

## JALORE - THE RISING HUB OF GRANITE INDUSTRY IN RAJASTHAN



### In this issue

1-5 Jalore : The Rising Hub of Granite Industry in Rajasthan

6 CDOS Activities

7 Calendar of Events  
News Section

8 New Governing Board  
New Members of CDOS

### GRANITE

The term "Granite" is derived from latin word "Granum" meaning "grain" because of its granular nature. Rajasthan is well known since time immemorial for its building and dimensional stones like Marble, Sandstone, Limestone, Slate etc. Recently granite has also been added to this list. Granite occupies a prominent place among dimensional stones on account of its hardness, durability, capability to take mirror polish and fascinating colours. As such the use of granite has increased many fold as dimensional and decorative stone all over the world and this has created a good export market for Indian Granite.

#### Texture of Granite

Texture of granite is governed mainly by its grain size. The category are following :

- Medium grained
- Coarse grained
- Porphyritic
- Unequal grained

- Oriented grained
- Random/Un-oriented grained type

The colour of individual category may vary from black, grey, red, pink, bluish, brownish, etc.

#### Characteristics of Granite

Granite is a light coloured acid igneous granular rock of plutonic origin. It is generally grey, mottled grey, red, pink, white or green in colour. The colour is usually imparted to the granite by the presence of feldspar and may vary depending on the amount of feldspar present. The mineral assemblage of a granite is quartz, feldspar and minor amounts of mica and ferromagnesium minerals like biotite, amphibolite and pyroxene.

Commercial use of the term – Granite is broader than its geological use. Commercially other types of igneous and metamorphic rocks are commonly referred to as granites. They include rock such as dolerite, syenite, diorites, gneisses, gabbros and charnockites.

*An overview  
of Jalore  
Granite  
Industry*

*Popular  
varieties of  
Jalore Granite :*  
*Merry Gold*  
*Rosy Pink*  
*Copper Silk*  
*Sindoori Red*  
*Korana Pink*  
*Korana Yellow*  
*Chima Pink*  
*Imperial Pink*  
*Sunrise Gold*  
*Bala Flower*  
*Golden Pearl*  
*Platinum White*  
*Onida Orange*  
*Cherry Brown*  
*Z-Brown*  
*Kolonial Blue*

## **AN OVERVIEW OF JALORE GRANITE INDUSTRY**

Jalore, the landmass created by Lord Ram and evolved and ruled under glorious regimes of Pratihhar, Parmar, Chalukya, Chouhan, Pathan, Mughal and Rathore dynasties, has rapidly been emerging as Granite hub of Rajasthan.

Three decade old Granite industry of this South Western district of the desert state—bounded by Banaskantha (Gujarat), Barmer, Sirohi and Pali districts of Rajasthan, has demonstrated impressive growth invading market worldwide.

A humble beginning 30 years ago has now been grown up in form of cluster of about 400 operational mines, around 650 processing units and more than a dozen of machinery manufacturing units—many of them are even exporting their products.

Superior quality slabs, tiles and blocks in Rosy Pink, Merry Gold, Platinum White and other fascinating colours have gained popularity all over the world including the US, the UK, Russia, China, Turkey and Middle Eastern countries helping the sacred land of Sage Jabali to overcome its backwardness and regain the grandeur of the Golden era of prosperity lived-up by it under Pratihhar King Vatsa Raja in the 8th century.

The deposition of these rocks in Western Rajasthan was preceded by igneous activity, which included a thick pile of lava, mostly of an acidic nature. The plutonic equivalent of these lava are seen in the form of Granite Bosses and Sills in Jalore, Siwana, Mokalsar and Jodhpur areas. Rocks of the above mentioned igneous activity have been designated as Erinpura Granite and Malani igneous suit found in and around Jalore.

The Jalore Granite is considered to be the youngest and toughest. The Granite rocks in this district is of Post Delhi Super Group ageing around 745 million years and belonged to Malani system of rocks. The Siwana and Jalore Granites provide rocks of high fascinating colours ranging from Flesh to Pink and light

colours. Pink and Grey Granites—capable of taking good polish are found in abundance in this district.

