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