CHAPTER 4

INDIAN MAGNESITE INDUSTRY - AN OVERVIEW
4.1. OCCURRENCES OF INDIAN MAGNESITE DEPOSITES

In India, magnesite deposits are found in the states of Himachal Pradesh, (H.P.), Jammu and Kashmir (J & K), Karnataka, Kerala, Rajasthan, Tamilnadu (T.N.), and Uttar Pradesh (U.P.). The deposits in HP belong to Carboniferous age, that of U.P. occur in rocks belonging to Permian age, and those in T.N. and Karnataka are confined to formations of Pre-Cambrian age. However, the economic deposits are found in the Salem district of Tamilnadu followed by relatively less economic deposits in Karnataka, and Almore and Pithrogarh districts of U.P.

The details of the occurrences of magnesite deposits in various places of India are briefly explained below:

4.1.1. HIMACHAL PRADESH (H.P.)

In H.P. magnesite deposits are reported in two tehsils, namely, Brahmani and Pangi.

A) BRAHMANI TEHSIL: In this tehsil, magnesite deposits occur in Kao, Muchetar, Patengot and Tundah areas.

i) KAO AREAS: The area occurring south east of village Kao shows irregular patches and small pockets of
magnesite in the dolomitic band. This dolomitic band is about 3.5m thick and occurs associated with carboniferous shales of Salooni formation (Permian).3

ii) MUCHETAR AREA: The country rocks quartzite/slate of this area belong to Manjor formations of Carboniferous age.4 The former comprises conglomerate slate and quartzite outcrop near Jian on the north and along Muchtar nulla on the south and as the latter constituting quartzite slate, shale and dolomite limestone belong to Permian age. The magnesite lenses are associated with dolomitic limestone and carboniferous shale of the Salooni formation.5

iii) PATENGOT AREA: Small pockets of magnesite associated with a limestone band belonging to the Salooni formation occur on north-east side of Patengot.

iv) TUNDAH AREA: South of the village Tundah, lensoid band of magnesite about 3 m. thick has been recorded for a strike length of about 700 m.

B) PANGI TEHSIL : In this tehsil, magnesite occurs in Dunei and Bhujund area.

i) DUNEI AREA : In this area, magnesite is seen associated with dolomitic bands. The main rock types of this area are dolomite slates and shales belonging to Salooni formations.

ii) BHUJUND AREA : In this area, north of Bhujund, pockets and lenses of magnesite (upto 2m x 0.7 m) have been
recorded from a dolomitic limestone band about 3 m. thick which marks the contact between the Salooni formation and Manjir formation. The magnesite grades into the host rock (ie) dolomitic limestone. Gradual alteration of dolomitic limestone grading into magnesite is clearly observed.

4.1.2: JAMMU AND KASHMIR (J&k)

In J&K occurrences of magnesite deposits are reported in Kargil, Ladakh and Uthampur districts. All these deposits belong to Pre-Cambrian age.6

A) KARGIL DISTRICT: In this district only one deposit is found at Thargaon Khibar. Mineralisation is mostly of massive and amorphous type and is confined to shear zone and occurs as the veins and dykes. The width of the veins varies from few mm to 25cm.

B.) LADAKH DT: In this district magnesite deposits are found in Kyun Tso Nidar Handle, Poncha and Shergol.

i) KYUN TSO NIDAR HANDO: Here deposits are located between the villages of Bursathan and Mandling. It occurs in dunites and harzburgite. Magnesite occurs as thin veins and fracture filling within the sheared rocks. Serpentine is the other mineral associated with this deposit.

ii) PONCHA: Country rocks of Pocha consist of harzburgite, breciated serpentinized harzburgite, shale sandstone - conglomerale. Here magnesite mineralisation is impersistant.
iii) SHERGOL: Country rock of Shergol consists of ultramafics. Magnesite occurs as lensoidal bodies, as streaks, and veinlets vamifying in the ultrabasics and forming a long narrow band running in east-west direction. Magnesite bodies exposed on the western side have a NW-SE orientation whereas those outcropping on the eastern side have an erratic behavior.