The quality of being extra tough made the Jalore Granite more useful with high commercial value, however, this had prevented its mining and processing till 1980, for want of viable technology. Only one mine was being run by the Rajasthan State Mineral Development Corporation.



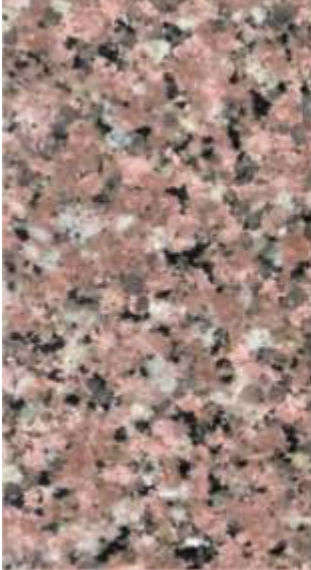
### **Success Story of Jalore Granite Industry**

In 1980s the local entrepreneurs tried Kerosene cutting to make tiles and that had worked. Mr Madanraj Bohra, who pioneered the cutting technology, said "Granite is found in many parts of the world, but the stone found here in Jalore is the toughest, due to high contents of Quartz. This hardness created problem before us in cutting process".

"However, in 1980s I had worked on the idea of using Kerosene cutting technology which was generally used in Glass cutting, to cut Granite tile and that worked", Mr Bohra said.



DEVELOPMENT OF STONES, JAIPUR, INDIA



Mr Rameshraj Bohra of Fateh Granites says "Madanji had cut the first 6" X 4" tile using his Kerosene technology and that marked the beginning of new era in the history of this ancient town, Madanji then invited entrepreneurs to put up industries here".

"In the next 3 to 4 years industries have come up but then the problem of raw material arose as lone RSMDC mine was unable to cater the need of stone quantity-wise as well as variety wise, only two colours were available", he said adding that then efforts for allotment of private mines were made and that had begun in 1984.

latest machineries and technologies have been introduced and around 50 Pokline Machines, Wire Saw, Compressors and other machines and equipments are in use.

A reasonably good number of processing units have also come up in the district for preparing finished and polished products. There are around 600-650 units engaged in processing and finishing of slabs, tiles and other products. Of these, around 400 are small scale units and remaining others are large or medium scale factories. Shree Ram Granites is only 100 per cent export oriented unit.



**JALORE**  
South Western  
District in  
Rajasthan, India

**Operational Mines**  
Over 400

**Processing Units**  
Over 650

"Presently, around 400 mines are operational in an area of 250 Kms around the town", Mr Amit Jain of Ujjwal Granite has informed adding that mines of three types-Border Base, Sheet Base and Under Ground - are functional here.

Of these, notable mining areas are : Nun, Kalkaji, Raniwara, Khambi, Saphara, Bibalsar, Bruti Kawala, Roja-Bhakar, Keshwana, Kola-Ki-Ghati, Kala-Ghati, Taskhana, Dungari Leta-Dhawala, Tavab, Maylawas, Nabi-Bhetala etc., Mr Jain said.

Mining process over the period of three decades have also refined to considerable extent. In 1983-84 the mining was manual, based on traditional blasting, but now-a-days

Processing method which had begun with Kerosene cutting has also showed some changes. However, in view of rising cost of Kerosene and some sporadic incidents of fire due to heat generated in the process, the entrepreneurs gradually shifted to water based Chinese technology. With introduction of multi-cutter machines the process has turned to be more faster and viable. Calibration Machines, Auto Slab Polishers and Line Polishers have also made the process sophisticated.

**Product Profile :** Block, Slabs and Tiles are popular and at high demand. While blocks and slabs are available in random size, tiles are common in 2'X1' size. Calibrated, Leather



**Jalore : the rising hub of Granite industry in Rajasthan**

Finished, Acid Washed, Brush Hammered, Sand Blast, Flamed and Antique finished products are also being marketed.

**Major Players**

Besides Pioneer figure Mr Madanraj Bohra, some major players also contributed to the growth of the industry. Notable among such major industries are : Shree Ram Industries, Fateh Granites, Ujjwal Granites, Mahadev Granites, Rachna Stones, Neha Granites and Nice Granite Exports.

