
**LABOUR EXPLOITATION AT BRICK KILNS IN
DISTRICT TANDO MUHAMMAD KHAN**

Asifa Khowaja

Lecturer, Government Mir Ghulam Muhammad Degree College, Tando Bago

Email: asifakhowaja@gmail.com

Salma Baloch

Lecturer, Government Girls Degree College, Hyderabad

Email: profsalmabaloch@gmail.com

Ghulam Rashid Memon

Lecturer, Government Boys Degree College, Tando Muhammad Khan

Email: ghulamrashidmemon@gmail.com

ABSTRACT

More than 18,000 brick kilns spread over different parts of Pakistan produce about 45 billion bricks every year. Families working at the brick kilns play a crucial role in the economy of Pakistan, but they face numerous challenges at the workplace verging on the conditions of bonded labour. Trapped through advance payments, the labour is hired on meager wages and endures verbal as well as physical abuses along with restrictions on their mobility. This study explores the exploitative nature of kiln labour, its causes and consequences, and the relationship between task-oriented labour and disturbance in family activities. The data was collected through a self-structured questionnaire from a sample of 43 adult respondents, who were the heads of families working at the brick kilns. Non-probability quota sampling technique was applied. The data analysis was managed through SPSS applying significance and correlation tests. Findings reveal that the brick kiln labour work for long hours and can suffer severe stretch in their work-life activities owing to task-oriented wages.

Keywords: Debt bondage, Task-oriented labour, Brick kilns, Work-life balance, Advance payments

INTRODUCTION

Being the oldest industry as the human civilization itself, no improvement has been seen in the financial and working conditions of the labourers employed in brick kilns, in spite of the fact that Pakistan is ranked the third largest bricks producer country in the world after China and India (Niaz et al., 2018). The brick kiln industry in Pakistan has been considered one of the biggest industries in Asia. A recent study shows that Pakistan is a country which has more than 18,000 brick kilns, which are laid over different outskirts of towns and cities of the country, and produce about 45 billion bricks every year (Shaikh et al., 2020). Though advancement in mechanization has greatly reduced physical stress on the labourers in numerous fields, but in the case of brick kiln industry, it still remains the most physically demanding occupation (Sajan et al., 2017). With rapid technological changes, the shape, plan and weight of bricks have gone through various verifiable changes but the kilns are still devoid of basic facilities like unsafe and unclean water, and shelter for the labour (Kataria et al., 2018).

The labourers are paid on piece rate or they get *peshgi* (advance payment) from the owner of the brick kiln against their future work

(Kataria et al., 2018). Those advance payments take the shape of loan with the highest interest rate. Due to increased population growth and poverty, labourers are confronted with many issues, the most challenging is forced labor (Niaz et al., 2018). The low-wage labour, already financially constrained, are highly prone to seek advance payments to sell their services. During the operation of brick kiln factories, the *peshgi* labourers are given half wages and the remaining half is deducted as the installment toward re-payment of the advance loan. Thus, the families of labourers cannot cover their basic needs and incur more debts from the owners of the brick kilns aggravating their vulnerability to physical, verbal, financial and social abuse (Kataria et al., 2018). The grips of these debts are severe that the families cannot get themselves out of it for generations despite working for 11-13 hours per day without break during the operational span of factory (Niaz et al., 2018). It has been observed through various field surveys that strong restrictions are placed on the mobility of workers who avail advance payments from the owners; they are confined by the private guards and agents within the premises of kilns. Private security guards equipped with arms stand alert round the clock lest anyone attempts to escape (Malik, 2016). The permission to go out to male heads is conditional upon leaving children or other family members inside as surety (Desingu, 2020). A restriction on their freedom of movement makes it difficult for them to unite to contact with other co-workers at other kilns and organize any union or gather for any injustice. Nevertheless, when they do, there is often resistance from brick-kiln owners. They are strictly prohibited by employers that they must not join unions or attend meetings (Subhanullah et al., 2022). Union activity is often brutally repressed. According to the prevailing laws in Pakistan, debt bondage is prohibited by the Bonded Labour System (Abolition) Act 1992. However, implementation of the relevant legislations protecting this vulnerable section of labour is apparently weak (Shah, 2020).

