SINDH MINERALS STATISTICS

2022-23




BUREAU OF STATISTICS
PLANNING & DEVELOPMENT DEPARTMENT
GOVERNMENT OF SINDH

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PREFACE

Sindh Minerals Statistics, 2022-23 is the third edition of Sindh Bureau of Statistics (BOS), Planning & Development Department on the statistics of mining and quarrying of minerals in Sindh and the part of Sindh BOS Business Plan (2021-22) and completed under the development goals of 2022-23 (SBOS). The Bureau of Statistics, Sindh developed its Mission and Vision after the study of Strategic Planning and this report is prepared according to the strategic goal 2022-2026 "to revamp and revitalize Sindh Bureau of Statistics as a Progressive Statistical Data-Centric Organization". This publication includes mineral wise statistics, district minerals profile and the monthly time series of production of minerals in Sindh. The most important feature of this report is the estimation of minerals' value indices at the base year of 2015-16 and these indices are computed the district wise and mineral wise from 2018-19 to 2022-23. As per history, around 20 minerals are mined and quarried in the 9 different districts of Sindh. According to the number of minerals, District Jamshoro and Thatta are called the minerals rich districts of Sindh while according to the ranking of value of mineral's extraction (in PKR), the top five districts in 2021-22 are Tharparkar, Jamshoro, Karachi, Thatta, and Khairpur respectively, however Khairpur has moved upward and replaced with Dadu.

Complete data of minerals extraction, leases and schedules royalty rates of minerals are supplied by the Mines & Minerals Development Department and the Directorate of Coal Mines Development. The support and services of these departments in the provision of data are highly acknowledged by the Bureau of Statistics, Sindh.

It is acknowledged that the services of Mr. Muhammad Kazim Jafri, Deputy Director (Industries), and his team for the preparation of this report are praiseworthy. Suggestions and recommendations from users will always be welcomed and appreciated.

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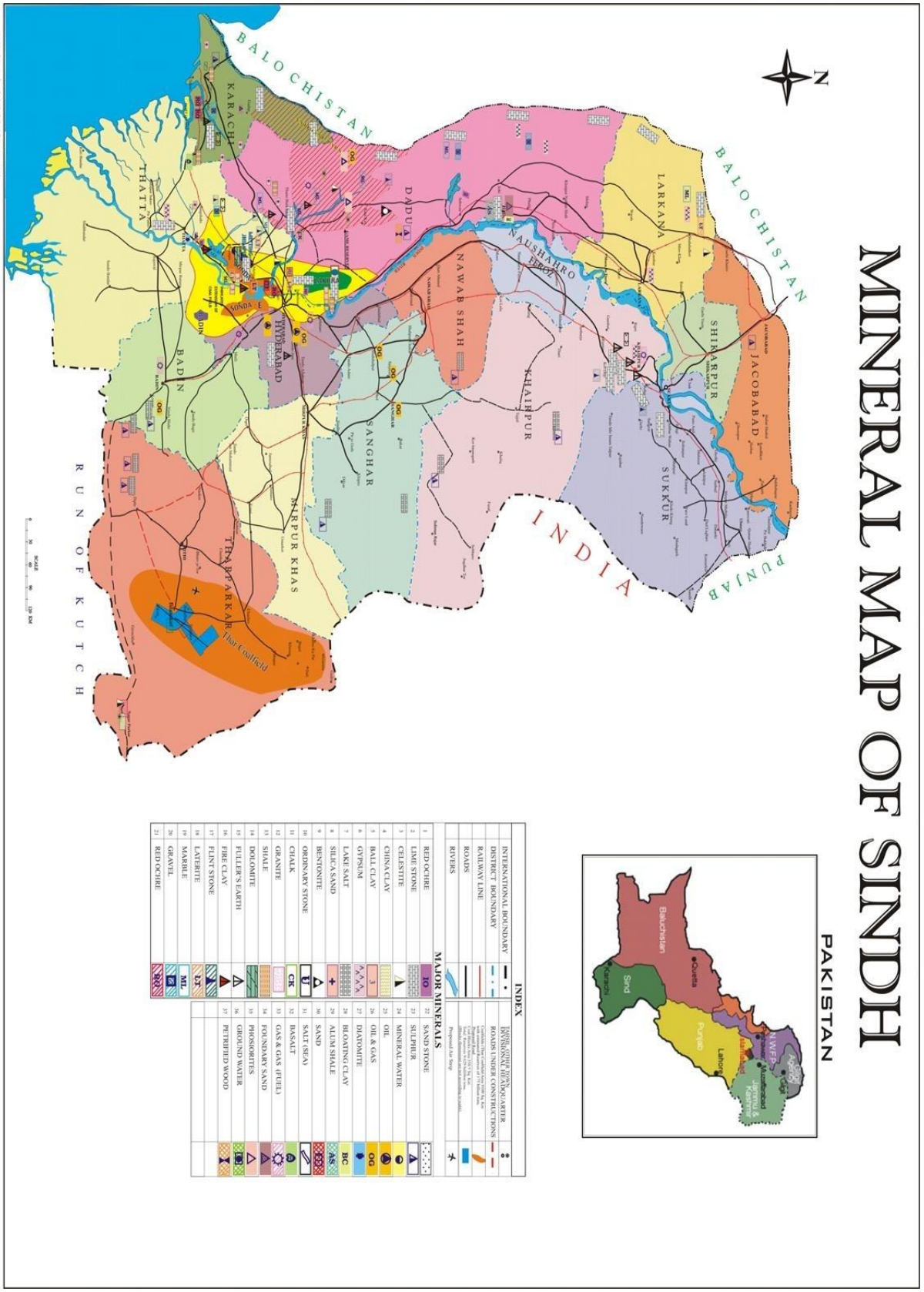
SINDH MINERALS MAP



Courtesy by Mines & Minerals Department Government of Sindh [2]

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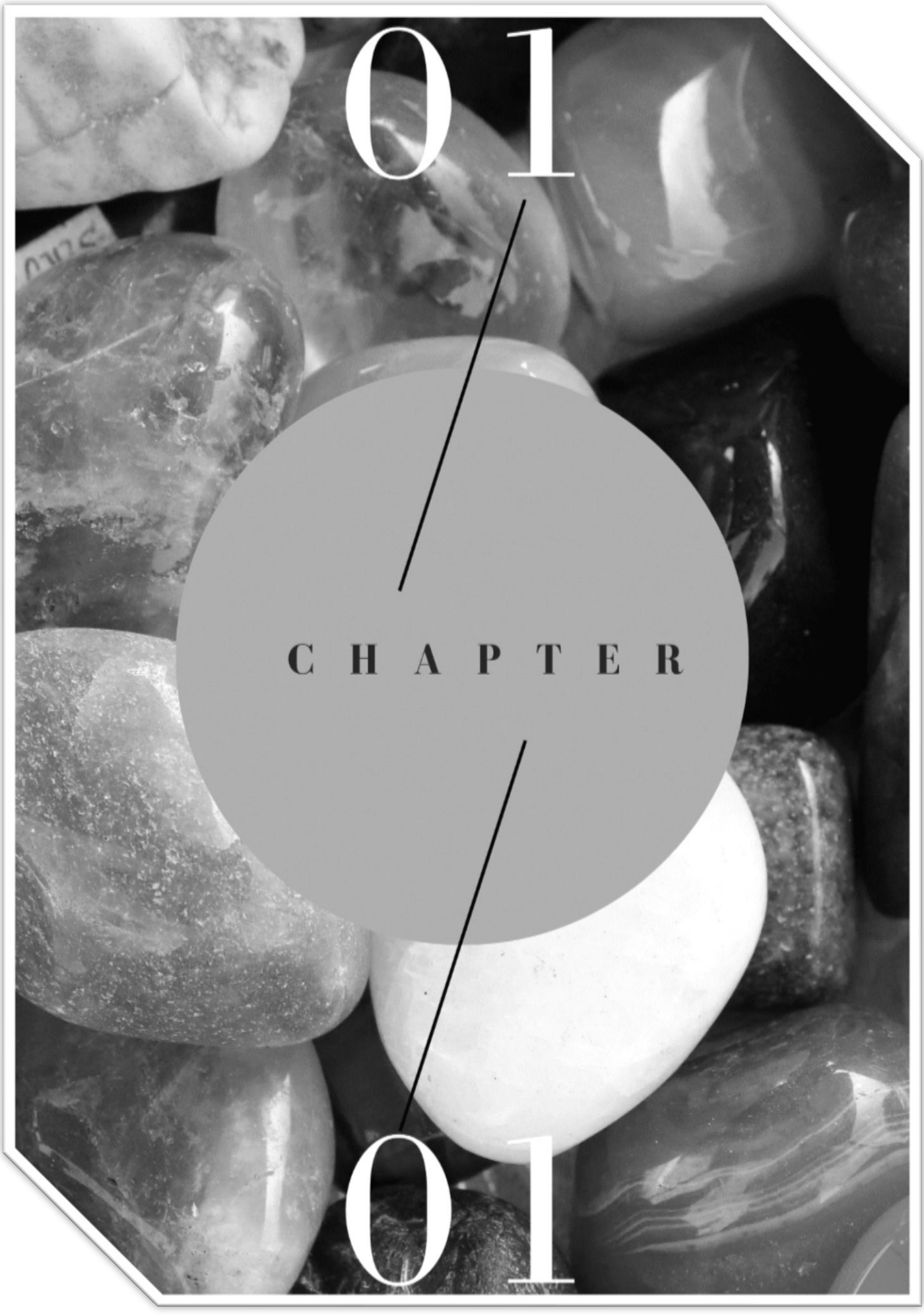
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CHAPTER 1
INTRODUCTION

1.1. Introduction to Sindh Minerals Statistics

Mining is the process of extracting buried material below the earth's surface. Quarrying refers to extracting materials directly from the surface. The mining and quarrying sector includes the mining of fossil fuels (Coal and lignite mining, oil and gas extraction), mining of metal ores, quarrying of stone, sand, and Clay, and mining of phosphate and other minerals.

Sindh Bureau of Statistics (SBOS) obtains mineral statistics from the Sindh Mines and Mineral Development Department and the Sindh Directorate of Coal Mines Development. Mineral statistics (for all minerals) were previously gathered primarily by the Government of Sindh's Mines and Mineral Development Department. Data on Coal mines is gathered by Directorate of Coal Mines Development after 2014, whereas data on other minerals is collected by Sindh Mines and Mineral Development Department.

The diverse minerals produced in Sindh are discussed in this chapter. Mineral production is measured and reported in thousand kilograms. Sindh province features a diverse landscape, including dry zones, tropical zones, deserts, and forests, among other things. Sindh is abundant in minerals, some of which are more precious than others. Leaseholders submit their returns of monthly production to the Mines and Minerals Department and the Coal Mines Development Authority further these numbers are collected by Sindh BOS and compiled and analysis for its publication. In the last fiscal year, Sindh produced 16 minerals in different districts their data is compiled on a monthly basis. List of minerals produced in Sindh are as under [2]:

1. China Clay
2. Shale Clay
3. Coal
4. Fuller's Earth
5. Granite
6. Gravel
7. Iron Ore
8. Lake Salt
9. Laterite
10. Lime Stone
11. Marble
12. Mouram
13. Ordinary Sand
14. Rati/Bajri
15. Silica Sand
16. Trona

Different districts have different specialties to produce specific minerals, such as Tharprkar, Jamshoro, and Thatta, which are rich in Coal reserves. This year, Dadu produced only one mineral, i.e., Clay (Shale); similarly, district Hyderabad has not produced any mineral since the last two years. The 2022-23 production landscape of Jamshoro District reveals a vibrant tapestry of resource extraction that significantly bolsters Sindh's overall industrial output. With an impressive contribution of 10% and 67% to the province's Coal and Clay production, Jamshoro stands as a vital player in the energy and manufacturing sectors. The district's Lime Stone production, accounting for a substantial 41% of Sindh's total, further underscores its importance in construction and various industries. Moreover, the prominence of Fuller's Earth and Silica Sand highlights the diversity of materials produced in this region, catering to both local and broader markets. Complementing these figures, the contributions from Gravel and ordinary sand—22% and 28%, respectively—reflect Jamshoro's multifaceted role in supporting infrastructure development. Collectively, these statistics not only illustrate Jamshoro District's crucial position within Sindh but also emphasize its potential for future growth in resource management and economic development.

District Khairpur is the only producer of Trona and Laterite in Sindh. Forty-eight percent of Lime Stone is produced in Karachi district, while ranking wise, Karachi secured the 3rd position in Sindh. Sukkur district has limited reserves of minerals; it produces Gravel, Lime Stone, and Ordinary Sand, and this fiscal year it is also the largest producer of Ordinary Sand. Sanghar district has produced only three percent of a mineral, i.e., Lake Salt at Khipro taluka. Tharparkar district is famous for Coal extraction, China Clay, and Lake Salt. It is also the largest and most isolated producer of Granite and China Clay in Sindh. Thatta is the second district after Jamshoro in Sindh, which has produced seven minerals in Sindh. This district is the beauty of Sindh province and has a wide variety of landscapes. It produces Clay (Shale), Coal, Iron Ore, Lime Stone, Marble, Mouram, Gravel, and Rait/Bajri. Cent percent of Marble and Mouram of Sindh is produced in this district.


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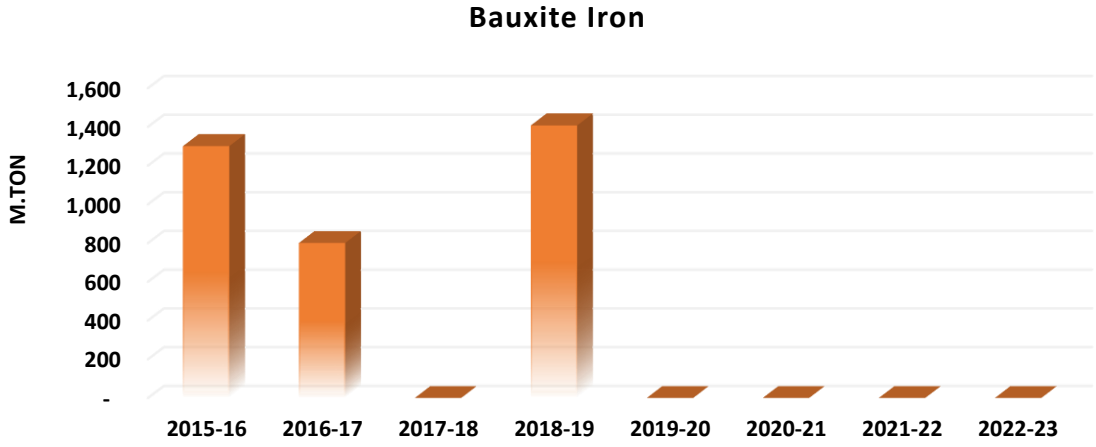
CHAPTER 2
MINERALS WISE STATISTICS

2.1. Bauxite Iron

Bauxite is a sedimentary rock that contains a lot of aluminium. It is the primary source of aluminium and gallium in the world. Bauxite is made up mostly of the aluminium minerals gibbsite ($Al(OH)_3$), boehmite -AlO(OH)), and diaspore (-AlO(OH)). Bauxite, rock largely composed of a mixture of hydrous aluminum oxides. Bauxite is the principal ore of aluminum. Bauxites vary physically according to the origin and geologic history of their deposits: some deposits are soft, easily crushed, and structureless; some are hard, dense, and pisolitic, or pealike; still others are porous but strong or are stratified or largely pseudo orphic after their parent rock [4].

Figure 1:Production of Bauxite Iron in Sindh



Source: Mines & Minerals Development Department, Government of Sindh

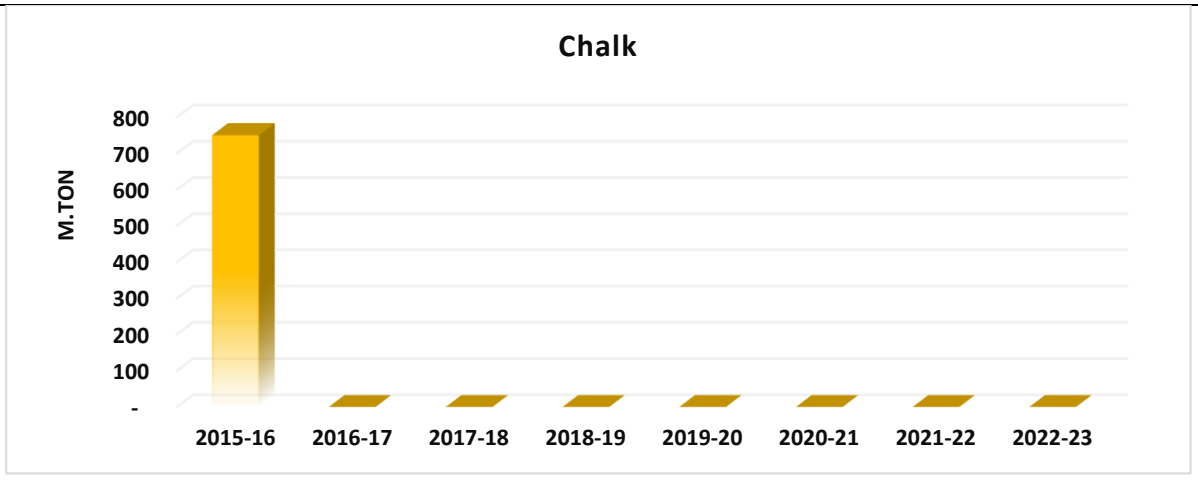
Bauxite Iron is not very regularly quarried mineral and the production of the Bauxite Iron is also low around 500 to 1000 metric tons on average. In Sindh, Bauxite Iron is usually mined in district Thatta and the availability of aluminum in its production makes it valuable. From last 3 years this mineral is not extracted from the earth.

2.2. Chalk

Chalk is a sedimentary carbonate rock that is soft, white, and porous. It's a type of Lime Stone made up of the mineral calcite that was generated deep beneath the sea by the compression of minute plankton that had accumulated on the sea floor. Chalk is found all over Western Europe, including areas of France, and towering cliffs can be observed where it meets the sea, such as the Dover cliffs on the Kent shore of the English Channel [4].

Chalk is mined for usage in industries, such as quicklime, bricks, and builder's putty, as well as in agriculture, to raise pH in acidic soils. It's also known as "blackboard Chalk," which is used for writing and drawing on a variety of surfaces, including blackboards.

Figure 2:Production of Chalk in Sindh



Source: Mines & Minerals Development Department, Government of Sindh

The production of Chalk is discontinued in Sindh since 2016-17, however the usage of Chalk is quite significant its uses in Paint, glass making, poultry grid, filter, white cement, and different products of whitewash. In Sindh, Chalk is usually mined in the districts of Jamshoro and Thatta and it is widely use in daily life made this mineral quite valuable.

