A study of the traditional glass industry in Egypt (obstacles and ways of development)

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Introduction:

This research is based on analyzing eight (8) traditional glass industry workshops in Egypt (Cairo and Giza regions) as a random sample, during visits. It shows that only six (6) of them are still working now, in times of witnessing the apparent recession of this industry, which forced the owners of some workshops to close, and buy final products from other workshops for marketing purposes, to avoid the cost and risks of production. So, the research is focused on showing the most important obstacles and difficulties in the traditional glass industry workshops in Egypt, which limited the competition and weakened the production systems, through an analytical methodology study of those workshops during production by applying a questionnaire to the six (6) workshops mentioned early, they were answered by the current traditional glass makers, and the researcher uses CAD software to find and draw the horizontal plans for each workshop, to monitor the work environment, movement paths and storage areas. Using all the gathered data, the researcher can put a group of solutions to develop the traditional glass industry in Egypt.

Importance of the research:-

- The research participates efficiently in developing the traditional glass industry in Egypt.

Objective of the research: -

- Aiming to report the reality of the traditional glass industry in Egypt to define the most important obstacles and difficulties in it, and find a group of solutions to develop it as well.

Problems of the research: -

- The lack of information regarding obstacles and difficulties facing the traditional glass industry workshops in Egypt.

Applied methodology framework (Analytical Study):

The research study included the report of industry reality by analyzing the workshops through nine (9) major titles represents the general work-frame of the traditional glass industry in Egypt to see how these they have been affected. These are:

1- Materials and Raw materials.
2- Forming Tools.
3- Employment and Training.

DOI: 10.21608/mjaf.2020.29508.1605

4- Work Environment.
5- Protection and Safety.
6- Designs.
7- Ovens.
8- Attaching the glass industry to Scientific Research.
9- Marketing and Competition.

The questionnaire on the other hand includes sixty-seven (67) questions to define the production circumstances under each title mentioned, which represents the core items at any industry. The owners of traditional glass-making workshops then were asked to fill in the following form:

Materials and Raw materials		
1- Do you use broken glass to start the manufacturing process?	□ Yes	□ No
2- Do you face any obstacles in obtaining broken glass?	□ Yes	□ No
3- Do you use stained glass?	□ Yes	□ No
4- Do you add some coloured oxides to the glass ore during the manufacturing process?	□ Yes	□ No
5- Where do you get it?	□ Garbage collectors. □ Factories and workshops waste.	
6- Are additives added to the mixture batch ?	□ Yes	□ No
7- What are other additives?	□ Soda ash.	□ Other oxides.
8- Are the raw materials washed before work begins?	□ Yes	□ No
9- Are there any procedures performed before the manufacturing process	□ Yes	□ No
10- What are the procedures that take place before the manufacturing process?	□ Washing. Cracking. □ Milling.	
11- How it is done?	□ Manually.	□ Automatically.
Forming tools		
12- What kind of forming tools are used?	□ Traditional.	□ Advanced.
13- These tools are ….	□ Blow pipe. □ shears □ Pauline. (a solid shaft rod) □ Cajak. (an iron rod one end is curved) □ The screen. □ Square. □ The saddle- Jacks/Tweezers □ Marver □ Throwing. (Cullet push tool)	
14- Are the tools used in shaping sufficient?	□ Yes	□ No

15- Is the forming chair suitable for manufacturing process?	□ Yes	□ No
16- What do you do when the tools heat up?	□ Wear insulating gloves. □ I isolate the tool with a thermal insulation material. □ Cool it with water.	
17- Have you used aided templates?	□ Yes	□ No
18- Are these tools manufactured locally or imported from abroad?	□ Yes	□ No
19- Have you thought about developing new tools that facilitate the formation process?	□ Yes	□ No
20- What tools would you like to have to facilitate the formation process?	□ Finishing machine. □ Equipped chairs. (Bench) □ Hand forming tools.	
Employment and Training		
21- What is the average age of employment?	□ 15 : 30 years old. □ 30 : 45 years old. □ 45 : 60 years old.	
22- What is the period required for training?	□ 3 : 6 months. □ 6 : 12 months. □ More than a year.	
23- How many workers in the workshop?	□ One worker. □ Two workers. □ Three workers. □ Four or more.	
24- What is the duration of work shift?	□ One day. □ Two days. □ Three days.	
25- How to train the workers?	□ Observation. □ Practicing. □ Focusing on the theoretical side.	
26- Is the available employment sufficient for production requirements?	□ Yes	□ No
27- Have you been trained in different methods of production, such as blowing into a mould?	□ Yes	□ No
28- What is the method used in training?	□ Blowing inside a mould. □ Casting into a mould. □ Free formation. □ None of the above.	
Work environment		
29- Is the ventilation appropriate?	□ Yes	□ No