Furthermore, task-oriented wages compel the workers for 10-12 hours a day who find hard to maintain balance between their personal and professional lives. The demand of work at kilns interfere the life of workers at home, they become unable to pay much attentions to their family and friends (Devadoss & Befija Minnie, 2014). Works at home remain undone because of the demand job puts on them. To improve work-life balance, supporting the workers at the time of emergency, fair time schedule and adequate wages along with basic facilities and timely incentives are necessary ingredients (Hong, 2020). The workers are able to carry out their life activities only when these bricks kilns remain dysfunctional during stormy or rainy seasons, however, they endure this period without livelihood and at the mercy of middlemen who arrange them *peshgi* (Niaz et al., 2018). Extensive studies and research on work-life balance reveal that, more than financial pressures or family problems, work-life imbalance affects the physical and mental health and may trigger severe complications if left ignored (Bajracharya et al., 2022).

This research study explores the relationship between advance payments and bonded labour due to which workers face verbal as well

as physical maltreatment and restrictions on their mobility at the workplace. The significance of the study lies in proposing few concrete measures improving the living and working conditions of these families.

LITERATURE REVIEW

Construction activity in any country plays an essential role in her infrastructure and industrial growth, and brick kilns are its manufacturing units. Labourers, especially from villages, prefer working in these kilns. But, according to (Rajvanshi, 2022), these workers in this unorganized sector continue to be one of the most vulnerable and ignored community.

Their living and working conditions are rather tough for them and are exposed to hazardous substances; children get injured quite often at work and women experience sexual harassment. (Consultants of Samuel Hall & Consultancy, 2011) analyses bonded labour in brick kilns within the broader humanitarian and development context to assist the stakeholders in addressing the hazards of bonded labour in light of social, economic and policy agendas, an analysis of bonded labour in brick kilns within the larger humanitarian and development context is conducted. In the same context, Iqbal (2006) opines that bonded labour is a dominant feature of the brick kiln industry. The issue has a multitude of socioeconomic ramifications, and its resolution requires a multifaceted approach that combines economic growth, social engagement and educational breakthrough for connected families.

Besides, Aftab (2011) believes that the poverty cycle is a key characteristic of the families working at the brick kilns in the provinces of Punjab and Sindh.

Along with their parents and other family members, children who labour at brick kilns are subject to dangers pertaining to safety and protection and have limited access to facilities for education, health, and other essentials like clean bathrooms and safe drinking water. The brick making process involves several steps that are not appropriate for youngsters, and the working conditions in brick kilns are hazardous to human health as well. She cites the shortage of the financial credit in the brick kiln industry and the system of employment contracts in the unorganized sector as the two main causes of bondage labour. Besides, the involvement of children at these brick kilns is illustrated in the study conducted by SPARC in the locale of district Hyderabad. The report (SPARC, n.d.) claims that adolescents are introduced to the claims that adolescents are introduced to the procedure in brick kilns at a very young age. They are typically expected to bring clay from a distance, mix it with the proper amount of water to make the brick-making material and then dust the hot, baked bricks to remove the undesired film of dust from the prepared product. This frequently results in burned hands and other injuries.

In contrast to the traditional types of dependency, which exhibited a more complicated social and economic dependency, Kumari (2018) analyses the conditions of kiln labour in terms of commercial transactions known as neo-bondage. Under this structure, employees take

out short-term loans with excessive interest rates and when they fail to repay them and a debt cycle and bondage result.

This arrangement restricts their ability to move about and seek employment in other places. Additionally, it limits their ability to bargain for higher minimum salaries and make them labour in horrible conditions.

Brick kiln factories are located far from settled areas, their workforce is isolated from the majority of the population, working in appalling conditions and invariably maltreated. Scanty literature is available on the issues related to their work-life activities.

STATEMENT OF THE PROBLEM

Exploitative conditions of labourers at brick kilns are eye-opener for all the stakeholders despite increasing demand of bricks and brick kiln industry itself. Advance payment or loan should be available for all the employees of any industry but in the case of brick kiln industry, the low-wage workers who take loan become virtual bonded labour till the recovery by owner and as a result workers face physical, social, verbal abuses, besides restriction on their mobility is imposed by the owners. Workers take advance payment for different purposes, such as, to pay previous master, sending money to relatives, any health emergency or to perform any ritual at the kiln-sites or their villages. Due to advance payments, the labourers fall prey to nasty and malicious system of bonded labour at the hands of kilns owners till the final recovery of loans. Furthermore, by working long hours at the kilns they can scarcely maintain balance in their professional and personal lives. Prolong working hours and toughest demand of job snatch from them the happiness to spend leisure time together, they are denied participation in their social and religious rituals and even their personal works at home remain unresolved. This study will explore and analyze the problems of the workers faced by them and present feasible suggestions.