2.3. China Clay

Kaolin is a rock that produces the Clay mineral kaolinite. Kaolin or China Clay are rocks that are high in kaolinite. Lithomarge is an old word for kaolin, derived from the Ancient Greek litho- and Latin marga, which means'stone of marl.' Lithomarge is now a term used to describe a compacted, huge type of kaolin [4].

This one has been used as the main element of porcelain tableware for millennia. Imerys kaolins are used in a wide range of industries today, from paper to paints, fiberglass to cosmetics and medicines.

Figure 3: Production of China Clay in Sindh

Source: Mines & Minerals Development Department, Government of Sindh

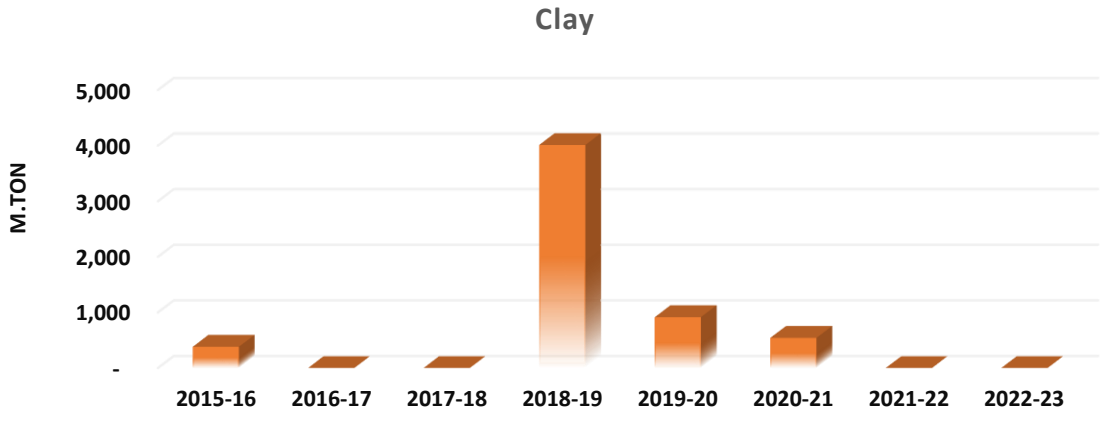
Tharparkar is the main producer of China Clay; Sindh produces around 2000, to 4,000 metric tons China Clay since last four last years on annual basis. However, the production this mineral is reducing since previous four years. There are various items are produced by this input though the China Clay is mainly used in the production of ceramic industries, white cement, rubber & chemicals.

2.4. Clay

Clay minerals are hydrous aluminium phyllosilicates with varying concentration of iron, magnesium, alkali metals, alkaline earths, and other cations that can be found on or near the surface of several planets. Many theories of abiogenesis include Clay minerals, which develop in the presence of water and have historically been vital to life. They are significant soil ingredients and have been used by humans in agriculture and industries since ancient times [4].

Clay minerals are probably the most widely used minerals, not only in soils for growing plants for food and clothing, but also in a wide range of applications such as oil absorbents, iron casting, animal feeds, pottery, china, pharmaceuticals, drilling fluids, waste water treatment, food preparation, and paint.

Figure 4:Production of Clay in Sindh



Source: Mines & Minerals Development Department, Government of Sindh

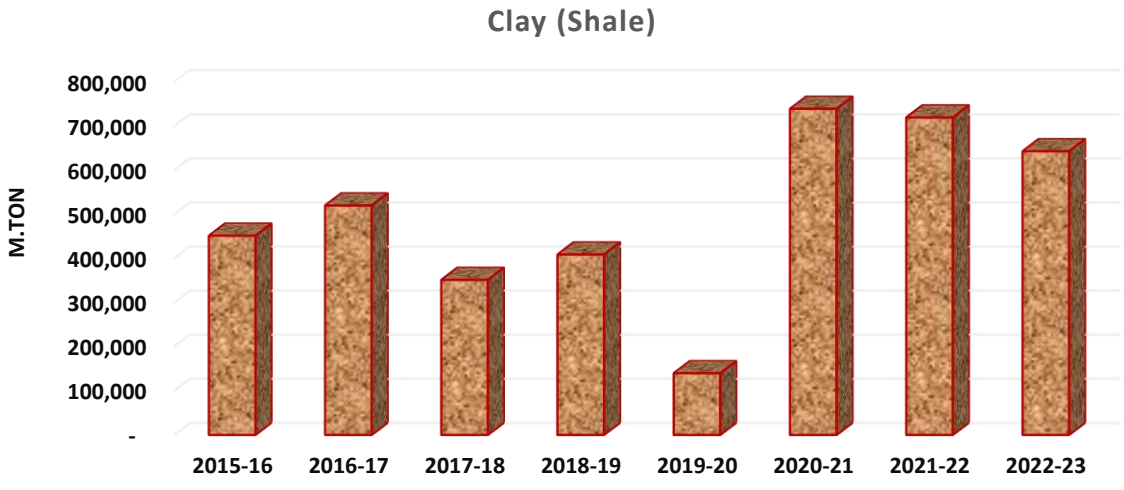
Clay (plain) is not very regularly quarried mineral and the production of the Clay is also low around 2,000 to 3,000 metric tons on average. Since last two years its production is discontinued in Sindh, Clay soil is usually mined in Karachi and it uses widely in pottery, drilling fluids, planting, and in many construction items.

2.5. Clay (Shale)

Shale is a fine-grained, clastic sedimentary rock made up of Clay flakes and microscopic shards of various minerals, particularly quartz and calcite that is created from mud. Shale is distinguished by its proclivity for fracturing into thin layers (laminae) of less than one centimeter thickness. In other words, the most common sedimentary rock is shale. Shales are frequently found alongside sandstone or Lime Stone strata [4].

Shale is occasionally used in a broader sense, as a synonym for mud rock, rather than in the more specific sense of Clay-rich fissile mud rock. They often form in habitats where muds, silts, and other sediments were deposited and compacted by gentle carrying currents, such as the deep-ocean floor, shallow-sea basins, and riverbeds.

Figure 5:Production of Clay (Shale) in Sindh



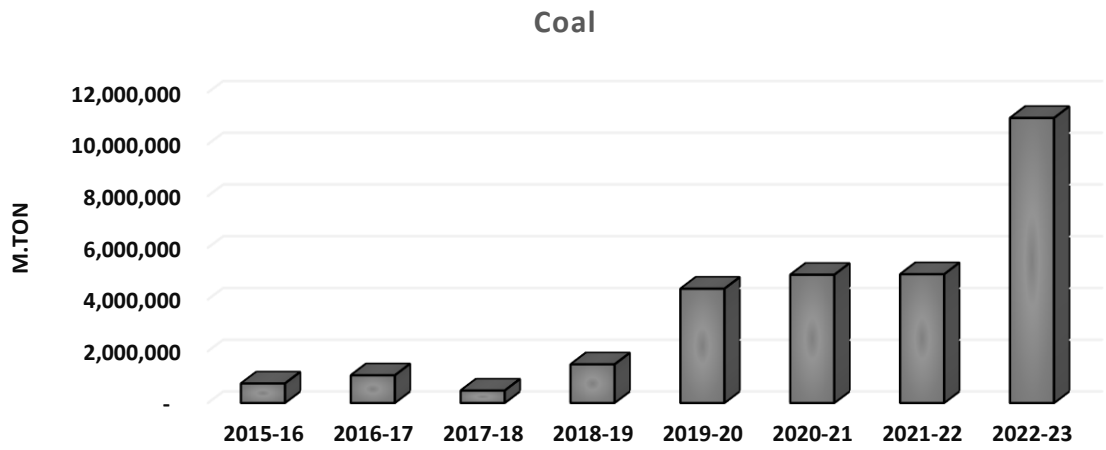
Source: Mines & Minerals Development Department, Government of Sindh

The production of Shale Clay is reported to be higher in 2020–21 than in the last five years. The usage of Shale Clay is quite significant; it is used in pigments, color manufacturing, and cement production. In Sindh, Shale Clay is usually mined in districts Dadu, Jamshoro, and Thatta, whereas district Jamshoro is the highest contributor to this mineral.

2.6. Coal

Coal is a solid carbon-rich material that is usually brown or black and found in layered sedimentary strata, making it one of the most important major fossil fuels. Coal seams are combustible black or brownish-black sedimentary rocks that form as rock strata. Coal is mostly made up of carbon, with varying proportions of additional elements such as hydrogen, sulphur, oxygen, and nitrogen [4]. In Sindh, Coal's extraction sites are Jamshoro (Lakhra), Thatta, and Tharparkar and the estimated Coals reserves of Sindh from all these sites are 183.48 billion; from which 95.4% reserves are available in Tharparkar.

Figure 6:Production of Coal in Sindh



Source: Directorate of Coal Mines Development, Government of Sindh

Tharparkar and Jamshoro are the main producer of Coal; Last year (i.e. 2022-23) Sindh produces 11 million metric tons Coal annually. The production of this mineral is showing increasing trend in last five years, due to the development of Tharparkar plant in Sindh. The primary use of raw Coal is power generation, gasification, Coal briquettes and bricks kilns. The sites wise Coal reserves are given as under:

Sites	Lakhra	Thatta	Tharparkar	Total
Reserves (in billion)	1.38	7.10	175.0	183.48

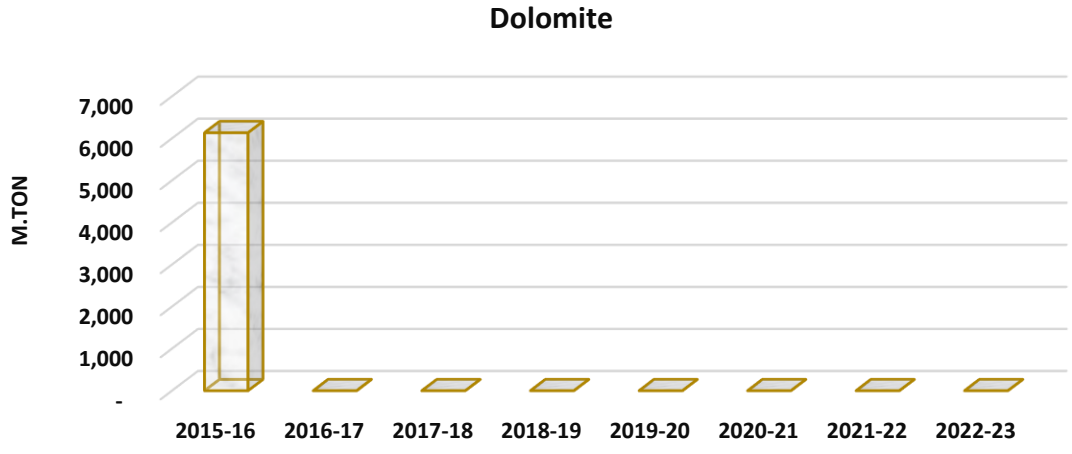
Source: Directorate of Coal Mines Development, Govt. of Sindh (2021-22)

2.7. Dolomite

Dolomite is a type of Lime Stone that has roughly equal amounts of magnesium and calcium carbonates. It can be found all over the world. Dolomitic Lime Stone has five times the amount of magnesium and one-fifth the amount of calcium as regular Lime Stone. In addition to more than 20 additional trace elements, Dolomite contains minor amounts of chlorine, phosphorus, and potassium [4].

Dolomite has long been utilized as a calcium and magnesium source in animal diets. Dolomite is currently accessible as a nutritional supplement in a variety of dose forms, including pills and chewable wafers. Minerals from Dolomite are well absorbed in animal models. There is no animal or clinical data on the use of Dolomite as a magnesium and calcium supplement, according to research.

Figure 7: Production of Dolomite in Sindh



Source: Mines & Minerals Development Department, Government of Sindh

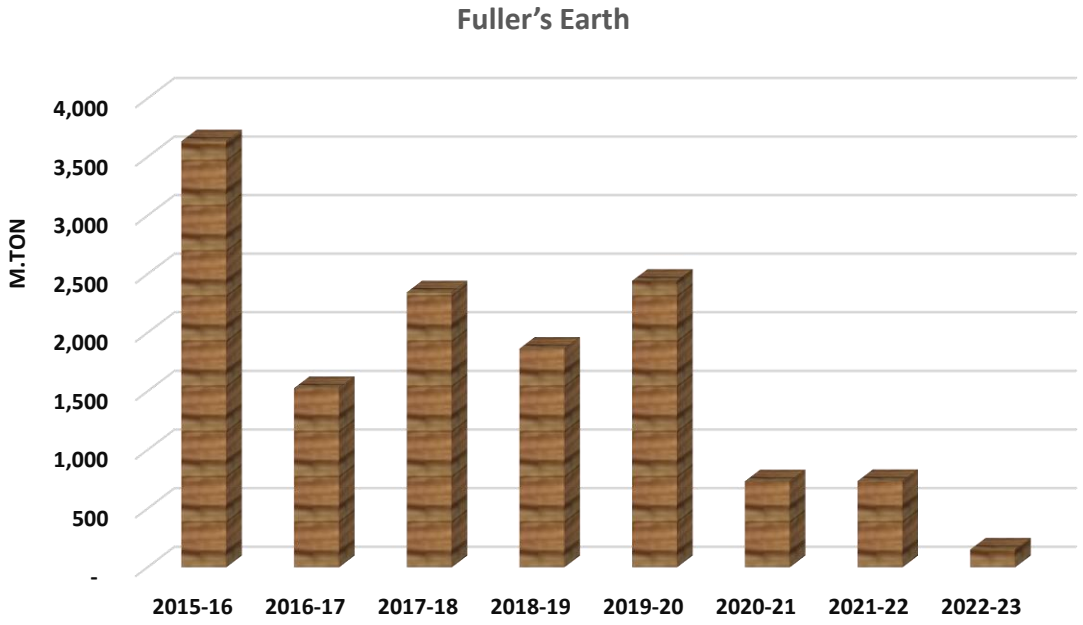
Dolomite is not very regularly quarried mineral and the production of the Dolomite is discontinued since previous seven years (2016-17). In Sindh, Dolomite, is usually mined in Thatta and it uses in the parathion ion of nutritional supplement products in pharmaceutical sector and some companies are used Dolomite as input to produce chewable water.

2.8. Fuller's Earth

Any Clay material that may decolorize oil or other liquids without the use of harsh chemicals is known as Fuller's Earth. Palygorskite (attapulgite) or bentonite are the most common components of Fuller's Earth. Fuller's Earth is now used as an absorbent for oil, grease, and animal waste (cat litter), as well as a pesticide and fertilizer carrier.

Filtering, clarifying, and decolorizing; active and inactive ingredients in beauty goods; and as a filler in paint, plaster, adhesives, and medications are just a few of the minor applications. It has a variety of applications in the film industry and on stage [4].

Figure 8: Production of Fuller's Earth in Sindh



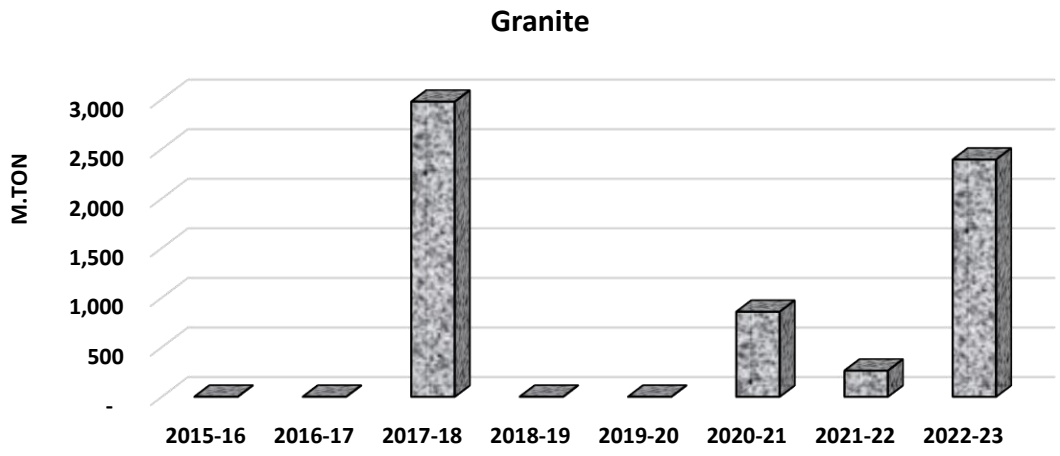
Source: Mines & Minerals Development Department, Government of Sindh

The trend of production of Fuller's Earth is irregular in last seven years. The usage of Fuller's Earth is relatively significant its uses in Oil Refining, discoloration and in the production of cosmetic items. In the year 2022-23, Sindh full quantity of Fuller's Earth mined in district Jamshoro while small quantity sometime is also mined in the districts of Karachi and Khairpur.

2.9. Granite

Granite is part of a wider group of granitic rocks known as granitoids, which are made up primarily of coarse-grained quartz and feldspars in various proportions. The relative Ratios of quartz, alkali feldspar, and plagioclase in these rocks are used to classify them, with real Granite denoting granitic rocks rich in quartz and alkali feldspar. Although most granitic rocks contain mica or amphibole minerals, a handful (known as leucogranites) have essentially no dark minerals. Granite is almost usually huge (i.e., devoid of internal structures), hard, and tough. Granite has been used as a building stone for millennia due to its unique qualities [4]. Granite is the one of the precious minerals, and extracted in district Tharparkar. According to the minerals development department of government of Sindh, the estimated reserves of Granite are 10.06 billion Ton.

Figure 9: Production of Granite in Sindh



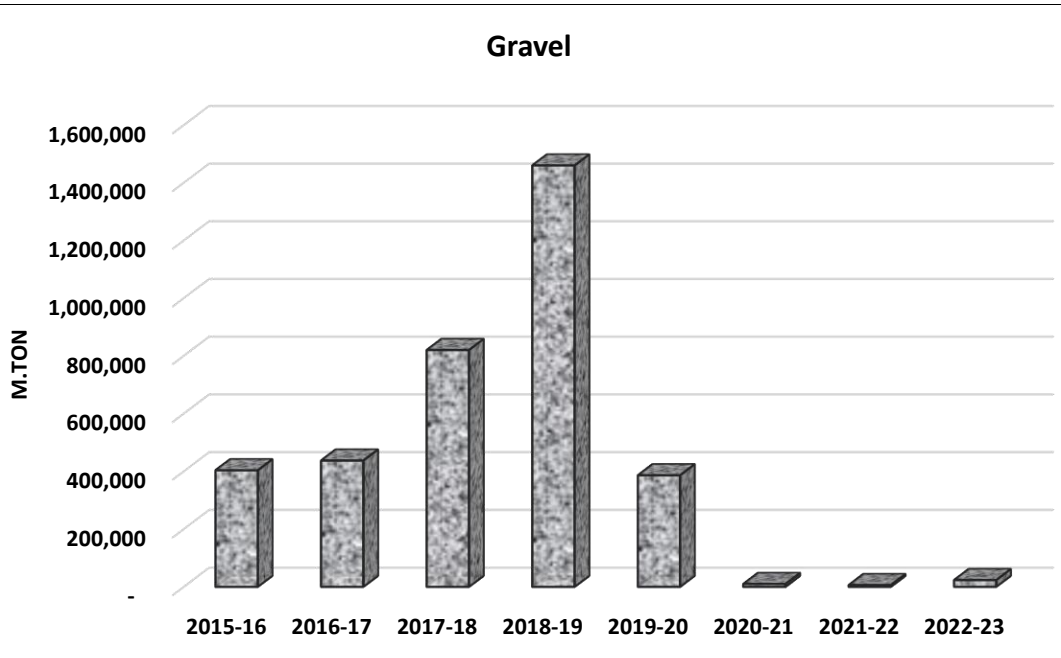
Source: Mines & Minerals Development Department, Government of Sindh

Nagarparkar, Tharparkar is main producer of Granite; however, the production of Granite is irregular. In Sindh, Granite is showing increasing trend from previous year but overall, this is the second highest production of Granite from the Tharparkar district. The main use of this mineral is to prepare decorative stones, kitchen items, and office work stations.

