ISSN 2710-4524 (Print)

ISSN 2710-4540 (ISSN-L)

Journal of Educational Research & Social Sciences Review (JERSSR)

An Analysis of Art, Class and Culture of Glass Bangle Production in Hyderabad

Pakistan

1. Amjad Ali Talpur (Corresponding Author)

Lecturer, Shaheed Allah Buksh Soomro University of Art Design and

Heritages Jamshoro

2. Sajid Ali Talpur Lecturer, Shaheed Allah Buksh Soomro University of Art Design and

Heritages Jamshoro

Abstract



Pakistan culture is famous for its preference for different ornaments to represent feminine beauty specifically glass bangles. The study aims to analyze the production of glass bangles in Hyderabad Pakistan in relation to art and culture. For the analysis the researcher has used a qualitative approach and used (Vuituik, 2019) method of semiotic-hermeneutic to assess how even in the poor conditions for glass bangle production art is produced and has survived the test of times. The findings of this study reveal that the production of glass bangles is not merely a tool of capitalist production, they are rather symbols of feminine beauty and a strong symbol of art and culture in the Pakistani society.

Keywords: Glass Bangles, Hyderabad, Art, Culture, Labor

Introduction

Pakistan is a developing country where the General standard of living has not improved as it did in many other Asian countries. Here in most of the industries traditional manual labour is preferred over modern means of production, in this regard glass bangle is one after biggest industries of Pakistan. Word bangle comes from the word 'bangri', a Hindi/Bengali word, which generally means a piece of jewellery to be worn around the arm, a ring for the arm, or a simple glass bracelet or an anklet (Collins English Dictionary). In other languages there are various words used for bangles, like 'Chura', 'Churi', 'Choori' 'Kangan', 'Kada' and 'Valaya' etc Collins English Dictionary). Glass bangles are a coveted item of jewellery in South Asia, worn particularly by women of all ages from Pakistan and India. Both these countries have world's biggest bangle producing cities, Firozabad in India and Hyderabad in Pakistan. Although they are largely a tool of embellishment, they are also a crucial convergence between art and aesthetics, capitalism and class, and culture and values. They are a 'powerful communicative tool of culture' which is one of the most important and characteristic features' of these ornaments (Nikolenko, 2013 p.444). These bangles are a kind of bracelet that are usually made of glass, plastic, clay, or a mixture of several of these elements. They are worn as an expression of love, femininity, conjugal celebrations and beauty. Notably, some variants of bangles are also worn by boys in these cultures, which are called 'gajra' or 'kara, the latter usually made with stone or metal. These bangles are a way of cultural identification and cross-cultural communication. Apart from that they are also an expression of individualization of experience and outlook (Gla veanu, 2014).

It is believed that the making of glass bangles started as a cottage industry in Hyderabad and grew over time. The bangle industry normally manufactures for the need of the local population, but the overall demand in increased during the seasons of festivals which are numerous in Pakistan. In Hyderabad, there are various areas designated for the manufacturing of bangles, some of which are The Sindh Industrial and Trading Estate, Latifabad and The Old City. Whereas the SITE area resembles a proper industrial estate with many bangle manufacturing factories, The Old City and Latifabad are hubs of small, cottage units run mainly by families. The history of these areas goes way back to pre-partition time where many glass factories took up the task of making bangles. Now, there are almost 35 glass factories operating for the manufacturing of bangles. Many of the families

working as bangle-makers in the western UP city of Firozabad migrated to Hyderabad, Sindh and continues their work in the field.

Glass bangles in Pakistan are an item of mass consumption throughout the country and it specifically goes up during various festivities such as Eids and marriages. Glass bangles unmade in different sizes and colours karma it is customary call Pakistani women of all ages to wear them as ornamental decorations. Hyderabad is particularly famous for laws mangle production, there are 51 manual an mechanized glass bangle units spread throughout the city. There are hundreds of people involved in the production of these glass bangles from factory owners, permanent to temporary labourers, home based men and women, independent contractors and wholesalers. According to a survey PSWS there are 90 different processes storage glass bangles can be produced and almost all of them are used in Hyderabad.

This study aims to understand the nature of glass bangle production in relation to Art, culture and labour. The two research questions that this study puts forward:

- 1. What is the relationship between glass bangle production and culture?
- 2. How art and labor cannot be separated in glass bangle production process in Hyderabad?

