

# An Analysis on Growth of Soapstone Mining in Rajasthan State

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**Abstract:** Talc and steatite are the other common terms used for Soapstone which is hydrous magnesium silicate. It has multiple qualities like extreme softness, smoothness, whiteness, ability to absorb oil & grease and low electrical and heat conductivity. Soapstone is mostly used in Paper industry, cosmetics and pharmaceutical industry, pesticides and insecticide industry, Rubber, Ceramic industry, Textile industry, Plastic industry and carving industry. India positions second in world talc production while Rajasthan is the leading state in the country having 75 percent of total production. This paper attempts to measure the growth of Soapstone mining in Rajasthan state. The data has been collected from DMG (Department of mines and geology), government of Rajasthan for 16 years (2001-02) to (2016-17). The time series data has been used to estimate the following efficiency parameters: leases, Production, Revenue and Employment and then compound annual growth rate(CGR) has been calculated for these parameters. The study found that there has been very little growth in production and revenue (0.05 percent and 0.09 percent respectively) while negative growth rates were found for leases and employment (-0.03 percent and -0.04 percent respectively).

**Key words:** Soapstone, Soapstone mining, Rajasthan state, leases, Production, Revenue, Employment, Growth rate(CGR)

## 1. INTRODUCTION

Talc and steatite are the other common terms used for Soapstone which is hydrous magnesium silicate. Talc is a metamorphic mineral and deposits are generally associated with dolomite, magnesite, quartzite and to some extent with marble and limestone. Common form of talc deposits are lenticular or as irregular pockets. This mineral mainly occurs as small deposits. It has multiple qualities like extreme softness, smoothness, whiteness, ability to absorb oil & grease and low electrical and heat conductivity. Soapstone is mostly used in Paper industry, cosmetics and pharmaceutical industry, pesticides and insecticide industry, Rubber, Ceramic industry, Textile industry, Plastic industry and carving industry. Because of its uniqueness and wide variety of uses it is used in both block and fine ground state. It can be easily mined and prepared for market. In the world market, Indian talc is measured to be the second best next to 'Italian talc'. India positions second in world talc production while Rajasthan is the leading state in the country having 75 percent of total production. Production is also obtained from other states like Uttarakhand, Andhra Pradesh, Gujrat and Jharkhand. India's 57 percent of reserves are found in Rajasthan. Udaipur, Bhilwara, Pratapgarh, Dungarpur, Banswara, Rajsamand, Karoli, Alwar and Jaipur are the Major soapstone producing districts in Rajasthan. Rajasthan exported talc powder in other countries and states. Soapstone mining is on the ancient activities developed in Rajasthan. Its mining is carried out by open cast method mostly, a few mines in Rajasthan where underground method of mining is followed. Mostly soapstone mines in state are semi mechanised, some mines worked manually and a few are mechanised. In present, there are 188 mining leases for soapstone in the state and 1201.41 thousand tonnes was produced during the year 2016-17. Total revenue generation was 19.73 crore rupees and total employment indulge in the mining was 2754 persons in the year of 2016-17.

## 2. Review of Literature

**Vitra L. Robert (1995)** explained about both of minerals talc and pyrophyllite. Author also revealed about talc total mines, production, consumption, prices and foreign trade in United States of America. China,