30- What are the sources of ventilation?	□ Fans. □ Hoods. □ Windows. □ Sunroofs.		
31- Are you affected by the heat of the oven?	□ Yes	□ No	
32- How is the heat from the oven reduced?	□ The height of the oven should not be less than 6 meters. □ Having good ventilation hoods and windows. □ Good body insulation. □ The forming space is kept away from the oven location.		
33- Are the paths of movement for formation sufficient?	□ Yes	□ No	
34- What is the area of the place used in the forming process?	□ Small	□ Median	□ Big
35- Are there separate places for storing glass and washing raw materials?	□ Yes	□ No	
Protection and Safety			
36- Do you wear appropriate clothes to the nature of the work?	□ Yes	□ No	
37- Do you wear gloves while handling the oven?	□ Yes	□ No	
38- Do you put a condom on the nose to regulate the breathing process?	□ Yes	□ No	
39- Do you wear protective glasses on the eyes?	□ Yes	□ No	
40- Is the workshop located near residential areas?	□ Yes	□ No	
41- Is the forming space far from the oven?	□ Yes	□ No	
42- Is there an insulating door on the oven opening that opens and closes when needed?	□ Yes	□ No	
43- What is the working time in front of the oven per day?	□ 6 Hours. □ 8 Hours. □ 10 Hours. □ 12 Hours.		
Designs			
44- Are all the designs typical?	□ Yes	□ No	
45- What are the processes used to change the surface appearance?	□ Colouring. □ Printing.		

	□ Etching. □ Spiral lines around the body using the same colour or a different one.	
46- Do you do the designs yourself?	□ Yes	□ No
47- What is the source of the designs?	□ Quoting.	□ Client.
48- What are the most famous products that are produced?	□ Carafe. □ Vases. □ Cups. □ Lighting units. □ Everything listed.	
49- Does production depend on supply and demand?	□ Yes	□ No
Furnaces		
50- What are the problems of the ovens?	□ Cracks in the furnace wall and thermal moulds. □ There is no insulation and no metal casing surrounding the furnace body. □ The thermal silt used does not maintain the heat retention in the furnace. □ The performance efficiency of the cooling furnace is poor. □ Everything listed.	
51- What is the oven building material?	□ Refractory bricks. □ Refractory silt. □ Everything listed.	
52- Is the oven isolated?	□ Yes	□ No
53- How many smelting holes does it have?	□ One	□ Two □ Three
54- Is there a cooling oven?	□ Yes	□ No
55- Is there an oven thermometer?	□ Yes	□ No
56- What are the disadvantages of the cooling oven?	□ Temperature of the oven is measured at sight. □ The products are being bent or warped. □ The products are relocated inside the oven. □ Everything listed.	

Attaching the glass industry to scientific research		
57- Is there any relation between you and Applied Arts or Engineering faculties?	□ Yes	□ No
58- Do you train any students from colleges or technical institutes?	□ Yes	□ No
59- Is there any monitoring from colleges or technical institutes?	□ Yes	□ No
60- Is any colleges or technical institutes bring designs to be made?	□ Yes	□ No
61- Have you been invited to any summit or workshop inside colleges or technical institutes?	□ Yes	□ No

Marketing and Competition			
62- Have you joined any local or international exhibit?	□ Yes	□ No	
63- Are the products marketed locally/ or internationally?	□ Yes	□ No	
64- Are the products displayed in glass selling art galleries?	□ Yes	□ No	
65- What is the quantity of request upon glass products?	□ Small	□ Median	□ Big
66- Are the products marketed through social media sites?	□ Yes	□ No	
67- What is the most requested products?	□ Lighting units. □ Vases. □ Cups. □ Plates. □ Everything listed.		

Results:

1- The lack of materials and artistic capabilities were the main reason for the typical and traditional style in the traditional glass industry.

2- Knowing all the requirements of the traditional glass industry makes it easy to execute new design systems and create new production patterns.

3-

Recommendations:

- Creating new marketing strategies and creating a system for developing the design of traditional glass products.
- The necessity of communication between institutions associated with this kind of art industries, and using them to enhance and develop this industry.

References

1- Shafiq, Samira "views from our country- Handmade glass is an art" Cameraman-3429(29 June 1990) p. 38 : 40

English References:

1- Brill, Maria L “Tahan Glass-blowers" Cairo Today-(February, 1984 (p 37-38.

2- Henein, Nessim Henry "Le Verre Souffle En Egypte", Jean Francois Gout., Egypt.: Institut Francais D'archeologie Orientale Du Cairo . 1974

3- PRIOR, JONATHAN, DAVID “The Impact of Glassblowing on the Early-Roman Glass Industry" (circa 50 B.C- A.D. 79), Durham theses, Durham University. 2015 p 43-60.

Visits and Interviews:

- Workshops of Glass Traditional industry in (Al-Algamlia- Bab El-shaeria -Al-Hussein), Cairo, 2018
- Ahmed Zaki, Sara. Interview with Eng. And Glass Maker “Riyad Al-Tahan" Cairo, September. 28, 2017