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# The ceramic industry plays any role in socio economic development of western Utter Pradesh: A review

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## Abstract

Industrialization can be described as the tool of Economic Growth and several studies have proved the existence of a relationship between industrialization and economic growth. The industry tends to be more important for growth in developing countries than in advanced economies. The process of industrialization in the most of the developing countries of the world provides a platform for studies on industrial phenomena in industrial geography and economy. Industrialization leads to development of the area, urbanization, and it also creates employment opportunities. Industrial development which plays a crucial role in the national economy is main contributor increasing national income. We concluded that the ceramic industry play important role in socio economic development of western utter Pradesh. Key words: ceramic industry, socio economic development

**Keywords:** socio economic development of western Utter Pradesh, studies

## Introduction

The challenge of sustainable development embraces all three pillars of sustainability: environment, economy and society. Sustainable development is economic development that is compatible with social equity, environmental protection and the rights of future generations<sup>[1]</sup>. The concept of sustainable development therefore refers to economic growth that meets the welfare needs of societies in the short, medium and, above all, long term. The introduction of rules for safeguarding the environment and tools for monitoring company activities is important not only for protecting consumers by defending principles of civilization but also for companies that are striving to produce high-quality products. Accordingly, this capacity can be considered a strategic factor with great impact on competitive advantage building in the medium/long run, with special emphasis in mature 55 sectors where sources of differentiation are less likely<sup>[1]</sup>. Above and beyond short-term economic expediencies, companies are historic players whose actions influence the social life of the surrounding community. In addition, such community will evaluate firms' actions and behaviors according to the impacts they may provoke. Following the Institutional Theory<sup>[2]</sup> the consequences of entrepreneurial decisions are not limited to the company itself but extend to the various spheres of social life and affect the various economic and social parties and territories which are no longer neutral places. Therefore, as long as firms' impacts do not fit norms, values or game rules of the society, companies will be more poorly evaluated. This paper aims first of all to conceptually develop the theme of relations and interdependencies between ceramic producers organized in industrial districts (ID) and the territories in which they operate. After that, it will empirically determine the environmental, economic and social impact of the main products of the Sassuolo ceramic district, using the Life Cycle Sustainability Assessment (LCSA) structure with a territorial extension that presupposes an innovative contribution to current literature<sup>[3]</sup>.

Pursuant to Section 112 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA or the Agency) is developing National Emissions Standards for Hazardous Air Pollutants (NESHAP) to address the emissions released from major sources in the clay ceramics manufacturing source category. The clay ceramics industry manufactures such products as dinnerware, kitchenware, pottery, sanitaryware, and ceramic floor and wall tile. EPA has defined the clay ceramics manufacturing source category to include only those facilities that produce pressed floor tile, pressed wall tile, other pressed tile, and sanitaryware because no major sources were identified in the other segments of the clay ceramics manufacturing industry. Ceramic tile and sanitaryware are used as inputs to the production of

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buildings, structures, and homes. The NESHAP which this economic impact analysis (EIA) addresses is scheduled to be proposed in mid-2001. The Innovative Strategies and Economics Group (ISEG) of the Office of Air Quality Planning and Standards (OAQPS) has developed this analysis in support of the evaluation of impacts associated with the clay ceramics manufacturing NESHAP.

### Methodology

The research was exploratory, qualitative and cross sectional in nature. The unit of analysis (district Wise) was an owner / manager of Micro Enterprise/ Small Enterprise that was selected as observation unit. The choice of owner / manager as the observation units relied upon the assumption that owners / managers of Micro Enterprise/ Small Enterprise in western U.P., India.