2.10. Gravel

A loose accumulation of rock particles is known as Gravel. Gravel is manufactured in huge amounts commercially as crushed stone and occurs naturally around the world as a result of sedimentary and erosive geologic processes. Heavy metallic ore minerals, such as cassiterite (a key source of tin), and native metals, such as gold, can be found in nuggets or flakes in some Gravel beds. Gravels are commonly utilized in construction [4].

Figure 10: Production of Gravel in Sindh



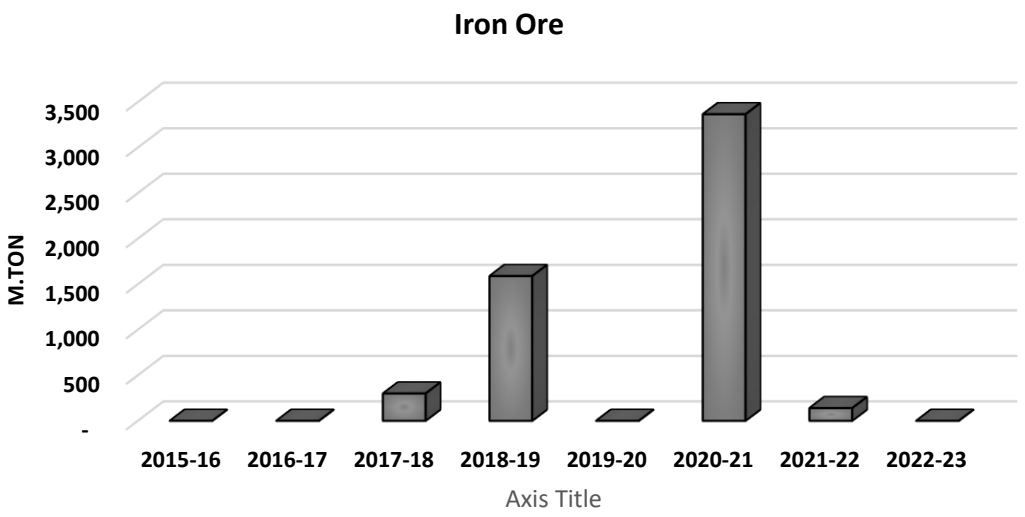
Source: Mines & Minerals Development Department, Government of Sindh

The production of Gravel is reported to have averaged 700,000 to 800,000 metric tons in the prior four consecutive years, but in the last four years, it has dropped by around one lac only. The highest production of Gravel was reported in the 2018–19 year; however, the usage of Gravel is linked with building and road construction materials. In Sindh, Gravel is mainly quarried in Karachi, Jamshoro, and Tharparkar, and the other locations of Gravel quarrying in Sindh are Sukkur, Khaipur, and Thatta.

2.11. Iron Ore

Iron Ores are rocks and minerals that can be economically mined for metallic iron. Iron oxides are abundant in the ores, which range in colour from dark grey to bright yellow to deep purple to rusty red. "Natural ore" or "straight shipping ore" refers to ore that has a high percentage of hematite or magnetite (more than roughly 60% iron) and may be fed directly into blast furnaces to produce iron. Iron Ore is the raw material required to manufacture pig iron, which is one of the key raw materials used to make steel—steel accounts for 98 percent of all mined Iron Ore [4].

Figure 11: Production of Iron Ore in Sindh



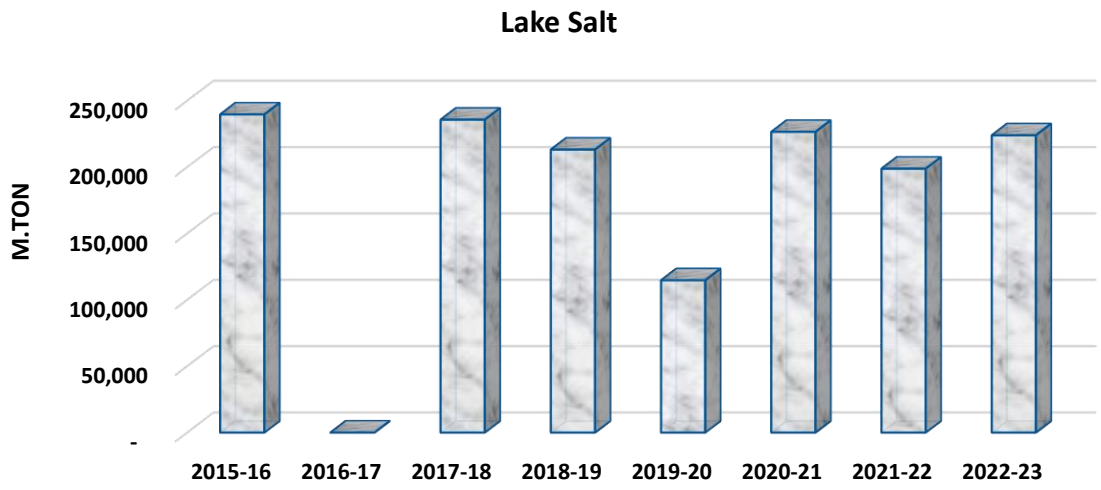
Source: Mines & Minerals Development Department, Government of Sindh

Iron Ore is not very regularly quarried mineral and the production of the Iron Ore in 2021-22 was reported significantly low as compare to previous year. In Sindh, Iron Ore, is usually mined in Thatta and it is used as an important raw material to prepare pig iron which is further used to produce raw steel or 98% composed steel products.

2.12. Lake Salt

A salt lake, sometimes known as a saline lake, is a landlocked body of water with a much higher concentration of salts (usually sodium chloride; NaCl) and other dissolved minerals than most lakes. Salt lakes can contain more salt than sea water in some situations; these lakes are known as hyper saline lakes and are sometimes referred to as pink lakes due to their colour. Salt lakes arise when the water pouring into the lake, which contains salt or minerals, is unable to exit due to the endorheic nature of the lake (terminal). The water subsequently evaporates, leaving any dissolved salts behind and increasing the salinity of the lake, making it an ideal location for salt manufacturing [4].

Figure 12: Production of Lake Salt in Sindh



Source: Mines & Minerals Development Department, Government of Sindh

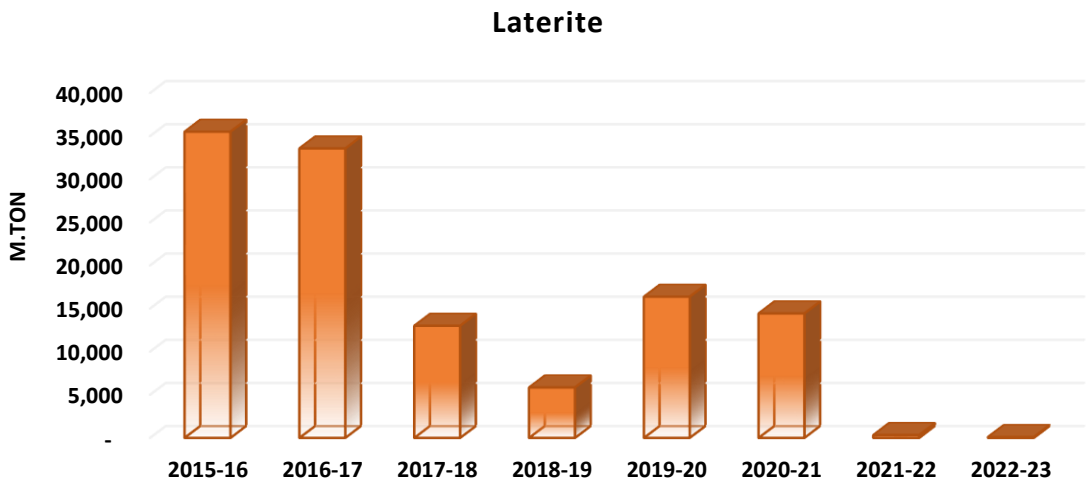
Sanghar, Dadu & Tharparkar are the main producers of Lake Salt. The production of this mineral is not steady in last five years. Overall, Pakistan exports much less than the actual potential of the country. Primarily raw Lake Salt is used to prepare table salt and in pharmaceutical products.

2.13. Laterite

Laterite (from the Latin word later, which means "brick" or "tile") is an iron-and-aluminum-rich surface deposit. It forms via intensive and long-term weathering of the underlying parent rock, which is mainly found in hot, damp tropical locations. Non-tropical Laterite formations are the result of previous geological epochs. The mineral content of some Laterites makes them lucrative. Houses, highways, and other structures have been built with certain hardened varieties [4].

Laterite is a rich in iron and aluminium soil and rock type that is thought to have originated in hot, humid tropical climates. Because of the high iron oxide content, nearly all Laterites are rusty-red in colour. Laterite has been referred to as both a soil type and a mineral.

Figure 13: Production of Laterite in Sindh



Source: Mines & Minerals Development Department, Government of Sindh

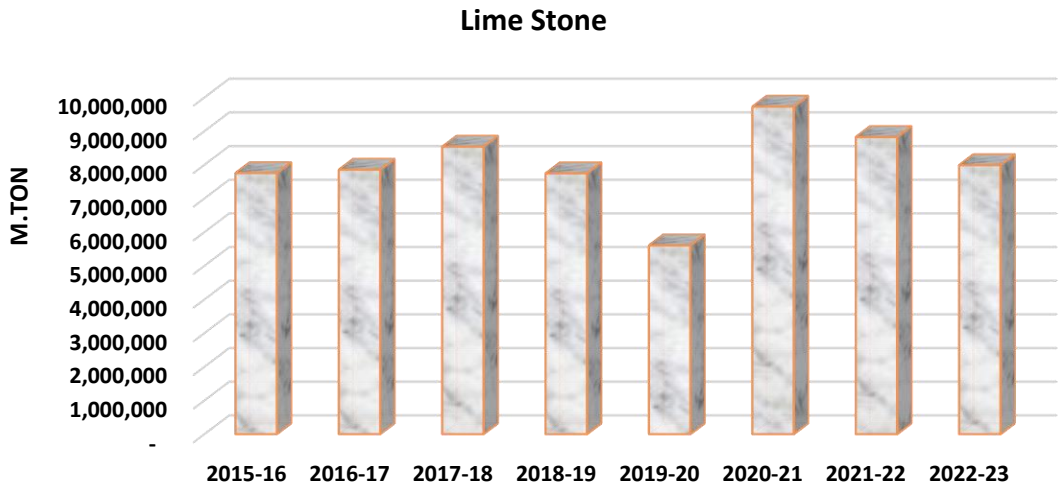
The production of Laterite is reported highest in 2015-16 among in preceding seven years and then continuously the production of Laterite is decreasing. The usage of Laterite is quite essential in fancy construction, its uses in cutting stones (bricks), pigments, colors manufacturing and cement production. In Sindh, Laterite is usually mined in district Jamshoro and Thatta but in 2021-22 Khairpur solely produced its cent percent and significantly very low production.

2.14. Lime Stone

A common type of carbonate sedimentary rock is Lime Stone. It is generally made up of the minerals calcite and aragonite. Lime Stone is a sedimentary rock made up primarily of calcium carbonate ($CaCO_3$) in the form of calcite or aragonite. It may also contain significant amounts of magnesium carbonate (Dolomite), as well as Clay, iron carbonate, feldspar, pyrite, and quartz as minor elements [4].

Lime Stone is used in a variety of ways, including as a building material, an essential component of concrete (Portland cement), aggregate for the base of roads.

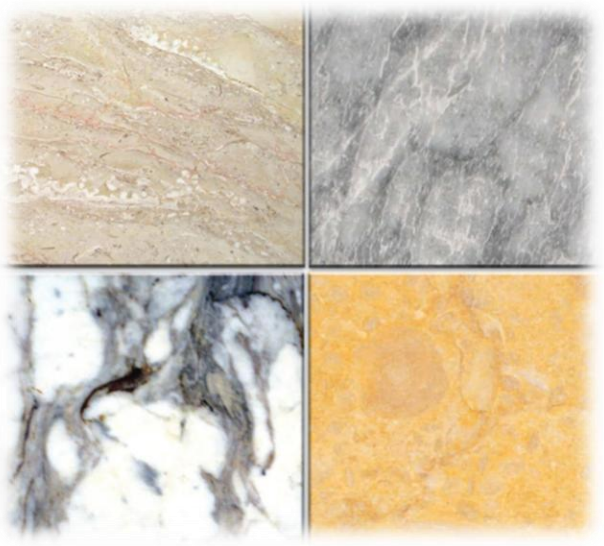
Figure 14: Production of Lime Stone in Sindh



Source: Mines & Minerals Development Department, Government of Sindh

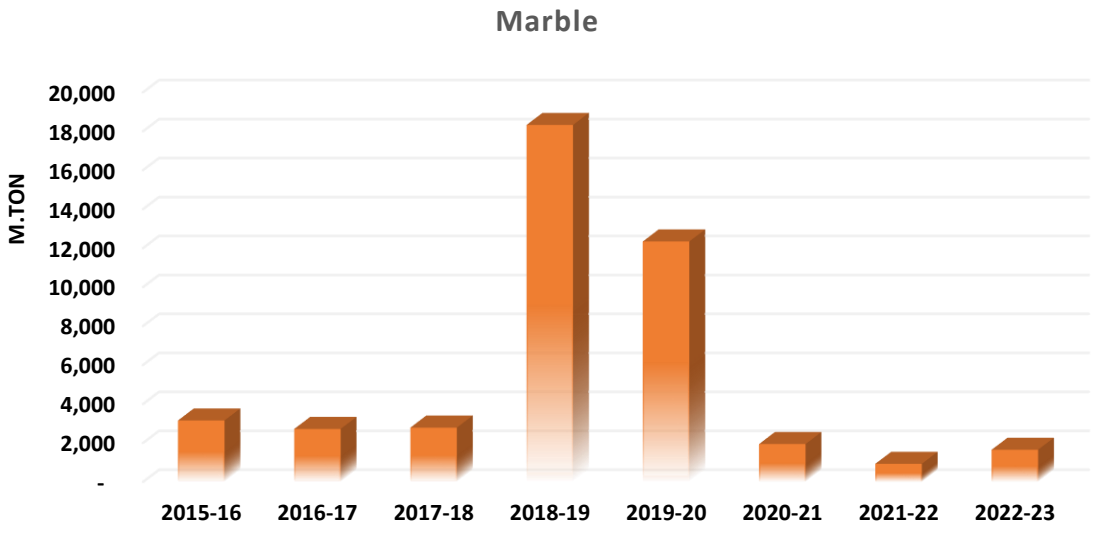
In Sindh, Lime Stone is produced in very large quantity; Sindh produces around 6 to 8 million metric tons Lime Stone on annual basis. There are various items are produced by this input though the Lime Stone is mainly used in the production of construction stone, cement, manufacturing, steel mill, chemical industries, sugar industries and filter. The locations of Lime Stone production in Sindh are Khairpur, Dadu, Jamshoro, Larkana, Sukkur, Thatta, and Karachi.

2.15. Marble



Marble is a metamorphic rock formed when Lime Stone is heated and compressed during metamorphism. It is largely made up of the mineral calcite ($CaCO_3$), but it may also contain Clay minerals, micas, quartz, pyrite, iron oxides, and graphite. Marble is generated when huge portions of the Earth's crust are exposed to the heat and pressure of regional metamorphism. This usually happens along convergent plate borders where big areas of the Earth's crust are exposed to the heat and pressure of regional metamorphism [4].

Figure 15: Production of Marble in Sindh



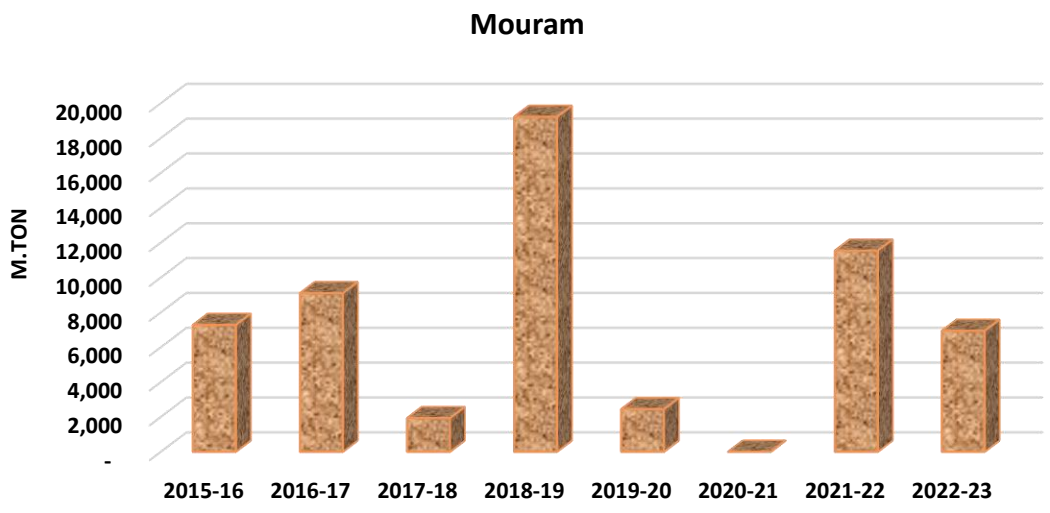
Source: Mines & Minerals Development Department, Government of Sindh

The production of Marble is reported highest in 2018-19 and lowest in 2021-22 among in past seven years. The usage of Marble is quite essential in fancy construction, its uses in buildings, decorative stones and handicraft. In Sindh, there are few sites where Marble is mined which are district Jamshoro and Thatta.

2.16. Mouram

Mouram is also known as red soil which is a type of soil that forms in warm, moderate, and humid regions and accounts for roughly 13% of the world's soils. It is made up of thin organic and organic-mineral layers of highly leached soil that rest on a red alluvium layer. Red soils are derived from the weathering of ancient crystalline and metamorphic rock and contain a lot of Clay. Because of their high iron concentration, they have a rich red color that can range from reddish brown to reddish yellow. Depending on how it is managed, red soil can be a good or bad growth soil. It is usually deficient in nutrients and humus, and due to its low water holding capacity, it can be difficult to cultivate; yet, the fertility is high [4].

