
Golden Gujarat
GMDC
Fueling the Growth

GMDC CORPORATE HOUSE, AHMEDABAD

at a glance

NIGHT ILLUMINATION AT LIGNITE MINES. PANANDHRO

Gujarat Mineral Development Corporation Limited, (GMDC) was established in the year 1963, with the mandate to develop major mineral resources in the State of Gujarat. The Company commenced its operations, with a small sand crushing plant at Suraj Deval which supplied graded sand to consumers all over the State. The sand was used by glass and chemical industries.

corporate history

1963 → → → → → → → → 2010

The next project, set up by GMDC, in the year 1968 was mining and beneficiation of Fluorspar, a rare mineral essential for basic industries, like refining of steel manufacturing of Aluminum, Hydrofloric Acid, Foundry Flux and Welding Electrodes among others.

By early 70's, the Industrialisation of Gujarat took off at a rapid pace, particularly in the chemical and textile industries, which required massive quantities of solid fuel to sustain the growth. GMDC, therefore commenced mining of Lignite in Kutch district. Availability of Lignite as an efficient and cheaper substitute for coal provided the impetus for industrial growth of Gujarat. The production of Lignite, demand driven, continued to increase and reached a level of 5 million tonnes by the year 1997-98.

Meanwhile, based on further exploration in other parts of Gujarat, more deposits of Lignite were identified in Bharuch district. GMDC started mining operations at Rajpardi near Ankleshwar in 1984, and has been supplying lignite to majority of the textile industries from this mine.

Though lignite dominates the current activities of the Corporation, GMDC continues to pursue its path of expansion based on mineral resources, particularly in the field of Lignite based power generation, as well as continues to look into the development of other minor and major mineral resources in the State of Gujarat.

LIGNITE SUPPLIED TO POWER PLANT THROUGH RECLAIMER




geo riches of gujarat

man & minerals

Minerals are gift of Nature and exist in raw earth form. They are materials that have nurtured the growth of civilization from pre-historic times. Since the beginning of civilization, Man has used stones, ceramics and later metals from the earth surface to make tools, utensils and weapons. Mineral development is a fascinating chronicle and parallels the history of civilization.

Today, minerals as elements are vital inputs for manufacturing an array of value added products meeting diverse needs of Man and have contributed significantly to creation of Wealth.

Processing of minerals apparently began from the Stone Age when Man learnt to make implements to meet his farming and construction needs from flint, a kind of very hard stone. Mining as an enduring economic activity perhaps began with an unknown miner breaking a rock. For him it provided a clue to fire setting, but for the mankind as a whole it turned out to be the first technological breakthrough in mineral prospecting.

Extraction of minerals however was much sweat and hard labour until the onset of Machine Age in the wake of industrial revolution in the 18th century. The two together triggered many cutting edge technologies for mineral prospecting from the most valuable to the most common, from the atypical to the ordinary.

Egypt, Greece, Mesopotamia, China and India were the places known as early mineral civilizations in view of their knowledge about existence of minerals and their success in extracting them to meet their diverse needs.

The story of civilization thus in large part, is a story of Man's inexorable quest for mineral sand and rocks, for food and protection. In importance, mining was next only to agriculture since ancient times and is now come to be recognized as a basic industry.

In India, mining activity dates back to Indus Valley Civilisation and archeological excavations have revealed that people were acquainted with metals like Copper, Bronze, and Lead.

The Rig Veda, the ancient Holy Scripture also mentions the uses of Copper, Bronze, Gold and Silver. Similarly in the Mauryan period, Arthasastra, a treatise on economics compiled by Kautilya gives a comprehensive account of the properties of ores of minerals and metals along with methods of their large scale production.