Japan, and the United States produced 55% of the world's talc and pyrophyllite. World review and Future outlook is also presented. Twelve companies operating 16 mines in 7 States produced talc, soapstone, and steatite. U.S. mine production of crude talc was 935,000 tons, valued at \$30.4 million in 1994. Domestic producers reported that overall sales (including exports by producers) were 923,000 tons, valued at \$116 million in 1994. Talc exports increased 14% in tonnage from 135,000 tons to 154,000 and 10% in value from \$27.2 million to \$29.8 million. Talc imports increased 55% in tonnage from 100,000 tons to 155,000 tons and increased 38% in value from \$10.8 million to \$14.9 million. Canada, China, and Japan supplied 85% of all talc imports. **Driscoll O Mike (2008)** in this research paper, the recent changes in the field have been highlighted with the review of the supply of primary talc market and brief comment on the market place has also been emphasized on the recent changes in the field. The talc industry is one of those industrial minerals sectors indicative of the ongoing trend of consolidation on a global scale since the 1980s. Chinese producers dominate the world market (some 50%) with regard to volume production. The three main centres of China's talc supply and export industry are Liaoning, Shandong, and Guangxi, all with large talc reserves and outputs. Total Chinese talc production is estimated to be about 2m. Tonnes talc lump, and 600,000 tonnes talc powder. More than 70% of total Chinese talc output belongs to medium to low quality standard, while the output of high quality talc powder and lump is considered insufficient to meet the needs of either Chinese domestic market or export. The Chinese talc industry has been facing a number of challenges which have created insufficient supply of high-grade talc. **Mehmood Mustansar(2011)** Pakistan also has major resources of best quality Talc Deposits in the world. Pakistan share in world export of Talc is less than 2%. The annual export of Talc from Pakistan was around US\$ 8.21 Million. As Pakistan holds one of the best quality Talc deposits in the world, efforts are considered necessary to capture the international market. Thailand is leading Importer of Talc in the world. Presently Pakistan share is just around 0.25% in Thailand's Talc Imports. Talc demand in India is on the rise; currently Pakistan share is approximately 15% in India's Talc Imports. As Pakistan holds the best quality Talc, efforts are needed to penetrate the Chinese Talc Market. In order to increase the Talc export, which is far behind its actual potential, exploration may be carried out in virgin areas for locating additional deposits leading more export and import substitution. Joint venture with leading Talc dealing companies may be made to bring latest technology in mining and subsequent processing as per international market standard.

### 3. Objective

1. To Study the progress of soapstone industry in Rajasthan state since 2001, in terms of its growth in lease, production, revenue and employment.

### 4. Research Methodology

This study is based on secondary data acquired from DMG (Department of mines and geology), government of Rajasthan. Data were collected for a period of 16 years (2001-02 to 2016-17). For trend and growth rate following formula has been used.

$$C.G.R = ((\text{End Value}/\text{Start Value})^{1/\text{Periods}}) - 1$$

Centrality measures are calculated by Mean while variance is calculated by standard deviation and coefficient of variance with the help of M.S. excel and SPSS 16.0.

### 5. Analysis and discussion

The time series data were used to estimate the following efficiency parameters: leases, Production, Revenue and Employment. In order to know the progress of soapstone mining, annual time series data for

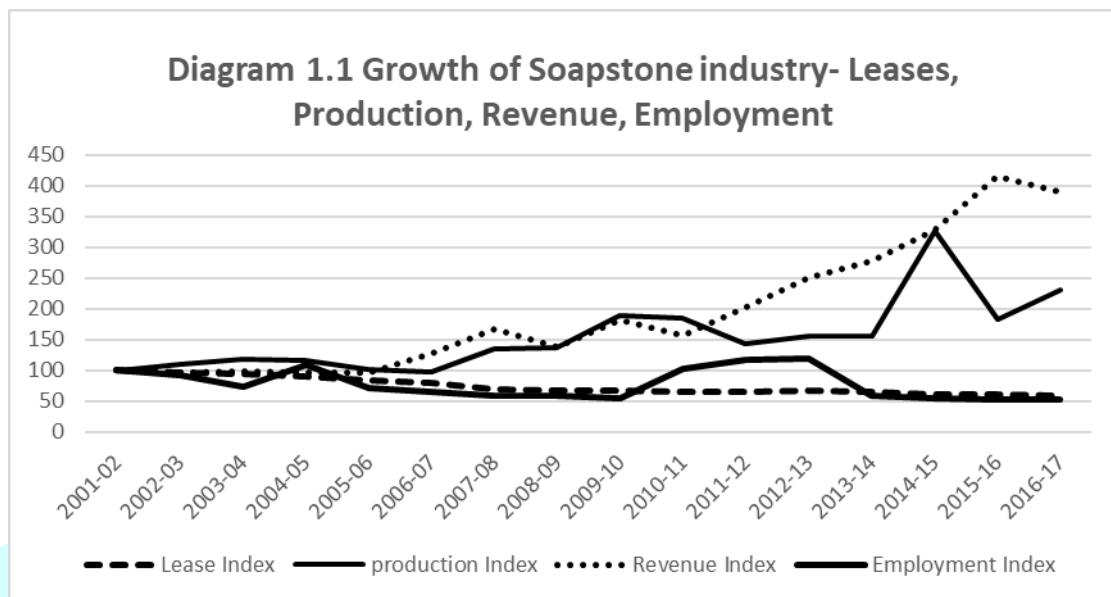
the four variables were studied for trend analysis. The progress of the Soapstone Industry over the period from 2001-02 to 2016-17 was studied. The progress was measured by the growth rate and inter-year variation around the mean (CV in percentage). The details are presented in Table: 1 for Leases, Production, Revenue and Employment.