Literature Review

No historical links are available to trace the development of glass or ornamentation in Pakistan are varied vague. Several origin points can be traced to analyze the significance of glass bangles in Pakistan starting from Islamic immigrants to trade fragments in Harappa and Mohenjo-Daro. it was under the mogul empire that the actual process of glassmaking developed along with the making of hookah balls perfume bottles play it's another's world stop (Govind, 1970; Kanungo, 2001; Sharma, 1981). The exploitative conditions of glass Bengal industry in Pakistan are no secret; for decades researchers, documentary makers, film makers and journalists have been flocking to the city of Hyderabad to document the lives and problems of glass bangle laborer's in the site city. There are some researches wait to have proven to be fruitful and the government of Pakistan has taken some steps to improve the conditions however there are still prevalent problems which may take ample amount of time to be dissolve the working shifts in the glass bangle industries in Hyderabad begin from a towers and each worker makes almost 300 bangles a day foot, most workers spend 12 hours each day under critical conditions for which they are compensated with very poor amount of money (Burra, 1986b). So, the factories in Pakistan provide precarious and extremely unsafe working conditions to their labourers, they still use outdated pot and tank furnaces called as "Bhatti" Where the temperature rises from 1400 to 1600 centigrade, these conditions become unbearable particularly in the months of summer which last for almost eight months in the city of Hyderabad. (Burra, 1986b) identified that many workers in the Hyderabad glass industry have been identified with tuberculosis and hepatitis because of the poor working condition, there is no other option for these workers I know the result they are forced to work in these conditions. Bano (2017), investigated the consequences of working in the factories, especially about the workers' health. The responses collected by administering questionnaires revealed that working conditions directly influenced the workers' physical well-being. In order to melt the 13 key ingredients in the pots, the core temperature of the furnace is maintained between 1400-1600°C. This, in turn, increases the ambient temperature inside the factories to 45-50°C. The workers, who must work eight to twelve hours every day, perform most of their job near the furnaces, leading to several health issues.

(Chandra, 2009) investigated the consequences of working in glass industry of Hyderabad and found that almost all of the workers physical and mental health being is at stake they are forced to melt various key ingredients in the tank furnace and there have to work in a very close proximity of that furnace which poses a serious threat to their health. There are serious issues of lack safety gear, sanitation, healthier. Inadequate ventilation calls my lack of sanitation, indoor air pollution, overcrowding and congestion only two long term physical and mental problems. Workers suffer from issues like pneumonia, asthma, bronchitis and tuberculosis.

(Bano, 2017) contended that this polluted air not only poses a serious threat to the labourers it is also very dangerous for people living in the surroundings of glass factories in Hyderabad. The literature suggests that the most affected socio-economic strata where the people who head from lower economic backgrounds and had no other way but to work and well in those areas. (Burra, 1986b) postulated that the factories are dangerous because they are littered with shards of glass and naked electric fires. Many workers reported that they have hearing problems as well because the noise

pollution in the factories have contributed into their deafness. These conditions also cause premature ageing and workers look far aged then their actual age.

After conducting an exhaustive literature review, we identified the gaps in the field, which our research attempts to fill. Firstly, previous research did not adopt a worker-centric approach to understand the functioning of the industry. I have got it out an exhaustive literature review and identified gaps in the field which my study will attempt to fill firstly the previous research did not adopt work-centric approach to understand how the factories actually worked in Pakistan. I have also identified third none of the researchers have directly interviewed the workers to gain their perspective except for Burra (1986a, 1986b). She has started the glass bangle industry for its exploitative nature especially in relation to child and women labour. There is no documentation living conditions off glass bangle labourers in Pakistan, nobody tries to study the identity and the crisis these people are in. The primary concern always has been the working conditions which eliminates the identity of the workers themselves and collectively study them as a herd. Most of the research is focus on the difference between traditional and so-called Martin means of glass bangle production IE switching from coal to natural gas and edition of goods and services tax (GST). many leading newspapers like the news and on time and again touch up on the devastating effects of glass bangle production on the life of labourers in Hyderabad but they also lack a critical and analytical depth to start an actual action in the society. Most of the studies discuss how women and child labour are important aspects of glassmaking industry in Hyderabad but ignore the deaf ear which state of Pakistan turns to their misery.