c) UTHAMPUR DISTRICT: Magnesite deposits have been discovered within the 'Riasi inpier' of Jammu limestone near Karta town, Panthal and Pie-Nala.

i) KARTA DEPOSITS: Katra deposits occur about 3 km. north of Karta town. The main magnesite deposit occurs on the hill slope at a distance of 1.3 km near Adhkumari. The exposures of magnesite stand out prominently because of differential weathering between altitudes of 1,100 and 1,300 meters, above MSL. Away from this major mineralised zone, magnesite also occurs as thin veins and pockets within the dolomite.

ii) PANTHEL AND PIE-NALA DEPOSITS: Panthal deposits, about 6 km. from Katra and Pie-nala is located at a distance of 1.5 km. from Vaishnavdevi temple. The deposits appear to be significantly large, but detailed study is yet to be made.
4.1.3. KARNATAKA

In Karnataka, the magnesite deposits are located in the districts of Coorg and Mysore. The area forms a part of the Sargur Sehist complex of the Dharwar Super group which represents the high grade metamorphic terrain of the earth's crust. The ultramafics with which the magnesite deposits associated are intrusive into the Sargur Schist complex and adjoining gneissic complex.

A) COORG DISTRICT: In Coorg district a deposit is located at Gaddeshashalli in Somawarpet tehsil. Rock types here are mostly ultrabasics and the veins are found in the form of net work in ultrabasic rocks. The veins vary in length from 1.5m to 68m and 3 to 5 cm in width. Another deposit is located near Kushalnagar; but exploration work has not been carried out yet.

B) MYSORE DISTRICT: In Mysore district magnesite deposits are located at Allainapura, Chattanalli, Chillakattur, Dodkanya, Dodkatur, Kadollola, Kakardoddi, Karya, Mavinhalli, Sundhuvalli and Talur. However only a few deposits are economically important as explained below:

i) ALLAINAPURA DEPOSITS: The deposit here is hard, massive and amorphous. Mineralisation is mostly vein type. Magnesite is found over an area of 150 m x 150m. The veins range in width from a fraction of a cm. to 60 cm. and length from 3m. to 23m.
ii) DODKANYA DEPOSIT: Dodkanya deposit is located in Goddanperahundi village of Mysore district over an area of 325.75 hectares. The rock type found in this area includes ultrabasics comprising peridotite and dunite which have intruded into the gneisses and schist. The lenses/veins show widely varying dips and thinning, thickening and coalescing is very frequent and prominent.

iii) DODKATUR DEPOSIT: This deposit consists of elliptical masses of dunite flanked on either side by older gneissic rocks. The dunite shows various stages of serpentinisation at depth. Magnesite occurs in the form of a network of intersecting veins and stringers. It is in these zones of stringers which constitute the main mineral bearing zone.

iv) KARYA DEPOSIT: Karya deposit covers an area of 323.75 hectares. It is situated in the villages Karya - Hullahili in Rehsil Nanjangud. The deposit covers a net work of intersecting veins in ultrabasics. The ultrabasic rock is mainly dunite. The magnesite vein explored is hard and massive and breaks with conchoidal fracture.

v) SOLEPUR DEPOSIT: This deposit covers an area of 61.35 hectares. The present type of rock in this area is dunite, peridotite, pyroxenite and ultrabasic rocks. Mineralisation of this deposit is of vein type. The associated economic mineral is chromite.
4.1.4. KERALA

In this state, occurrences of magnesite deposits have been reported from two locations in Palghat district. One occurs in the N.E. part of Attapadi Valley at Kalkandi and the other at 1.5 km away from Narasimmakkai. In both deposits, magnesite occurs within peridotites as veins and veinlets measuring a few mm to 30 cm in width. The occurrence at Kalkandi extends over a length of 150 m. The ratio of magnesite to host rock in the richer zone of this deposit was found to be 1:3.9

4.1.5. RAJASTHAN

In this state, magnesite deposits have been reported from Ajmer, Pali and Udaipur districts.

