

Chapter - 24

Rajasthan : Mining and Industry

Minerals

The present era may be appropriately called 'fossil fuel era' or 'Atomic era'. From the economic point of view, sufficient availability of minerals and quality present the base for the industrial development of an area.

Minerals are such naturally occurring substances that are present below the surface of the earth. The process by which we exploit these minerals from below the surface, is known as mining. Minerals are found in mixed forms with other elements in nature. Such mixtures are called 'ores' as haematite and magnetite are the iron-ores. Aluminum is obtained from the bauxite ore.

More than 3000 kinds of minerals are present on the earth. Minerals, having an extract of metals in original form, are called metallic minerals. The minerals having no extract of metals are called non-metallic minerals. Minerals which provide energy, are called Energy minerals. The detailed description of minerals has been given in the previous chapters.

Rajasthan : A Museum of Minerals

Rajasthan is a prosperous state in terms of minerals. Due to the availability of various minerals in Rajasthan, it is known as the 'museum of minerals'. Approximately 67 minerals (44 main and 23 minor) are mined in Rajasthan. Rajasthan has a contribution of 22 % in the total minerals production

of the country. In terms of mineral wealth, Rajasthan stands at the second place after Jharkhand. From the view point of mineral production, Rajasthan ranks at the third place after Jharkhand and Madhya Pradesh. In terms of minerals, the Aravali Mountains and the south eastern plateau region are prosperous in the state. Due to the discovery in the past few decades, ample energy resources such as petroleum and natural gas have been found in the western part of the state.

The regional distribution of minerals in Rajasthan is not centralized in a particular natural region but it is scattered. The state has a monopoly in the production of such minerals as Wollastonite, Jasper, Zinc, Fluorite, Gypsum, Marble, Asbestos, Soapstone, Rock phosphate etc.

Distribution of Minerals in Rajasthan

The distribution of major minerals in Rajasthan is as follows

(A) Metallic Minerals

From these minerals, base metals are separated from the ores by chemical process. The major metallic minerals of Rajasthan are described as follows:-

(i) Copper : It is the most important among non ferrous metals. It is mined in Rajasthan since ancient times. It is mostly found in the veins of the igneous and metamorphic rocks. The copper is

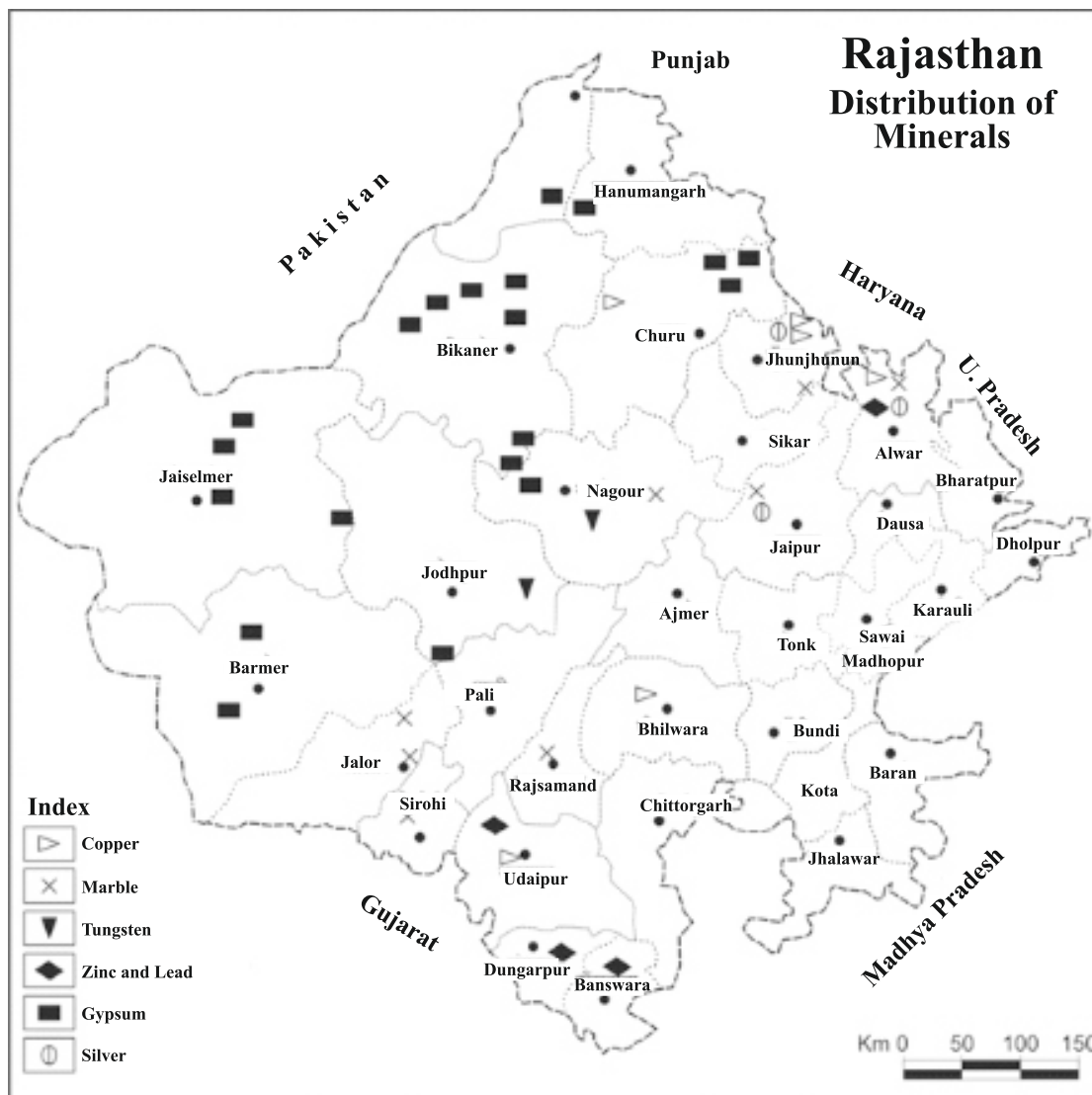
malleable and ductile and good conductor of electricity. Rajasthan is on second place in country in the production of copper. In 1985, the production of raw copper was 14.36 lakh tonnes, which increased to 98.05 lakh tonnes in 2012-13. The Copper smelting plant in the state is Hindustan Copper Limited in Khetri.