Table 1.1 Growth of soapstone industry- Leases, Production, Revenue, Employment

YEAR	Leases (number of leases)	Index	Production (‘000Tons)	Index	Revenue (Rupees In lacs)	Index	Employment (Number of people)	Index
2001-02	320	100.00	519.16	100.00	505.26	100.00	5214	100.00
2002-03	311	97.19	576.88	111.12	492.72	97.52	4826	92.56
2003-04	302	94.38	615.52	118.56	502.93	99.54	3808	73.03
2004-05	291	90.94	605.89	116.71	492.56	97.49	5731	109.92
2005-06	268	83.75	524.42	101.01	493.12	97.60	3714	71.23
2006-07	253	79.06	511.40	98.50	647.30	128.11	3370	64.63
2007-08	225	70.31	698.49	134.54	850.00	168.23	3123	59.90
2008-09	215	67.19	716.39	137.99	698.95	138.34	3131	60.05
2009-10	214	66.88	980.29	188.82	921.72	182.43	2827	54.22
2010-11	209	65.31	956.84	184.31	797.36	157.81	5308	101.80
2011-12	212	66.25	743.64	143.24	1025.59	202.98	6170	118.34
2012-13	213	66.56	804.60	154.98	1269.88	251.33	6255	119.97
2013-14	206	64.38	809.60	155.94	1405.06	278.09	3087	59.21
2014-15	199	62.19	1699.05	327.27	1653.61	327.28	2915	55.91
2015-16	195	60.94	953.00	183.57	2094.25	414.49	2772	53.16
2016-17	188	58.75	1201.41	231.41	1973.30	390.55	2754	52.82
Mean	238.81		807.29		988.97		4062.81	
S.D.	43.58		298.88		521.77		1252.03	
C.V.	18.25		37.02		52.76		30.82	
C.G.R.	-0.03		0.05		0.09		-0.04	

- Leases:** The period of study beginning from 2001-02 where the soapstone mining leases were 320 in numbers. The number of leases degraded in all coming years and in 2016-17, it has come down to only 188 leases in all of the state. Data shows the trend of negative growth in number of leases scoring an annual growth rate of -0.03 percent. With a downtrend in leases, C.V. was 18.25 percent.
- Production:** With less number of leases at least production has positive results. In 2001-02, total production of soapstone in Rajasthan is 519.16 thousand tonnes, which increase over the years and in 2016-17 it has doubled at 1201.41 thousand tonnes. The average annual growth rate work out in the basis of (CGR) was 0.05 percent. This was very slow progress compare to another minerals production. Highest production was seen in the year of 2014-15, where 1699.05 thousand tonnes of soapstone was produced. After that it has declined because of less number of leases and other financial problems. With an uptrend in production, C.V. was 37.02 per cent.
- Revenue:** Revenue also increased as production increased, in 2001-02 total revenue generation was 505.26 lac rupees which was increased Quadruple to 1973.30 lac rupees in 2016-17. Highest revenue was collected in the year of 2015-16 which is 2094.25 lac rupees. With a large CV of 52.76 per cent, the annual growth rate in Revenue worked not in the basis of Compounded Growth Rate (CGR) was small at 0.09 per cent. Revenue is getting growth because of technological advancement whereas leases is in downtrend.

4. **Employment:** After getting a technological advancement, there are benefits as well as disadvantage like unemployment. There are employment generation of 5214 people in 2001-02 which decreased to 2754 people in 2016-17. We have found negative growth rate of -0.04 percent in employment with c.v. remained at 30.82 percent and index of employment with base 2001-02=100 went down to 52.82, marking nearly a half decrease.



## 6. Conclusion

1. At overall scenario, we can say that soapstone mining in Rajasthan has very little progress in terms of production and revenue since 2001-02 compared to other mining produce in Rajasthan.
2. Growth rate of Leases and employment came down due to various reasons and this problem also has been reason behind the low growth of production and revenue.
3. Revenue index reveals that revenue went up to 390.55 from base 2001-02=100, which is a good indicator of growth in economic terms and it has shown opportunities for future investments in the soapstone mining.

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