A) AJMER DISTRICT: Magnesite deposits are reported in four places in this district as explained below:

i) KALDONGARI DEPOSIT: In this area, the main host rock is peridotite. Mineralisation is seen in veins along joints and fractures and the associated mineral is mostly asbestos. The structural feature is very complicated and the body measures 200 m in length and 50 m in width and to a depth of 15 m.

ii) KOGANNU DEPOSIT: This is a small deposit located west of Kogannu. Magnesite veins occurring in a section between Karnool and Kundol, are seen in a dolomitic
rock at the junction with stealite. Main country rock of this area appears to be amphibolite associated with calcite and stealite.

iii) MERWAN DEPOSIT: Small veins of magnesite have been seen in the ultrabasic rock occurring about 400 m from Hatundi beyond Makerene villages. The economic potentiality of the deposit is not yet known.  

iv) SARUPA - CHHAJA - GOFA DEPOSIT: In this area main rock types comprise of mica schist, quartzite, caic-schist with intercalations of impure limestone. These are seen intruded by granite, quartz veins, pegmatite, amphibloite and ultrabasic. Mineralisation is mostly vein type and the veins vary from 1 cm. to 10 cm. in width.

B) PALI DISTRICT

In this district magnesite deposits occur in two area as described below:

i) AIRA-BARI DEPOSIT: These deposits are similar to that of Sarupa-Chhaja - Gofa deposits.

ii) DONGER DEPOSIT: This deposit has been recently discovered. Host rock of this area is ultrabasic rocks (peridotite). Mineralization here is vein type and the veins extend over an area of 80 m x 20 m and to a depth of 12 m.
C) UDAIPUR DISTRICT

In this district magnesite deposits have been reported in two areas as explained below:

i) KADEOKA GUDA DEPOSIT: As this deposit is non-working, details are yet to be known.

ii) LEWAKA GURHA DEPOSIT: This deposit has a few veins and veinlets of magnesite with impure and altered marble. They extend to a varying lengths from 0.5m. to 10m. and the width being around 5 cm. This deposit covers an area of 229.59 hectares.

4.1.6: TAMIL NADU (T.N.)

Tamil Nadu is the largest magnesite producing state in India. Here, magnesite is found in the districts of Coimbatore, Dharmapuri, Nilgiris, North Arcot, Periyar, Salem, Trichy and Trinellveli. The rock types associated with the mineral are mostly ultrabasic bodies such as peridotite, dunite and pyroxenite. These deposits are considered to be of Pre-Cambrian age. Though magnesite is available in many districts of T.N. massive mining activity is going on in Chalk Hills area of Salem district alone which forms the largest producer of refractory grade magnesite in T.N. A detailed description of these deposite are given below:
A) CHALK HILLS AREA: The Chalk Hills area known for its magnesite potential is located 7 k.m. N.E. of Salem on the Salem - Bangalore high-way. Commercial exploration and exploitation in Chalk Hills commenced as early as 1900 AD and at present, the area is under mining lease to different government and private agencies.13

The area is a plain country with detached hills rising to 609 m. from a general ground level of 340 m. The Shevaroy Hills to the north rises to 1625 m. from MSL. The Chalk Hills area has sparse drainage. The ultramafic rock is characteristically devoid of vegetation while the adjoining gneissic country supports vegetation.14

GEOLOGY OF CHALK HILLS AREA: The ultramafic intrusives of the Chalk-Hills occur in foliated biotite gneisses and migmatites, magnesite quartzite, garnetiferous pyroxene granulite gneisses and chernockitic rocks. The ultramafic intrusives include magnesite bearing dunite, serpentine and peridotite, pyroxenite, hornblendite. Granite quartz vein and pegmatites and basic duke constituting younger intrusives occur in the Nagaramai area. Some chromates were reported but no in situ rock is at present noticed. The ultramafic intrusives occur as two bodies separated by gneisses and granulite and both are disposed in an enchelon fashion in an ENE-WSW direction parallel to the general foliation trend of the adjoining gneisses. The larger one occupying an area of
about 14.4 sq. km. forms the northern belt and the southern belt occupies an area of 2.8 sq. km. The map showing the location and area of Chalk - Hills deposit is given in Chart 4.1.