My study focuses on glass bangle industry in Hyderabad from the dimension of culture, art and labour. Different public institutions are involved enter riding better working conditions two labourers in the city, centre for improvement of working conditions and environment has also been in action since 2003 to eliminate child labour, provide better working conditions two labourers, and provide safe environment to women working in the vicinity. However, most of these efforts have been in vain and workers in the glass industries still suffer. (Channa, 2003) has started the problems of workers in glass industry of Hyderabad and found that most of the workers are either children or women and they suffered drastically from who are working conditions. ILO, 2004 also studied the issues of workers in the gas industry of Hyderabad Pakistan and concluded the same that the working conditions were terrible moreover, the workers were paid meagre amount of money and most of them stuck around only because they were bonded labourers (Chandio and Khatoon, 2010; Pathan, Shah and Ilyas, 2009; Jamali, 2007). Most of the studies conducted on the grass industry of Hyderabad focused on the issues of labour and did not consider the idea that how in adverse conditions the production of art could not stop. In my understanding there are major gaps found in the researchers conducted because they all had a very limited scope of exploration, and above all they were conducted by male researchers focusing on two main issues of child labouring and women labour. Add more researchers only focused on quantitative methodologies where they provided service and selfadministered questionnaires focusing only on it shows off poor health and women in child labour. The literature also shows that using a set pattern of definition to shed light on the problems of class industry of Hyderabad is also problematic. Most of the studies do not operationalize or give participants does space they need to give their stance on the problem under research. The dimension which I have taken to carry out the research is that how art culture and social dimension are all rated each other, and we cannot separate these dimensions because there is an interdependent relationship. Literature review also suggests that research on glass bangle in Hyderabad are carried out was by different private companies and NGOs and very few researchers are carried out by individual researchers. In my study I am to fill these gaps and generate a new understanding after connectivity between different aspects of culture art and labour.

Methodology

The study employees are qualitative methodology using extrinsic an intrinsic sociological approach to data interpretation. The researcher has followed (Voituik, 2019) Method of semiotic-hermeneutic analysis. the population of this research comprised glass bangle labourer of Hyderabad Pakistan and through purposive sampling the researcher has taken pictures of selected workers engaged in the glass bangle production in selected factories of Hyderabad. State of analysis focuses on different stages of glass bangle production in Hyderabad Pakistan in relation to different dimensions of art and culture.

Data Analysis

Introduction to Bangle Manufacturing: the art of bangle-making

Bangle manufacturing is a subtle and time-taking process which also needs a lot of care, concentration and expertise. It involves various stages and process from molten glass to the furnish-able beautiful bangles. "Each bangle passes through the hands of 60 workers before reaching the market for sale. There are more than 39 different processes involved, each intricate and attention-consuming. Some processes, however, require more blood than sweat" (Wali 2016). It is notable that despite all these difficulties and exploitation, there is nothing lost when it comes to the beauty and art of those bangles. All the bad working conditions, poor wages, damages to health and absence of any recognition cannot defeat the indomitable spirits of those artists behind bangle making. A comment by one of the female worker should suffice to document this process of blood, sweat and art: "My nails bleed every day, five other girls and I join the spiral ends of processed bangles, which really is a very difficult task. When we carve designs on these bangles, shards of glass hit our nails and cut through them. The pain from these cuts and bruises has become part of my life." Another worker says that "Bangles are so beautiful, the most precious work of art, but nobody knows about the back-breaking work involved and the suffering and pain that bangle artisans go through." (Wali 2016)

Various types of glass, metal and chemicals are used for bangle making, but the most important for glass bangles is glass. A common type of glass is used in making of bangles, which is stored and sold by the scrape shops, and there are so many categories of glass, which is stored and sold by these scrape people, for example: broken glasses of water, glass jugs, and cups, trays, glass bottles of oil, whisky bottles, glass plates, and medicine bottles etc. In this regard, Soomro postulates "Hyderabad has the perfect weather for bangle production, making it the hub for the bangle craft in the country. Approximately, 32 glass-bangle manufacturing units are situated across the city, with an average investment of Rs 5-6 million per unit" (2015).





Kiln (Bhatti) work

The type of Kiln used for bangles is about 9 feet to 10 feet high from the ground and on the scrape of it there is a 15 feet by 15 feet roof which is used for storing the broken pieces of glass. A common type kiln gas is used for the firing of glass. Initially, the kiln is heated and then glass is put in to besides, putting glass into kiln. There are also a few chemicals that are in it like glass soda, borax, sodium and arsenic. The function of these chemicals is to clean the glass and it also helps to melt it quickly.