LIGINITE MINES, RAJPARDI

LIGINITE MINES, TADKESHWAR

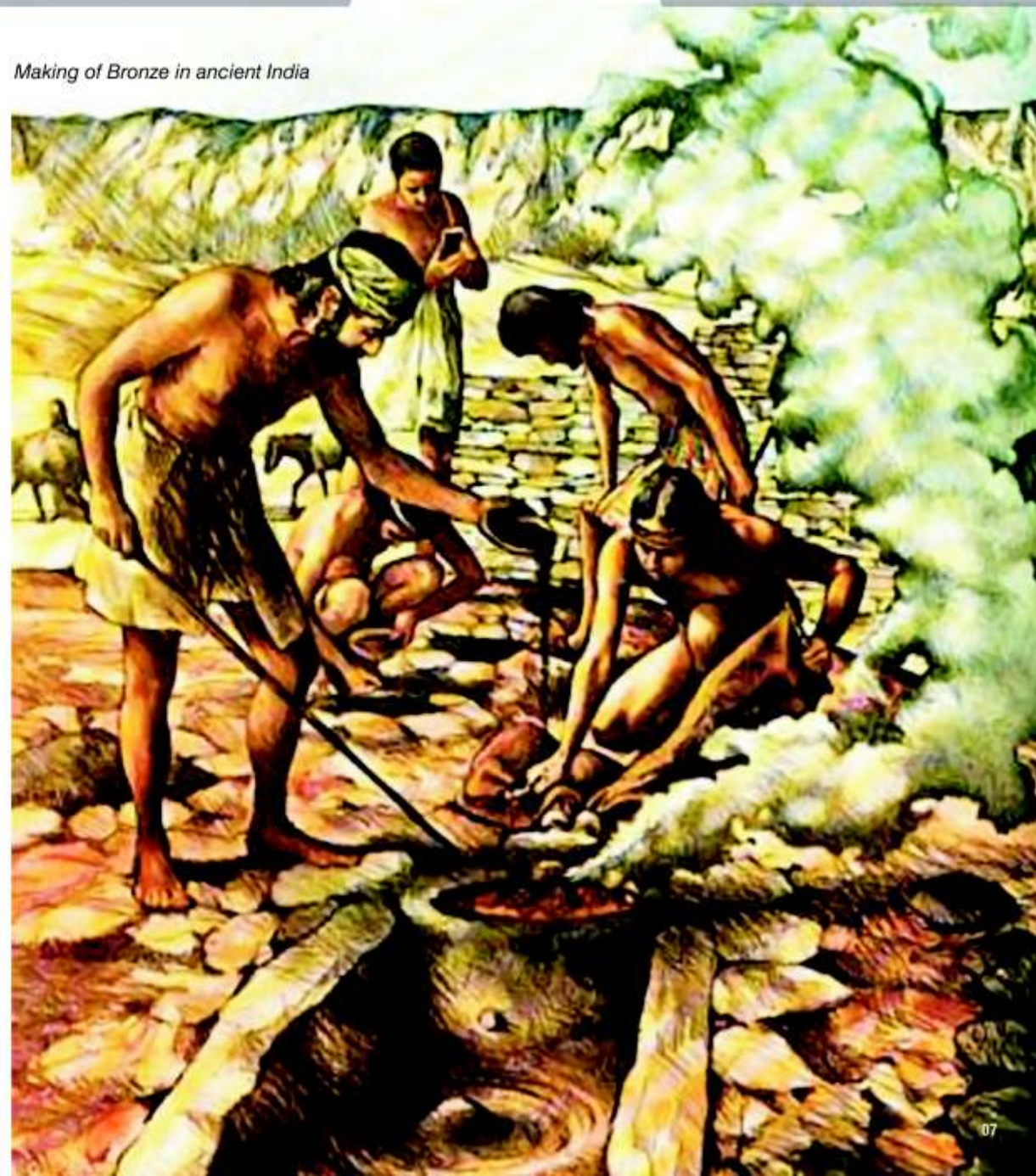
LIGINITE MINES, BHAVNAGAR

Mining and smelting of Copper, in particular, has been practiced in India for more than two millennia as witnessed by the remnants of old mines in parts of India. The hillock at Kumbharia, near Ambaji in Gujarat is believed to have been formed from the waste slag generated while extracting Copper in the 11th century AD.

Vedic Harappan civilization also records that long coastline from Gujarat to Sindh and Baluchistan was used for a thriving sea trade with the Gulf States and Africa, selling marine, minerals and forest resources to distant markets. Gujarat therefore was very a much part of evolution of India as an early mineral civilization. Its mining history dates back to the Harappan period. Today the state is a leading producer and exporter of range of minerals

Archeological evidences reveal that Gujarat is home to varied mineral-bearing rocks, from Pre-Cambrian rocks to oil and natural gas bearing tertiary and quaternary rocks. With such diverse mineral resources Gujarat has earned the distinction of being a geological museum of Nature.

Making of Bronze in ancient India




LIGNITE
POWER PLANT
(250 MW)
Chher
LIGNITE
Panandhro
LIGNITE
Matano Madh
BAUXITE
Gadhsisha
BASE METAL
Ambaji, Banaskantha
MANGANESE
MANGANESE
Shivrajpur
BAUXITE
BAUXITE
Jamnagar
FLUORSPAR
Kadipani, Vadodara
FLUORSPAR
LIGNITE
Bhavnagar
LIGNITE
Rajpardi, Bharuch
LIGNITE
Tadkeshwar
GYPSUM
BASE METAL
DOLOMITE





minerals in gujarat

Endowed with a basket of minerals, it is natural that Gujarat would boast of a well diversified manufacturing industry.