Figure 16: Production of Mouram in Sindh



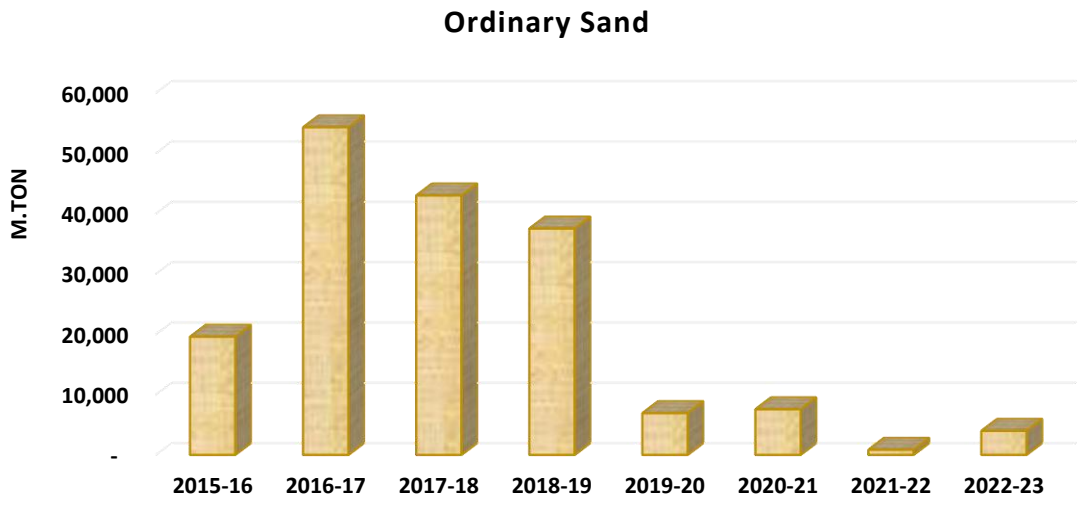
Source: Mines & Minerals Development Department, Government of Sindh

The production of Mouram is 11,539 metric tons in 2021-22, however the maximum production of Mouram among former seven years is reported in 2018-19 in district Thatta which was 19,214 metric tons. Usage of Mouram is linked with building and road construction material. In Sindh, initially Mouram is quarried in Jamshoro district but now it is quarried only in district Thatta.

2.17. Ordinary Sand

Sand is a granular material made up of small rock and mineral particles that have been coarsely split. Sand comes in a variety of components, but its grain size is what defines it. The grains of sand are smaller than those of Gravel and coarser than those of silt. Sand can also refer to a soil texture class or kind. Buildings, bridges, and other infrastructure are constructed with ordinary sand. Ordinary sand is the most widely utilized material in the construction of roads, buildings, and bridges around the world. Over human timescales, sand is a nonrenewable resource, and sand suitable for concrete production is in great demand [4].

Figure 17: Production of Ordinary Sand in Sindh



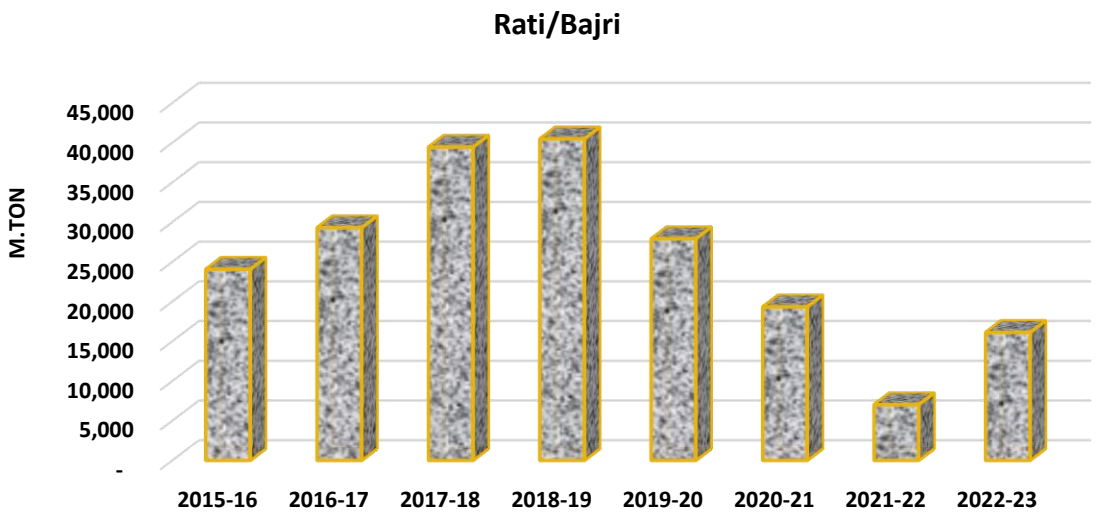
Source: Mines & Minerals Development Department, Government of Sindh

Initially Sindh produced Ordinary Sand in large quantity; but it is decreasing year by year. There are various items are produced by this input though the Ordinary Sand is mainly used in the production of construction of buildings and roads. The Ordinary Sand is usually produced in district Karachi, Sukkur and Thatta.

2.18. Rati/Bajri

Rati/Bajri are the material which are produced from the quarrying process. Rocks, mountains and hills are crushed with different machinery to extract these material. In Sindh the mines and minerals department of government of Sindh provides the leases to different quarrying establishments to produced Rati/Bajri. It is the most widely utilized material in Pakistan for the construction of roads, buildings, and bridges [4].

Figure 18: Production of Rati/Bajri in Sindh



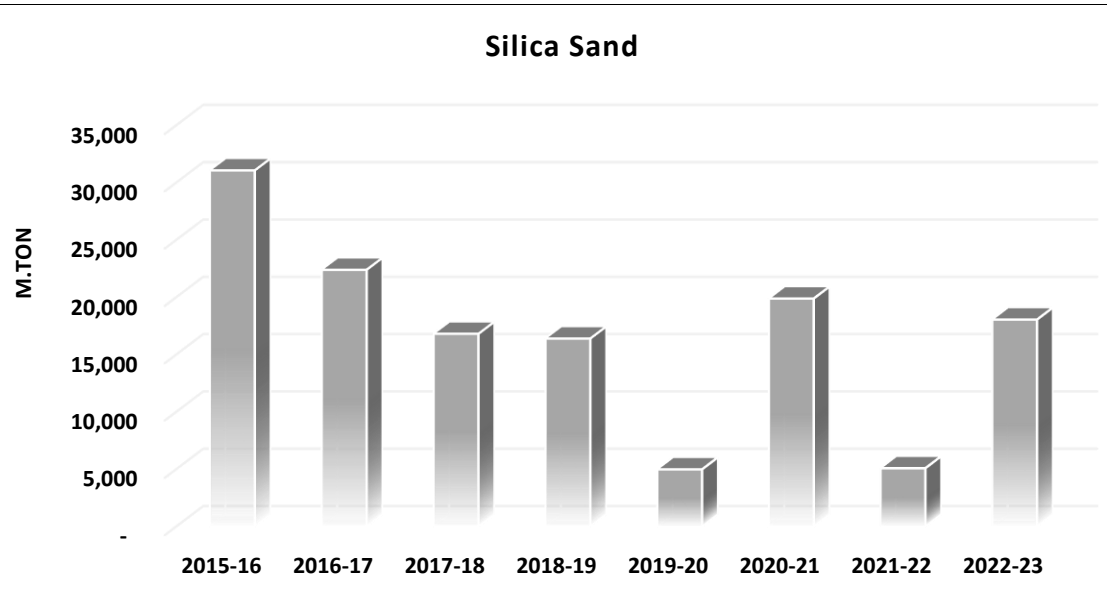
Source: Mines & Minerals Development Department, Government of Sindh

The production of Rati/Bajri is around 20 thousand metric tons that is half of 2018-19 production among in last five years. The usage of Rati/Bajri is quite essential in construction sector, its uses in buildings construction, RCC blocks preparation and Road construction. In Sindh, there are few sites where Rati/Bajri are mined which are district Jamshoro and Thatta.

2.19. Silica Sand

Sand composition varies based on local rock sources and conditions, but in interior continental settings and non-tropical coastal settings, silica is the most prevalent ingredient of sand. Silica Sand is made up of two basic elements: silica and oxygen. It is also known as quartz sand, white sand, or industrial sand. Silicon dioxide is the main component of Silica Sand (SiO_2). Quartz is usually white or colorless, however it can appear in a variety of colors. The variety of minerals and rock debris that make up each sand deposit determines the color of the resource. Regular sand, also known as feldspathic sand, brown sand, or building sand, contains some silica at all times [4].

Figure 19: Production of Silica Sand in Sindh



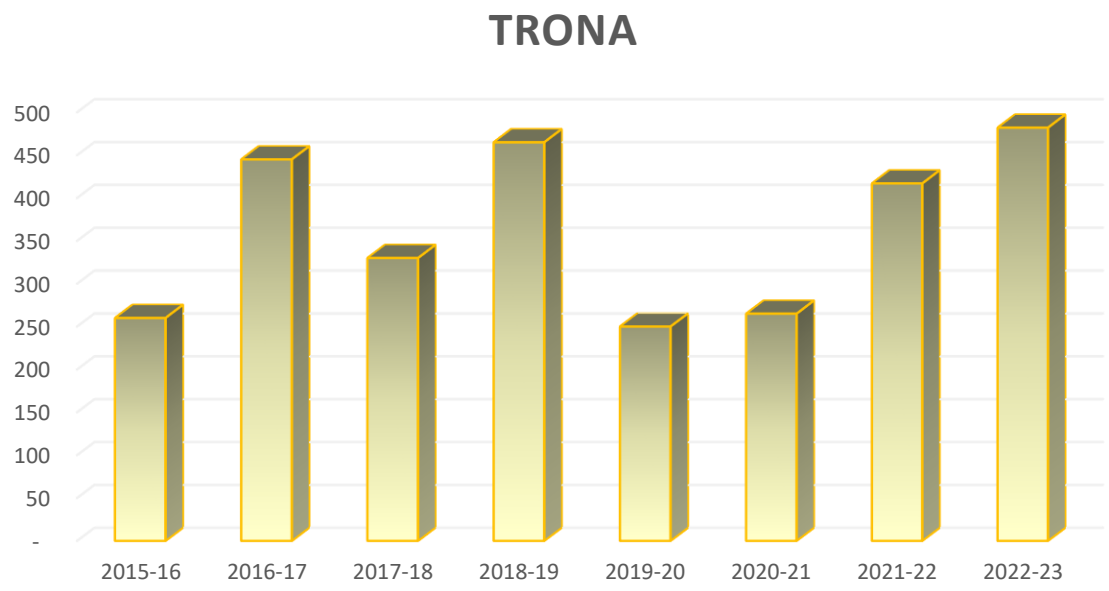
Source: Mines & Minerals Development Department, Government of Sindh

The production of Silica Sand is reported higher in 2015-16 and but the production of Silica Sand showing undulation behavior in preceding years. The usage of Silica Sand is quite essential in glass manufacturing and chemical production. In Sindh, Silica Sand is usually mined in district Jamshoro, Thatta, and Karachi.

2.20. Trona

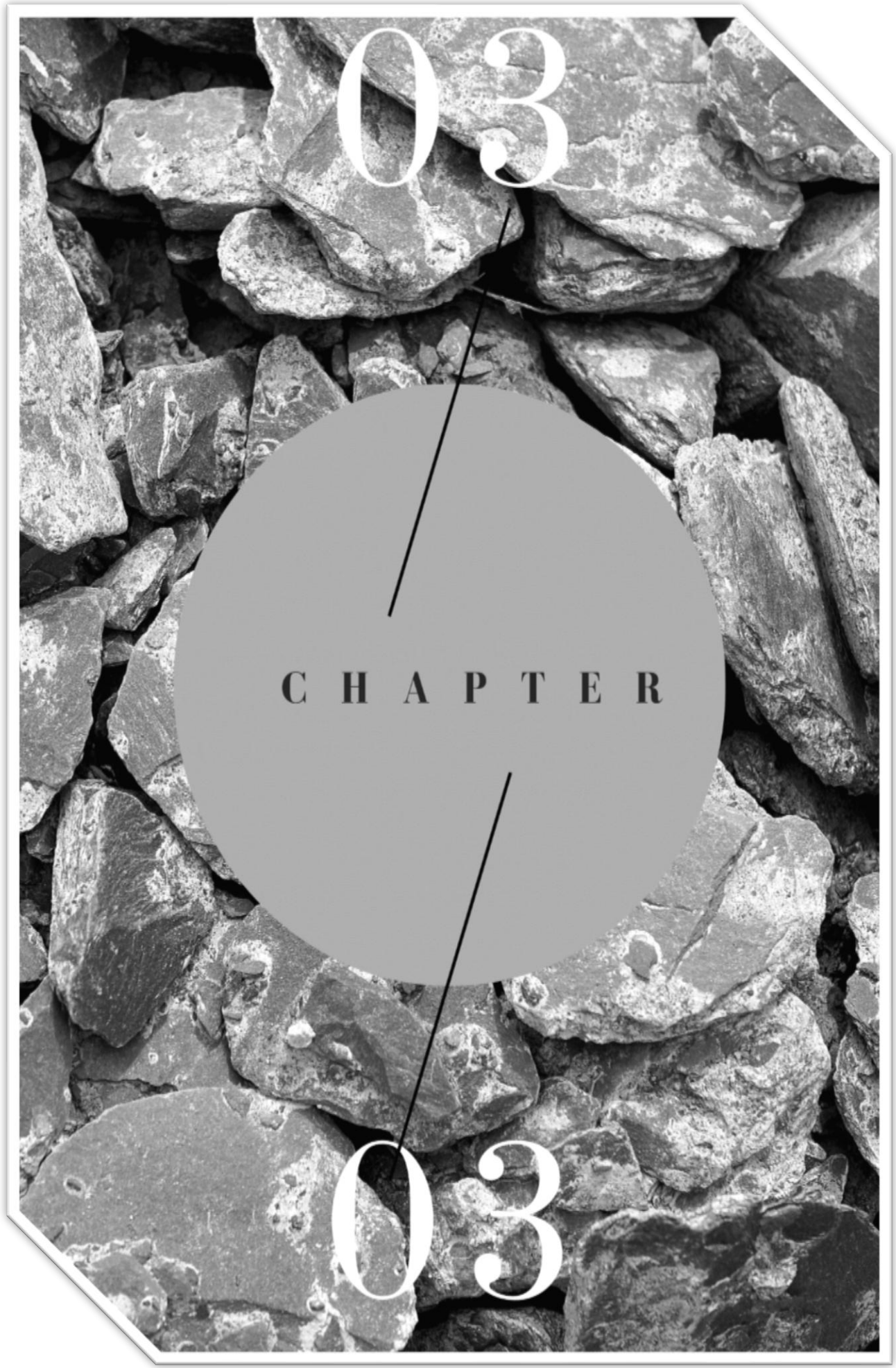
Trona is a monoclinic mineral made up of a hydrous acid sodium carbonate that is gray-white or yellowish-white in colour. Trona is a hydrated sodium bicarbonate [$Na_3H(CO_3)2H_2O$] evaporate mineral that is infrequently seen as a saline lake deposit or evaporation product, as well as an efflorescence on parched soil. Although Sindh does not have a large Trona deposit, it is extracted in small quantities in the district of Khairpur.

Figure 20: Production of Trona in Sindh



Source: Mines & Minerals Development Department, Government of Sindh

Khairpur district is the main producer of Trona; Sindh produces around 300 to 400 metric tons Trona on annual basis. However, the production this mineral has ups and downs in last five years. There are various items are produced by this input though the Trona is mainly used to produce chemicals products and detergents.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CHAPTER
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CHAPTER 3
DISTRICT MINERAL PROFILE

3.1. Dadu

According to the given time series, five distinguished minerals Clay (Shale), Gravel, Lake Salt, Lime Stone and Silica Sand are produced in the district Dadu. The production of Gravel is discontinued since last three years while Silica Sand is obsolete in the last five years. In 2022-23, the main mineral product of District Dadu is Clay (Shale) and it produced 12% of total production of Clay (Shale) but the production of Lake Salt, Gravel, and Lime Stone reported nil in Sindh. The decline in mineral production has raised concerns among local stakeholders regarding the sustainability of the district's mining industry. Efforts are being made to explore alternative resources and promote investment in the region to revitalize the economy and create job opportunities for the community.

Table 1: Production of Minerals in Dadu from 2016-17 to 2022-23

(in Metric Ton)

Mineral	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Clay (Shale)	247,663	285,636	324,362	71,428	594,501	85,988	79,009
Gravel	6,255	67,515	8,735	4,911	-	-	-
Lake Salt	-	-	70	100	35	178	-
Lime Stone	1,086,634	1,315,751	1,339,934	15,051	1,324,892	13	-
Silica Sand	9,989	1,940	-	-	-	-	-

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.

As per the record of the leases till 2022-23, total 16 leases are granted in District Dadu and minerals wise distribution of the lease are presented in following table.

Minerals	Gravel	Lime Stone	Clay (Shale)	Marble	Reti/Bajri	Total
Dadu	03	01	01	09	02	16

Source: Mines & Minerals Development Department, Govt. of Sindh

3.2. Hyderabad

According to time series spanning the last seven years, just two minerals are produced in the district of Hyderabad: Lime Stone and Fuller's Earth. Nonetheless, the district of Hyderabad in Sindh is stated to have produced zero percent of these minerals in the overall mineral-wise production for the fiscal year 2022–2023. This indicates that despite the presence of Lime Stone and Fuller's Earth in the region, their extraction or contribution to the overall mineral production was negligible during that fiscal year. Consequently, Hyderabad's mineral output did not significantly impact the broader production statistics in Sindh.

Table 2:Production of Minerals in Hyderabad from 2016 to 2022-23

(in Metric Ton)

Mineral	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Fuller's Earth	64	30	42	65	-	-	-
Lime Stone	334,425	240,594	38,417	4,503	2,550	-	-

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.

As per the record of the leases in 2022-23, a total of 05 leases were granted in District Hyderabad. The mineral's wise distribution of the lease is presented in the following table:

Minerals	Gravel	Lime Stone	Total
Hyderabad	02	03	05

Source: Mines & Minerals Development Department, Govt. of Sindh

The analysis of lease records in Hyderabad for the 2022-23 period reveals a noteworthy trend in mineral resource management within the district. With only five leases granted this year, a significant decrease from the eight leases issued in 2021-22, it is evident that regulatory measures and market dynamics are influencing mineral distribution.