This process continues day and night in order to keep the kiln hot and to melt the glass slowly.





Belon Work

The glass which is 10 feet high for being melted comes down in the belon (type of rod) in the hot glass wire and is called BANA and slide pipe is about 5 to 6 feet high and it is kept 3 feet high from the ground. After sliding the glass it is rolled on a rod which is called Belon and the size of it is about is fixed in the center of a 15 feet rod. The melted glass from kiln is creeping on that rod continually and before the rod there is a fixed dye and its function is that before it comes to belon it gives shape and design to Bangles and also gives it a specific size, while the color is engraved in the texture of bangles.

There are the names of basic designs engraved on bangles before coloring, which lend a huge amount of aesthetics and artistry to bangle making

- a. Nagena
- **b.** Koh-e-Noor
- c. Zulekha
- d. Jhankaar
- e. Murkee
- f. Kara



Mutha:

On a belon there are from 3 to 3.5 feet sets of bangles in which one craftsman collects bangles on LIBYA (a kind of tool) and measures it on scale. This process is called MUTHA.



Cutting Place

After taking those bangles down from weighting scale they are sent to a dumper tool and from there to cutting place. On the cutting place crafts person cuts that 3 feet MUTHA with glass cutting tools. Then he separates each bangle from each other. After that another labour with wire and jute separets 320 bangles; this process is called (TORRA)



Tora

Then Tora are sent to different homes on different carts, Suzuki cars and donkey carts, where bangles are trimmed.







Sadai (aligning/ arranging)

The second step of bangle making involves alighning or arranging those bangles into circular shape, and this step is called Sadai. The workers generally heat the open ends of bangles and when they are heated bring them together and join their ends to give them the round or circular shape. The process does not require much logistics, only some method of flame producing and hot plates to keep the bangles.



Jurrai (welding the bangle)

Welding the bangle, which is also called Jurrai, is the third step. This also needs a lot of care and concentration. This process is mostly carried out in domestic units by children and women. This process, though, is more complicated than Sadai, and require many things like gas or kerosene oil, Sanchas or moulds, gas-pipes, and iron-





Plate. Apart from that it also requires a Jurrai fans and devices used to adjust the flame, pattay wooden pieces to place kupay and stools for the workers. Normally, the open ends are brought together after heating and then welded together.

Katai (Cut-work)

Katai is done in the factories by the workingmen. The reson behind that is the requirement of the Katai Machine- a special machine having huge cost. The workers also carve different desighns on the bangles. Some of the tools required for this process are electricity, the cutting machine, water, pipes, stones and blades.

Murrai (Curve Dseigns on bangle by glass)

Done manually, this is another step in the making of various kinds of bangles. The delicacy of the work requires largely women to do it. They use a thin rod/stick of color glass to carve designs on the bangles. The rod is first heated and then used for carving designs.

Chapai (painting on the bangles)

The process of chapai is actually the process of giving colors to bangles. Although it appears to be a simple task it actually requires a huge array of tools for its accomplishment. Different chemicals, colors and thinners are required to carry out the job properly. Along with that white powder, oil and patrol, foams, small iron boxes, and rubber and sheet are also required for this task.



Decoration Work (Lace, Bead, Packing etc.)

Over time, many innovations have been introduced to the art of bangle-making. Different kinds of laces, beads, artificial diamonds and insects-shells are also used in bangle making. After all this lacing and attaching of beads, the bangle packing takes place where bangles are wrapped in beautiful plastic sheets of various colors.

Boond/Heel

The process of Boond or Heel is the process of carving designs and then giving them golden color. The delicacy and difficulty of the process has brought various women in the workforce. It is actually an act of making design on the bangles with a tool which is first put in a chemical. After that artificial

gold is applied on the design and then the products are put in an oven to get the color properly settle in. Various kinds of diseases like asthma, skin allergy, skin burn and finger infections are reported.

Chaklai

Chaklai is simple step of packing 300 to 350 bangles in a string and then send them off to the market for selling.

Chatakh (Slashing)

Chatakh is a simple process of checking for the breaking of bangles after they are packed. The bangles are vibrated near the ears to check for any damages.

Marvi

Mainly a machine does the process called Marvi. The bangles are placed on a wooden role and it is stroked smoothly and carefully with the cylinder which is covered with a tinfoil, called ipunnyî. The cylinder is rotated with a machine and thus the colors on the tinfoil are shifted on the bangles making the bangles more colorful and attractive

Women workers are not directly involved in this process. Usually male members of the family get this work from the factories; they bring it at homes and all the family members become engaged in this work.