### Results and Discussion

Any understanding of the Indian market must begin with comprehension of its size. The country is a behemoth by any demographic or economic measure. Its population, estimated in July 2020 at 1.3 billion people, represents approximately 18.1 percent of the entire population of the planet. Its active labor force alone is approximately 60 percent bigger than the total US population—523.6 million versus 347.8 million people. Although a quarter of its population lives below the poverty line, the US State Department notes, “There is a large and growing middle class of more than 50 million Indians with disposable income ranging from 200,000 to 1,000,000 rupees (\$4,166 to \$20,833) per year. Estimates are that the middle class will grow tenfold by 2025.” That upward mobility is expected to create a new demand for a wide variety of goods, including a large volume of ceramic products—beginning with household basics and, with increased economic growth, moving on to anything from high-end decorative glass and tile to medical and dental devices. An example of the former was the subject of a recent Harvard Business Review online report. Author Alfredo Behrens observed that India “expects to see some 350–400 million people becoming urban residents in the next three decades. That could mean demand for as many as 150 million new toilets.” But, “the world demand and supply gap is daunting,” writes Behrens, a professor of crosscultural management at the Fundação Instituto de Administração in Sao Paulo, Brazil. His story noted, for example, that most of the 20 million toilet units produced each year by Kohler are “unsuitable for low-income markets” and that although India and China are undergoing a “reconversion from tile to ceramic sinks and toilets ... Italy, first in tile sales, and the United Arab Emirates, first in tile volume, have yet to adjust.” And that’s just one marker of the approaching market opportunity, he added: “Additional demand for new toilets, and derived demand for raw materials and energy, is only the tip of the housing demand iceberg coming from emerging markets.” Building economic muscle The Indian economy has thrived during the global economic crisis: Gross domestic product grew 6.6 percent in 2009, 10.6 percent in 2010 and 7.2 percent in 2011. Calculated on the basis of the official exchange rate, 2011 GDP was \$1.676 trillion. However, economists often calculate “purchasing power parity GDP” as a more accurate gauge for comparing the economic performance of one country against that of another. The International Monetary Fund explains, somewhat

longwindedly, that purchasing power parity GDP figures reflect “the rate at which the currency of one country needs to be converted into that of a second country to ensure that a given amount of the first country’s currency will purchase the same volume of goods and services in the second country as it does in the first.” India’s purchasing power parity GDP for 2011 was \$4.515 trillion, or \$3,700 per capita. This is the world’s fourth highest for the year, after the European Union, the United States and China, and it is just ahead of Japan and Germany. Industry occupies 14 percent of the workforce but generates more than 36 percent of GDP. Leading industries include textiles, chemicals, food processing, steel, transportation equipment, cement, mining, petroleum, machinery, software and pharmaceuticals. Services occupy 34 percent of the workforce and generate more than 56 percent of GDP. Agriculture, which employs 52 percent of the workforce, generates only 17 percent of GDP. The trade perspective The US is India’s third-largest source of imports, second-largest market for exports and largest investment partner. “Principal US exports are diagnostic or lab reagents, aircraft and parts, advanced machinery, cotton, fertilizers, ferrous waste/scrap metal and computer hardware,” the State Department reports. “Major US imports from India include textiles and ready-made garments, Internet-enabled services, agricultural and related products, gems and jewelry, leather products and chemicals.” Indian export volume reached almost \$300 billion in 2011, up from \$225 billion in 2010, and imports increased to more than \$461 billion in 2011 from \$358 billion in 2010. As these numbers demonstrate, the market opportunity is enormous, but so are the challenges. Among the constraints to economic growth cited by the State Department are “inadequate infrastructure, a cumbersome bureaucracy, corruption, labor market rigidities, regulatory and foreign investment controls, the ‘reservation’ of key products for small-scale industries and high fiscal deficits.” For guidance on competing successfully in India and connecting with local trading or business partners, contact the American Chamber of Commerce in India, the US India Chamber of Commerce, or the US India Business Council. Madhvi Kataria, deputy executive director of the American Chamber of Commerce in India, also recommends reviewing online guides to doing business in India published by Ernst & Young, KPMG, and HSBC, in partnership with PricewaterhouseCoopers.

