

Ceramics in Bangladesh: Its Recent Evolution and Future Prospect

M. A. A. Mahmood^{1*}, M. S. Rahman¹, Tasmia Zaman¹

¹Department of Glass and Ceramic Engineering, Rajshahi University of Engineering & Technology, Rajshahi-6204, Bangladesh

**Corresponding author: abdullah2038@yahoo.com*

Abstract

In recent years ceramic industries in Bangladesh has grown up in a large extent. It is playing a great role on Country's export earnings. This paper discusses the factors affecting this revolution and reflects on likely future developments. In the domestic market as well as in the comparative international market Bangladeshi suppliers are making a remarkable business. Especially in the international market, high quality ceramic and porcelain wares, such as dinner sets, tea and coffee sets, has created a great impression. This market is spreading rapidly throughout the world. There are some reasons to have this extraordinary achievement in the field of Glass and Ceramics in Bangladesh. Those factors have been described here in comparison with some other related areas. The current revolution of this sector and its impact on the country's economy together with future prospect has also been explicated in this research.

Keywords: Ceramics, glass, export earnings, constraints.

1. Introduction

The term Ceramics was originally used for pottery and earthenware collectively. Today, it comprises a much wider range of materials, including metallic oxides, nitrides and carbides. These materials are used in application areas ranging from household items (porcelain, sanitary wares, and art wares) to high-performance tools for industrial use (ball bearings, cutting tools, isolators, catalysts). In addition to their great hardness, ceramics are also resistant to thermal and chemical influences, making them highly suitable for applications where the product is subjected to high mechanical or thermal stress [1]. Ceramics, with their unique properties and diverse applications, hold the potential to revolutionize many industries, including automotive and semiconductors [2].

The Ceramic industries in Bangladesh have continued to expand since 1958 with the establishment of first ceramic industry, Tazma ceramic industries Ltd. The industry grew faster with the booming property business in tiles, tableware, sanitary ware and electrical sector. Growing market demand boosted development of new factories producing high quality ceramic products.

Demand of ceramic products over the world is increasing day by day. As a result new industries of different sizes have been establishing in different areas of Bangladesh to meet the present demand. Government of Bangladesh has taken initiative to establish new factories and educational institutions about Glass and ceramics. This sector is a potential sector for export earnings after garments sector in Bangladesh.

In recent years due to bad economic conditions over world export earnings of ceramic products during 2011-2012 fiscal years faced different difficulties. As a result it decreases a certain amount from the previous fiscal years. Economic specialists thought the Ceramic sector in Bangladesh can turn the country's economy to a way where the hope will be alive to build a developed Bangladesh.

2. Salient features of ceramic industries

Production of ceramics

Ceramic industries have come a long way from its humble beginnings. A total of roughly 50 ceramic manufacturers are operating in Bangladesh today [3] which produce over 40,000 tones of ceramic products a year [4]. Among them Ceramic tableware, sanitary ware, tiles and insulators are especially popular now-a-days. Especially tiles are using as a luxury construction material and its demand is increasing day by day for constructing modern buildings. This sector is increasing over Bangladesh much rapidly than other ceramic sectors.

Ceramic industry took a formal start in this country in 1958 with the establishment of Tajma Ceramic Industries Ltd. at Kabi Nazrul Islam Sarak, Bogra. It is the oldest modern ceramic manufacturing plant in Bangladesh and is also the only ceramic industry located in North Bengal [5]. Milestone development of ceramic industries in Bangladesh can be written as follows:

Table1: Milestones of Development of Ceramic Industries in Bangladesh

1958	Establishment of Tajma Ceramic Industries Ltd. Started with manufacturing porcelain tableware.
1960	The Pakistan Ceramic Industries Ltd established.
1966	The Pakistan Ceramic Industries Ltd started its production. It produced Ceramic products for the domestic market.
1972	The Pakistan Ceramic Industries Ltd was renamed as Peoples Ceramic Industries Ltd
2001	Bangladesh had ten ceramic industry units. Five of them are fairly large and these are Shinepukur Ceramic Industries, Monno Ceramic Industries, Bengal Fine Ceramic Industries, Peoples Ceramic Industries and Standard Ceramic Industries. These companies produce high quality ceramic and porcelain wares.
2013	At present, there are about 50 ceramic industries in Bangladesh producing different types of ceramic products.