3.3. Jamshoro

Jamshoro is the mineral-rich district of Sindh; according to the given time series, 10 distinguished minerals are produced in the district of Jamshoro, and the names of the minerals are given in Table 3. The production of Laterite Mouram and Marble has been discontinued since 2021-22, 2018-19, and 2020-21, respectively. The main mineral products of District Jamshoro are Clay (Shale), Lime Stone, Fuller's Earth, Rati/Bajri, Silica Sand and Coal and the estimated Coal reserves in Jamshoro are 1.38 billion tons. In 2022-23, the district of Jamshoro produced 10% and 67% of the total production of Coal and Clay (Shale) of Sindh and the share of Lime Stone production of Jamshoro is around 41% out of the total production at the Sindh level. However, 100% Fuller's Earth and 98% Silica Sand were produced in Jamshoro. Similarly, Gravel and Ordinary Sand produced as their shares in the total production of Sindh are 22% and 28%, respectively.

Table 3: Production of Minerals in Jamshoro from 2016-17 to 2022-23 (in Metric Ton)

Mineral	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Fuller's Earth	-	-	-	-	-	-	150
Clay (Shale)	-	-	11,191	1,849	41,059	492,100	429,469
Coal	534,319	239,326	1,100,058	734,090	734090	1,379,391	1,142,194
Gravel	2,215	6,695	6,543	-	575	30	5,070
Laterite	1,300	6,400	2,100	600	2,916	-	-
Lime Stone	239,462	278,018	382,498	653,582	2,909,076	3,581,117	3,307,414
Marble	-	-	4,025	2,529	-	-	-
Mouram	8,700	1,930	-	-	-	-	-
Rati/Bajri	27,900	37,200	38,293	16,992	18,005	1,284	7,23
Silica Sand	7,485	13,911	15,760	4,971	9,840	209	17,685

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.

As per the record of the leases till 2022-23, total 162 leases are granted in District Jamshoro and minerals wise distribution of the lease are presented in following table.

Minerals	Gravel	Iron Ore	Laterite	Lime Stone	Gypsum	Total
Jamshoro	22	02	08	45	01	162
Minerals	Lake Salt	Clay (Shale)	Marble	Mouram	Ordinary Sand	
Jamshoro	01	12	05	08	03	
Minerals	Raiti/ Bajri	Silica Sand	Fuller's Earth	Coal		
Jamshoro	23	31	01	127		

3.4. Khairpur

According to the given time series, four minerals Fuller's Earth, Gravel, Lime Stone, Trona, and Laterite are produced in the district Khairpur. In 2021-22, the Trona, and Laterite are produced in very minimum quantity and all 100% is produced in district Khairpur. The share of Lime Stone production and Gravel of district Khairpur in total production of Sindh is negligible.

Table 4: Production of Minerals in Khairpur from 2016-15 to 2022-23

(in Metric Ton)

Mineral	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**
Fuller's Earth	1,383	2,211	1,501	2,197	732	734	-
Gravel	54,050	12,150	10,175	2,320	134	-	-
Lime Stone	22,882	12,619	118,913	121,031	12,532	40,920	92,073
Trona	445	330	465	250	250	417	482
Laterite	-	-	-	-	-	330	96

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.

As per the record of the leases till 2022-23, total 127 leases are granted in District Khairpur and minerals wise distribution of the lease are presented in following table.

Minerals	Fuller's Earth	Gravel	Lime Stone	Trona	Total
Khairpur	03	04	114	06	127

Source: Mines & Minerals Development Department, Govt. of Sindh

3.5. Karachi

In Karachi, seven different minerals Clay (Shale), Clay, Fuller's Earth, Gravel, Line Stone, Ordinary Sand and Silica Sand are produced. Although, Karachi is not very famous regarding minerals extraction though some specific minerals due to the availability of sea such as Gravel and Lime Stone are extracted in significant quantity. According to the data of 2022-23, total 23% of Gravel, 48% of Lime Stone, 31% of Ordinary Sand, and 2% of Silica Sand of Sindh are produced in Karachi.

Table 5: Production of Minerals in Karachi from 2016-17 to 2022-23

(in Metric Ton)

Mineral	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Clay	-	-	2,310	912	540	-	-
Clay (Shale)	184,782	65,974	6,985	1,540	2,544	-	-
Fuller's Earth	-	103	320	180	-	-	-
Gravel	30,918	7,642	15,993	66,953	7,670	5,073	5,303
Lime Stone	5,324,597	6,077,012	4,628,942	2,753,574	4,814,201	4,548,546	3,800,349
Ordinary Sand	54,293	43,000	23,299	2,600	2,310	-	1,226
Silica Sand	-	-	250	-	1,280	-	350

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.

As per the record of the leases till 2021-22, total 51 leases are granted in Karachi Division and minerals wise distribution of the lease are presented in following table.

Minerals	Shale (Clay)	Gravel	Lime Stone	Ordinary Sand	Total
Karachi	05	10	09	12	36
Minerals	Ball Clay	Bentonite	Sand Gravel	Silica Sand	
Karachi	06	01	05	03	15

Source: Mines & Minerals Development Department, Govt. of Sindh

3.6. Sanghar

District Sanghar has a very limited mineral profile; according to the time series of the last seven years, it only produces Lake Salt. However, district Sanghar produced only 3% of the production share of Lake Salt in the total production of Sindh, while 97% of Lake Salt was produced in district Tharparkar.

Table 6: Production of Minerals in Sanghar from 2016-17 to 2022-23

(in Metric Ton)

Mineral	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**
Lake Salt	-	10,327	9,545	8,962	4,300	6,990	6,527

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.

As per the record of the leases until 2022-23, a total of 10 leases are granted in the Sanghar district, and the mineral-wise distribution of the leases is presented in the following table.

Minerals	Lake Salt	Total
Sanghar	10	10

Source: Mines & Minerals Development Department, Govt. of Sindh

3.7. Sukkur

According to the given time series, four minerals Fuller's Earth, Gravel, Lime Stone, and Ordinary Sand are produced in the district of Sukkur. Ordinary Sand has been continuously produced since 2018-19, and the production of Fuller's Earth has been discontinued since last year. The main mineral products of District Sukkur are Gravel and Ordinary Sand. According to the data of 2022-23, in Sukkur, the shares of Gravel and Ordinary Sand in the total mineral wise production of Sindh are 8% and 41%, respectively, while the share of Lime Stone mined in Sukkur in the total production of Sindh is almost nil.

Table 7: Production of Minerals in Sukkur from 2016-17 to 2022-23

(in Metric Ton)

Mineral	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**
Fullers' Earth	80	-	-	-	-	-	-
Gravel	1,320	1,030	7,100	3,950	1,300	700	1,799
Lime Stone	33,275	10,966	98,534	44,250	21,611	7,100	46,700
Ordinary Sand	-	-	13,000	1,788	5,250	850	1,650

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.

As per the record of the leases in 2022-23, total 66 leases are granted in Sukkur district and minerals wise distribution of the lease are presented in following table.

Minerals	Gravel	Lime Stone	Ordinary Sand	Sand Gravel	Total
Sukkur	01	59	04	02	66

Source: Mines & Minerals Development Department, Govt. of Sindh

3.8. Tharparkar

The main minerals of Tharparkar are Coal, Granite, Lake Salt, Gravel and China Clay and estimated Coal reserves in Tharparkar are 175.0 billion tons. It is the only district producing 100% Granite and China Clay and its natural beauty is attributed to its minerals. According to the data of 2022-23, the shares of Coal and Lake Salt in the total mineral-wise production of Sindh are 89% and 97%, respectively, while the production of Gravel is started recently with 36%.

Table 8: Production of Minerals in Tharparkar from 2016-17 to 2022-23

(in Metric Ton)

Mineral	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**
China Clay	6,642	11,744	8,722	4,678	3,523	3,763	1,741
Coal	374,023	167,528	378,544	3,669,968	3,713,582	3,517,511	9,752,101
Granite	-	2,976	-	-	857	263	2,392
Lake Salt	-	215,467	174,146	97,163	222,235	191,659	217,480
Gravel	-	-	-	-	-	-	8,400

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.

As per the record of the leases until 2022-23, total 144 leases are granted in Tharparkar district and minerals wise distribution of the lease are presented in following table.

Minerals	Bentonite	China Clay	Fuller's Earth	Granite	Iron Ore	Lake Salt	Raiti/ Bajri	Total
Tharparkar	03	42	04	14	05	75	01	144

Source: Mines & Minerals Development Department, Govt. of Sindh

3.9. Thatta

Thatta is a key player district in the mineral extraction industry of Sindh. With 14 different minerals found in the district, it certainly has a significant role in the region's mining sector. The fact that Thatta is the only district in Sindh producing Mauram and Marble is particularly interesting, highlighting its unique position in the province's resource production. The estimated Coal reserves of 7.1 billion tons are a substantial figure, which could have long-term economic and energy implications. Additionally, the 55% contribution of Rati/Bajri production from Thatta shows the district's prominence in Gravel mining, which is important for construction and infrastructure projects.

Table 9: Production of Minerals in Thatta from 2016-17 to 2022-23

(in Metric Ton)

Mineral	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Bauxite Iron	800	-	1,407	-	-	-	-
Clay	-	-	1,700	-	-	-	-
Clay (Shale)	87,881	-	66,699	65,117	101,581	141,894	134,918
Coal	160,296	71,798	12,626	10,238	29,611	77,684	119,609
Gravel	342,400	724,840	1,411,350	307,950	-	-	2,620
Iron Ore	-	300	1,590	-	3,367	140	-
Lake Salt	-	9,955	29,437	8,529	-	-	-
Laterite	32,262	6,600	3,752	15,770	11,518	-	-
Lime Stone	812,703	603,129	1,140,202	2,015,000	641,889	646,066	742,912
Marble	2,713	2,782	14,293	9,808	1,939	924	1,646
Mouram	400	-	19,214	2,441	-	11,539	6,939
Ordinary Sand	-	-	1,215	2,535	-	-	-
Rati/Bajri	1,406	2,250	2,198	10,919	591	5,736	8,908
Silica Sand	4,905	945	375	-	8,750	4,860	-

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.

The production of Chalk and Dolomite are discontinued since 2016-17, however Bauxite Iron, Clay, Iron-ore, Lake Salt, Mouram and Ordinary sand are not quarried on regular basis. In

2022-23, district Thatta produced 21% of total production of Clay-shale of Sindh and the share of Lime Stone production of Thatta is around 9% out of total production at Sindh level.

Majority of the leases until 2022-23 are granted in District Thatta as 14 minerals are extracted in this district. Total 212 leases are granted and minerals wise distribution of the lease are presented in following table.

Minerals	Bentonite	Iron Ore	Lake Salt	Laterite	Lime Stone	Marble	Total
Lease	01	16	03	11	81	14	126
Minerals	Mouram	Ordinary Sand	Bauxite Iron	Raiti/ Bajri	Gravel	Clay (Shale)	Total
Lease	18	08	02	61	07	11	107
Total	**19**	**24**	**05**	**72**	**88**	**25**	**233**

Source: Mines & Minerals Development Department, Govt. of Sindh


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CHAPTER 4
MINERALS PRODUCTION INDICES

4.1. Value Index

A value index is a measure (Ratio) that describes change in a nominal value relative to its value in the base year. The index point figure for each point in time tells what percentage a given value is at that point in time of its respective value at the base point in time. Thus, in annual statistics the value index point figure for an examined month describes the percentage share of the value of that year of the average yearly value for the base year.

In our analysis, the base year is taken as 2015-16, the following formula is used for the calculation of aggregate value index for the years from 2016-17 to 2022-23.

$$TVI = \frac{\sum_{i=1}^{k} P_{i,n} \times Q_{i,n}}{\sum_{i=1}^{k} P_{i,0} \times Q_{i,0}} \times 100 \qquad (1)$$

Where:
TVI = Total Value index, which incorporates all the minerals of Sindh
$P_{i,n}$ = P shows the scheduled price of i[th] mineral and *n* denotes the current period.
$Q_{i,n}$ = Q shows the quantity mined/ quarried of i[th] mineral and *n* denotes the current period.
$P_{i,0}$ = P shows the scheduled price of i[th] mineral and *0* denotes the base period.
$Q_{i,0}$ = Q shows the quantity mined/ quarried of i[th] mineral and *0* denotes the base period.
Note: Summation operator will add up all the values of minerals production for current and base periods and number of minerals goes from 1 to k.

In order to calculate the value indices, the scheduled royalties of minerals of Government of Sindh are used. The source of schedules royalties are the notifications Mines and Minerals Development Department of Government of Sindh. Table of value indices from 2018-19 to 2022-23 is given as under:

Table 10: Total Minerals Value Index from 2018-19 to 2022-23 at base year 2015-16 according to scheduled price rate 2021

Sindh	2018-19	2019-20	2020-21	2021-22	2022-23
TVI	123.8	178.4	235.5	227.1	386.9
Annual Growth (%)	23.4	44.1	32.0	-3.6	70.4

Source: TVIs Estimated by Sindh BOS

4.2. Mineral wise Value Index

For the estimation of mineral wise value-index estimation, slight modification will be made in equation (1), expressed as under.

$$VI_j = \frac{P_n \times Q_n}{P_0 \times Q_0} \times 100 \quad (2)$$

Where:

VI_j = Value index of j^{th} mineral.

P_n = The scheduled price of mineral for current period of time.

Q_n = The quantity mined/ quarried of mineral for current period of time.

P_0 = The scheduled price of mineral for base period of time (2015-16).

Q_0 = The quantity mined/ quarried of mineral for base period of time (2015-16).

Table 11: Mineral wise Value Indices of main minerals from 2017-18 to 2022-23 at base year 2015-16 according to scheduled price rate 2021

Minerals	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
China Clay	177.2	131.6	70.6	53.2	56.8	26.3
Clay (Shale)	77.8	90.6	31.0	163.7	159.3	142.4
Coal	63.6	198.3	586.9	658.6	661.4	1464.4
Fuller's Earth	64.5	51.3	67.2	20.1	20.2	4.1
Gravel	203.3	362.0	95.7	2.4	1.4	5.8
Laterite	36.6	16.5	46.1	40.7	0.9	0.3
Lime Stone	110.1	99.9	72.3	125.4	113.8	103.0
Marble	88.3	581.5	391.7	61.6	29.3	52.3
Ordinary Sand	219.6	191.6	35.4	38.6	4.3	20.4
Raiti/Bajri	163.9	168.2	116.0	80.4	29.2	67.0
Silica Sand	54.1	52.8	16.0	64.0	16.3	58.1
Trona	8.5	126.9	11.9	178.8	160.4	185.4

Source: Estimated by Sindh BOS

4.3. District wise Value Index

In order to estimate the district wise minerals value-indices, the equation (3) will be used some modification which is expressed as under.

$$DVI = \frac{\sum_{i=1}^{k} P_{i,n} \times Q_{i,n}}{\sum_{i=1}^{k} P_{i,0} \times Q_{i,0}} \times 100 \quad (3)$$

Where:

DVI = District Value index, which incorporates all the minerals of a District.

$P_{i,n}$ = The scheduled price of i^{th} mineral for the current period of time.

$Q_{i,n}$ = Quantity mined/ quarried of i^{th} mineral for the current period of time.

$P_{i,0}$ = The scheduled price of i^{th} mineral for the base period of time.

$Q_{i,0}$ = Quantity mined/ quarried of i^{th} mineral for the base period of time.

Note: Summation operator will add up all the values of minerals in a district for current and base periods and number of minerals in as specific district goes from 1 to k, given that k is not same for all district of Sindh.

Table 12: District wise Mineral Value Index from 2017-18 to 2022-23 at base year 2015-16 according to scheduled price rate 2021

District	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Dadu	119.6	121.9	5.6	136.9	5.2	4.8
Hyderabad	86.9	13.9	1.6	0.9	0.0	0.0
Jamshoro	69.9	253.1	195.3	352.2	553.4	937.1
Karachi	116.6	88.2	52.7	91.3	86.2	72.0
Khairpur	26.7	179.3	178.3	18.9	60.1	133.8
Sanghar	125.9	116.4	109.3	52.4	85.2	79.6
Sukkur	15.8	152.3	65.2	35.4	11.0	67.4
Thatta	82.6	135.3	167.4	57.8	74.8	90.7
Tharparkar	68.4	136.4	1233.3	1240.0	1187.3	3275.6

Source: DVIs Estimated by Sindh BOS

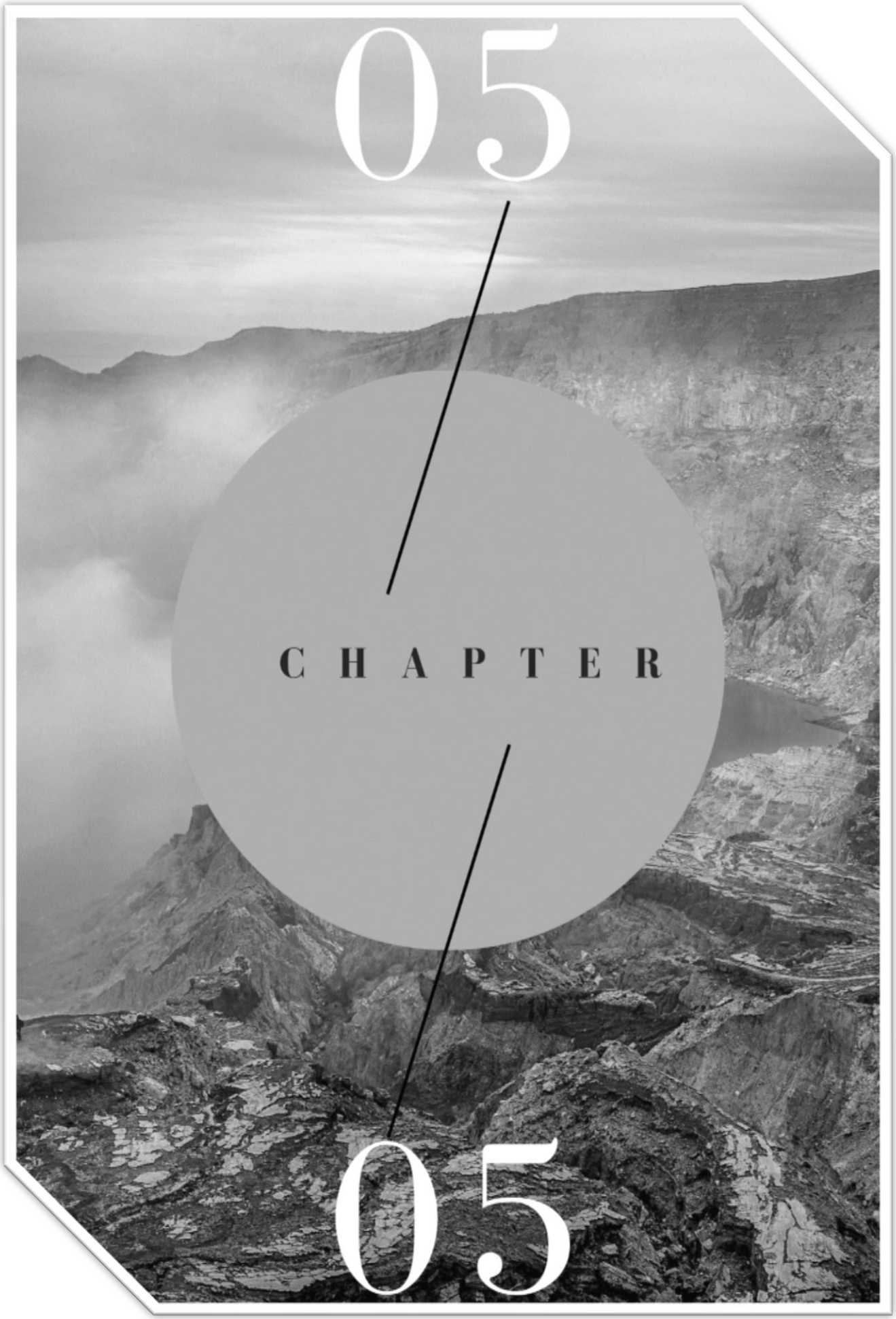
4.4. District wise Ranking in Mining & Quarrying