It is home to about 6562 mineral-based industries. It is a leader in soda ash manufacture and one of the biggest suppliers of cement. Of the state's 430 large mines, over 105 mines extract limestone, the critical ingredient for cement making. Mining of minerals have generated jobs especially in underdeveloped and backward areas.

The state is a treasure house of minerals that are directly or indirectly basic raw materials for many industries. It has 18 minerals with limestone at the top of the list followed by Bauxite, Lignite, Dolomite, Silica sand, Base Metal, Chalk, China Clay, Fluorspar, Fire clay, Granite, Manganese, Marble, Wallostonite, Quartz, Bentonite, Coal and Gypsum.

Indeed, Gujarat minerals pervade lives of millions in India everyday. The salt in food, the chalk for blackboards in classrooms, Soda Ash a mineral compound in soaps and detergents, Bauxite for Aluminium utensils, Quartz in watches, Limestone in Cement for homes and buildings Silica sand in those beautiful floor tiles and glass-wares, Polymers in plastic wares, Fluorspar for steel and Bentonite used in making paper, rubber, linoleum, drugs, and sewage water treatment all come from Gujarat.

The value of mineral production of the state is around Rs 7,000 crores. Gujarat ranks third in the mineral production in India. The mineral sector accounts for 12.4 per cent of the total sales by industries in the State and 9 per cent of India's value of mineral production.

The state is the sole producer of minerals like Agate, Chalk and Perlite. It ranks number one in the production of Fluorspar and Silica Sand, second in Bauxite, Lignite, Fire Clay, third in Quartz and fourth in Limestone and China clay. In all, Gujarat produces 11 metallic, 52 non-metallic and 21 minor minerals.

The state's geographical area is 196,024 sq. Kms of which 1,27,000 sq Kms area has mineral potential. Of this 60,867 sq. Kms area has been covered under geological survey.

In the four years ended 2009-10, GMDC mined a total of 35 Million Metric Tonnes from its mines in Panandhro, Mata-no-Madh in Kutch district, Thordi, Malpar and Rampar in Bhavnagar district, Rajpardi in Bharuch district and Tadkeshwar in Surat district. In addition to the Lignite leases spread over 8,491 Hectares in all these areas, GMDC is proposed to mine 1 Million Metric Tonnes per annum in Umarsar and 1 Million Metric Tonnes per annum in Lakhpat, 1.50 Million Metric Tonnes per annum in Damlai-Padal area in Bharuch district and another 1.50 Million Metric Tonnes per annum in Ghala area of Surat. The total lease area in all four places is 7954 hectares of land and the total mineable reserves in these areas are estimated at 120 Million Metric Tonnes.

Gujarat has earmarked mineral exploration reserves of 18 important minerals. This has made Gujarat one of the favoured destinations for the investments in mineral-based industries. The state offers ample opportunities to establish mineral oriented industries like Bauxite based Alumina plants Speciality Aluminum Chemicals, Brown Fused Alumina, Refractory and Castables Marble and Granite based cutting, polishing units besides silica-based glass making factories and underground Lignite gasification based on deep seated Lignite.

LIGNITE MINING IN PROGRESS




mineral riches of gujarat

the portfolio

A look at Gujarat's Mineral Portfolio makes it clear why the state is investors' delight

- Hydrocarbon minerals like Petroleum and Natural gas
- Non-hydrocarbon energy minerals like Lignite
- Metallic Minerals like Bauxite and Base Metal (Pb, Cu, Zn), Manganese
- Non-Metallic minerals like Limestone, Marble and Granite.

Kutch and Saurashtra are the areas rich in minerals like Limestone, Bauxite, Lignite, Silica sand, Chalk, China clay, Fire clay and Gypsum. In districts of Vadodara and Bharuch in Central Gujarat, minerals like Fluorspar and Dolomite are found. Surat and Bharuch districts have a Lignite resource along with Silica sand base. Districts of Banaskantha, Mehsana Panchmahal and Sabarkantha are important Granite clay and Marble resources Manganese is found in Panchmahal district. Manganese is another ore which GMDC deals in. The corporation has commenced recovery of Manganese ore from its waste dumps in Shivrajpur of Panchmahal district. The dump contains Pyrolusite, Psilomelan and Braunite which constitute the main Manganese ore. The ore has 14 to 16% Manganese content. Gujarat has 2.5 Million Metric Tonnes of Manganese ore reserves in the tribal-dominated Panchmahals district. The neighbouring Dahod district also has reserves of it. In 2009-10, GMDC sold 87,621 Metric Tonnes of Manganese dump.

mining highlights

Gujarat has:

- 38 major and 21 minor mineral deposits
- 9 per cent of India's value of mineral production
- Sole producer of Chalk, Perlite and Agate
- Second in operating number of mines in country

Gujarat with its abundant mineral reserves:

- Offers both – a resource and a market for the mining industry
- Offers most minerals on surface is accredited with availability of good roads and port facilities and a reliable communication industry


BEST CFBC TECHNOLOGY

origins of gmdc

Mining industry took roots in Gujarat in 1963 three years after the state became a full-fledged state of the Indian union after being carved out of erstwhile Mumbai Presidency.