### Organization of the report

The report is organized as follows: Section 2 provides a profile of the industry which includes a description of the producers and consumers of clay ceramic products. This section also presents available market data and trends in the industry, including domestic production, foreign trade, and apparent U.S. consumption. Special attention is given to the ceramic tile and sanitaryware manufacturing segments of the industry, since the facilities that produce these products are included in the clay ceramics manufacturing source category as defined by EPA. Section 3 describes the facility-level costs new sources will face to comply with this NESHAP and Section 4 provides facility-, market-, and society-level impacts of complying with this rule. Small business considerations are made in Section 5 as required by the Regulatory Flexibility Act (RFA) which was modified by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA)

### Industry profile

Though the clay ceramics manufacturing source category only includes facilities that produce ceramic tile and sanitaryware, this industry profile provides an overall description of the clay ceramics manufacturing industry. In some sections, however, the report will focus on ceramic tile and sanitaryware since producers of these products are included in the clay ceramics manufacturing source category. The industry profile is organized as follows: Section 2.1 describes the processes and costs of producing clay ceramic products, as well as the types of emissions released during production. Section explains the various uses, consumers, and substitute products available for ceramic products. Section 2.3 provides a summary profile of the clay ceramics source category, including a description of the ceramic tile and sanitaryware manufacturing facilities and the companies that own them.

Clay ceramics are heat- and corrosion-resistant products made by shaping and heating clay minerals. Some ceramic products include pottery, dinnerware, kitchenware, sanitaryware, bathroom accessories, and floor and wall tile. Kitchenware and dinnerware are used for food service, storage, and preparation, while bathroom accessories, sanitaryware, and ceramic tile are used in the construction of homes and buildings. Pottery often serves a decorative purpose, but is sometimes used for food preparation and presentation.

Clay ceramics manufacturing falls under the following North American Industrial Classification System (NAICS) codes:

- **NAICS 327122** - Ceramic Wall and Floor Tile Manufacturing;
- **NAICS 327111** - Vitreous China Plumbing Fixture and China and Earthenware Bathroom Accessories Manufacturing; and
- **NAICS 327112** - Vitreous China, Fine Earthenware, and Other Pottery Product Manufacturing.

These correspond to the following Standard Industrial Classification (SIC) codes:

- **SIC 3253** - Ceramic Wall and Floor Tile;
- **SIC 3261** - Vitreous China Plumbing Fixtures and China and Earthenware Fittings and Bathroom Accessories;
- **SIC 3262** - Vitreous China Table and Kitchen Articles;
- **SIC 3263** - Fine Earthenware (White ware) Table and Kitchen Articles; and
- **SIC 3269** - Pottery Products, not elsewhere classified (N.E.C.).

Production of the various traditional ceramic products follows a similar process. During this production process, HAPs are released. The primary HAPs emitted are hydrogen fluoride (HF) and hydrogen chloride (HCl) and the primary sources of these emissions are the kilns used to fire the ceramic products.

### Costs of production

This section discusses the costs of producing clay ceramic products. There are several types of production costs such as:

- **Capital expenditures**, including the costs of equipment and its installation;
- **Energy costs**, which are the costs of electricity and

- fuels used in the production of clay ceramic products;
- **Labor costs**, including the costs associated with wages and benefits; and
- **The cost of materials**, which are the costs of tangible inputs such as clay minerals, parts, and additives.

Market structure is of interest because it determines the behavior of producers and consumers in the industry. In perfectly competitive industries, no producer or consumer is able to influence the price of the product sold. In addition, producers are unable to affect the price of inputs purchased for use in production. This condition is most likely to hold if the industry has a large number of buyers and sellers, the products sold and inputs used in production are homogeneous, and entry and exit of firms is unrestricted. Entry and exit of firms are unrestricted for most industries, except in cases where the government regulates who is able to produce output, where one firm holds a patent on a product, where one firm owns the entire stock of a critical input, or where a single firm is able to supply the entire market. In industries that are not perfectly competitive, producer and/or consumer behavior can have an effect on price.

### Manufacturing facilities

As of 1997, there were 58 facilities in the clay ceramics manufacturing source category. Of these 58 facilities, 32 manufacture floor and wall tile while the remaining 26 manufacture sanitaryware.