PURPOSE OF THE STUDY

Perforce thousands of workers are engaged with their family members (adult and children) at the brick kilns (Bajracharya et al., 2022). Majority of them works in bonded environment owing to different compulsions. After taking some advance payments, the labourers are caught in the vicious and frightful cycle of bonded labour, where they have to work incessantly till the final recovery of loan. The long working hours disturbs their professional and personal lives. The imbalance in their lives creates numerous problems for them, including hardships in their smooth working at the kilns. In this regard, this research aims at exploring and analyzing the problems faced by the labourers at the brick kilns in district Tando Muhammad Khan. The researchers personally observed the problems faced by workers through personal site visits and conducted survey of the basic facilities at workplace including provision for emergency health services, safe drinking water, hygienic toilets and microfinance loans.

RESEARCH METHODOLOGY

The locale of the study is district Tando Muhammad Khan, Sindh. The business of brick kilns is not regulated officially, the researchers personally explored all the brick kilns of Tando Muhammad Khan and found 12 brick kilns existing in the three Talukas of the district: 4 in Bulri Shah Karim, 1 in Tando Ghulam Hyder and 7 in Tando Muhammad Khan. Cross sectional study design was adopted to collect primary data from the field by using self-structured questionnaire. Different parameters such as working conditions, daily wages, daily working hours, advance payments/peshgi if taken, productivity, residential status, household composition, monthly income, number of family members, health and general problems, educational status, work-life balance and any restriction upon their mobility were mainly considered while questionnaire schedule was developed. For further understanding the opinions of different persons about the working conditions of labourers, wages, timing, facilities, work life balance an open group discussion was conducted with 8-10 workers at each surveyed brick kilns using non-structured checklist.

Sample Size

The labourers at brick kilns in District Tando Muhammad Khan were the universe of the current study and families working at brick kilns were the target population. Of all the twelve factories, the biggest brick kiln factory in TM Kemployed 9 families; while, the smallest in Tando Ghulam Hyder hired 3 families. On average, 6 families were estimated working in each brick kiln factory. Considering 3 workers per family, there were 216 brick kiln workers on all 12 factories of the district. Keeping in view 20% of the target population as the sample size, a sample of 43 respondents was managed. Non-probability quota sampling technique is used as given in Table 1.

TABLE-1
SAMPLE SIZE DISTRIBUTION

Area	No of Brick Kilns (%)	No of Respondents (%)
Tando Muhammad Khan	7 (58.3)	25 (58.1)
Tando Ghulam Hyder	4 (33.3)	14 (32.6)
Bulri Shah Karim	1 (8.4)	4 (9.3)
Total	12 (100)	43 (100)

Source: Research Study

HYPOTHESES

- H1:** Advance Payments to the labour is significantly related to the exploitative conditions at brick kilns.
- H2:** Task-oriented wages significantly disturb the work-life balance of the kiln workers.

RESULTS

The most of the workers entered the brick kiln industry owing to decreased demand of their labour in rural areas of Pakistan. Increasing

unemployment, poverty and illiteracy compel the unskilled labourers to go for any work at their reach. It was observed that lower wages employees are highly prone to seek advance and sell their labour. Strong restriction on the mobility was placed on the workers who took advance payments. They were guarded with armed security guards round the clock. Most of the workers (92%) who took advance payments were necessarily underwent physical torture by the owners. Majority of Labourers (66.7%) work for less than 50 hours per week reported no interference of work into life activities. 83.3% workers working less 50 hours per week didn't find any encroachment of job time on family time. All workers reported that due to task oriented job, they put off their family activities on account of time strain in completion of the job activities. Many of the labourers take advance loans at these kilns which in return make them bonded labour or debt bondage. The indebted workers are bound to work there under whatever conditions provided by the owners. Mostly without provision of basic facilities at the kilns, labourers face physical, verbal, psychological abuses hurled at them by owners.

H1: Association between Advance Payments and exploitative conditions of labourers at brick kilns

The factor of advance loan is apparently related with the income bracket. Brick kiln labour in various ranges of income availing *peshgi* are given in Table 2.