Source: Banglapedia – National encyclopedia of Bangladesh [5]

Ceramic products

Different types of ceramic products have been producing over the country for using in different purposes in different areas. Those common types of products with some common examples are shown in the following table [6].

Table2: Ceramic products and its applications

Industry Segment	Common Examples
Structural clay products	Brick, sewer pipe, roofing tile, clay floor and wall tile (i.e., quarry tile), flue linings
Whitewares	Dinnerware, floor and wall tile, sanitary ware, electrical porcelain, decorative ceramics
Refractories	Brick and monolithic products are used in iron and steel, non-ferrous metals, glass, cements, ceramics, energy conversion, petroleum, and chemicals industries
Glasses	Flat glass (windows), container glass (bottles), pressed and blown glass (dinnerware), glass fibers (home insulation), and advanced/specialty glass (optical fibers)

Abrasives	Natural (garnet, diamond, etc.) and synthetic (silicon carbide, diamond, fused alumina, etc.) abrasives are used for grinding, cutting, polishing, lapping, or pressure blasting of materials
Cements	Used to produce concrete roads, bridges, buildings, dams, and the like
Advanced ceramics	
Structural	Wear parts, bioceramics, cutting tools, and engine components
Electrical	Capacitors, insulators, substrates, integrated circuit packages, piezoelectric, magnets and superconductors
Coatings	Engine components, cutting tools, and industrial wear parts

3. Prospect of ceramic industries

Growth of Ceramic Industries

The country's ceramic industry is now in a very good condition as the sector has grown up more than 200 per cent in last 5 years [7]. This sector has some positive advantages including low labor wages compared to other ceramic competitive countries. Traditionally, ceramic industry is a labor-intensive sector and companies in developed countries experience difficulties in remaining competitive due to rising labor cost and recent global financial crisis. Bangladesh, being a gas rich, low-labor cost economy and having advanced 'bone china' technology, is perfectly positioned to be a strategic partner in production and supply of ceramic goods (Board of Investment, Bangladesh).

At present, there are satisfactory number of ceramic industries in Bangladesh and further new industries is being set up. Out of them a few's performance is excellent and they export both porcelain and bone china products to many countries of Europe and America. According to Bangladesh Ceramic-ware Manufacturers' Association (BCMA), this sector is now a market of around four thousand crores taka (1crore=10 million and 1\$=85Tk) with as many as 35 thousand people employed. Local industries meet around 80 percent of the country's demand and export around 330 crores of ceramic products per year [8].

At present, there are about 50 glass and ceramic industries in Bangladesh where specialized persons are needed to develop new products and maintain best quality of the products. Some of the major names in this sector are FARR Ceramics, People's Ceramic, Shinepukur, Monno Ceramic, Bengal Fine Ceramic Industries, Standard Ceramic Industries, RAK Ceramics (Bangladesh) Ltd, Fu-Wang Ceramic Industry Ltd, Akij Ceramics Ltd. Etc.

Raw materials

The prime raw materials of ceramic products are white clay and sand. About 95% of raw materials for making quality and exportable ceramic products in Bangladesh are imported from abroad. The materials are imported mainly from China, Japan, Indonesia, Rumania, Germany, New Zealand, South Korea and India. The largest deposit of white clay in Bangladesh was first discovered in 1957 at Bijoypur of Mymensingh. The total reserve of white clay from this region is estimated to be 2.57 million tons. Clay was also found in jaflong of Sylhet. But there is no clay or sand treatment plant at these places [9].

To ensure proper quality and goodwill of all ceramic products high quality of raw materials is very essential. The machinery and equipment are to be modern and conform to the latest technology and standard. The quality of products also depends on laboratory facility, quality control and testing mechanism. The products that are available in market now are: dinner sets, tea sets, coffee sets, soup sets, fruit sets, plates, bowls, flower vases, mugs and various types of souvenir items. Good quality of raw materials can ensure products of ovenproof, chill-proof, dishwasher-proof and free from any chemical hazards. Thus physical, chemical, mechanical, Electrical, thermal and optical properties can be affected by the quality of raw materials.

Competitiveness

Bangladesh exports different types of products to different countries every year. Among them garment sector export about 75% product [10],[11]. Compare to others sectors ceramic sector earning quite rapidly and it is increasing each year. Due to low labor cost and better quality of products it is attracting by foreigners and thus impacting on countries economy.