Gujarat Mineral Development Corporation Limited, (GMDC) was born on May 15, 1963 with the mandate to develop major mineral resources in the State of Gujarat with an authorized capital of Rs. 50,00,000.

The role envisioned for GMDC was three fold:

- Tapping major mineral resources and developing mineral-based industrial products.
- Carrying out mining operations of important minerals
- Handling modernisation of mining products.

BAUXITE SPREAD

The Corporation, which is now a listed company, could acquire mines; enter into beneficiation and mineral dressing activities, set up concentration and refining plants. The GMDC was also authorized to acquire by lease, transfer or any grants or concessions of any mineral field, mines, mineral and mineral contracts.

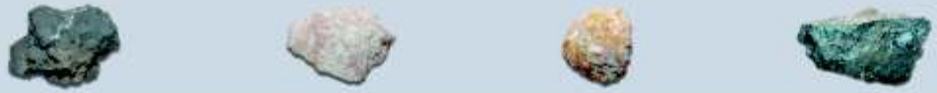
In June 1963, the company explored the prospects of mining Fluorspar in Ambadungar region in Vadodara district and sought a report on its possibility from the Geological Survey of India. The Company commenced its operations, with a small sand crushing plant at Suraj-Deval which supplied graded sand to industrial consumers all over the State

In August the Company examined the possibility of mining and processing Silica sand. It became the Corporation's first mineral to be mined and processed.

The Government of Gujarat allotted 77 acres of land for the purpose in Vavdi village in Surendranagar district. In November a crushing and screening plant for processing sand was established on 16,000 square-yards near Suraj-Deval railway station near Surendranagar.

Thus in 1968, the GMDC moved forward, setting up a project for the beneficiation of Fluorspar.

1968. BEGINNING OF FLUORSPAR BENEFICIATION AT KADIPANI



growth paradigms rewritten by gmdc

The first major mining venture was in 1968 when it took up a project for the mining and benefaction of Fluorspar.

But GMDC's real growth saga picked up accelerated momentum in the early seventies with Lignite mining becoming the core business of the corporation following the discovery of Lignite deposits by GSI and Geology and Mining Department of the State.

Lignite belongs to the coal family. A fossil fuel of early Eocene age (37-58 million years), it is widely known as “Brown Coal”, because of its brown colour. It is a brittle and a light-weight. It is formed when vegetable matter decays and turns into “Peat” or rotten wood. It transforms further into Lignite under soil pressure from the earth's surface.

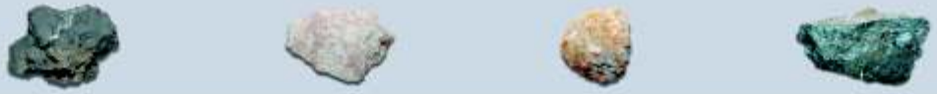
Lignite contains 65-70% of carbon, 20-25% of oxygen, about 5% of hydrogen and small amounts of nitrogen and sulphur. The amount of heat given out by burning of Lignite is not high as that of pure coal. But it has the quality of burning freely and completely with low ash content. It also has the advantage of being burnt in the pulverized for use in high capacity steam boilers.

The occurrence of Lignite opened a whole new avenue for industrial development for Gujarat. The reserves were projected at about 2675 million tonnes of which, the ecologically fragile Kutch region has Lignite deposits of about 210 million tonnes occurring chiefly at Panandhro, Akrimota, Umarsar, Mata-no-Madh-Lefri and Lakhpat - Dhedhadi in Lakhpat Taluka in Kutch.

GMDC commenced commercial production of Lignite in 1974. It's first Lignite mine at Panandhro in Kutch district was spread over 1719 hectares. Lignite mining proved fortuitous for GMDC. Around that time Gujarat's industrialisation was taking off at a rapid pace. Textile and Chemical industries prospered and they needed coal for fueling their growth. But industrial consumers faced two problems in getting the coal. First, the coal was in short supply and Second wagons were not always available to move it from the far-off eastern coal mines.

For GMDC the hardship faced by these industries in procuring coal provided an opportunity to expand its business horizon. The corporation believed that Lignite which was locally available could be an alternative fuel for industries.