A number of factories are also engaged in manufacturing machines including, Tile, Blocks and Slab Cutters. Prominent among more than a dozen such factories are : Bohra Engineering Company, Deepak Engineering Company, Ashok Engineering Company, Rainbow Engineering Co and Vishwakarma Manufacturers.

Fascinating Granite from Jalore is used in modernisation of Indira Gandhi International Airport, Ahmadabad Airport, many CWG buildings and structures, other major projects, hospitals and hotels.

**Mineral Constituents of various stones commercially marketed as dimensional Granite**

Granite type	Main mineral constituents > 10%
Granite	Microcline (often Perthite), Albite (or oligoclase), quartz
Granodiorite	Andesine, K-feldspar, quartz, hornblende
Nepheline Syenite	Orthoclase, Nepheline
Monzonite	Plagioclase, Orthoclase, Augite
Diorite	Oligoclase and/or Andesine, hornblende
Gabbro	Plagioclase (An 50-An90), Augite, Orthopyroxene, Olivine
Norite	Labradorite and/or bytownite, orthopyroxene, some olivine
Anorthite	Labradorite – 90%
Peridotite	Olivine (foresterite), orthopyroxene
Dunite	Olivine (forstarite – 90%)

**Physico Mechanical Characteristics of Jalore Granite**

Technical Details →	Water Absorption, % by weight	Density, bulk specific gravity	Modulus of rupture, N/mm <sup>2</sup>		Compressive strength N/mm <sup>2</sup>		Abrasion resistance to wear		Flexural strength, N/mm <sup>2</sup>
			Dry	Wet	Dry	Wet	Avg. Wear mm	Maxm. Wear mm	
ASTM/ Indian Standard →	C-97	C-97	C-99		C-170		IS 1237 Guidelines		IS 4860 Guidelines
Variety ↓			Dry	Wet	Dry	Wet	Avg. Wear mm	Maxm. Wear mm	
Bala Flower	0.44	2.61	23	22	203	184	0.6	0.7	20
Chima Pink	0.73	2.62	11	13	140	119	0.6	0.7	13
Copper Silk	0.04	2.63	17	20	148	119	0.7	0.9	19
Golden Pearl	0.07	2.64	13	14	186	152	0.7	0.8	14
Imperial Pink	0.15	2.65	11	15	117	100	0.6	0.7	14
Rosy Pink	0.09	2.62	14	18	125	118	0.6	0.7	16
Royal Touch	0.12	2.63	17	19	123	123	0.5	0.6	18
Sunrise Yellow	0.12	2.62	13	14	142	102	0.8	0.9	12

**Chemical Composition**

Constituent	Percentage	Constituent	Percentage
SiO <sub>2</sub>	65.90	FeO	4.11
Al <sub>2</sub> O <sub>3</sub>	16.33	MgO	1.70
Fe <sub>2</sub> O <sub>3</sub>	1.00	CaO	1.40
Other	7.80		

**As per Jalore Industry veteran Sh. R.C. Bohra-**

Annual Production (Finished) - **Over 70 million sq. ft.**

Annual Mine Production - **3.75 lac Tones**

Annual Turnover - **Over Rs. 400 Crores**

Total Direct Employment in the sector - **Over 20,000 persons**

## CDOS ACTIVITIES

### GLOBAL STONE TECHNOLOGY FORUM

15-16 December 2011, Jaipur



With a view to promote dimensional stone sector in the country and to increase the appreciation of stone as a preferred building material by architects, Centre for Development of Stones (CDOS) has been organizing the **Global Stone Technology Forum (GSTF) – an International Stone Technology Conference**. 4<sup>th</sup> edition of this event is scheduled to be organized during December 15-16, 2011 at Jaipur with FICCI as Co-organizer. The conference would deliberate on issues related to selection, installation, maintenance, preservation and restoration of stones in architecture, besides other issues concerning technology in stone mining and processing.

GSTF is the only international conference in India dedicated to the stone sector which provide an ideal platform for meaningful deliberations and interactions between the **USERS** (Architects, Builders and Engineers) and the **MASTERS** (Quarry owners, Processors, Sculptors, Technology Suppliers etc).

Technology providers, experts, architects and designers are welcome to submit their papers to CDOS for presentation in the Conference. Interested participants may also approach CDOS for registration as delegates.