TABLE-2
MONTHLY INCOME AND NUMBER OF EMPLOYEES
ON ADVANCE LOAN

Monthly Income Rs.	Advance Loan (N=43)	
	Yes	No
5000-8000	17 (100%)	0 (0%)
8001-11000	8 (85%)	3 (15%)
11001-14000	3(33%)	6(67%)
14001-17000	1(25%)	3(75%)
Above 17000	0 (0%)	100 (100%)

p=0.001 df=4

Table 2 shows significant relation between monthly income and advance payments as $p < 0.005$. Also, the lower wage employees are highly prone to seek advance payments to sell their labour, while the high wage employees work without constraint.

Furthermore, *peshgi* entails conditions on the receiver, and the most notorious among these constrictions is the restriction on freedom for access outside the work site. The results on this relationship is shown in Table 3.

TABLE-3
RESTRICTION ON MOBILITY AND ADVANCE PAYMENTS

Restriction on your mobility	Yes	Advance Payments (N=43)	
		Yes	No
	No	29(93.5%)	2(6.5%)
	No	0(0.0%)	12(100%)

p=0.000 df=1

Table 3 indicates highly significant relation between restriction on mobility and advance payments ($p < 0.001$). It shows that there is strong restriction on mobility is placed on the workers (93.5%) who have availed advance payments compared to those (6.5%) who have not.

Not only workers are illegally confined but they are abused ruthlessly. Having faulted with *peshgi* the labour is now at the mercy of employer. Workers who have availed advance payments are physically maltreated or not is indicated in Table 4.

TABLE-4
PHYSICAL TORTURED AND ADVANCE PAYMENTS

Physical Torture	Yes	Advance Payments (N=43)	
		Yes	No
		23(92.0%)	2(8.0%)
	No	6(33.3%)	12(66.7%)

p=0.000 df=1

Table 4 represents highly significant relation between physical torture on workers and advance payments ($p < 0.001$). It shows that those workers (92%) who have taken advance loan necessarily undergo physical torture; but, those (8%) who have not taken advance loan have also experienced physical torture. It is significant to note that those 66.7% workers who were not subjected to physical punishments had not taken any advance loan.

H2: Task-oriented wages and the work-life balance of the kiln workers

Under the international norms, leisure and leave are the mandatorily permitted to the labour. But, the workers at kilns in our study site are reduced to penury and they are obligated to task-oriented wages which immensely impairs their family time depicted in Table 5.

TABLE-5
DEMAND OF WORK INTERFERES WITH MY HOME AND FAMILY LIFE

Category	Working hours per week			Total
	Less than 50 hours	Between 51 and 60 hours	Above 60 hours	
Disagree	4(66.7%)	1 (9.1%)	3(11.5%)	8(18.6%)
Neither Agree Nor Disagree	1(16.7%)	5(45.5%)	5(19.2%)	11(25.6%)
Agree	1(16.7%)	5(45.5%)	18(69.2%)	24(55.8%)
Total	100.0%	100.0%	100.0%	100.0%

P=0.008 df=4 Spearman Correlation = 0.434 Gamma=0.572

Table 5 represents 66.7% workers working less than 50 hours per week reported no interference of work into life activities, while 55.8% workers working more than 50 hours per week stated disturbance in their life activities due to work. The relation between working hours per week and demands of home life is significant ($p < 0.05$) and the correlation is positive ($r = 0.434$).

TABLE-6
THE AMOUNT OF TIME MY JOB TAKES UP MAKES IT DIFFICULT TO FULFILL MY FAMILY RESPONSIBILITIES

Category	Working hours per week			Total
	Less than 50 hours	Between 51 and 60 hours	Above 60 hours	
Disagree	1 (16.7%)	0(0.0%)	2 (7.7%)	3 (7.0%)
Neither Agree Nor Disagree	5(83.3%)	6(54.5%)	7(26.9%)	18(41.9%)
Agree	0(0.0%)	5(45.5%)	17(65.4%)	22(51.2%)
Total	6(100.0%)	11(100.0%)	26(100.0%)	43(100.0%)

$P=0.04$ $df=4$ Spearman Correlation =0.371

Table 6 represents 83.3 % workers working less than 50 hours per week do not find encroachment of job time on family time, similarly 54 .5% working between 51 and 60 hours do not find any difficulty in managing both work and family time. On the contrary, the workers working more than 60 hours have difficulty in looking after their family. The relationship is significant ($p < 0.05$) and the correlation is positive ($r = 0.371$). Hence the hypothesis is accepted.