Table 13: Ranking of Districts of Sindh from 2019-20 to 2022-23 on the basis of Estimated Value of Minerals with Schedule Rates (2021)

(Value in Million Rupees)

Sr. No.	District	2019-20		2020-21		2021-22		2022-23	
		Estimated Value of Minerals	Ranking	Estimated Value of Minerals	Ranking	Estimated Value of Minerals	Ranking	Estimated Value of Minerals	Ranking
1.	Dadu	9.3	6th	226.4	4th	8.6	5th	7.9	6th
2.	Hyderabad	0.6	8th	0.3	8th	0	9th	0	9th
3.	Jamshoro	359.1	2nd	647.8	2nd	1017.8	2nd	1723.3	2nd
4.	Karachi	350.6	3rd	607.5	3rd	573.4	3rd	479.2	3rd
5.	Khairpur	15.5	5th	1.6	7th	5.2	6th	11.6	5th
6.	Sanghar	0.5	9th	0.3	9th	0.4	8th	0.4	8th
7.	Sukkur	5.9	7th	3.2	6th	1.0	7th	6.1	7th
8.	Thatta	282.8	4th	97.7	5th	126.4	4th	153.1	4th
9.	Tharparkar	1,382.2	1st	1,389.8	1st	1330.8	1st	3,671.3	1st
Total Value (Sindh)		2,405.9		2,974.6		3063.6		6052.9	

Source: Mines & Minerals Development Department & Sindh Bureau of Statistics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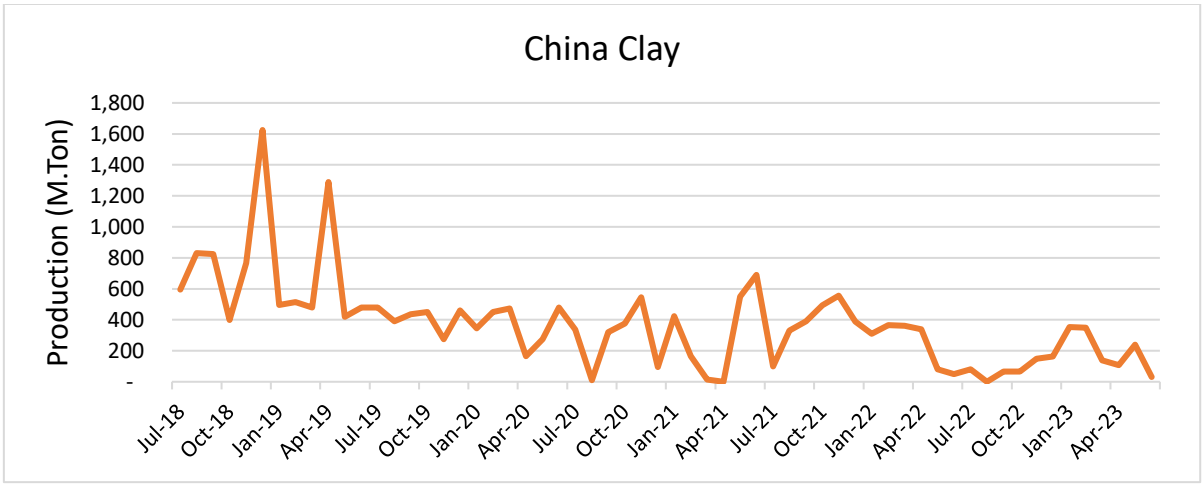
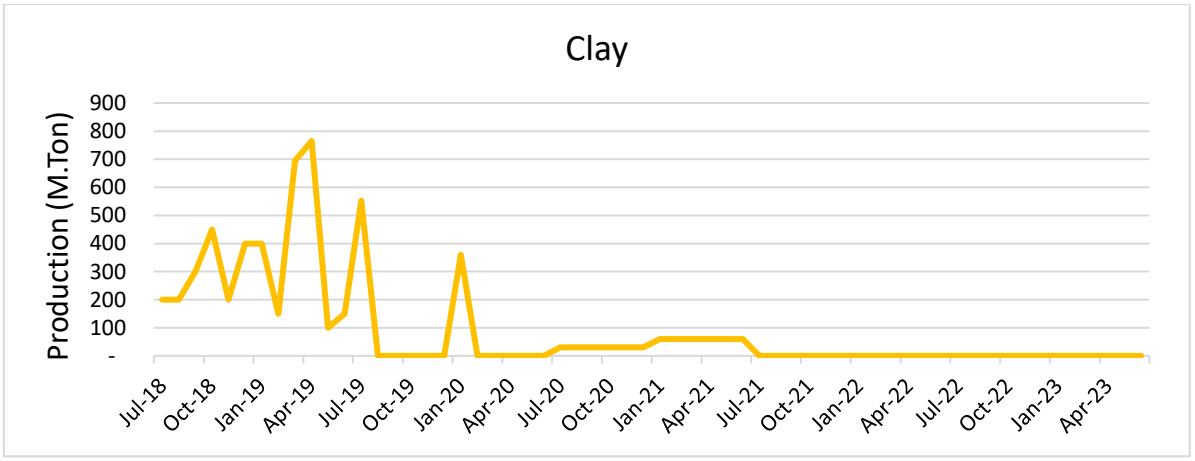
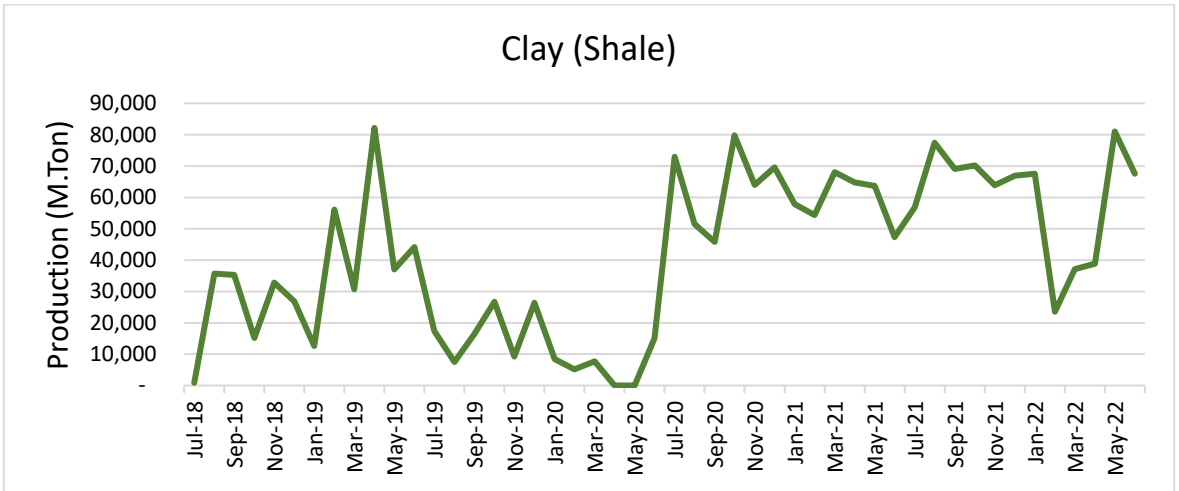
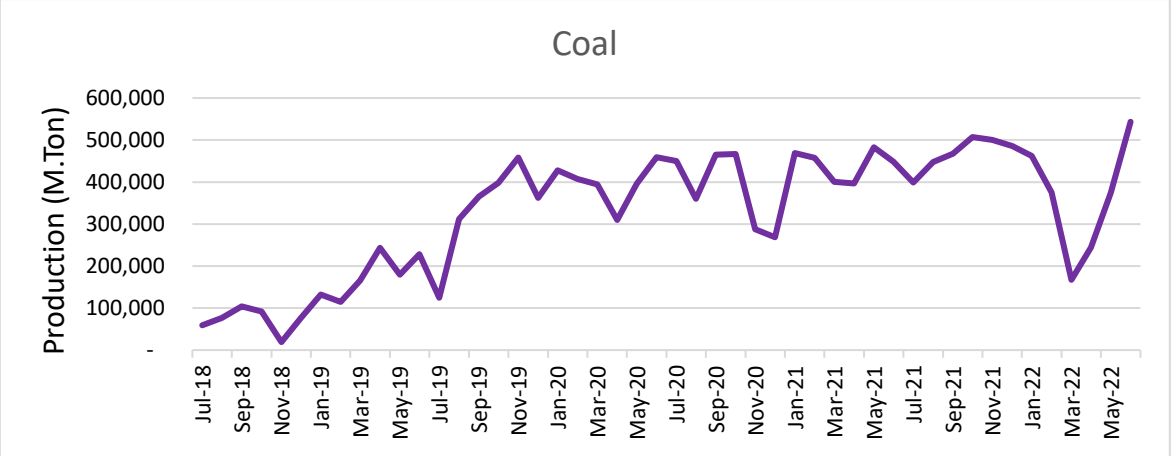
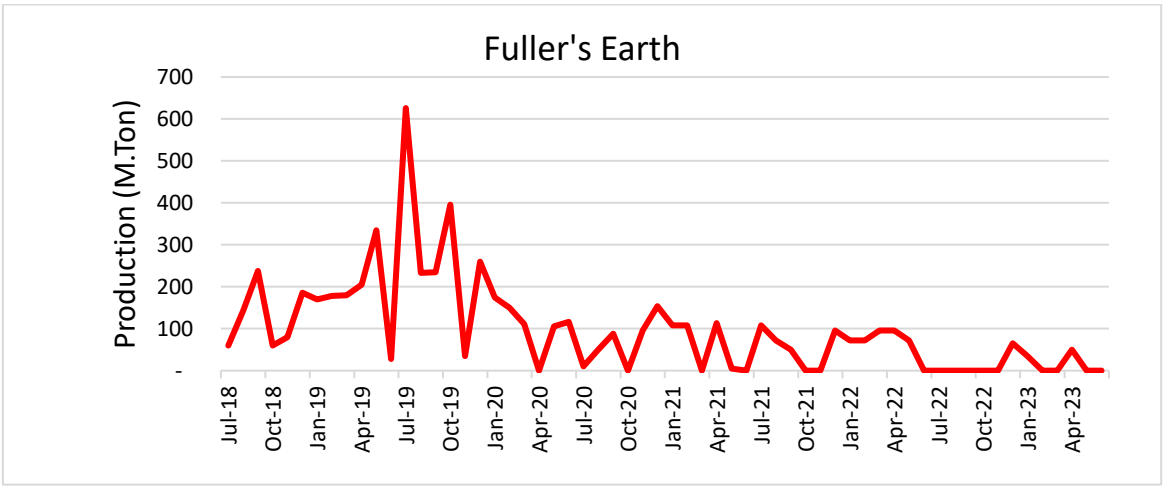
CHAPTER 5
MONTHLY TIME SERIES OF MINERALS PRODUCTION

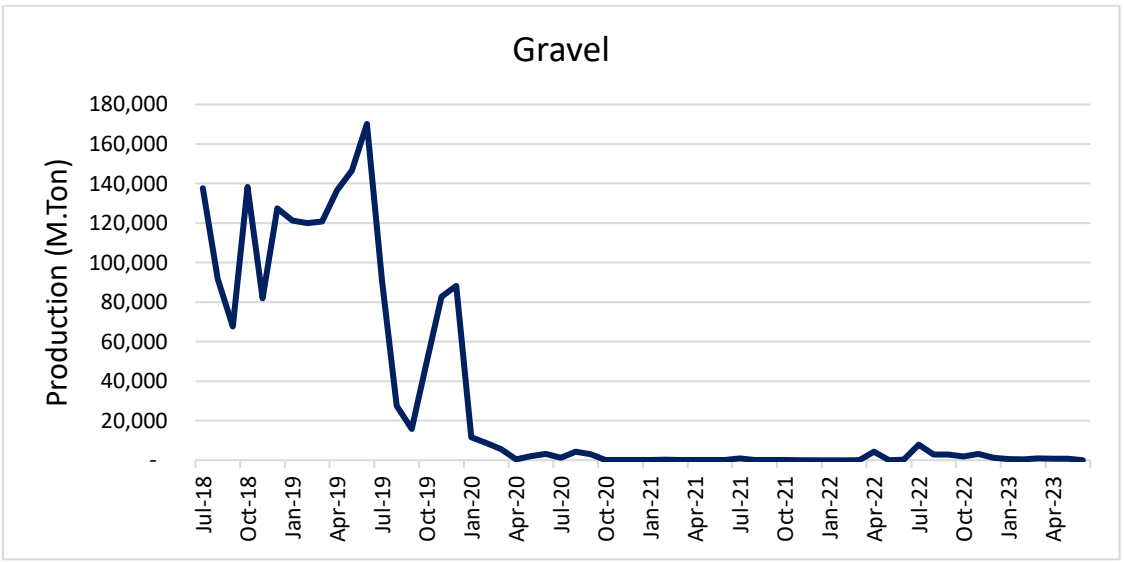


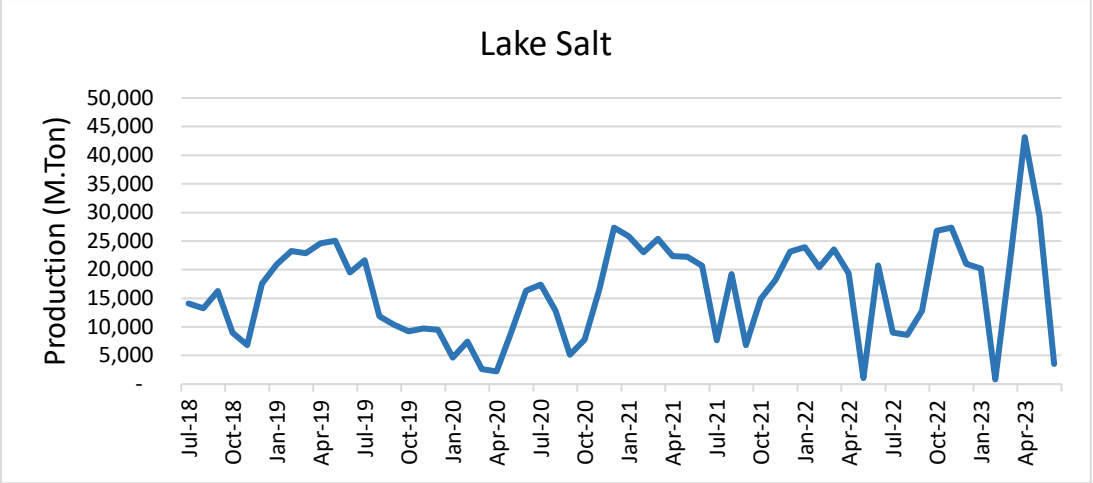


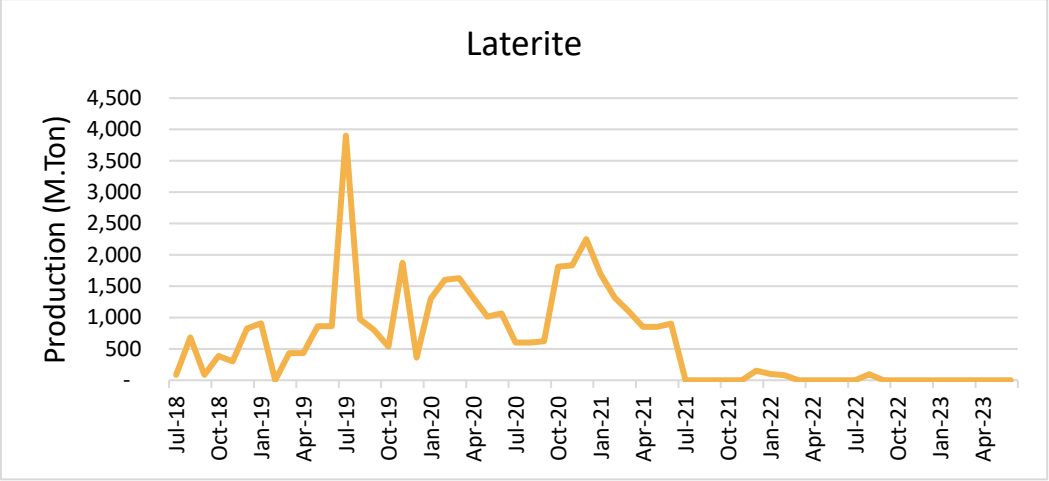


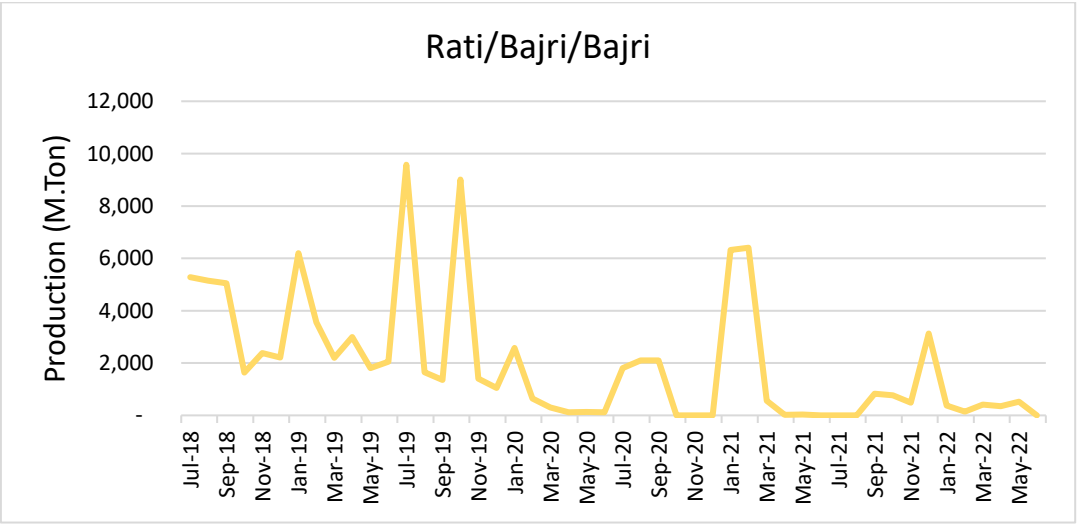

Coal
Production (M.Ton)
600,000
500,000
400,000
300,000
200,000
100,000
-
Jul-18
Sep-18
Nov-18
Jan-19
Mar-19
May-19
Jul-19
Sep-19
Nov-19
Jan-20
Mar-20
May-20
Jul-20
Sep-20
Nov-20
Jan-21
Mar-21
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22

