

Pollution Production through Brick Kilns and Its Negative Impact on Environment

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ABSTRACT

We all know that our living environment is full of different gases, both pure and mixed. In normal conditions, all these gases are present in appropriate and known amounts, either less or more. The environment is polluted or facing a threat to life so man needs to burn some materials as fuel to meet his needs. The bricks requirements which may harm the environment have been raised so one of these brick baking cases is done by humans, certainly the living environment will be threatened. Looking at this issue considered necessary and important for the physics department, we conducted this preliminary study in order to determine what type of fuel is used in bricks at the level of the entire country. Bricks baking materials usage issue is very important in terms of value because its results are shared with the authorities of environmental protection organizations. The purpose of this research was to find out about the kind of the fuel used in brick kilns in Nangarhar district of Sarkhrood and to know its effect on the environment. Regarding the topic, we also studied the articles written by professors of international universities from reliable websites in order to compare and discuss the situation of our country with other countries. From the research, it was found that more rubber and less coal are used for baking bricks in brick kilns. According to this study, we can draw the attention of the officials of the Environmental Protection Organization to end the existing problems in the field of environmental protection.

Keywords: kilns, heat, brick, environment, wood, coal, rubber

INTRODUCTION

As you can see, an oven must be built to bake bricks and heat is created in it so that the water in the bricks is lost due to the heat and as a result the brick becomes solid. It is certain that in addition to the heat production, smoke or carbon dioxide is also produced. Then, it is transferred to the environment where it affects the clean air of the environment. Materials such as rubber or iron should not be used since it directly affects the environment even small pieces of rubber are transferred to the environment causing various diseases.



Fig. 1: The Sarkhrood bricks and living area indicate the proximity and production custom.

From the conducted research, we come to the conclusion that baking bricks is a necessity, but it is crucial to have a clean living environment. Suitable fuel must be used for baking and benefiting from bricks. Use the ceremonies of other countries and transfer them to our own country. In order to produce bricks for buildings and on the other hand, not to pollute the living environment. In the study, the practices that are used internationally are presented should also implemented in in the aforementioned area.

Brick kilns have destroyed their beautiful environment not only in Afghanistan but also in other countries of the world. The increase in population has led to the rise in the construction and manufacturing of bricks.

Bricks are manufactured in brick kilns that emit very harmful gases which in turn affect the human health, environment and economy. (Muhammad Wassem et al., 2019). Sulphur dioxide (SO₂) is one of the main products released from the combustion of Sulphur containing compounds in most energy fuels having significant environmental concern. (Bhat et al., 2013). Globally, it is difficult to estimate how many people die off prematurely or get sick due to air pollution because people are exposed to so many different pollutants in various concentrations over their lifetimes. However, according to WHO for air pollution approximately 3 million people have died each year. Among them, 800,000 people die prematurely every year due to lung's cancer, cardiovascular and respiratory diseases, which are caused by outdoor air pollution (WHO, 2000). (Suman et al., 2013). Brick kiln emission is a kind of pollution which directly affects the environment, human health, and food production. There are exclusive pollution emitting from brick kilns including Oxides of Sulphur (SO_x), Oxides of Nitrogen (NO_x), Carbon dioxide (CO₂) and Hydrogen fluoride (HF). (Sarwar et al., 2019). Residents of the city of Qahab in Iran, where there is a brick kiln, also complain about the bad environment. In 2009, a study was conducted in Thailand that the highest amount of sulfur dioxide affects the living environment through brick kilns. In 2008, a study in India found that large amounts of heavy metals pollute the air as a result of brick kilns. In 2008, research was conducted in Pakistan that there are many furnaces near residential areas. Instead of coal, plastic is used, which has affected the living environment due to the increase in the amount of different chemical elements. (Zahra et al., 1391). A comprehensive definition of living environment can be given as follows: what surrounds us, affects us and is affected by us, is generally divided into natural environment, social environment, and artificial environment. Five main elements of environmental pollution have been identified, more than 90% of the environment is polluted by these five elements. Which includes carbon monoxide, sulfur oxides, nitrogen oxides, suspended particles, hydrocarbons and volatile compounds. (Moradi, 1396). At high altitudes, the air pressure is lower and at high altitudes, the relative pressure decreases, the decrease in air pressure causes the air to become thinner, and as a result, the amount of oxygen in the altitudes decreases. Low blood pressure is one of the main causes of problems. As a result, it causes shortness of breath, muscle weakness, and other such diseases. (Shebani, 1390), (Moqimi, 1386). Uncontrolled fires caused by humans have a significant impact on natural ecosystems. Burns can make significant changes in society. (Nabizadah et al., 1397). The FCKs emit large quantities of carbon dioxide and other environmental pollutants into the atmosphere each year, causing a harmful impact on health, agricultural yields and climate (Hossain et al., 2019).