Table3: Sector wise export earning of fiscal year 2011-2012

Items	Export (M\$)	% of Total Export
Woven garments	9603.34	39.54
Knitwear	9486.39	39.0585
Frozen food	598.42	2.46388
Leather & leather products	330.16	1.35937
Jute & jute goods	1233.66	5.07937
Chemical fertilizer	17.68	0.07279
Ceramics	33.75	0.13896
Engineering products	515.41	2.12211
Chemical products	130.14	0.53583
Others	2338.71	9.62921
Total	24287.66	100

Source: Export Promotion Bureau (EPB), Bangladesh [12]

Export earning of ceramics in different fiscal years

Bangladesh exports ceramic products to about 50 countries including USA, UK, Italy, Germany, France, Spain, Norway, Sweden, Turkey, Poland, Australia, New Zealand, Canada, Mexico, Brazil and Chile. Industry people said, At least 75 per cent of the total exports of the products go to Europe, about 15 per cent to the US market and remaining 10 per cent to other markets [13].

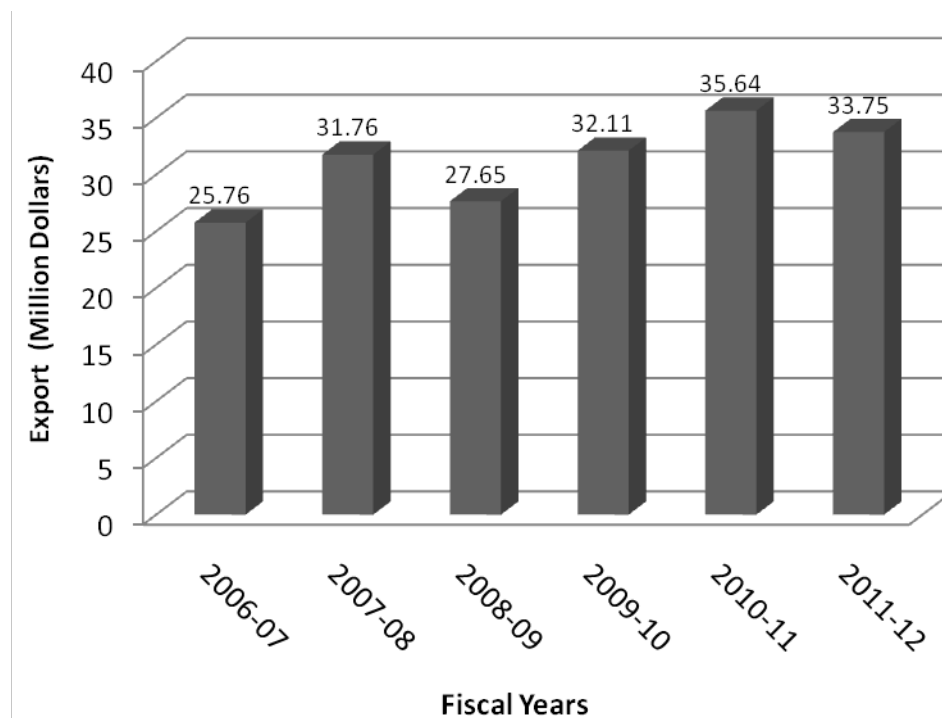


Fig. 1: Direct export of ceramic products in different fiscal years

Source: Export Promotion Bureau, Bangladesh [12].

Ceramics export of Bangladesh witnessed negative growth in the last financial year 2011-12 due to an economic crisis in Europe, the biggest export destination [14]. Ceramic exports brought \$33.75 million in the financial year

2011-12, down by more than 10 per cent from that of the previous year, according to Export Promotion Bureau (EPB). Earnings from ceramics export stood at \$14.62 million during July-November period of this financial year, down by 2.66 per cent from that of the corresponding period of the last financial year. EPB data show ceramics export target was missed by 3.88 per cent in the first five months of the current financial year 2012-13 [15].

3. Constraints

Though ceramic industries in Bangladesh have been increasing rapidly, it has a lot of problems. Followings are the major constraints for developing the ceramic industries:

- Poor/inadequate power supply.
- Tight budget
- Lack of funding organization
- Inadequate motivation for commercialization.
- Instability of government policies
- Inadequate enforcement of intellectual property rights
- Testing facilities for quality control services
- Lack of relevance of the research activities to their needs and difficulty in accessing research funds
- Lack of awareness
- Skilled manpower development
- Technical consultancy services

The following paragraph describes the way forward for avoiding all the constraints to prosper in the ceramic sector.