Regardless of what type of product the facility produces, it can be classified as either one of two types of facilities: non-integrated producers and integrated producers. Non-integrated producers purchase clay mineral inputs to use in production and they focus on the manufacture of final goods, in this case ceramic tile or sanitaryware. Integrated producers are vertically integrated, which means they mine their own clay mineral inputs to use in the production of their final products.

The size of facilities depends on whether they are non-integrated or integrated producers. Plants that perform their own mining operations tend to be larger in size than those that purchase their own inputs from a minerals processing plant. Even if facilities are non-integrated producers, it is likely that they are located near sources of clay minerals so that the transportation costs of this essential input remains low. Thus, the locations of the 58 facilities are determined by the location of clay mineral deposits. These facilities are located across 22 states with the highest concentrations in Texas with 22 facilities, Ohio with 7 facilities, and Pennsylvania with 5 facilities.

### Market data and trends

This section focuses on historical market data for the ceramic floor and wall tile industry (SIC 3253) and the vitreous china plumbing fixtures segment of the vitreous china plumbing fixtures and bathroom accessories industry (SIC 3261). Detailed market data for SIC 3261 in its entirety and the remaining SIC codes were unavailable.

### Engineering cost analysis

Production of ceramic tile and sanitaryware results in emissions of HAPs from the kilns used in the production process. For this NESHAP, the MACT floor faced by existing major sources (in this case, kilns) in the clay

ceramics manufacturing source category requires no control of their HAP emissions. New sources will, however, be subject to emissions standards developed under the authority of Section 112 of the CAA. Facilities with new kilns will be required to control their HAP emissions through the installation and operation of dry injection fabric filters (DIFFs), dry lime scrubber/fabric filters (DLSs), wet scrubbers (WSs), or equivalent control. This section describes the development of compliance cost estimates for projected new clay ceramics manufacturing sources associated with this NESHAP. Section 3.1 discusses the types of new kilns that are projected for this source category and Section 3.2 describes the estimated costs of controlling the HAP emissions from these new kilns.

### **Economic impact analysis**

In the economic impact analysis, the Agency typically examines how facilities will directly (through the imposition of compliance costs) or indirectly (through a change in market prices) affect the entire U.S. industry. Generally speaking, the implementation of a proposed rule will increase the costs of production at affected plants. These costs will vary across facilities depending on their physical characteristics, baseline controls, and the regulatory standards that are set. The response by producers to these additional costs determine the economic impacts of the regulation. Specifically, the cost of the regulation may induce some owners to change their current operating rates or to close their operations.

These choices, affect, and in turn are affected by, the market prices for the products manufactured by the affected facilities.

For this regulation, the MACT floor faced by existing kilns at ceramic tile and sanitaryware facilities is a control technology that already exists at all major sources and some minor costs will be incurred by existing sources to document compliance with the standard. The total compliance costs for existing sources are approximately \$14,500, which represents a negligible impact on the industry (i.e., 0.001 percent of total industry revenues). With the negligible impact on industry revenues, it is unlikely prices will rise in the industry. Therefore, affected producers are expected to absorb the compliance costs as a component of their production costs. The change in production costs, however, is expected to be minimal. The new kiln that is added to the clay ceramics manufacturing source category is required to control their emissions of HAPs. The Agency has projected the addition of one kilns to the ceramic source category within the five years following promulgation as mentioned in Section 3. Section 4.1 of this report will describe the anticipated the industry impacts due to the addition of the new kiln while Section 4.2 will demonstrate the impacts at the source level.

### **Industry-level impacts**

To examine the projected impact of compliance costs associated with the new source on the ceramic tile and sanitaryware industries, a screening analysis is conducted to compare the annual industry compliance costs to the future industry value of shipments (VOS) for each of these clay ceramics industries. The share of compliance costs to VOS for the sanitaryware industry is also less than 0.01 percent. These ratios provide evidence showing that at the industry level, the total annual compliance costs associated with this

rule are not expected to lead to a price increase for sanitaryware products.