MATERIALS AND METHODS

The method of this research is field. In order to obtain information and research materials, three types of questionnaires have been prepared; first, for the owner of the brick kilns, second for the workers in the kilns, and third for people living in the kilns areas. These questionnaires are physically shared closely and the answers are analyzed. In order to collect information, we went to the furnace nearby and watched the people closely.

Samples Collection

The participants of this research, including a total of 160 questionnaires, are the owners, workers, and residents of 10 huts in Sarkhrood district of Nangarhar province; 10 items were answered by owners, 50 items by workers, and 100 items by residents of the areas.

Statistical analysis

We have done data analysis using the Excel program.

RESULTS

Three types of questionnaires have been prepared for this research which include furnace owners, furnace workers, and furnace residents. The total number of question pages reaches 160, the number of different questions in the question page is presented in different ways. We want to divide it into three parts, analyze each part separately, and arrange the results in tables. First of all, let's consider 10 owners of the furnaces.

Out of the above 10 people, 6 people (60%) said coal and 4 people (40%) said that rubber or rubber is very effective for baking bricks. And 8 people (80%) say that they use coal, and 2 people (20%) say that they are allowed to bake bricks with rubber, and 10 people (100%) say that they use coal for baking bricks. And 4 people (40%) say that it is clay and 6 people (60%) say that they like to make bricks rubber. 7 people (70%) of the above 10 people are more satisfied, 3 people (30%) are very satisfied with the fuel consumed in brick kiln, 6

people (60%) of the residents of the area are very satisfied, and 5 (50%) are very satisfied. % less and 1 (10%) complain a lot. The reason for the complaints of residents and workers of the region 3 (30%) is the destruction of the environment, 7 (70%) traffic, and the well-being of the people of the region. The response of the pit owners to the complaint is 1 (10% money and 9% (90%) for employment). Unauthorized fuel by the government, their punishment is 8 (80%) cash and 2 (20%) other types. If they use illegal fuel by the government, their punishment is 8 (80%) cash and 2 (20%) other types. No action was made to dispose of custom products.

Table 1: The table shows the analysis of the questionnaire of the owners of brick kilns.

No	Subject	Coal	Tire or rubber	Wood	Oil
1	Comments material effective in construction employer	6(60%)	4(40%)	0(0%)	0(0%)
2	Comments on the legality of the materials used in baking	8(80%)	2(20%)	0(0%)	0(0%)
3	Considerations related to cooking materials at home	10(100%)	0(0%)	0(0%)	0(0%)
4	Opinions about the material of interest for the firm employer	4(40%)	6(60%)	0(0%)	0(0%)
5	Opinions about the satisfaction of the people of the region about fuel consumption at home	very little 0(0%)	Little 0(0%)	Much 7(70%)	very much 3(30%)
6	Comments Complaints of the people of the region about fuel consumption in the house	4(40%)	5(50%)	1(10%)	0(0%)
7	Opinions about the reasons for the dis satisfaction of the people and workers of the region	Environmental destruction 3(30%)	Movement of people in the region 7(70%)	Reduction of natural water resources 0(0%)	all this 0(0%)
8	Comments on the response to the complaint of the people and the workers of the department	Fast 0(0%)	Apologe 1(10%)	Money 0(0%)	Work 9(90%)
9	Ideas about what to do if you use illegal substances	stop work 0(0%)	Imprisonment 0(0%)	cash penalty 8(80%)	Other type 2(20%)
10	His view on what is happening with the use of illegal fuel by the government	0(0%)	0(0%)	8(80%)	2(20%)
11	No action has been taken to purify the tradition or custom.				