### CDOS Pavilion at MARMOMACC-2011

Verona, Italy

CDOS is organizing a pavilion at the International Exhibition of Natural Stone, Design and Technologies– **Marmomacc-2011**, scheduled to be held between September 21 and 24, 2011 at Verona, Italy which is known as Mecca of global stone trade.

Marmomacc is considered as one of the most prestigious events in stone sector. During Marmomacc 2010 show, the event attracted over 1,530 exhibitors of which 54% were international exhibitors from 56 countries. The event was spread over an area of 77,000 sq mts.

CDOS has been organizing a pavilion in this mega event since 2009 for its members so as to provide them necessary international exposure. Last two editions were resounding success for CDOS participants.

In Marmomacc 2011, CDOS pavilion in an area measuring 140 sq mts is being planned under the International Cooperation scheme of Ministry of Micro, Small and Medium Enterprises, Government

of India, wherein financial assistance on account of stall rental, decoration, air travel and freight will also be provided to eligible candidates.

### DELHI BUILD-2011

Special Stone Pavilion by CDOS

Rajasthan will be the Focus State at the **Delhi Build-2011** International Exhibition and Conference on Building & Construction Materials, equipment & Allied Industries, being organized by International Trade and Exhibitions Events Pvt. Ltd. (ITEE) during 22-24 September 2011 at Pragati Maidan, New Delhi.

CDOS shall be facilitating participation of its members from dimensional stone industry in the Government of Rajasthan-CDOS Pavilion to be put in an area measuring 400 sq.mts, wherein CDOS members will be eligible for a substantial discount on stall rental. They will also get waiver of registration and administration charges etc.

An exclusive buyer-seller meet for pavilion participants is being planned during the event. Interested entrepreneurs may contact CDOS/ the event organizers directly for space booking.

**International Trade and Exhibitions Events Pvt. Ltd.**

1106-1107, Kailash Building,

26, KG Marg, New Delhi-1100001

Tel: +91-11-40828282, Fax: +91-11-40828283

Email: events@ite-india.com

### ALL INDIA STONE

ARCHITECTURAL AWARDS 2011



CDOS had instituted the All India Stone Architectural Awards (AISAA) in 2009 to recognize and honour architects for usage of Indian dimensional stones in their projects. It is an annual competition held in Jaipur and is awarded to Architects for outstanding projects; the concepts and technical procedures of which correspond to an idea of "Creativity and Excellence" in the use of natural stones from India.

*The Awards are in four categories namely Exterior Facings, Interior Designs, Landscaping and Green Architecture. The Awards include a shield, a citation and a cash award of Rs. 100,000/- in each category.*

AISAA 2011 shall be presented during GSTF 2011 and entries for AISAA 2011 shall accepted till 1<sup>st</sup> November 2011. Entry form and other details can be downloaded from CDOS website : [www.cdos-india.com](http://www.cdos-india.com)

CDOS Activities

Global Stone  
Technology Forum

CDOS Pavilion at  
Marmomacc-2011  
at Verona, Italy

Delhi Build 2011  
Special Stone  
Pavilion by CDOS

AISAA Award-2011

### **Building & Infrastructure Indonesia 2011**

The 16th International Series of Building, Construction and Infrastructure Development Exhibitions

**September 21-24, 2011**

Jakarta International Expo

Deutsche Bank Building, 13th Floor

Jl. Imam Bonjol No. 80 Jakarta 10310 Indonesia

Tel : 62 (0) 21 316 2001, Fax : 62 (0) 21 316 1981

Email : etty@pamerindo.com

### **Delhi Build**

International Exhibition and Conference on Building & Construction Materials, equipment & Allied Industries

**September 22-24, 2011**

Pragati Maidan, New Delhi, India

International Trade and Exhibitions Events Pvt. Ltd.