**CHART: 4.1. MAP SHOWING CHALK HILLS AREA**
In Chalk Hills, magnesite occurs as reticulate, criss-cross and meandering veins of varying thickness. This cryptocrystalline magnesite occurs in various forms depending on the nature and extent of association of silica which is the major deleterious impurity. The main forms are hard, soft and greenish varieties.

BELIEF ABOUT CHALK HILLS: According to Hindu mythology the magnesite of Salem is nothing but the bones of the Bird Jatayu, which was fatally hit by Ravana while fighting to prevent Sita from being carried away by him. This belief cannot be true, because, according to geology (Geological Survey of India, Ootacamund) the foil is formed over a period of million years. So for the bones of the bird to become rocks, it might have passed nearly a million years. But according to Tamil scholars, the period of Ramayana when the fight between Rama and Ravana took place is around 4300 B.C. (i.e.) around 6300 years ago. Hence the bones of the bird could not have become rocks during this short period.

Further, the chemical dictionary defines bone ash as "composed principally of tribasic calcium phosphate, but containing minor amounts of magnesium phosphate, calcium carbonate, and calcium fluoride; not combustible". According to this definition, the bone ash contains only minor amounts of magnesium whereas magnesite contains nearly 50% of magnesium. Hence, based on chemical analysis also, the Salem
magnesite could not be the bones of the bird. As the magnesite is white in colour, the people in this area call this area as "Chunnambu Karadu".

OPINION OF GEOLOGISTS: Some geologists attribute the formation of Salem magnesite to the action of percolating carbonate waters on highly weathered magnesia rich ultrabasic rocks. Others are of the opinion that it is the result of hydrothermal intrusions.

RESERVE ESTIMATION OF CHALK HILLS: Aiyengar (1953) estimated the recoverable mineral to the rock as roughly 1:13 to 1:10, and has calculated reserves upto 33m. depth. He has categorized the reserve as 'proved' and the total reserves in the Chalk Hills is estimated as 82.5m.t. (66m.t in the northern belt and 16.5m.t. in the southern belt). The recoverable reserves are implied to be of the order of 20 to 50% of the same. Krishnamoorthy (1961, 1962) estimated a recoverable reserve of 1:15 and upto 30 m estimated a probable reserve of 8.08 m.t. in the southern belt and 37.37 m.t. in the northern belt. The available figures of mined out magnesite upto 1982 amounts to 8 m.t.19

B) OCCURRENCES OF MAGNESITE IN TAMILNADU OTHER THAN CHALK HILLS AREA: The deposits available in other districts of T.N. are very less in reserve position and the survey of these deposits is still going on. Hence, a detailed account of these deposits are yet to be known. However, the available information about these deposits are given in Appendix 4.1.
4.1.7. UTTAR PRADESH (U.P)

U.P is one of the principal magnesite producing states in India. Magnesite deposits occur along a belt in Himalayas. In this state, magnesite is found in the districts of Almora, Chamoli and Pithrogarh. Rock types found here mostly are dolomite shales, talc, phyllite talcose, phyllite and basic intrusive. The deposits are considered to be of pre-Himalayan age.21

A) ALMORA DISTRICT

In this district there are many magnesite deposits. However, only two deposits are operated and these occur at Gadera and Jhiroli.

i) GADERA DEPOSIT: It covers an area of 71.06 hectares. The magnesite in this area is coarsely crystalline, hard and massive. Patches of dolomite and talc are also seen here.

ii) JHIROLI DEPOSIT: Jhiroli deposit occurs between Someshwar and Bageshwar. It constitutes Dewaldbar sector and is presently known as Jhiroli deposit. This deposit occurs in the region of Chhaeng - Jhiroli mining villages and extends over a length of 2.9 k.m. on the southern slope of Jhiroli ridge.21 The main geological formation found in this area comprises quartzite, phyllite carbonates and crystalline rocks.
The area has been subjected to folding, faulting and thrusting. The magnesite of this area is massive crystalline variety and of heterogeneous texture. The main impurities found in it are dolomite, calcite, limestone, talc siderite and occasionally chlorite and quartz.