But as user industries still preferred coal to Lignite as fuel, GMDC made painstaking efforts to convince the textile industry that Lignite blended with Coal is an effective fuel feed stock.



It then distributed Lignite free of cost to a few core industries like textiles to try it out as fuel. Its persistence paid off. By the eighties textile mills saw merit in cutting manufacturing costs by using Lignite and effected a switch to it. Brown coal had triumphed over black coal. Overnight Lignite mining became GMDC's main business and the corporation became the largest merchant seller of Lignite in the Country.

GMDC undertook substantial expansion of Lignite mining in 1988, 89 and 90. From the initial one mine, the corporation added three more mines to produce 9 million metric tonnes of brown coal.

Around this time, Lignite had been successfully harnessed for power generation down South. This far reaching development encouraged the GMDC too to make a foray into power generation using its own Lignite as the fuel.

GMDC now became synonymous with Power, Fuels and Minerals. Its debut in power generation has significantly helped Gujarat to be a state comfortable in power availability.

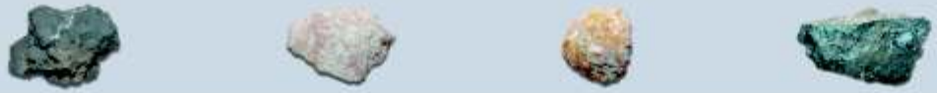
GMDC has set up two Lignite based power plants (250 MW) at Nani Chher Kutch district. It also supplies Lignite to Gujarat State Electricity Company Ltd. to fuel its power generating units at Panandhro in Kutch. It also sells Lignite for industrial units which have set up captive power plants.

Based on the success of Akri Mota, Lignite based power plants, Gujarat proposes to establish three more lignite based power stations of 250 MW each in Kutch and Surat and 500 MW Bhavnagar. GMDC has reserved Panandhro Lignite deposits and is planning for Lignite deposits at Akri Mota for power generation only.

The corporation's thrust on power generation reflects value addition to minerals. When new projects on hand is completed, GMDC's liquid assets would register a quantum jump, providing tremendous investment flexibility to the organisation paving the way for any diversification and take up backward and forward integration projects in future.

Lignite mining and diversification into power generation have made GMDC a strong business enterprise and one of the Navratna's of Gujarat. Shareholders of the corporation, after it became a widely held company are already reaping handsome returns on their investment. Apart from paying dividend consistently, the GMDC has also rewarded shareholders with an issue of bonus shares.

CONTRIBUTION TO ENERGY GENERATION



emerging avenues

After 45 years in the mining business, GMDC has set it's sight on prospecting coal in Africa in partnership with the private sector. GMDC's proposed African safari is aimed at acquiring coal mining blocks in Mozambique. A success here would elevate GMDC as one of global mining companies, a first by any state level public sector enterprise to do so.

Furthermore, the myriad of projects the GMDC is envisioning for the future have the inherent potential to turn the dwarf of yesterday into a giant of tomorrow, earning name and fame as the most precious jewel in the crown of Gujarat's public enterprises by the turn of 2020.

GMDC is now poised to enter a new era of dramatic growth with the new mineral policy of Government of Gujarat re-defining GMDC's role as a "catalyst and a propeller" of mineral industries in Gujarat through strategic partnership with private sector parties particularly in Bauxite and Manganese instead of just being a mining and trading entity.

The role-change proposed for GMDC opens a vast new vista of industrial growth in the underdeveloped regions making the corporation the prime mover in promoting mineral based industrial growth in the state.

The pre-dominant role assisgned to GMDC in respect of Limestone, Lignite, Bauxite and Manganese is expected to accrue to the corporation an economic benefit of Rs 10,055 crores, making it a top notch multi billion rupee mining enterprise with a large mineral portfolio.

GMDC will also do the role of a registrar of Limestone leases granted for trading purposes. Further the state has reserved the entire Bauxite reserves for GMDC which would be the sole supplier to Bauxite users. And the supply is linked to higher value addition. It would also be the facilitating and channelising agency for Bauxite sale and export.

Drawing on the spread effects of the new mineral policy GMDC has evolved a corporate strategy of diversification, value addition and extra territorial reach for mineral development as its three corner stones to ring in an exciting future for itself.

As a first step, GMDC would enhance lignite production by 30 percent over its present mining capacity of nine million tonnes a year. The mining is proposed to be done in Umarsar, Lakhpat-Dhedhadi areas in Kutch, Damai-Padal in Bharuch and Ghala in Surat. Its other projects include mining of 1,50,000 tonnes of Fluorspar ore at Ambadungar mines in Kadipani,

2,00,000 tonnes of Lead, Zinc and Copper ore at Ambaji and 11,00,000 tonnes of Bauxite to be mined in Jamnagar and Kutch areas.