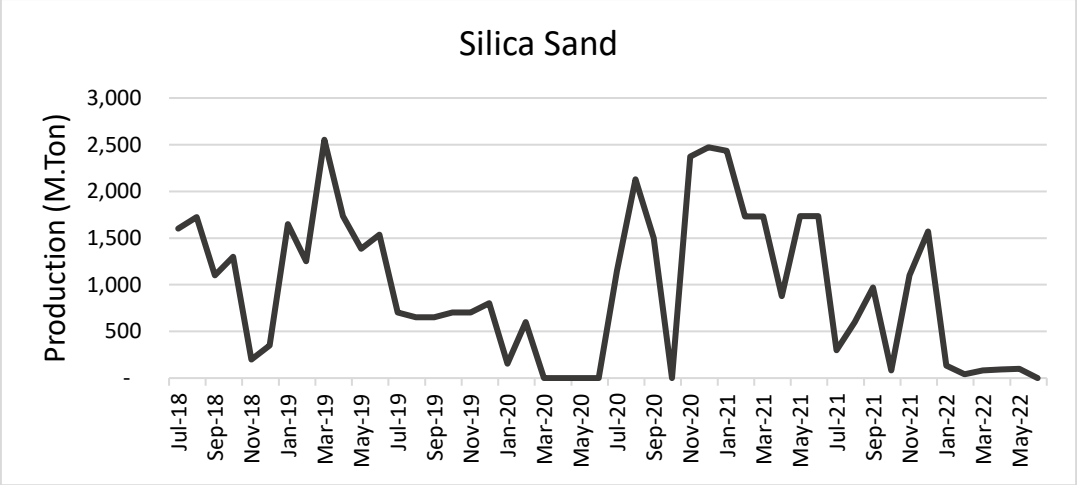

Fuller's Earth
Production (M.Ton)
700
600
500
400
300
200
100
-
Jul-18
Oct-18
Jan-19
Apr-19
Jul-19
Oct-19
Jan-20
Apr-20
Jul-20
Oct-20
Jan-21
Apr-21
Jul-21
Oct-21
Jan-22
Apr-22
Jul-22
Oct-22
Jan-23
Apr-23


Gravel
Production (M.Ton)
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
-
Jul-18
Oct-18
Jan-19
Apr-19
Jul-19
Oct-19
Jan-20
Apr-20
Jul-20
Oct-20
Jan-21
Apr-21
Jul-21
Oct-21
Jan-22
Apr-22
Jul-22
Oct-22
Jan-23
Apr-23


Lake Salt
Production (M.Ton)
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
Jul-18
Oct-18
Jan-19
Apr-19
Jul-19
Oct-19
Jan-20
Apr-20
Jul-20
Oct-20
Jan-21
Apr-21
Jul-21
Oct-21
Jan-22
Apr-22
Jul-22
Oct-22
Jan-23
Apr-23


Laterite
Production (M.Ton)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
-
Jul-18
Oct-18
Jan-19
Apr-19
Jul-19
Oct-19
Jan-20
Apr-20
Jul-20
Oct-20
Jan-21
Apr-21
Jul-21
Oct-21
Jan-22
Apr-22
Jul-22
Oct-22
Jan-23
Apr-23


Rati/Bajri/Bajri
Production (M.Ton)
12,000
10,000
8,000
6,000
4,000
2,000
-
Jul-18
Sep-18
Nov-18
Jan-19
Mar-19
May-19
Jul-19
Sep-19
Nov-19
Jan-20
Mar-20
May-20
Jul-20
Sep-20
Nov-20
Jan-21
Mar-21
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22


Silica Sand
Production (M.Ton)
3,000
2,500
2,000
1,500
1,000
500
-
Jul-18
Sep-18
Nov-18
Jan-19
Mar-19
May-19
Jul-19
Sep-19
Nov-19
Jan-20
Mar-20
May-20
Jul-20
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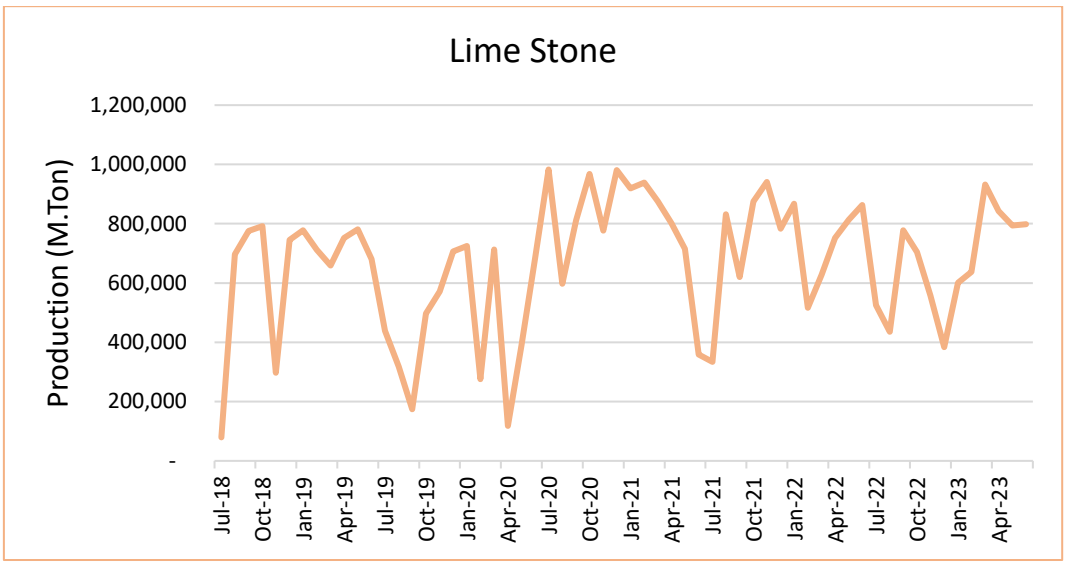
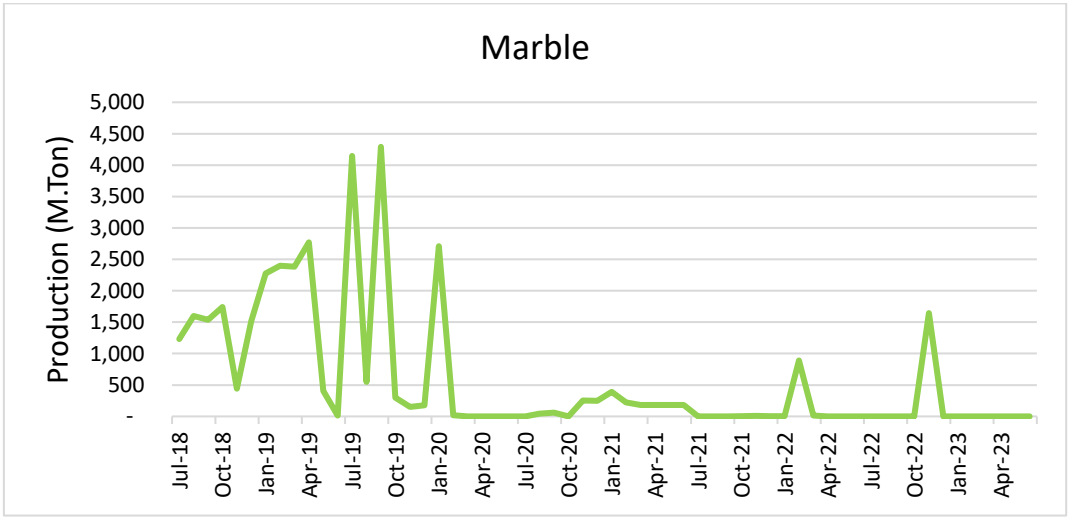
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22


Lime Stone
Production (M.Ton)
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
Jul-18
Oct-18
Jan-19
Apr-19
Jul-19
Oct-19
Jan-20
Apr-20
Jul-20
Oct-20
Jan-21
Apr-21
Jul-21
Oct-21
Jan-22
Apr-22
Jul-22
Oct-22
Jan-23
Apr-23


Marble
Production (M.Ton)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
-
Jul-18
Oct-18
Jan-19
Apr-19
Jul-19
Oct-19
Jan-20
Apr-20
Jul-20
Oct-20
Jan-21
Apr-21
Jul-21
Oct-21
Jan-22
Apr-22
Jul-22
Oct-22
Jan-23
Apr-23

Appendix: Statistical Tables

Table A1: Yearly Time Series of the Production of the Minerals in Sindh

Mineral	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Bauxite Iron	800	-	1,407	-	-	-	-
China Clay	6,642	11,744	8,722	4,678	3,523	3,763	1,741
Clay	-	-	4,010	912	540	-	-
Clay (Shale)	520,326	351,610	409,237	139,934	739,685	719,982	643,396
Coal	1,068,638	478,652	1,491,228	4,414,296	4,953,159	4,974,586	11,013,904
Fuller's Earth	1,527	2,344	1,863	2,442	732	734	150
Granite	-	2,976	-	-	857	263	2,392
Gravel	437,158	819,872	1,459,896	386,084	9,679	5,803	23,192
Iron Ore	-	300	1,590	-	3,367	140	-
Lake Salt	-	235,749	213,198	114,754	226,570	198,827	224,007
Laterite	33,562	13,000	5,852	16,370	14,434	330	96
Lime Stone	7,853,978	8,538,089	7,747,440	5,606,991	9,726,751	8,823,762	7,989,448
Marble	2,713	2,782	18,318	12,337	1,939	924	1,646
Mouram	9,100	1,930	19,214	2,441	-	11,539	6,939
Ord.Sand	54,293	43,000	37,514	6,923	7,560	850	3,991
Rati/Bajri	29,306	39,450	40,491	27,911	19,341	7,020	16,121
Silica Sand	22,379	16,796	16,385	4,971	19,870	5,069	18,035
Trona	445	330	465	250	265	417	482

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A2: Monthly Time Series of the Production of the Minerals in Sindh (2018-19)

Month	Bauxite Iron	Chalk	China Clay	Clay	Clay (Shale)	Coal	Iron Ore
Jul	100	-	595	200	833	59,231	150
Aug	-	-	831	200	35,656	76,919	150
Sep	50	-	825	300	35,251	103,828	150
Oct	130	-	399	450	15,153	91,587	150
Nov	-	-	767	200	32,834	19,037	-
Dec	50	-	1,625	400	26,824	76,844	170
Jan	334	-	495	400	12,570	131,970	270
Feb	193	-	515	150	56,088	114,347	150
Mar	27	-	480	695	30,717	165,964	125
Apr	321	-	1,290	765	82,184	243,757	275
May	91	-	420	100	36,967	179,399	-
Jun	111	-	480	150	44,160	228,345	-
Total	**1,407**	**-**	**8,722**	**4,010**	**409,237**	**1,491,228**	**1,590**

Continued

Month	Fuller's Earth	Granite	Gravel	Lake Salt	Laterite	Lime Stone
Jul	60	-	137,600	14,063	83	79,258
Aug	143	-	91,565	13,271	683	696,563
Sep	238	-	67,735	16,267	83	775,214
Oct	60	-	138,285	9,019	385	792,204
Nov	80	-	81,960	6,794	300	296,843
Dec	186	-	127,395	17,533	827	745,840
Jan	170	-	121,343	20,887	905	777,797
Feb	178	-	119,971	23,278	-	711,929
Mar	180	-	120,771	22,894	431	659,495
Apr	205	-	136,613	24,625	435	751,334
May	335	-	146,508	25,033	860	780,694
Jun	28	-	170,150	19,534	860	680,269
Total	**1,863**	**-**	**1,459,896**	**213,198**	**5,852**	**7,747,440**

Continued

Month	Marble	Mouram	Ordinary Sand	Rati/Bajri	Silica Sand	Trona
Jul	1,233	700	5,716	5,283	1,600	10
Aug	1,598	1,050	6,016	5,146	1,725	30
Sep	1,536	1,150	6,016	5,047	1,100	10
Oct	1,740	3,097	1,917	1,636	1,300	25
Nov	442	3,097	1,917	2,384	200	50
Dec	1,519	2,984	1,967	2,214	350	-
Jan	2,278	-	6,815	6,193	1,650	60
Feb	2,399	2,056	3,850	3,550	1,250	60
Mar	2,382	2,540	1,500	2,200	2,553	55
Apr	2,768	2,540	600	2,988	1,735	60
May	408	-	600	1,800	1,385	55
Jun	15	-	600	2,050	1,537	50
Total	**18,318**	**19,214**	**37,514**	**40,491**	**16,385**	**465**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A3: Monthly Time Series of the Production of the Minerals in Sindh (2019-20)

Month	Bauxite Iron	Chalk	China Clay	Clay	Clay (Shale)	Coal	Iron Ore
Jul	-	-	480	552	17,431	124,889	-
Aug	-	-	390	-	7,496	312,382	-
Sep	-	-	435	-	16,354	365,232	-
Oct	-	-	450	-	26,687	398,049	-
Nov	-	-	275	-	9,215	458,357	-
Dec	-	-	460	-	26,423	362,102	-
Jan	-	-	345	360	8,425	427,563	-
Feb	-	-	450	-	5,134	406,972	-
Mar	-	-	474	-	7,736	394,226	-
Apr	-	-	165	-	-	309,803	-
May	-	-	274	-	-	395,640	-
Jun	-	-	480	-	15,033	459,081	-
Total	-	-	**4,678**	**912**	**139,934**	**4,414,296**	-

Continued

Month	Fuller's Earth	Granite	Gravel	Lake Salt	Laterite	Lime Stone
Jul	626	-	90,962	21,660	3,902	439,047
Aug	233	-	27,490	11,874	973	317,228
Sep	235	-	15,795	10,387	802	174,162
Oct	396	-	49,233	9,239	534	497,391
Nov	35	-	82,725	9,747	1,875	570,995
Dec	260	-	88,240	9,507	359	705,994
Jan	174	-	11,635	4,649	1,300	724,629
Feb	150	-	8,743	7,405	1,600	275,159
Mar	111	-	5,615	2,617	1,630	713,456
Apr	-	-	410	2,235	1,315	117,940
May	106	-	2,055	9,118	1,014	386,848
Jun	116	-	3,181	16,315	1,066	684,142
Total	**2,442**	**-**	**386,084**	**114,753**	**16,370**	**5,606,991**

Continued

Month	Marble	Mouram	Ordinary Sand	Rati/Bajri	Silica Sand	Trona
Jul	4,144	-	5,252	9,575	703	40
Aug	550	-	-	1,650	653	-
Sep	4,291	-	-	1,350	653	10
Oct	300	-	-	9,010	703	20
Nov	150	-	-	1,400	703	10
Dec	175	-	-	1,050	803	10
Jan	2,708	2,056	1,671	2,576	153	20
Feb	19	-	-	639	600	90
Mar	-	385	-	301	-	-
Apr	-	-	-	120	-	-
May	-	-	-	126	-	-
Jun	-	-	-	114	-	50
Total	**12,337**	**2,441**	**6,923**	**27,911**	**4,971**	**250**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A4: Monthly Time Series of the Production of the Minerals in Sindh (2020-21)

Month	Bauxite Iron	Chalk	China Clay	Clay	Clay (Shale)	Coal	Iron Ore
Jul	-	-	336	30	72,945	449,655	-
Aug	-	-	10	30	51,551	360,322	500
Sep	-	-	320	30	45,807	465,380	500
Oct	-	-	375	30	79,758	466,742	-
Nov	-	-	545	30	64,009	287,910	-
Dec	-	-	95	30	69,557	268,308	1,000
Jan	-	-	423	60	57,867	469,186	650
Feb	-	-	165	60	54,359	457,498	425
Mar	-	-	14	60	68,071	400,608	17
Apr	-	-	-	60	64,844	396,898	-
May	-	-	550	60	63,620	482,428	275
Jun	-	-	690	60	47,297	448,224	-
Total	-	-	**3,523**	**540**	**739,685**	**4,953,159**	**3,367**

Continued

Month	Fuller's Earth	Granite	Gravel	Lake Salt	Laterite	Lime Stone
Jul	10	-	1,175	17,398	600	982,968
Aug	50	-	4,265	12,856	600	597,746
Sep	88	-	2,980	5,123	620	810,936
Oct	-	-	97	7,756	1,813	967,375
Nov	96	-	140	16,544	1,834	777,057
Dec	154	183	147	27,329	2,253	981,312
Jan	108	-	100	25,844	1,699	919,264
Feb	108	337	290	23,030	1,315	938,955
Mar	-	337	85	25,385	1,099	875,978
Apr	113	-	150	22,361	849	801,370
May	5	-	100	22,248	851	714,937
Jun	-	-	150	20,696	901	358,825
Total	**732**	**857**	**9,679**	**226,570**	**14,434**	**9,726,723**

Continued

Month	Marble	Mouram	Ordinary Sand	Rati/Bajri	Silica Sand	Trona
Jul	-	-	980	1,800	1,150	80
Aug	45	-	840	2,100	2,130	30
Sep	58	-	965	2,100	1,500	-
Oct	-	-	770	-	-	-
Nov	253	-	950	-	2,372	-
Dec	247	-	960	-	2,472	70
Jan	389	-	1,020	6,320	2,436	-
Feb	222	-	1,065	6,400	1,732	10
Mar	180	-	-	564	1,732	-
Apr	181	-	10	20	878	-
May	182	-	-	37	1,734	35
Jun	182	-	-	-	1,734	40
Total	**1,939**	**-**	**7,560**	**19,341**	**19,870**	**265**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A5: Monthly Time Series of the Production of the Minerals in Sindh (2021-22)

Month	Bauxite Iron	Chalk	China Clay	Clay	Clay (Shale)	Coal	Iron Ore
Jul	-	-	100	-	56,829	398,890	-
Aug	-	-	330	-	77,426	447,989	-
Sep	-	-	390	-	69,098	467,532	100
Oct	-	-	493	-	70,239	507,237	-
Nov	-	-	556	-	63,837	500,017	-
Dec	-	-	389	-	66,908	485,796	40
Jan	-	-	310	-	67,598	462,206	-
Feb	-	-	365	-	23,530	375,226	-
Mar	-	-	362	-	37,152	167,627	-
Apr	-	-	338	-	38,809	244,349	-
May	-	-	80	-	81,034	374,325	-
Jun	-	-	50	-	67,522	543,392	-
Total	-	-	**3,763**	-	**719,982**	**4,974,586**	**140**