Apart from these major magnesite deposits in this district, the following deposits have also been explored:

a) Greechinna (Coarse crystalline variety), b) Chachane (formed by the action of hydro thermal agencies), c) Kanda (crystalline and coarse grain), d) Chani (coarse crystalline), e) Nail (coarse crystalline, f) Harap (lenticular patches), i) Jalch, Harbar (greyish or pinkish in colour and has very coarse grained texture), j) Damgiri (white, pink, and gray in colour and medium to coarse gained in texture), k) Phadyate (quality not known), l) Ganai (fine grained), m) Rithai (crystalline), n) Boragar (coarse to medium grained in texture), o) Tangu (crystalline), p) Damri (crystalline), q) Dharmashale (lense form), r) Kandamasauli (details not known) and s) Pungar valley (replacement type in carbonate rocks).

B) CHMOLI DISTRICT

There are fifteen reported occurrences of magnesite deposits within the district. They are (i) Gulab Kothi, Mamolta-Mahola, (ii) Palla-Jakhola-Kimara, (iii) Tapoban -
Dwing, (iv) Lanji, (v) Huyana - Lokhari, (vi) Gauri, (xi) North of Tangi, (xii) Belakachi, (xiii) Ghuni, (xiv) Rami and (xiv) Bagoli. None of these deposits have been prospected and explored so far. 23

C) PITHROGARH DISTRICT

In this district, magnesite deposits are found in Gol Block and Kanlichinna Gorigonga areas.

i) GOL BLOCK AREA: In this area magnesite deposits occur in Chamagaon, Ganai - Borger, and Gorigonga. The deposits show a bedded structure. Mineralisation is seen to alternate with the bands of slate and dolomite. Magnesite is fine to coarsely crystalline in nature and white gray, light brown and steel gray in colours, Fine grained variety contains a mosaic of magnesite grains and coarse grained magnesite shows bladed crystals with planner intergranular contacts. Talc is generally associated with magnesite either in the form of minute silver gray scales along the intergranular spaces of in the form of this disconnected laminate along the bedding planes.

ii) Kanlichinna Gorigonga area: Here the types of rocks found are mostly cale-series-slates, shales and phyllite with dolomite band. Mineralisation here occurs in the form of scattered lenses and pockets which appear to be controlled by lithology. The associated minerals are talc, dolomite and marble.
In this area deposits of magnesite occur in four places, namely, i) Chandak, ii) Dewalthal, iii) Dharepani and iv) Duanda.

4.1.8: OTHER STATES

Apart from the major occurrences of magnesite deposits as explained in the preceding pages, minor and non-economical deposits of magnesite is also found in other States of India, and they are as given below:

i) ANDRA PRADESH: In this state, magnesite deposits have been identified in Anantpur, Cuddapah and Kurnool.

ii) BIHAR: In this state, talc magnesite is taken from Pathar Pahar village near Jamshedpur.

iii) MADYA PRADESH: Marble rocks of Narmada, Gorge and Jabalpur are dolomitic. Also dolomitic limestone is available in Betu Chhindwara, Bilaspur, Durg and Umeris.

iv) MAHARASHTRA: In this state, in Nagpur, at Koradihin Sauser series dolomitic rocks are available. Also at Yestmal and Chands, the same kind of rocks are found.

v) ORISSA: In Orissa, dolomitic deposits are available in Birmitrapur and Lifripara area. These deposits are workable. It is white to bluish in colour and sachroidal in texture. In Birmitrapur the estimated reserve is around 252 m.t. of which 84 m.t is of good quality and in Lifripara area the estimated reserve is around 6 lakh tones.
vi) WEST BENGAJ: High range of Hills in Duras is said to be built entirely of dolomite. Their rugges precipitous cliffs intercepted by steep side gorges cover about 5 sq.miles. Magnesia content of these deposits is over 21% while the reserves are practically inexhaustible.