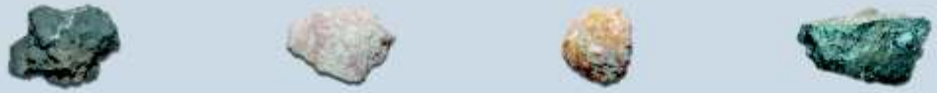
Gujarat has also deep seated Lignite reserves. As these could not be exploited with traditional mining technology, GMDC has planned for an under ground Coal gasification project in collaboration with Reliance Industries Limited and ONGC. The project proposes to employ innovative gasification technology. Tapping these reserves would provide energy security to Gujarat.

At the dawn of the new millennium, GMDC was producing 5.7 million tonnes of minerals and by the end of the first decade (2010) it is estimated to cross 10 million tonnes. In the last three years alone the mining capacity has increased from 9.3 million tonnes to 13.65 million tonnes per annum.

Though it is a late entrant in the power sector, GMDC has made remarkable progress. From a mere 176 million units produced in 2005-06, the corporation is now close to piercing the 2,000 million unit mark soon.

For GMDC, Kutch has been a double benefactor. If it has facilitated Lignite mining from under the earth, its high velocity winds all the around the year has provided another opportunity for the corporation to generate electrical energy from them. GMDC has already harnessed winds to generate nearly 20 MW of electricity and shall increase the capacity to 100MW in phases. This non-conventional project would entitle GMDC to secure Carbon Credits under the Kyoto Protocol.

AMBAJI MINES



venturing new horizons

GMDC is also venturing beyond the state borders as the globalised economic environment has thrown up big opportunities for Indian mining companies.

GMDC has been allocated two coal blocks by Government of India, viz., Naini in Orissa and Morga II in Chattisgarh. Coal mined from these blocks will be supplied to the power projects, who in turn will supply the entire power generated to the state entity GUVNL. Morga II block is spread over 21 sq. km. has coal reserves of 350 million metric tonnes and Naini block with 250 million tonnes of coal reserves is spread over 10 sq. km. area.

GMDC's proposed African safari is aimed at acquiring coal mining blocks in Mozambique in Africa.

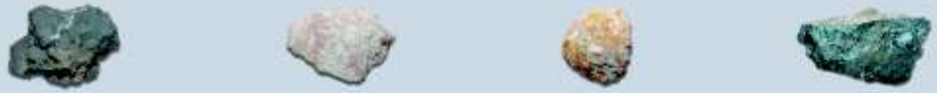
GMDC proposes to establish value add-on projects such as Electro Manganese Dioxide, Ferro Alloys, Brown fused Alumina, specialty Aluminum Chemical, Zeolite, Fluorspar beneficiation, Silica sand beneficiation. With Limestone in large quantities as its overburden, GMDC is planning a joint venture in cement with port connectivity and in mineral based SEZ areas such as Kutch and Bhavnagar.

The Corporation has also initialed Memorandum of Understanding worth Rs 8,733 crores for setting up Cement, Fluorspar beneficiation, Silica sand beneficiation, Coke oven plant, Coal washery, and the string of beneficiation products. GMDC thus holds for its shareholders and stake holders the high promise of being the shining star of Gujarat industrial horizon by 2020 and a world class mining enterprise employing latest technologies.

GMDC indeed in quantitative and qualitative way has come a long way from its debut venture of crushing Silica sand before dispatching it to industrial units manufacturing Sodium Silicate and Glass.

SPREADING THE WINGS


We care for
Ecology
no less than
Geology



eco-friendly gmdc

eco-sensitive & responsible mining

Mineral prospecting has been a part of human culture for ages. But minerals are found where nature placed them and not where they are needed. It is this critical factor that gives rise to problems stemming from Man's efforts to preserving what lies above the earth and extract what lies hidden in the earth's bowel for growth and development.

Excavating or scooping a mineral from underneath the earth does disturb land, air and water systems in the operational area and neighbourhood of a mine. The mined metals and minerals could find their way into the environment to become pollutants. There is also the danger of the dust and noise pollution.


PLANTATIONS ON BACKFIELD AREA

The challenge for a company engaged in mineral prospecting is to harness mineral resources with the least possible environmental disruption. GMDC conscious of its status as a public sector undertaking has sought to strike a balance between mining and environmental concerns with its pro-active strategy of Environmentally Sensitive Mining.

In pursuance of this strategy GMDC has implemented an array of protective measures including sensitive treatment of the land during exploration and executing reclamation practices aimed at restoring the land besides focussing on improving water quality and building emotional links with people residing in the operational area through effective community relations.