1106-1107, Kailash Building,

26, KG Marg, New Delhi-1100001

Tel : +91-11-40828282, Fax : +91-11-40828283

Email : events@ite-india.com

### **Marmomacc 2011**

46th International Exhibition of Stone Design and Technology

**September 21-24, 2011**

Verona, Italy, Verona Fiere,

Viale del Lavoro 8, 37100 Verona

Tel : 39-045-8298111, Fax : 39-045-8298288

Email : info@veronafiere.it, marmomacc@veronafiere.it

### **Japan Home and Building Show 2011**

**September 28-30, 2011**

Tokyo Big Sight East Hall,

Tokyo International Exhibition Center

Secretariat of Japan Home & Building Show

C/o Japan Management Association-3-1-22 Shiba-Koen, Minato-ku, Tokyo 105-8522

Tel : 81-3-3434-1988, Fax: 81-3-3434-8076

Email : jhbs@convention.jma.or.jp

### **Stonefair Asia**

4th Stonefair Asia 2011 Exhibition

**September 13-15, 2011**

Karachi Expo Centre,

Ecommerce Gateway Pakistan Pvt. Ltd.,

C-17, KDA Scheme 1, off Karsaz Road,

Karachi-75350, Pakistan

Tel : 111-222-444; 34536321

Fax : (92-21) 34385030; 34536330

Email : info@stonefairasia.com, info@ecgateway.net

### **Baltic Build**

15th International Building and Interiors Exhibition

**September 12-14, 2011**

Exhibition Center Lenexpo

St. Petersburg, Russia Primexpo,

St. Petersburg, Russia Elena Kuptsevich

Tel : 7 812 380 6014, 3806004, Fax : 7 812 380 6001

Email : build@primexpo.ru

### **Saudi Stone Tech 2011**

The 14th International Stone and

Stone Technology Show

**October 16-19, 2011**

Saudi Arabia

Riyadh Exhibitions Company (REC)

P.O. Box 56010 Riyadh 11554 Kingdom of Saudi Arabia

Tel : 966 1 2295604, Fax : 966 1 2295612

Email : esales@recexpo.com, info@recexpo.com

### **NATURAL STONE**

8<sup>th</sup> International Marble, Natural

**October 27-30, 2011**

CNR EXPO Istanbul – Turkey

CNR Ekspo Trade Fairs

Tel : 90 212 465 74 74, Fax : 90 212 465 74 76-77

Email : murat.saroglu@cnr.net,

info@cnrnaturalstoneturkey.com

### **The Big 5 International Building & Construction Show**

**November 21-24, 2011**

Dubai (U.A. E.)

Rosalie Jaliel

Tel. 9714 438 0355

Email : rosaliejaliel@dmgevents.com, bob@dmgdubai.ae

### **Interbuild Egypt 2011**

**September 14-17, 2011**

Arabian Group Egypt

56 Riyadh St., Mohandiseen,

P.O. Box No. 82, Embaba, Giza, 12411, Egypt

Tel. 20-2-3305 0898, 3303 7257, Fax: 20-2-3303 6007

Email : info@agd-exhibitions.net

### **Kamien-Stone 2011**

**November 9-12, 2011**

Pozan International Fair Ltd.

ul. Geogowska 14, 60-734, Poland

Tel : 48-61-8692000, Fax : 48-61-8692954

Email : stone@mtp.pl

## **CAPEXIL'S participation at The Big 5 show and Cevisama**

CAPEXIL is organizing its members' participation at 32<sup>nd</sup> edition of **The Big-5** show scheduled to be held between November 21 and 24, 2011 at Dubai World Trade Centre, Dubai and at CEVISAMA show scheduled to be held between February 7-10, 2012 at Valencia, Spain.

The space will be available to CAPEXIL's members at subsidized rates under MIA Scheme of Ministry of Commerce, Government of India.

For any further information, interested CAPEXIL members may contact CAPEXIL's Head Office at Kolkata at the following address:

Deputy Director,

CAPEXIL, Vanijya Bhavan, 3<sup>rd</sup> Floor,

1/1, Wood Street, Kolkata – 700 016

Tel : +91-33-2289-1721 / 22 / 23

Fax : +91-33-2289-1724, Mobile : 9830455632

E-mail: ddho@capexil.in

## **Calendar of Events**

## **News Section**

**Welcome  
to New  
Governing  
Board Members  
and  
New CDOS  
Members**

## Welcome !!...Congrats !!!

Sixteen members of the stone industry from different parts of the country have been elected to the Governing Board of CDOS for the term 2011-13.