The place of occurrences of magnesite in India are plotted on the India Map (chart 4.2)
4.2: INDIAN MAGNESITE RESERVES AND PRODUCTION

4.2.1: INDIAN MAGNESITE RESERVE POSITION

The reserve estimation of the Indian magnesite deposits were made by many agencies such as Geological Survey of India (GSI), State Departments of Mining and Geology, Magnesite producers, etc. The estimations were made for various grades and categories. Table 4.1 (given on next page) gives All India Categorywise and Gradewise reserves which shows that the total Indian magnesite reserve is of the order of 221.868 mt. Of this reserve, 120.3 mt. are medium and low grade.24

An account of the statewise reserve position of magnesite deposits in the leasehold area is given in Appendix 4.2 and that in the free-hold area is given in Appendix 4.3. From these two appendices, it can be seen that U.P. stands first in the magnesite reserve position in India and T.N. stands next to U.P. However, in the actual production of raw magnesite, the position is reversed.

4.2.3: OPERATING MAGNESITE MINES IN INDIA

According to law prevailing in India, the natural resources can be exploited only with the permission of the Govt. of India. Magnesite being a natural resource can be mined from mines for which mining leases have been granted. One might have obtained a mining lease to mine magnesite but he might not use the lease. Further, a mine owner after
### TABLE: 4.1 CATEGORYWISE AND GRADEWISE RESERVES. (In Million Tonnes)

<table>
<thead>
<tr>
<th>Type of area</th>
<th>Grades</th>
<th>Proved</th>
<th>Probable</th>
<th>Possible</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lease hold Area (A)</td>
<td>(a) Beneficiably/low</td>
<td>2.403</td>
<td>3.562</td>
<td>32.549</td>
<td>38.514</td>
</tr>
<tr>
<td></td>
<td>(b) Medium and Low mixed</td>
<td>1.339</td>
<td>36.828</td>
<td>17.786</td>
<td>55.953</td>
</tr>
<tr>
<td></td>
<td>(c) Medium</td>
<td>-</td>
<td>-</td>
<td>0.052</td>
<td>0.052</td>
</tr>
<tr>
<td></td>
<td>(d) High and Medium mixed</td>
<td>3.471</td>
<td>4.208</td>
<td>2.000</td>
<td>9.679</td>
</tr>
<tr>
<td></td>
<td>(e) High, Medium and Low mixed</td>
<td>0.173</td>
<td>2.063</td>
<td>0.417</td>
<td>2.653</td>
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<tr>
<td></td>
<td>(f) Not Known</td>
<td>-</td>
<td>0.328</td>
<td>0.245</td>
<td>0.573</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>7.386</td>
<td>46.989</td>
<td>53.049</td>
<td>107.424</td>
</tr>
<tr>
<td>Free hold Area (B)</td>
<td>(a)</td>
<td>4.467</td>
<td>20.341</td>
<td>19.223</td>
<td>44.031</td>
</tr>
<tr>
<td></td>
<td>(b)</td>
<td>1.716</td>
<td>60.850</td>
<td>1.789</td>
<td>64.355</td>
</tr>
<tr>
<td></td>
<td>(c)</td>
<td>-</td>
<td>0.002</td>
<td>1.555</td>
<td>1.577</td>
</tr>
<tr>
<td></td>
<td>(d)</td>
<td>-</td>
<td>-</td>
<td>0.040</td>
<td>0.040</td>
</tr>
<tr>
<td></td>
<td>(e)</td>
<td>0.100</td>
<td>0.161</td>
<td>2.600</td>
<td>2.861</td>
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<tr>
<td></td>
<td>(f)</td>
<td>-</td>
<td>0.147</td>
<td>1.358</td>
<td>1.505</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>6.283</td>
<td>81.521</td>
<td>26.565</td>
<td>114.369</td>
</tr>
<tr>
<td>Conditional Reserve (C)</td>
<td>All grades</td>
<td>-</td>
<td>-</td>
<td>0.075</td>
<td>0.075</td>
</tr>
<tr>
<td><strong>TOTAL (A+B+C)</strong></td>
<td></td>
<td>13.669</td>
<td>128.510</td>
<td>79.689</td>
<td>221.868</td>
</tr>
</tbody>
</table>

Source: Monograph on Magnesite (IBM) 1990. P. 58
operating a mine for some time may stop production. These things lead to variations in the total number of operating mines in the Indian magnesite industry over the period. Appendix 4.5 gives the total number of operating mines and the number of operating magnesite mines in India. A comparison of these figures shows that the ratio of operating magnesite mines to the total number of all the mines in the mining sector of India is negligible.