The results have been rewarding:

The massive aforestation at the mines with reclamation of the mined out areas has given birth to new green lands. The Corporation has planted almost over 7,00,000 saplings over 812 hectares of land at its different projects. The survival rate is found to be more than 90%.

- The near original contour has been achieved and large number of fruit trees has grown over it, particularly at Panandhro mine in Kutch.
- Dust has been suppressed by installing large water sprinklers on mines haul roads.
- Water scrubbers and multi-cyclone system have controlled Air Pollution in stacks at Fluorspar project at Kadipani.
- Effluent treatment plant has been commissioned to control Water Pollution.

- GMDC has subjected itself to regular environment audit by an external agency. An environment cell within the orgnisation plan executes monitors and controls environment protection measures from corporate level to unit level. An in-house team visits all the working projects once every month to conduct surveys for air and water.

Social Measures undertaken by the GMDC as part of Community Relations include:

- Evolving an ideal rehabilitation programme, Enhancement of community and infrastructure and Development of existential support systems while implementing projects.
- Special emphasis on water management through construction of check dams, bore wells and water storage tanks besides building drinking water sources for humans and animals, and enabling irrigation in drought prone areas,
- Combating salinity ingress through water resource empowerment.
- Motivating communities to conserve water through rain and dew water harvesting.
- Generating rural employment opportunities by transforming arid lands to green fields through irrigation.
- Constructing pucca roads, bus stops, walls and structures, Panchayat houses, Community halls, Anganwadis, Community bathing houses, Sports centres, Hostels for weaker sections etc.
- Promoting health care by organising regular diagnostic camps.
- Construction of school, colleges and giving donation to the hospitals
- Helping people at the time of natural calamities like droughts, floods, earthquakes etc. within and outside the State

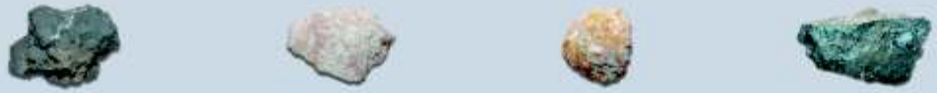
Mines safety :

GMDC's avowed goal is to achieve a zero accident rate.

The corporation is fully committed to practicing all safety norms. Modern protective appliances (Safety shoes, helmet, respirator etc.) are issued. Workmen Inspectors are appointed for effective implementation of safety rules & regulations. Each mine has safety & training Dept. headed by qualified engineers.

Regular Safety Committee meetings are held at all the mines under the Chairmanship of Mines Manager. The meetings review the status of implementation of safety norms and provide a safe & healthy working environment. Annual safety week is observed under the guidance of DGMS (Director General of Mines Safety).

In addition, regular seminars on safety are held. Engineers and workers are sent for specific training to various mines of India & educational Institutes. To create a consciousness & to implement the safety rules & regulations a Tripartite Meeting is held every year represented by the management / Director General of Mines safety / Contractors engaged with GMDC.



embracing technologies

Mining is a source of mineral commodities that all countries find essential for maintaining and improving their standards of living. Mined materials are needed to construct roads and hospitals, to build automobiles and houses, to generate electricity and do a lot more.

The mining industry generates employment and produces a trained workforce and small businesses that serves communities. Mining also yields foreign exchange by the way of export. It fosters a number of associated activities, such as manufacturing of mining equipments, the development of universities in the fields of geology, mining engineering, and metallurgy. The economic opportunities and wealth generated by mining are substantial.

The development of mining technology therefore plays an important role in the mining industry. Mining companies worldwide are adopting and implementing innovative technologies to create a better environment quality in mining industry areas, reduce negative impact to human health and environment, reduce water and air pollution, and land degradation.

The GMDC too is technology conscious and has upgraded or introduced new technologies whenever opportunities presented themselves.

When it began mining lignite, three decades ago, it depended on a combination of shovel, dumper and bull dozer which together were the key tools in the conventional technique of mining. But soon GMDC brought in one of the world's best known mining technology in this field Bucket Wheel Excavator of TAKRAF (Germany). The technology is best known for entailing minimal damage to the environment and the reserves during extraction.


THE METAMORPHOSYS - FROM MINES TO POWER PLANT

In the late 80s however, GMDC, faced with the twin challenges of rising demand for lignite for power generation and staying competitive in the fuel market, took to modernising mining techniques both in realm of mining and in power generation.

In mining, the corporation switched over from manual operations to modern environment friendly machinery like, Bucket Wheel Excavator technique for mining of Lignite. Later, it went to the next level and employed Excavators to dig out the Lignite.