TABLE-7
DUE TO TASK-ORIENTED JOB, I PUT OFF MY FAMILY ACTIVITIES

Category	Working hours per week			Total
	Less than 50 hours	Between 51 and 60 hours	Above 60 hours	
Disagree	0(0.0%)	1(9.1%)	3(11.5%)	4(9.3%)
Neither Agree Nor Disagree	3(50.0%)	5(45.5%)	1(3.8%)	9(20.9%)
Agree	3(50.0%)	5(45.5%)	22(84.6%)	30(69.8%)
Total	6(100.0%)	11(100.0%)	26(100.0%)	43(100.0%)

$P=0.017$ $df=4$ Pearson Correlation = 0.320 Gamma= 0.471

Table 7 represents all the workers at brick kiln report postponement of their family activities on account of time strain in completion of the job activities. The relationship is significant ($p < 0.05$) and the correlation is positive ($r=0.320$).

CONCLUSION

The primary data of this study highlights that the exploitation of labourers at brick kilns was at large, which requires urgent improvement in terms of housing facilities, access to social services, drinking water, sanitation, gas, schooling, and electricity. Most of the workers could not manage their budget and they take loans/ advance payment from the owners and become bonded labour till the complete

recovery of the payment. Significant association was found between advance payments and bonded labour, while highly significant association was disclosed between lower wages employees and physical and verbal abuses hurled at them by the kilns owners. Labourers face all inhuman conditions, restriction on their mobility, threats, physical, verbal and psychological abuses and become bound to work relentlessly to earn some livelihood.

Regarding work-life balance results provides clear evidence that the long working hours affect the work life balance of labourers which results in health problem, work productivity, family conflicts, and lower performance at work. Imbalance between the personal life and work life can have serious or adverse effects on the health and well-being. This imbalance usually occurs when the boundaries between the professional life and personal life are not clearly demarcated and followed with a discipline. Work-life imbalance leads to emotional stress, depression and anxiety. Significant association was observed between prolong time spent by labourers, and the disturbance of balance in their professional and personal lives. Disturbance was reported in personal lives of labourers due to job demand. There are symptoms of work life imbalance like physical and mental exhaustion, absence of mind, staying away from family and friends, overall productivity, poor reflexes, problem with concentration, risk of accidents, injuries, increasing level of stress, end up messing up with all the fronts of the life due to confusion and tiredness.

RECOMMENDATIONS

- The government should intervene and monitor all these brick kilns and set up monitoring and compliance cells with law across the all brick kilns.
- Right to minimum wage with decent working conditions, and basic facilities like health, education, shelter, microfinance loans, incentives, care for elderly persons should be ensured at the workplace.
- Advance payments or interest free loan be provided to labourers keeping in view their monthly income.
- International Labour Organization's working conditions, laws, reports defining the conditions with appropriate working hours, annual leave, maternity protection and minimum wages implemented in letter and spirit.
- Laws to safeguard worker's rights at Brick Kilns should be implemented.
- Written record of all employees, their advances/payback schedules and agreements should be sent to District Governments.
- Periodic gathering of labourers with official be arranged and their immediate problems should be resolved on the spot.
- The government should introduce reforms in brick kilns industry making stricter policies regarding license, renewal and recruitment of labourers.
- Awareness campaigns should be launched at kilns for imparting knowledge regarding work-life balance.

- Proper time management for labourers should be carried out.
- Families working at the kilns should have easy access to law enforcement agencies in case of any fraud and torture.