Mr Sharat Kataria, Managing Director, Deejay Neelum Marble Industries Pvt. Ltd., Udaipur has been elected to the post of Vice Chairman, CDOS.

Invaluable experience of the new VC and Governing Board members in the stone sector will help CDOS to initiate more innovative developmental activities for the benefit of dimensional stone sector in the country.

*Welcome and Congratulations to Mr Kataria and all !!!*

The list of trade members elected to the Governing Board is given below :

**Mr. Balwant Singh Aggarwal**

Rajasthan Slates Ltd., Kolkata

**Mr. Hitesh Patel**

Tirupati Impex, Udaipur

**Mr. Jagdish Chandra Jagetia**

Gorbandh Marbles Pvt. Ltd., Udaipur

**Mr. Jugal Kishore Birla**

Meera Marbles Pvt. Ltd., Chittorgarh

**Mr. Kailash Chandra Saini**

Indian Stone Corporation, Sikandra (Dausa)

**Mr. Kailash Choudhary**

Chirag Marbles Pvt. Ltd., Rajsamand

**Mr. Kamal Kishore Khetan**

Khetan Tiles Pvt. Ltd., Jaipur

**Mr. Mahendra Mandawat**

Mahaveer Marble & Stone Industries  
Udaipur

**Mr. Manish Poddar**

Poddar Industrial Consultants, New Delhi

**Mr. Mohan Bohra**

Arpit Publications, Udaipur

**Mr. Narendra Kumar Modi**

Fine Marble & Minerals Pvt. Ltd., Jaipur

**Mr. Rakesh Kumar Gupta**

Nice Granites Pvt. Ltd., Madurai

**Mr. Sharat Kataria**

Deejay Neelum Marble Industries Pvt. Ltd.  
Udaipur

**Mr. Suresh Gehlot**

Suresh Sand Stones, Jodhpur

**Mr. Vijay Godha**

Chandra Marbles, Udaipur

**Mr. Virendra Kumar Gupta**

Deepak Stones, Jaipur

## CDOS Welcomes New Members (April - June, 2011)

### Life Members

**P.R.P. Exports**

S.F. No. 261 & etc., Therkkutheru Village, Melur Taluk,  
Madurai-625 122, Tamil Nadu  
Phone : +91-452-2420345, Fax : +91-452-2420350  
Email : info@prpexports.com  
Website : www.prpexports.com

**Mahatma Marbles & Granites Pvt. Ltd.**

N.H.8, Amberi, Udaipur-313 001, Rajasthan  
Phone : +91-294-2461425, Fax : +91-294-2462425  
Email : jagdish63@yahoo.com

**Chandna Marbles Pvt. Ltd.**

Ganeshpura, Ghatiyali, Teh. Kekri,  
Dist. Ajmer-305407, Rajasthan  
Mobile : +91-9829793578  
Email : neerajjain@chandnagroup.com  
Website : www.chandnagroup.com

**Ashoka Marbles**

176, Bhupalpura Road No. P, Opp. St. Paul's School,  
Udaipur-313 001, Rajasthan  
Phone : +91-294-2440829, Fax : +91-294-2440829  
Email : info@ashokamarbles.in  
Website : www.ashokamarbles.in

**Dhanlaxmi Marmo & Tiles Pvt. Ltd.**

2-E, Shiv Park Colony, Durga Nursery Road,  
Udaipur-313 001, Rajasthan  
Phone : +91-294-2414012  
Email : chiragbagrecha@yahoo.com  
Website : www.dhanalaxmimarmo.com

**Kiran Marbles Pvt. Ltd.**

Ratandeep, Rana Raj Singh Colony, Bhilwara Road  
Kankroli, Rajsamand-313 324  
Phone : +91-2952-274282, Fax : +91-2952-274282  
Website : www.kiranmarblespvtltd.com

With above new additions, the total membership of CDOS stands at 458.

Published by



**Centre for  
Development  
of Stones**

(An autonomous  
organisation promoted by  
Government of Rajasthan  
& RIICO)  
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Area, (Phase IV), Sitapura,  
Jaipur-302022  
Ph.: 5122609, 5185054/55  
Fax : +91-141-5122610  
Email : info@cdos-india.com  
www.cdos-india.com  
www.stonesofindia.org