Roll filling

This is the last stage of the bangle making. It is a sort of packing. The workers fold the paper sheets into rolls and (parona) bangles. Hard paper is used to make the rolls to keep these in their position. The workers are paid 2 rupees per tora for this sort of work. "Home-based workers' terms of work are not regulated by any law. Rates for work carried out cannot be renegotiated either — workers either accept the paltry sums being offered to them or look for another job".

Despite these poor working conditions and grave exploitation, these bangle-artists keep on doing their jobs. Many secrets of bangle-making are transferred from generations to generations and it takes many years for one person to understand and master many stages of bangle making. For example, traditionally in Karachi it is the Siddique family which is associated with bangle making. It is the sheer determination, and of course economic helplessness, of these artists that keep the art of bangle-making alive.

Class and Gender Politics

Behind all this artistry and beautiful art of bangle making is the fact of exploitation and gender politics as well. It is a fact that a large part of the work force which is engaged in the process of bangle making consists of women and children. There are huge networks of exploitation and cruelty. Child labor is rampant in the industry while women-specific steps of bangle making a far less paying than the man-specific parts.

At the same time, the industry has played its role in liberating women as well. Because of the indoor nature of the job it has proved to be a preferable task for many women and has helped them coming out of powerlessness and dependence upon men. It is admitted that the wages are generally very low but the job has given women at least a sense of the importance of economic independence and the scope and opportunity for women is ever increasing.

According to the figures quoted by ILO in the baseline report on glass bangle industry, there are about 30,000 home-based women producers involved in the glass bangle industry. Actually, a large percentage of the total workforce, engaged in this process of bangle making, is that of women and children. Their wages are extremely low and most of the industrial work is not even recognized as professional work, and the workers have absolutely no rights, or awareness about their rights. Since the overall process involves various steps, the dispensability of the workers is there which paves the way for exploitation. That is why they are usually paid very less for each step of the process. A paper published by International Labor Organization with the title of "A rapid assessment of bonded labour in hazardous industries in Pakistan: glass bangle-making, tanneries and construction" actually compares the work of bangle-makers with those of the bonded labor.

A simpler estimate shows that the wages paid are less than the minimum wage set up by the government. The wages are so low that Rs 30 to 35 are paid per Tora (the tora consists upon-320 bangles). Women and girls performing the same task get less that. Apart from meagre wages, the health crisis is also always abound. Some of the common diseases people suffer from are backache, joint pain, eye ailments, hand burning, suffocation, dehydration, asthma and most commonly T.B due to unhealthy and unhygienic environment. Fatal diseases are caused by the smoke emitted out of the

burning of kerosene oil and gas in small, enclosed places.

The process of welding, as mentioned above, is a lengthy and complicated process, but its wages are also very low. The charges of welding one tora of bangles are only Rs 35 to Rs 35 per tora. Once again, women and children working on this process get way less than adult males, which is another kind of exploitation.

Other processes liking carving designs, coloring, lacing etc. also bring way less money that they are supposed to. Even the investors have involved women and girls in this process and provided them machines at their homes to deprive them from the various benefits applied under labor laws or Social Security Act. Like other processes, mainly women and girls do this work at their homes in a very hot and suffocated environment due to the specific requirement of the delicate work of Murrai. Women workers sit in front of flames to carve different designs and patterns on the glass-bangles by using different color glasses. Lung diseases like asthma and skin allergy, joint pain, and backache etc. are common diseases that the workers usually contract during the process of Chapai. On account of looking into the thin flame for many hours their eyesight is also affected.

Other processes involved in the bangle making also do not produce much wages. For example, for packing 18 pieced of bangles, usually divided as 6 wristlets and 12 bangles, women workers generally receive an amount equal to or between 6 to 10 rupees. Since most of the packing is done by women, the wages for packing or Chaklai nearly 300 bangles is only 5 rupees. Since this is yet another stage which involves more women workers, low bar for wages is visible. Another stage involves the process of splashing or Chatakh, an act carried out manually to check for any possible broken bangles after the packing. Most of this work is also carried out by women and children and they get only .50 to 2 rupees for splashing one tora. As for the health damages, much of the material used in different stages is actually harmful for the health. It can and do cause mild to serious health issues like asthma, aching, joint pains, allergies and tuberculosis are some of the diseases reported.