4. The way forward

The ceramic industry of Bangladesh could become a basic building block for the country's construction and housing sector; however, this sector is already contributing to the country's economic progress through export earnings, foreign currency savings and generating employment. The industry people say this is possible provided the government supports this sector with due diligence. The government has promised to extend all sorts of cooperation to make Bangladesh the hub of ceramic goods production in the world. Bangladesh government has already drawn a policy to prevent the import of low quality ceramic products having health hazard ingredients. To discourage import of tiles and sanitary ware items, supplementary duty on imports has already increased to 45 percent in place of existing 20 percent [16]. Besides, the government has also promised uninterrupted power and gas supply for this sector. Moreover, the certain provisions of the Budget 2009-10, for instance, providing accommodation for all by 2021, would have positive impact on the ceramic industry as well [17],[18]. If the ceramic industry of Bangladesh can overcome the stated limitations, it has every potential to grow and become a big foreign exchange earner for the country with its dazzling products in the era of globalization.

5. Conclusions

Ceramic sector in Bangladesh has opened a new era of producing and exporting ceramic products. This sector has a great potential to earn export money from 50 different countries over the world. The quality of Bangladeshi ceramic products fascinated the international customers. Hence there is a great opportunities to invest in this sector. Government and private sectors are advised to improve the quality of research and development at different research institutions of Ceramic Engineering and Technology through increased funding. Clear policies and strategies to establish link between Research Institutes and Industry in Bangladesh are imperative for technical progress.

6. References

- [1] Isiaka Olajide Odewale, Felix Ugah Idu and Victor Tyonenge Amaakaven, "Hindrances and prospects of ceramic technology development in Nigeria", *International Journal of Science Innovations and Discoveries*, Volume 3, Issue 1, January-February 2013.
- [2] Retsch, Inc., Successful Analysis Newtown, Retrieved from: <http://www.retsch-us.com/>. December 15, 2012.
- [3] Akhteruzzaman Yusuf, "Ceramics on the Upswing: Exporting Dinnerware", "<http://www.bangladesh-business.net/PageDetails.php?Id=124>".
- [4] Ceramic Industry in Bangladesh, Retrieved from "http://www.studymode.com/join.php?join_type=upgrade"
- [5] Zakir Hossain Bhuiyan, "Bangladesh Ceramic History", Banglapedia – National encyclopedia of Bangladesh, Retrieved from: http://www.bpedia.org/C_0071.php
- [6] W.D. Kingery. *Ceramic fabrication processes*, (Technology Press of Massachusetts Institute of Technology, 1959).
- [7] HT Syndication, "Ceramic Industry in Bangladesh", the Financial Express, Aug 28, 2012.
- [8] AB Quddus, "Career in Glass and Ceramics Engineering", Retrieved from: <http://www.eduinfo24.com/career-in-glass-and-ceramics-engineering/>
- [9] History of ceramics, Retrieved from: "http://ace-bd.com/wp-login.php?redirect_to=http%3A%2F%2Face-bd.com%2Fknowledge%2Fhistory-of-ceramic%2F".
- [10] Musauid, "Investment Opportunity – Major Sectors in Bangladesh", June 14, 2007.
- [11] M. Serajul Islam, "PROSPECTS AND CHALLENGES OF PLASTIC INDUSTRIES IN BANGLADESH", *Journal of Chemical Engineering, IEB*, Vol. ChE. 26, No. 1, December 2011
- [12] Export Promotion Bureau. Retrieved from: <http://www.epb.gov.bd/>
- [13] Shah Alam Nur, "Ceramic exports income falls 10pc", Trade and Market, The Financial Express, July 15, 2012.
- [14] Sajjadur Rahman, "Ceramic exports on the wane", the daily star, September 25, 2011.
- [15] Shah Alam Nur, "Ceramic goods exporters in search of new markets", Trade and Market, the Financial Express, 31 December 2012.
- [16] Nusrat Jahan, "Ceramic Industry of Bangladesh: A Perspective from Porter's Five Forces Model", *Journal of Business and Technology*, Volume– V, Issue– 02, July-December, 2010.
- [17] Hossain, S. 2009, August 3. "Ceramic Ware Exporters Aim Sturdy Business". Daily New Age, Dhaka.
- [18] Islam, M. S.2010, April 16. "Ceramic Importers Turn Manufacturers", the Independent.