REFERENCES

- Aftab, A. (2011). Rights of Bonded Laborers at Brick Kilns: A Social Protection Perspective from Pakistan. In H. Osaka (Ed.), *Human Rights Education in Asia-Pacific* (pp. 45–57). Asia-Pacific Human Rights Information Center. <https://www.unodc.org/documents/southasia/External/HRE-APvol2.pdf>
- Bajracharya, S. B., Mishra, A., Hussain, A., Gurung, K., Mathema, L., & Banmali Pradhan, B. (2022). Do working and living conditions influence brick-kiln productivity? Evidence from Nepal. *International Journal of Occupational Safety and Ergonomics*, 28(3), 1452–1460. <https://doi.org/10.1080/10803548.2021.1899498>
- Consultants of Samuel Hall, & Consultancy. (2011). *Buried in Bricks: a Rapid Assessment of Bonded Labour in Afghan Brick Kilns*. www.ilo.org/publns
- Desingu, M. . P. (2020). Health Problems Faced by Brick Kiln Workers in Dharmapuri District in Tamilnadu. *Emperor International Journal of Finance and Management Research*, 10(10), 01–09. <https://doi.org/10.35337/eijfmr.2020.101001>
- Devadoss, Av., & Befija Minnie, J. (2014). Analyzing the causes of Work Life Imbalance in Working Environment using Induced Fuzzy Cognitive Maps (IFCM). *International Journal of Scientific & Engineering Research*, 5(2), 1043–1047. <http://www.ijser.org>
- Hong, K. J. (2020). Effect of working time quality on the work-life imbalance of nurses. *Journal of Korean Academy of Nursing Administration*, 26(1), 11–21. <https://doi.org/10.1111/jkana.2020.26.1.11>
- Iqbal, M. J. (2006). Bonded Labor in the Brick Kiln Industry of Pakistan. *The Lahore Journal of Economics*, 11(1), 99–119. <http://lahoreschoolofeconomics.edu.pk/EconomicsJournal/Journals/Volume11/Issue1/MuhammadJavaid.pdf>
- Kataria, J. R., Usman, A., Hussain, S., Usman, M., & Amjad, A. (2018). Breaking the Bonds of Poverty: Effectiveness of Microcredit in Improving the Wellbeing of Brick Kilns' Laborers in Pakistan. *South Asian Studies*, 33(1), 253–274. <https://ezp.lib.cam.ac.uk/login?url=https://www.proquest.com/scholarly-journals/breaking-bonds-poverty-effectiveness-microcredit/docview/2064891962/se-2?accountid=9851%0Ahttps://libkey.io/libraries/603/openurl?genre=article&au=Kataria%252C+Jafar+Riaz%253B>
- Kumari, S. (2018). Neo-bondage in the Brick Kiln Industry: A Case Study of Bihar. *Social Change*, 48(3), 384–397. <https://doi.org/10.1177/0049085718781687>
- Malik, N. (2016). Bonded Labour in Pakistan. *Advances in Anthropology*, 06(04), 127–136. <https://doi.org/10.4236/aa.2016.64012>
- Niaz, U., Jamil, Z., Shabbir Ch, M., & Nasim, S. (2018). Socio-Economic and Cultural Problems of Brick Kiln's Working Families: (A Case Study of District Faisalabad) 4 Psychologist at SFARI-Pakistan. *J. Appl. Environ. Biol. Sci*, 8(1), 106–111. www.textroad.com
- Rajvanshi, N. (2022). Socio-Economic Conditions Of Brick Kiln Workers In India. *Elementary Education Online*, 21(2), 283–292. <https://doi.org/10.17051/ilkonline.2022.02.20>
- Sajan, D., Md., S. Q. H., Rumana, A., Sumaiya, H., Sumana, K., Md., Z. H. G., & Mohammad, S. (2017). Socioeconomic conditions and health hazards of brick field workers: A case study of Mymensingh brick industrial area of Bangladesh. *Journal of Public Health and Epidemiology*, 9(7), 198–205. <https://doi.org/10.5897/jphe2017.0927>
- Shah, M. I. (2020). Problems of Bonded Child Labor in Brick Kilns Industry at Peshawar, Pakistan. *Pakistan Social Sciences Review*, 4(III), 209–217.

- [https://doi.org/10.35484/pssr.2020\(4-iii\)16](https://doi.org/10.35484/pssr.2020(4-iii)16).
- Shaikh, K., Imran, U., Khan, A., Khokhar, W. A., & Bakhsh, H. (2020). Health risk assessment of emissions from brick kilns in Tando Hyder, Sindh, Pakistan using the AERMOD dispersion model. *SN Applied Sciences*, 2(7), 1–11. <https://doi.org/10.1007/s42452-020-3089-1>.
- Subhanullah, M., Ullah, S., Javed, M. F., Ullah, R., Akbar, T. A., Ullah, W., Baig, S. A., Aziz, M., Mohamed, A., & Sajjad, R. U. (2022). Assessment and Impacts of Air Pollution from Brick Kilns on Public Health in Northern Pakistan. *Atmosphere*, 13(8), 1231. <https://doi.org/10.3390/atmos13081231>.
-