Continued

Month	Fuller's Earth	Granite	Gravel	Lake Salt	Laterite	Lime Stone
Jul	108	66	870	7,642	-	333,991
Aug	72	126	150	19,226	-	831,416
Sep	50	70	150	6,836	-	619,600
Oct	-	-	105	14,851	-	875,258
Nov	-	-	-	18,150	-	941,009
Dec	96	-	15	23,132	150	783,235
Jan	72	-	10	23,916	100	867,161
Feb	72	-	5	20,424	80	516,029
Mar	96	-	-	23,527	-	627,545
Apr	96	-	4,298	19,370	-	752,187
May	72	-	-	1,030	-	813,510
Jun	-	-	200	20,723	-	862,819
Total	**734**	**262**	**5,803**	**198,827**	**330**	**8,823,762**

Continued

Month	Marble	Mouram	Ordinary Sand	Rati/Bajri	Silica Sand	Trona
Jul	-	162	-	-	300	-
Aug	-	162	-	-	600	-
Sep	-	162	-	831	970	-
Oct	4	162	-	770	81	20
Nov	10	162	-	488	1,100	10
Dec	5	162	-	3,125	1,570	-
Jan	4	163	-	381	133	-
Feb	890	163	-	139	41	90
Mar	11	163	-	411	83	70
Apr	-	163	-	353	93	69
May	-	9,915	400	522	98	73
Jun	-	-	450	-	-	85
Total	**-**	**162**	**-**	**-**	**300**	**-**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A6: Monthly Time Series of the Production of the Minerals in Sindh (2022-23)

Month	China Clay	Clay (Shale)	Coal	Iron Ore	Fuller's Earth
Jul	80	40,973	446,435	-	-
Aug	-	28,730	395,502	-	-
Sep	65	65,301	667,337	-	-
Oct	65	45,066	728,746	-	-
Nov	148	19,414	658,362	-	-
Dec	163	57,829	803,539	-	
Jan	353	72,833	1,180,397	-	35
Feb	350	30,400	985,664	-	-
Mar	139	63,634	1,164,830	-	-
Apr	108	68,164	1,355,433	-	50
May	239	73,231	1,334,543	-	-
Jun	31	77,821	1,293,116	-	-
Total	**1,741**	**643,396**	**11,013,904**	-	**150**

Month	Granite	Gravel	Lake Salt	Laterite	Lime Stone
Jul	-	7,813	8,998	-	525,157
Aug	-	2,799	8,630	96	435,782
Sep	-	2,940	12,818	-	778,309
Oct	978	1,820	26,795	-	704,350
Nov	1,334	3,150	27,364	-	557,460
Dec	80	1,230	21,046	-	383,117
Jan	-	600	20,165	-	600,463
Feb	-	500	815	-	637,581
Mar	-	870	21,363	-	931,946
Apr	-	740	43,168	-	843,097
May	-	730	29,341	-	793,687
Jun	-	-	3,504	-	798,500
Total	**2,392**	**23,192**	**224,007**	**96**	**7,989,449**

Month	Marble	Mouram	Ordinary Sand	Rati/Bajri	Silica Sand	Trona
Jul	-	339	-	937	318	54
Aug	-	320	656	1,046	395	-
Sep	-	297	551	1,058	598	-
Oct	-	328	527	808	509	-
Nov	1,646	327	551	808	525	-
Dec	-	378	150	858	680	82
Jan	-	1,000	175	1,106	12,945	51
Feb	-	850	80	1,200	360	72
Mar	-	850	80	900	815	90
Apr	-	1,050	1,155	1,500	650	-
May	-	600	66	3,300	240	133
Jun	-	600	-	2,600	-	-
Total	**1,646**	**6,939**	**3,991**	**16,121**	**18,035**	**482**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A7: District wise Minerals Production in 2016-17

Mineral	Dadu	Hyderabad	Jamshoro	Khairpur	Karachi
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	-	-	-
Clay	-	-	-	-	-
Clay (Shale)	247,663	-	-	-	184,782
Coal	-	-	534,319	-	-
Dolomite	-	-	-	-	-
Fuller's Earth	-	64	-	1,383	-
Granite	-	-	-	-	-
Gravel	6,255	-	2,215	54,050	30,918
Iron Ore	-	-	-	-	-
Lake Salt	-	-	-	-	-
Laterite	-	-	1,300	-	-
Lime Stone	1,086,634	334,425	239,462	22,882	5,324,597
Marble	-	-	-	-	-
Mouram	-	-	8,700	-	-
Ord.Sand	-	-	-	-	54,293
Rati/Bajri	-	-	27,900	-	-
Silica Sand	9,989	-	7,485	-	-
Trona	-	-		445	-
Total	**1,350,541**	**334,489**	**821,381**	**78,760**	**5,594,590**

Continued

Mineral	Sukkur	Sanghar	Tharparkar	Thatta	Total
Bauxite Iron	-	-	-	800	**800**
Chalk	-	-	-	-	**-**
China Clay	-	-	6,642	-	**6,642**
Clay	-	-	-	-	**-**
Clay (Shale)	-	-	-	87,881	**520,326**
Coal	-	-	374,023	160,296	**1,068,638**
Dolomite	-	-	-	-	**-**
Fuller's Earth	80	-	-	-	**1,527**
Granite	-	-	-	-	**-**
Gravel	1,320	-	-	342,400	**437,158**
Iron Ore	-	-	-	-	**-**
Lake Salt	-	-	-	-	**-**
Laterite	-	-	-	32,262	**33,562**
Lime Stone	33,275	-	-	812,703	**7,853,978**
Marble	-	-	-	2,713	**2,713**
Mouram	-	-	-	400	**9,100**
Ord.Sand	-	-	-	-	**54,293**
Rati/Bajri	-	-	-	1,406	**29,306**
Silica Sand	-	-	-	4,905	**22,379**
Trona	-	-	-	-	**445**
Total	**34,675**	**-**	**380,665**	**1,445,766**	**10,040,867**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A8: District wise Minerals Production in 2017-18

Mineral	Dadu	Hyderabad	Jamshoro	Khairpur	Karachi
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	-	-	-
Clay	-	-	-	-	-
Clay (Shale)	285,636	-	-	-	65,974
Coal	-	-	239,326	-	-
Dolomite	-	-	-	-	-
Fuller's Earth	-	30	-	2,211	103
Granite	-	-	-	-	-
Gravel	67,515	-	6,695	12,150	7,642
Iron Ore	-	-	-	-	-
Lake Salt	-	-	-	-	-
Laterite	-	-	6,400	-	-
Lime Stone	1,315,751	240,594	278,018	12,619	6,077,012
Marble	-	-	-	-	-
Mouram	-	-	1,930	-	-
Ord.Sand	-	-	-	-	43,000
Rati/Bajri	-	-	37,200	-	-
Silica Sand	1,940	-	13,911	-	-
Trona	-	-	-	330	-
Total	**1,670,842**	**240,624**	**583,480**	**27,310**	**6,193,731**

Continued

Mineral	Sukkur	Sanghar	Tharparkar	Thatta	Total
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	11,744	-	**11,744**
Clay	-	-	-	-	-
Clay (Shale)	-	-	-	-	**351,610**
Coal	-	-	167,528	71,798	**478,652**
Dolomite	-	-	-	-	-
Fuller's Earth	-	-	-	-	**2,344**
Granite	-	-	2,976	-	**2,976**
Gravel	1,030			724,840	**819,872**
Iron Ore	-			300	**300**
Lake Salt	-	10,327	215,467	9,955	**235,749**
Laterite	-	-	-	6,600	**13,000**
Lime Stone	10,966	-	-	603,129	**8,538,089**
Marble	-	-	-	2,782	**2,782**
Mouram	-	-	-	-	**1,930**
Ord.Sand	-	-	-	-	**43,000**
Rati/Bajri	-	-	-	2,250	**39,450**
Silica Sand	-	-	-	945	**16,796**
Trona	-	-	-	-	**330**
Total	**11,996**	**10,327**	**397,715**	**1,422,599**	**10,558,624**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A9: District wise Minerals Production in 2018-19

Mineral	Dadu	Hyderabad	Jamshoro	Khairpur	Karachi
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	-	-	-
Clay	-	-	-	-	2,310
Clay (Shale)	324,362	-	11,191	-	6,985
Coal	-	-	1,100,058	-	-
Dolomite	-	-	-	-	-
Fuller's Earth	-	42	-	1,501	320
Granite	-	-	-		-
Gravel	8,735	-	6,543	10,175	15,993
Iron Ore	-	-	-	-	-
Lake Salt	70	-	-	-	-
Laterite	-	-	2,100	-	-
Lime Stone	1,339,934	38,417	382,498	118,913	4,628,942
Marble	-	-	4,025	-	-
Mouram	-	-	-	-	-
Ord.Sand	-	-	-	-	23,299
Rati/Bajri	-	-	38,293	-	-
Silica Sand	-	-	15,760	-	250
Trona	-	-	-	465	-
Total	**1,673,101**	**38,459**	**1,560,468**	**131,054**	**4,678,099**

Continued

Mineral	Sukkur	Sanghar	Tharparkar	Thatta	Total
Bauxite Iron	-	-	-	1,407	**1,407**
Chalk	-	-	-	-	**-**
China Clay	-	-	8,722	-	**8,722**
Clay	-	-	-	1,700	**4,010**
Clay (Shale)	-	-	-	66,699	**409,237**
Coal	-	-	378,544	12,626	**1,491,228**
Dolomite	-	-	-	-	**-**
Fuller's Earth	-	-	-	-	**1,863**
Granite	-	-	-	-	**-**
Gravel	7,100	-	-	1,411,350	**1,459,896**
Iron Ore	-	-	-	1,590	**1,590**
Lake Salt	-	9,545	174,146	29,437	**213,198**
Laterite	-	-	-	3,752	**5,852**
Lime Stone	98,534	-	-	1,140,202	**7,747,440**
Marble	-	-	-	14,293	**18,318**
Mouram	-	-	-	19,214	**19,214**
Ord.Sand	13,000	-	-	1,215	**37,514**
Rati/Bajri	-	-	-	2,198	**40,491**
Silica Sand	-	-	-	375	**16,385**
Trona	-	-	-	-	**465**
Total	**118,634**	**9,545**	**561,412**	**2,706,058**	**11,476,830**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A10: District wise Minerals Production in 2019-20

Mineral	Dadu	Hyderabad	Jamshoro	Khairpur	Karachi
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	-	-	-
Clay	-	-	-	-	912
Clay (Shale)	71,428	-	1,849	-	1,540
Coal	-	-	734,090	-	-
Dolomite	-	-	-	-	-
Fuller's Earth	-	65	-	2,197	180
Granite	-	-	-	-	-
Gravel	4,911	-	-	2,320	66,953
Iron Ore	-	-	-	-	-
Lake Salt	100	-	-	-	-
Laterite	-	-	600	-	-
Lime Stone	15,051	4,503	653,582	121,031	2,753,574
Marble	-	-	2,529	-	-
Mouram	-	-	-	-	-
Ord.Sand	-	-	-	-	2,600
Rati/Bajri	-	-	16,992	-	-
Silica Sand	-	-	4,971	-	-
Trona	-	-		250	-
Total	**91,490**	**4,568**	**1,414,613**	**125,798**	**2,825,759**

Continued

Mineral	Sukkur	Sanghar	Tharparkar	Thatta	Total
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	4,678	-	**4,678**
Clay	-	-	-	-	**912**
Clay (Shale)	-	-	-	65,117	**139,934**
Coal	-	-	3,669,968	10,238	**4,414,296**
Dolomite	-	-	-	-	-
Fuller's Earth	-	-	-	-	**2,442**
Granite	-	-	-	-	-
Gravel	3,950	-	-	307,950	**386,084**
Iron Ore	-	-	-	-	-
Lake Salt	-	8,962	97,163	8,529	**114,754**
Laterite	-	-	-	15,770	**16,370**
Lime Stone	44,250	-	-	2,015,000	**5,606,991**
Marble	-	-	-	9,808	**12,337**
Mouram	-	-	-	2,441	**2,441**
Ord.Sand	1,788	-	-	2,535	**6,923**
Rati/Bajri/ Bajri	-	-	-	10,919	**27,911**
Silica Sand	-	-	-	-	**4,971**
Trona	-	-	-	-	**250**
Total	**49,988**	**8,962**	**3,771,809**	**2,448,307**	**10,741,294**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A11: District wise Minerals Production in 2020-21

Mineral	Dadu	Hyderabad	Jamshoro	Khairpur	Karachi
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	-	-	-
Clay	-	-	-	-	912
Clay (Shale)	71,428	-	1,849	-	1,540
Coal	-	-	734,090	-	-
Dolomite	-	-	-	-	-
Fuller's Earth	-	65	-	2,197	180
Granite	-	-	-	-	-
Gravel	4,911	-	-	2,320	66,953
Iron Ore	-	-	-	-	-
Lake Salt	100	-	-	-	-
Laterite	-	-	600	-	-
Lime Stone	15,051	4,503	653,582	121,031	2,753,574
Marble	-	-	2,529	-	-
Mouram	-	-	-	-	-
Ord.Sand	-	-	-	-	2,600
Rati/Bajri	-	-	16,992	-	-
Silica Sand	-	-	4,971	-	-
Trona	-	-		250	-
Total	**91,490**	**4,568**	**1,414,613**	**125,798**	**2,825,759**

Continued

Mineral	Sukkur	Sanghar	Tharparkar	Thatta	Total
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	4,678	-	**4,678**
Clay	-	-	-	-	**912**
Clay (Shale)	-	-	-	65,117	**139,934**
Coal	-	-	3,669,968	10,238	**4,414,296**
Dolomite	-	-	-	-	-
Fuller's Earth	-	-	-	-	**2,442**
Granite	-	-	-	-	-
Gravel	3,950	-	-	307,950	**386,084**
Iron Ore	-	-	-	-	-
Lake Salt	-	8,962	97,163	8,529	**114,754**
Laterite	-	-	-	15,770	**16,370**
Lime Stone	44,250	-	-	2,015,000	**5,606,991**
Marble	-	-	-	9,808	**12,337**
Mouram	-	-	-	2,441	**2,441**
Ord.Sand	1,788	-	-	2,535	**6,923**
Rati/Bajri/ Bajri	-	-	-	10,919	**27,911**
Silica Sand	-	-	-	-	**4,971**
Trona	-	-	-	-	**250**
Total	**49,988**	**8,962**	**3,771,809**	**2,448,307**	**10,741,294**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A12: District wise Minerals Production in 2021-22

Mineral	Dadu	Hyderabad	Jamshoro	Khairpur	Karachi
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	-	-	-
Clay	-	-	-	-	-
Clay (Shale)	85,988	-	492,100	-	-
Coal	-	-	1,379,391	-	-
Dolomite	-	-	-	-	-
Fuller's Earth	-	-	-	734	-
Granite	-	-	-	-	-
Gravel	-	-	30	-	**5,073**
Iron Ore	-	-	-	-	-
Lake Salt	178	-	-	-	-
Laterite	-	-	-	-	-
Lime Stone	13	-	3581,117	40,920	**4,548,546**
Marble	-	-	-	-	-
Mouram	-	-	-	-	-
Ord.Sand	-	-	-	-	-
Rati/Bajri/ Bajri	-	-	1,284	-	-
Silica Sand	-	-	209	-	-
Trona	-	-	-	417	-
Total	**86,179**	-	**4,074,740**	**42,401**	**4,553,619**

Continued

Mineral	Sukkur	Sanghar	Tharparkar	Thatta	Total
Bauxite Iron	-	-	-	-	-
Chalk	-	-	-	-	-
China Clay	-	-	3,763	-	-
Clay	-	-	-	-	-
Clay (Shale)	-	-	141,894	-	
Coal	-	-	3,517,511	77,684	**4,974,586**
Dolomite	-	-	-	-	-
Fuller's Earth	-	-	-	-	**734**
Granite	-	-	263	-	**5,803**
Gravel	700	-	-	-	-
Iron Ore	-	-	-	140	**140**
Lake Salt	-	6,990	191,659	-	**198,827**
Laterite	-	-	-	-	**330**
Lime Stone	7,100	-	-	646,066	**8,823,762**
Marble	-	-	-	924	**924**
Mouram	-	-	-	11,539	**11,539**
Ord.Sand	850	-	-	-	**850**
Rati/Bajri/ Bajri	-	-	-	5,736	**7,020**
Silica Sand	-	-	-	4,860	**5,069**
Trona	-	-	-	-	**417**
Total	**8,650**	**6,990**	**195,685**	**811,159**	**9,779,423**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

Table A13: District wise Minerals Production in 2022-23

Mineral	Dadu	Hyderabad	Jamshoro	Khairpur	Karachi
China Clay	-	-	-	-	-
Clay (Shale)	79,009	-	429,469	-	-
Coal	-	-	1,142,194	-	-
Fuller's Earth	-	-	150	-	-
Granite	-	-	-	-	-
Gravel	-	-	5,070	-	5,303
Lake Salt	-	-	-	-	-
Laterite	-	-	-	96	-
Lime Stone	-	-	3,307,414	92,073	3,800,349
Marble	-	-	-	-	-
Mouram	-	-	-	-	-
Ordinary Sand	-	-	1,115	-	1,226
Rati/Bajri/ Bajri	-	-	7,213	-	-
Silica Sand	-	-	17,685	-	350
Trona	-	-	-	482	-
Total	**79,009**	-	**4,910,310**	**92,651**	**3,807,228**

Continued

Mineral	Sukkur	Sanghar	Tharparkar	Thatta	Total
China Clay	-	-	1,741	-	**1,741**
Clay (Shale)	-	-	-	134,918	**643,396**
Coal	-	-	9,752,101	119,609	**11,013,904**
Fuller's Earth	-	-	-	-	**150**
Granite	-	-	2,392	-	**2,392**
Gravel	1,799	-	8,400	2,620	**23,192**
Lake Salt	-	6,527	217,480	-	**224,007**
Laterite	-	-	-	-	**96**
Lime Stone	46,700	-	-	742,912	**7,989,448**
Marble	-	-	-	1,646	**1,646**
Mouram	-	-	-	6,939	**6,939**
Ord.Sand	1,650	-	-	-	**3,991**
Rati/Bajri/ Bajri	-	-	-	8,908	**16,121**
Silica Sand	-	-	-	-	**18,035**
Trona	-	-	-	-	**482**
Total	**50,149**	**6,527**	**9,982,114**	**1,017,552**	**19,945,540**

Note: (-) Nil

Source: Mines & Minerals Development Department, Govt. of Sindh.
Directorate of Coal Mines Development, Govt. of Sindh

References

1. Development Statistics (2023), Sind Bureau of Statistics
2. Publications of Sindh Mines & Mineral Development Department
3. Schedule Rate Notification (2021), Sindh Mines & Mineral Development Department
4. Web ref: Wikipedia (April, 2022)