In power generation, GMDC took the pioneering step of deploying Circulating Fluidized Boiler Technology (CFB), for its power generation plant in place of the conventional technology of burning pulverized Lignite.

Though costlier, CFB technology has proved to be more efficient and has helped in mitigating air pollution due to oxides of Sulphur and Nitrogen.

CFB technology is an advanced method for utilizing coal and other solid fuels in an environmentally acceptable manner. The low combustion temperature allows Sulphur Dioxide to be captured through limestone injection, minimizing at the same time emissions due to oxides of Nitrogen.

Additionally, the technology permits the use of a wide range of Lignite as well as Petroleum Coke and blends of Lignite and Coke, increasing the overall boiler efficiency and reducing operating costs. The fuel and limestone particles are recycled yet again into the process, resulting in higher efficiency for burning the fuel and transferring the fuel's heat energy into high-quality steam to produce extra power.


TURBINE IN OPERATION

GMDC's Technical Edge

Mining is a multifaceted business. In this age of global technology, global trade and nature of competition are changing at faster rate than ever and hence fast and accurate information is the key for success

GMDC is on the threshold of becoming a global industry in true sense. To attain that status the corporation needs to increase its operational efficiency and competitiveness several times over. Definite and timely information management is a must in today's current environment where business measurement and co-ordination is changing rapidly. This calls for a complete integration of computer techniques and human resources.

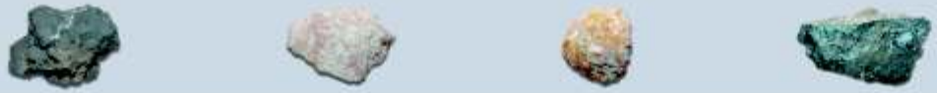
GMDC has therefore taken a strategic decision to employ the Enterprise Resource Planning system (ERP) to ensure that the corporation performs as a unified structure taking the organization towards a common goal of dynamic performance. The ERP system helps to accomplish this task by integrating the information systems, enabling smooth and seamless flow of information across departmental barriers, automating business process and function and thus helping the organisation to work and move forward as a single entity.

Thus ERP system able to improve efficiency of an enterprise drastically and achieve operational excellence with increased transparency at ever level. ERP implementation has both direct and indirect benefits. Direct benefits are reduction in lead time, greater transparency and fast data transfer, reduction in cycle time, increased worker efficiency etc to name a few.

ERP system could help GMDC track trends, monitor production, and solidify Partnerships and thus prosper in today's faster-paced world. GMDC is the first mining company in Asia to take recourse to implementation of ERP system.

As a part of e-governance, Commissionerate of Geology and Mining of Government of Gujarat took initiatives for implementation of e-royalty payment system. GMDC has been the first to introduce e-royalty payment in the State and the country. Presently, it is been implemented at all the projects of GMDC including Lignite, Bauxite and Fluorspar.

GMDC has also taken initiative to secure ISO certificate.



initiating inclusive growth

As a mining company in such a remote area as Kutchch, GMDC has come to be looked upon as the only local institution capable of generating lasting benefits for local populace with its activities based on sustainable development principles.

The lives of people in Kutchch region have improved by responsible mining activity of the GMDC. It has made sustainable contributions to the population through social, health, education and environmental policies and thus avoided any threat to the fragile ecological balance in the area. GMDC's activities have led to:

- Construction of five Schools, Colleges
- Construction of a health centre
- Establishment of two school lunch programmes benefitting children
- Donation of medical supplies, educational material, clothing, house wares, miscellaneous items (shipment of 2,600 boxes)
- Donation of agricultural equipment and irrigation systems
- Provision of access to electricity in villages.
- Installation and repair of fresh water wells
- Provision of financial and moral support to flood victims in Burkina Faso and Niger
- Provision of support and guidance in the establishment of shear butter soap manufacturing project.
- Check Dams and Roads.

HARVESTING WATER IN KUTCH


GMDC RAJPARDI
AMBULANCE
TATA

In pursuance of its corporate social responsibility, GMDC has invested substantial sums in creating social infrastructure in areas surrounding existing mines and power plant like construction of roads, implementing water conservation schemes and launching education and community health programmes. In the area of health GMDC is offering state of the art Tele-Medicine services in collaboration with Apollo Hospitals at Nani Chher and Panandhro in Kutch district.

A feature of GMDC's growth saga is that it had prospered in spite of downswings in the business, especially after November 2008 global financial crisis. Expect the Unexpected is the classic message behind GMDC's saga of growth.

BHUNGA (TRADITIONAL HOME) OF KUTCH

MATA-NO-MADH MINE

GMDC 250 MW POWER PLANT, CHHER

GMDC

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