Out of the above 50 people, 33 people (66%) said that coal and 17 people (34%) said that rubber is very effective for baking bricks. And 45 people (90%) have done it, and 5 people (10%) have been given permission to bake bricks, 22 people (44%) have done it, and 44 people (88%) say that they use rubber or rubber to bake bricks, 6 people (12%) say that they like to bake bricks by rubber, and 11 people (22%) and 39 (78%) say that when baking rubber bricks or bitumen causes disease. The satisfaction of 3 people (6%) of workers is very low, 14 people (28) are less, 24 people (48%) are more satisfied and 9 people (18%) are more satisfied with brick kiln fuel. 9 (18%) workers complain about too little fuel consumption, 22 (44%) less, 12 (24%) more and 7 (14%) too much. 27 (54%) causes of employee complaints are environmental damage, 15 (30%) are people's burden and 8 (16%) of all of them, 28 (56%) are owners' response to employee complaints, and 22 (44%) are presentations. Recruitment. When the government intervenes in the use of illegal substances, there is a 50 (100%) fine. The above rate is given in the table below.

Table 2: The table shows the analysis of the questionnaire of brick kiln workers.

No	Subject	Coila	Tire or rubber	Wood	Oil
1	Comments material effective in construction employer	33(66%)	17(34%)	0(0%)	0(0%)
2	Comments on the legality of the materials used in baking	45(90%)	5(10%)	0(0%)	0(0%)
3	Considerations related to cooking materials at home	22(44%)	28(56%)	0(0%)	0(0%)
4	Opinions about the material of interest for the firm employer	44(88%)	6(12%)	0(0%)	0(0%)
5	Observations on diseases caused by fuels used in brick kilns	11(22%)	39(78%)	0(0%)	0(0%)
6	Comments Complaints of the people of the region about fuel consumption in the house	very little 3(6%)	Little 14(28%)	Much 24(48%)	very much 9(18%)
7	Complaints about the people in the area	9(18%)	22(44%)	12(24%)	7(14%)
8	Comments on the causes of employee dis satisfaction	Environmental deterioration 27(54%)	People came to the area. 15(30%)	The lack of natural water resources 0(0%)	all this 8(16%)
9	Opinions of furnace owners' responses to workers' complaints	Fast 0(0%)	Apology 28(56%)	Money 0(0%)	Work 22(44%)
10	Complaints of the people of the region about the fuel used in the furnace	to stop work 0(0%)	to close 0(0%)	cash penalty 50(100%)	Other type 0(0%)

Out of the above 100 people, 40 people (40%) said that coal and 60 people (60%) said that rubber or rubber is very effective for baking bricks, and 39 people (39%) say coal, and 61 people (61%) say permission for rubber for baking bricks, 92 people (92%) say coal, and 8 people (8%) say that they use rubber for baking bricks, 30 people (30%) like clay and 70 people (70%) say that they like tire or rubber for baking bricks, and 30 people (30%) They say that coal and 70 people (70%) say that they bake bricks by using rubber which causes disease. 11 people (11%) of the residents of the neighborhood are much less satisfied, 36 people (36%) are less satisfied, 50 people (50%) are more satisfied, and 3 people (3%) are more satisfied with the fuel consumed in brick kiln. 50 (50%) less, 42 (42%) more and 8 (8%) complaints of residents of the region about the fuel consumed in brick kiln. 13 people (13%) of the residents of the region said about the destruction of the environment, 45 people (45%) about the burden of the people, 42 people (42%) said something else, 47 people (47%) gave excuses, and 40 people (40%) presented they give workplace. When the government receives a complaint, 9 (9%) do very little and 91 (91%) do little. Regarding the distance from the furnace, 11 (11%) Sami residents answered one kilometer, 29 (29%) two kilometers, 40 (40%) three kilometers, and 20 (20%) four kilometers.

Table 3: The table shows the analysis of the questionnaire of residents around the brick kiln.