4.2.2: RAW MAGNESITE PRODUCTION IN INDIA

The magnesite deposits are being exploited by many magnesite producers in many States in India. The statewise production of raw magnesite both in quantity and value, is given in Table 4.2. (given on next page). The raw magnesite production in each State of India and India as a whole has increased considerably over the period but the increase is not steady and much significant. The Indian magnesite production is depicted on Chart 4.3 (given after Table 4.2) for easy reference and identification.

The Indian magnesite production by sector (Public and Private) is given in Appendix 4.4.

Appendix 4.4 shows that more than 50% of the total Indian magnesite production comes from the public sector units. In fact this share of public sector is increasing gradually. This is due to the policy of the government that all natural resources must be owned by the government only.
### TABLE 4.2

STATEWISE PRODUCTION OF RAW/MAGNESITE IN QUANTITY AND VALUE

(Quantity in tonnes - Value in '000s)

<table>
<thead>
<tr>
<th>Year</th>
<th>Karnataka Qty.</th>
<th>Karnataka Value</th>
<th>Rajasthan Qty.</th>
<th>Rajasthan Value</th>
<th>Tamil Nadu Qty.</th>
<th>Tamil Nadu Value</th>
<th>Uttar Pradesh Qty.</th>
<th>Uttar Pradesh Value</th>
<th>All India Total Qty.</th>
<th>All India Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>8,775</td>
<td>24.94</td>
<td>1,205</td>
<td>69.281,174</td>
<td>4,64.59</td>
<td>1,05,057</td>
<td>1,16.22</td>
<td>3,96,211</td>
<td>6,06,44</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>8,400</td>
<td>30.64</td>
<td>912</td>
<td>86.320,784</td>
<td>7.20.82</td>
<td>70,017</td>
<td>1,09.52</td>
<td>3,80,113</td>
<td>8,61,84</td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td>8,644</td>
<td>36.68</td>
<td>1,276</td>
<td>1,57.354,199</td>
<td>9,61.18</td>
<td>98,415</td>
<td>1,44.03</td>
<td>4,62,534</td>
<td>11,43,46</td>
<td></td>
</tr>
<tr>
<td>1982</td>
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For 89, IMY - 91, Volume 2, P.572.
INDIAN RAW MAGNESITE PRODUCTION
(IN QUANTITY AND VALUE)

CHART 4.3
4.3: INDIAN MAGNESITE TRADE

4.3.1 SALE OF MAGNESITE PRODUCTS IN INDIA

As raw magnesite finds no much use as such, it is marketed after calcination. A list of calciners (processors) of magnesite in India is given in Table 1.1. These calciners produce mainly DBM and CCM and a lesser quantity of ramming mass, fettling mass, and gunning mass. These products are being consumed by various industries. The sale of different magnesia products such as DBM, CCM ramming mass, etc. are not available separately, but the total sale of these products is available. Appendix 4.6 gives the total sale of magnesite by Indian magnesite industry.

The figures given in Appendix 4.6 exclude the consumption of magnesia by the producers themselves for their own units and also the exports.

This appendix shows a downward trend in the sale of magnesia from 1979 to 1982 but thereafter it shows an upward trend. This clearly indicates that the requirements of magnesia products are increasing. Also Appendix 4.7 gives an account of the consumption of magnesite by various industries in India. This appendix reveals that more than 95% of the magnesite is consumed by the refractory industry (including iron and steel).
4.3.2 PRICES OF CALCINED MAGNESITE: Depending upon the quality of the calcined magnesite, the price of the product varies. The price of various grades of these products in the home markets are given in Appendix 4.8. These prices seem to be static over some period, but it is not so in actual practice. The figures published are only the averages. Similarly, the prices of various grades of magnesite products in foreign markets are given in Appendix 4.9. These figures also seem to be static over some period, which is not true. Minor variations in prices have not been considered and only averages are given (by the publishers).