### **Small business analysis**

The Regulatory Flexibility Act (RFA) of 1980 requires that special consideration be given to small entities affected by federal regulation. The RFA was amended in 1996 by the Small Business Regulatory Enforcement Fairness Act (SBREFA) to strengthen the RFA's analytical and procedural requirements. Prior to enactment of SBREFA, EPA exceeded the requirements of the RFA by requiring the preparation of a regulatory flexibility analysis for every rule that would have any impact, no matter how minor, on any number, no matter how small, of small entities. Under SBREFA, however, the Agency decided to implement the RFA as written and that a regulatory flexibility analysis will be required only for rules that will have a *significant* impact on a *substantial* number of small entities.

A small business analysis is conducted to determine if a regulatory action will potentially affect the economic welfare of owners of the potentially affected facilities. The ownership of these facilities ultimately falls on private individuals who may be owner/operators that directly conduct the business of the firm (i.e., "mom and pop shops" or partnerships) or, more commonly, investors or stockholders that employ others to conduct the business of the firm on their behalf (i.e., privately-held or publicly-traded corporations). The individuals or agents that manage these facilities have the capacity to conduct business transactions and make business decisions that affect the facility. The legal and financial responsibility for compliance with a regulatory action ultimately rests with these agents; however, the owners must bear the financial consequences of the decisions. Environmental regulations like this rule potentially affect all businesses, large and small, but small businesses may have special problems in complying with such regulations.

Generally, the small business analysis identifies the businesses that will be affected by this proposed rule and provides an analysis to assist in determining whether this rule is likely to impose a significant impact on a substantial number of the small businesses within this industry. Once these businesses are identified, a "sales test" is conducted which computes the annualized compliance costs as a share of sales for each company. Since facilities in the clay ceramics manufacturing source category face a MACT floor that requires no control of existing sources, companies owning these facilities face no compliance costs. In other words, for all of the companies that own facilities included in the clay ceramics manufacturing source category, all have compliance costs that are zero percent of their sales. This rule is therefore not expected to have a significant impact on a substantial number of small businesses.

Source category will face positive costs of complying with this NESHAP, impacts at the source are not expected to be substantial. Since source-level impacts are expected to be small, company-level impacts are anticipated to be even less significant.

### **Conclusion**

We concluded that the ceramic industry play important role in socio economic development of western utter Pradesh.