No	Subject	Coila	Tire or rubber	Wood	Oil
1	Comments on effective materials in making bricks	40(40%)	60(60%)	0(0%)	0(0%)
2	Considerations for baking materials in the oven	39(39%)	61(61%)	0(0%)	0(0%)
3	Boy's comments on favorite ingredients for baking bricks	92(92%)	8(8%)	0(0%)	0(0%)
4	Observations on diseases caused by fuels used in brick kilns	30(30%)	70(70%)	0(0%)	0(0%)
5	Comments on the legal burning of firewood	100(100%)	0(0%)	0(0%)	0(0%)
6	Opinions about the satisfaction of the people of the region about the fuel used in the furnace	very little	Little	Much	very much
		11(11%)	36(36%)	50(50%)	3(3%)
7	Complaints of the people of the region about the fuel used in the furnace	0(0%)	50(50%)	43(43%)	7(7%)
8	People's views on handling government complaints	9(9%)	91(91%)	0(0%)	0(0%)
9	Comments on the causes of employee dissatisfaction	Environmental deterioration	People came to the area.	The lack of natural water resources	all this
		13(13%)	45(45%)	0(0%)	42(42%)
10	Opinions of furnace owners' responses to workers' complaints	Fast	Apologe	Money	Work
		13(13%)	47(47%)	0(0%)	40(40%)
11	People's opinion about the government's punishment in case of using illegal fuel in furnaces	to stop work	to close	cash penalty	Other type
		0(0%)	4(4%)	96(96%)	0(0%)
12	Comments on the distance of residents from the furnace	1Km	2Km	3Km	4Km
		11(11%)	29(29%)	40(40%)	20(20%)

DISCUSSION

From the conducted research, it was found that most of the respondents (60%)6 of the questionnaire of brick makers consider it as Coila (an effective material for baking bricks). (80%) 8 the respondent says that he has officially obtained permission from the Government. (100%) 10 Owners say they use Coila for baking bricks, (60%) 6 kiln owners say they prefer rubber for baking bricks. (70%) 7The owners of the kilns say that the residents and workers of the region are more satisfied with (50%) 5 the materials used in the brick baking process. (70%) 7The reason for that is the traffic and prosperity of the people of the region, (90%)9 the owners of the kilns say. In response to people's complaints, they have provided work for them. (80%)8 The owners of the furnaces say that if we do not use fuel according to the law, we will be fined. (80%) 8 The owners say that they have been fined by the government. It has done nothing to filter the tradition. Based on these. In the process of heating many gases are transported to the environment. (Muhammad wassem et al., 2019). 33 people (66 %) were employed in the country and 45 people (90 %) were employed in the country with an official permit, I will be with you. 28 people (56%) bought it and to use it, they bought plastic for rent. 39 people (78%) used plastic in this case. 24-hour residential area (48 minutes) Two residents and residents in the same area with property interests who visited the adjacent apartment, 22 downtowns (44 hours) Resident complaints about how often do you call me? 27 people (54%) evidence of complaints about vandalism in the area around the east, 28 people (56%) compared to the complaints of an excused landfill, and Man used. 50% (100%) of the battery's employees say that if they do not use fuel according to the law.

There are various diseases caused by increasing carbon dioxide in the environment. (Hossain et al., 2019), Iran, Thailand, India and Pakistan are also affected by different greenhouse gases. (Zahra et al., 1391). the owners of the plant will be fined cash., From the research conducted, it was found that 60 (60%) of the respondents who live around kilns say that rubber or rubber is the most effective means of firing bricks or rubber is licensed. 92 people (92%) of the residents say that they use clay for baking bricks, 70 (70%) of residents in the vicinities of the brick kiln say that they are satisfied with clay for baking bricks, 50 (50%) of the residents say that the tire is the cause of the disease, 50 people (50%) of the furnace workers say that residents and workers of the area are less satisfied with the materials used in the brick baking process. More than the goods, 47 (47%) of the complaints of the area are traffic and people's welfare, 100 (100%) of the residents of brick kiln say that clay should be used in brick kiln for baking bricks, 96 (96%) residents say owners are fined by the government if they use illegal fuel, 91 (91%) residents say the government does not pay much attention to their complaints, 40 (40%) residents within three kilometers Live. According to brick-making plants, the environment of life is polluted by combined gases such as carbon dioxide, sulfur dioxide, nitrogen oxide, other particles and hydrocarbons. (sarwar et al., 2019).

CONCLUSION

In the government of Lori, all kinds of constructions are allowed in the official or legal form of the country or in the middle of the day. Illegal use of tires or rubber materials can cause environmental damage to a large extent. So far, neither the government nor the owner's office nor the owner's office has taken any measures to clean up the smoke. According to the research, there are very close to the residents. In front of the complaint, the workers are excused or asked to prepare for the work.

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