4.3.3 INDIAN EXPORT OF MAGNESITE: Because of the limited resources of low-silica and low iron magnesite in the country, a restrictive trade policy is being followed at present. Based on this policy, the export of magnesite by India is restricted in the following ways:

(i) Calcined magnesite above 7.5% silica content can alone be exported;
(ii) The maximum quantity of this variety for export is limited to 5000 tpa, and
(iii) Only public sector undertakings can export this variety

Hence, though India produces more magnesite, its export is not high. The export of magnesite by India during the past is given in Appendix 4.10. This appendix shows that the export
of Indian magnesite has come down after the imposition of restrictions by the Government of India.

4.3.4 INDIAN IMPORTS OF MAGNESITE

The Indian magnesite industry is not blessed with high quality magnesite. Hence, Indian refractory producers have been forced to import high quality magnesite to suit the requirements of steel industry due to change in technology. High purity dead burned magnesia produced from sea-water is imported for making special refractories. The imports of magnesia during the past are given in Appendix 4.11.

The imports in the past have been highly erratic. It was highest in 1979-80 at 43,977 tonnes which declined to 1,686 tonnes in 1981-82. But thereafter in 1986-87, the imports of magnesite was quite high, which was 31,321 tonnes due to increase in domestic demands. Due to liberalisation of industrial policy by the Government of India, the import of magnesite is on the increase and it was highest in 1990-91.

4.4: STATUS OF INDIAN MAGNESITE INDUSTRY

4.4.1: THE SHARE OF MAGNESITE PRODUCTION ON INDIAN MINERAL PRODUCTION

The total mineral production in India and the Indian magnesite production are given in Appendix 4.12.
Appendix 4.12 shows that the ratio of Indian magnesite production to the total mineral production of India is considerably less. Though this ratio is not significant, the role of Indian magnesite industry in Nation building activities is very high, as explained in Chapter 1.

4.4.2: CONSUMPTION OF MAGNESITE BY OTHER INDUSTRIES

Magnesite has many uses. It is consumed by many industries. The consumption of magnesite by various other industries is given in Appendix 4.7.

This Appendix shows that more than 95% of magnesite is consumed by the refractory (including iron and steel) industry every year.

The survival of steel industry goes with the refractory industry. The refractory industry, in turn, depends upon the magnesite industry. Hence, though the ratio of magnesite production to the total mineral production of India is insignificant, the importance of magnesite industry can not be underestimated.

4.4.3: CONTRIBUTION TO EMPLOYMENT

Labour is abundant in India and the unemployment problem is very acute here. The magnesite industry provides employment opportunities particularly to the uneducated people. Appendix 4.13 gives an account of the number of permanent workers engaged in the Indian magnesite industry.
This appendix shows that the average daily employment in the magnesite industry is around 7,000. It has been increasing from 1979 to 1983 and shows a downward trend thereafter. The reason for this downward trend is the mechanisation of mines and the closure of mines or suspension of operations in some mines. The industry also provides indirect employment to more than one lakh people. 27

4.4.4: CONTRIBUTION TO NATIONAL INCOME

There are various sources for the National income and one of them is the mining sector. Appendix 4.14 gives an account of national income from the mining sector and that from the magnesite industry.

From Appendix 4.14 it can be understood that the income from the Indian magnesite industry to the national income is steadily increasing and the increase is significant. Though the ratio of this income from magnesite industry to mining sector is negligible, due attention for the development of the magnesite industry cannot be ignored as it plays an important role in Nation building activities.

Various efforts must be taken to develop such an important industry so that the country can attain self sufficiency in the demand for high grade magnesite. This will simultaneously result in the reduction in imports of magnesite products which will save foreign exchange.
REFERENCES


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