Discussion and Conclusion

South Asian cultures are Famous across the world for their preference for the use of ornaments to enhance feminine beauty. Glass bangles are one of the most famous ornaments of South Asian women the study attempted to analyse how glass bangles are a symbol of class politics, art and culture at same time.

Women and bangles are together in many societies and cultures. Multiples designs of bangles have been found in Pakistan from Mohen jo Daro and Harappa civilization which show how old the tradition actually is. Although, the designs and materials used for bangles change from time to time, some form of bangles have always been around. Initially, before glass bangles, they were made with different materials in different societies, like copper, silver and wood shell etc. Now a days they are made with plastic, aluminum, steel, gold, and so many other materials.

Bangle-work or Bangle-making is spread through all of Hyderabad city, from scrapers to factories. Some work is also done in houses and some in factories. In the opinion of the researcher all this process will someday become one in the form of huge factories in modern time and be streamlined. Because, unfortunately, most of it is still unregulated. A large part of the work is carried out domestically which keeps the workers and employers from having any rights at all. Also, the scourge of child labor and gender discrimination is rife. For the same tasks performed by men and women, the latter get far less money. There are also many health risks attached with the bangle making 'industry'. Some steps in the work are also very dangerous for health, like the process of jurai. In Hyderabad, the glass bangle makers are in serious trouble, because they have a very low income against the amount of hard work they do. Usually it is the middlemen who earn the most by grabbing their share on both sides.

Bibliography

Bullo, Momin. 2013. "Hyderabad Revisited". Karachi: Published Pakistan Heritage Preservation and Promotion Society.

Mathur, Asharani. 2002. "A jeweled splendour" Published by Rupa and co

Baloch, Nabi Bukhush .1966 "traditional art and craft of Hyderabad region" published by Mehran arts council Hyderabad

Somroo Marvi. 2015 Cut from Glass the Perilous live of Hyderabad bangle maker

W.A. Weyl, 1959 "Coloured glasses" Society of Glass Technology. Published by London: Dawson's of Pall Mall,

Kanungo, A. K. (2001). Glass beads in India archaeology: An ethnoarchaeological approach. Bulletin of the Deccan College Post-Graduate and Research Institute, 60/61, 337-353.

https://www.jstor.org/stable/42936623.

Shouque, Nawaz ali, 1990 "Sindh ja honar" Karachi: published by department of culture and tourism government of Sindh.

Sharma, K. D. (1981). Flat glass industry – its development and growth in India. Transactions of the Indian Ceramic Society, 40(4), 125-130. https://dx.doi.org/10.1080/0371750X.1981. 10822533

A.A. Wassan, 2010 R. Chandio, and Z. Khatoon, A socio-cultural education and training of women in glass bangle industry: Focused area Hyderabad Pakistan. The S.U. Jour. of Ed.,

Khan Asif, 19,2003 "daily times" Wednesday November

Govind, V. (1970). Some aspects of glass manufacturing in ancient India. IJHS, 2, 281-308.

Memon Nadir Ali, "Hyderabad churi" (glass bangle) industry

Bureau reporter, "Dawn news" paper 19th January 2011

Jawed Akhter, 2009 "the Paris of past: Toronto Canada

I.A Rehman, 1980 "Art and crafts Pakistan" published by Export promotion bureau Pakistan,

Katherine Prior and John Adamson, 1999 "Maharajas jewels" published Vendome press

Burra, N. (1986a). Glass factories of Firozabad I: Plight of workers. Economic and Political Weekly, 21(46), 1983-1985. https://www.jstor.org/stable/4376323.

Burra, N. (1986b). Glass factories of Firozabad II: Plight of child workers. Economic and Political Weekly, 21(47), 2033-2036. https://www.jstor.org/stable/4376352.

Chandra, A. (2009). Child labor – a study from anthropological perspective with special reference to glass industry, Firozabad. The Anthropologist, 11(1), 15-20. doi: 10.1080/09720073.2009. 11891073

Bano, N. (2017). Assessment of indoor environmental impacts on human health (Case study: Glass city, Firozabad (India)). Pollution, 3(2), 175-183. doi: 10.7508/pj.2017.02.001.

A.A. Wassan, R. Chandio, and Z. Khatoon, A socio-cultural education and training of women in glass bangle industry: Focused area Hyderabad Pakistan. The S.U. Jour. of Ed., 2010. 39: p. 67-88.