**Reference**

1. Government of Uttar Pradesh, website: <https://mirzapur.nic.in> (accessed on 20-08-2019).
2. District Industrial Centre, Mirzapur, Government of Uttar Pradesh 2019.
3. Government of India. Brief Industrial Profile of Mirzapur District, Published by Ministry of MSME 2019.
4. Dun and Bradstreet. Dun and Bradstreet Market Identifiers Electronic Database. Goddin, Lesley. Ceramic Tile: State of the Industry, Floor Covering Weekly 1999-2000. <<http://www.floorcoveringweekly.com/story/story039902a.asp>>
5. Gale Group. Ward's Business Directory 1997.
6. Moody's Investors Service. Moody's Corporate Profiles Database. Standard and Poor's Corporation. Standard and Poor's Register - Corporate Electronic Database 1999.
7. Donio Paul J. Tile with Style: A Guide to a Simple Yet Beautiful Remodeling Material, Today's Homeowner. <<http://www.todayshomeowner.com/interior/19970930.feature.html>> retrieved from Internet 2000.
8. US. Department of Commerce, Bureau of the Census. Annual Survey of Manufactures, M98(AS)-1 Statistics for Industry Groups and Industries. U.S. Government Printing Office 1998-2000.
9. US. Department of Commerce, Bureau of the Census. Annual Survey of Manufactures, M96(AS)-1 Statistics for Industry Groups and Industries. U.S. Government Printing Office 1996-1998.
10. US. Department of Commerce, Bureau of the Census. Annual Survey of Manufactures, M94(AS)-1 Statistics for Industry Groups and Industries. U.S. Government Printing Office 1994-1996.
11. U.S. Department of Commerce, Bureau of the Census. Annual Survey of Manufactures, M93(AS)-1 Statistics for Industry Groups and Industries. U.S. Government Printing Office 1993-1995.
12. US. Department of Commerce, Bureau of the Census. Concentration Ratios in Manufacturing. U.S. Government Printing Office 1992-2000.
13. US. Department of Commerce, Bureau of the Census. Current Industrial Reports for Clay Construction Products - Summary 1999-2000, MQ32D(99)-5.
14. US. Department of Commerce, Bureau of the Census. Current Industrial Reports for Clay Construction Products - Summary 1997-1998, MQ32D(97)-5.
15. US. Department of Commerce, Bureau of the Census. Current Industrial Reports for Plumbing Fixtures - Summary 1999-2000, MQ332E(99)-5.
16. US. Department of Commerce, Bureau of the Census. Current Industrial Reports for Plumbing Fixtures - Summary 1997-1998, MQ32D(97)-5.
17. US. Department of Commerce, Bureau of the Census. Current Industrial Reports for Plumbing Fixtures - Summary 1995-1997, MQ32D(95)-5.
18. US. Department of Commerce, Bureau of the Census. 1999. 1997 Economic Census, Manufacturing Industry Series, Ceramic Wall and Floor Tile Manufacturing. U.S. Government Printing Office.
19. US. Department of Commerce, Bureau of the Census. Economic Census, Manufacturing Industry Series, Vitreous China, Fine Earthenware, and Other Pottery Product Manufacturing. U.S. Government Printing Office 1997-1999.
20. US. Department of Commerce, Bureau of the Census. Economic Census, Manufacturing Industry Series, Vitreous China Plumbing Fixture and China and Earthenware Bathroom Accessories Manufacturing. U.S. Government Printing Office 1997-1999.
21. US. Department of Commerce, Bureau of the Census. Current Industrial Reports - Survey of Plant Capacity, U.S. Government Printing Office 1998-2000.
22. US. Environmental Protection Agency. Emission Factor Documentation for AP-42, Section 11.7, Ceramic Products Manufacturing 1996.
23. US. Environmental Protection Agency. Memorandum from Dottie Schmitt and Richard Marinshaw, Midwest Research Institute to Susan Zapata, Emissions Standards Division, Office of Air Quality Planning and Standards, "Preliminary Industry Characterization Data Inputs for ISEG, Clay Ceramics Manufacturing Facilities, September 17, 1999.
24. US. Environmental Protection Agency. Memorandum from Brian Shrager, Midwest Research Institute to Mary Johnson, Emissions Standards Division, Office of Air Quality Planning and Standards, Economics Inputs - Brick and Structural Clay Products Manufacturing and Clay Ceramics Manufacturing NESHAP, 2002, 11.
25. US. Environmental Protection Agency. Memorandum from Brian Shrager, Midwest Research Institute to Mary Johnson, Emissions Standards Division, Office of Air Quality Planning and Standards, Costs for PM CEMS for Kilns - Brick and Structural Clay Products and Clay Ceramics Manufacturing NESHAP 2001, 6.
26. US. Small Business Administration. Small Business Size Standards Matched to North American Industry Classification System (NAICS) Codes 2001. <<http://www.sba.gov/size/Table-of-SS-based-on-NAICS.PDF>>
27. US. Small Business Administration. Small Business Size Standards Matched to Standard Industrial Classification (SIC) Codes 2001. <<http://www.sba.gov/regulations/siccodes/siccodes.pdf>>
28. Virta Robert. Clays, In: Minerals Yearbook, Metals and Minerals: Volume US. Geological Survey US. Government Printing Office 1997-1999.
29. Virta Robert. Clays, In: Minerals Yearbook, Metals and Minerals: Volume US. Geological Survey US. Government Printing Office 1996-1998.
30. Virta Robert. Clays, In: Minerals Yearbook, Metals and Minerals: Volume US. Geological Survey US. Government Printing Office 1995-1997.
31. Virta Robert. Clays, In: Minerals Yearbook, Metals and Minerals: Volume US. Geological Survey US. Government Printing Office 1994-1996.