Copper mines are found in many place in Rajasthan, but Khetri- Singhana in Jhunjhunu district, 'Neem ka Thana' in Jaipur, Kho-Dariba mines in Alwar district are impotant. The other important mines of copper are Pur-Agucha and Gulabpura (Bhilwara), Debari, Salumber, Rail

Magara (Udaipur) and Bidasar (Churu).

Copper is important in terms of usage, because it is used in electrical equipments wire and chemical industries. There are estimated reserves of more than 13 million tonnes of copper in Rajasthan. In the survey conducted by scientists of the Geological Survey Department, there are indication of hundreds of tonnes of stock in many parts of the state. There is the huge reserve of copper in the “Banno Baalo ki Dhani” of Sikar.

(ii) Lead-Zinc : This is extracted from mixed ore galena. Apart from this Calamine, Zincite Willemite are main ores. Rajasthan has monopoly in



Map 24.1 : Rajasthan - Distribution of Minerals

its production. In Rajasthan, the deposits of lead zinc are found in the archaean and protozoic era rocks.

Jawar in Udaipur, Rajpura-Dariba in Rajasamand and Rampura-Agucha, Gulabpura in Bhilwara are the major areas in Bhilwara. Other main areas are Chouth ka Barbara in Sawaimadhpour and Gudda- Kishoridas in Alwar. Most of the production occurs in the Jawar area. The factory of Hindustan Zinc Limited is set up in the private sector at Debari, 10Km away from Udaipur. In 2005 largest ever in Asia super zinc smelter plant has been set up at Chanderia of Chittorgarh with help of Britain. Both plants are in the private sectors under the Vedanta group. By refining zinc, super phosphate and cadmium are obtained as a byproduct. In 1965, the production of lead zinc was 17480 tonnes, which increased to 86.32 lakh tonnes in 2012-13. 89.2 % of the total stored reserves in the country are in Rajasthan. This metal is mainly used for making gun powder for Army, ship building and bronze etc.

(iii) Tungsten : Tungsten is obtained from Wolframite ore. It is mainly found with granite and pegmatite rocks. It is heavy, rigid and has high melting point. It is a highly strategic important mineral. It is used in making electric bulbs, strengthening steel, metal cutting tools and making arms of strategic importance. In addition to it is used in X-ray, Radio and Television equipments and dyeing and printing industries.

The main deposits of Tungsten are found in Rewat and Bhakri of Degana of Nagaur district and Balda area of Sirohi district in Rajasthan. Mining work in Balda area of Sirohi district is done by Tungsten Development Department of Rajasthan state.

In addition to this, deposits of Tungsten are found in Amartiya of Dungarpur district, Kun of Udaipur district, Barathia in Pali district and Ladera-Sukun area of Ajmer district. The state produces 75 % of total Tungsten of the country. Presently, the imported tungsten is cheap, due to this its mining

operation has been stopped in the state.

(iv) Silver : The production of silver is in the form of mixed metal with lead and zinc. Silver is also a valuable white, light metal like gold. It has the



Fig. 24.1 : Non-metallic Mining in Rajasthan

properties of tensile strength and can be beaten and drawn into wires. It is a good conductor of electricity. The silver producing areas in Rajasthan are the Jawar mines of lead-zinc near Udaipur and the hills of Jawar Mala. Silver is extracted from the mixture of lead-zinc at the Hindustan zinc smelter. 80.8 % of the country's silver reserves are in Rajasthan. The production of silver in 2009-10 was 47682 Kgs.

(B) Non-metallic Minerals

The basic minerals are not separated from their ores by chemical process. They are utilized in their natural form. Here, we shall study marble and gypsum in detail.

(i) Marble : Stones have been significant in human life since ancient times. Different kinds of building and decorative stones are used to-day in building construction industry. Amongst them, marble is an important stone. Rajasthan has monopoly in the production of marble. The marble of Makrana in Rajasthan is world famous. The Agra Fort, Taj Mahal and Victoria Palace are built with the marble of Makrana.

Different kinds with varying coloured marble



Fig. 24.2 : Marble Mining

stones are found in the state. Green marble in Udaipur, Black in Bhaislana, Pink in Jalore and Banswara, Yellow in Jaisalmer, White in Markrana and rainbow coloured marble is found in Pali . There is a reserve of 1100 million tonnes of good quality marble in Rajasthan. The major marble-producing areas are Makrana (Nagaur), Rajsamand, Udaipur, Kishangarh (Ajmer). There are marble-mines in Dholpur, Alwar, Jaipur, Kota, Sirohi, Banswara also. The total production in the year 2012-13 in Rajasthan was 13876.89 thousand tonnes. Udaipur, Rajsamand, Kishangarh are its major centers in the state. From here, this stone is sent to different states and abroad.

(ii) Gypsum : In India the maximum quantity of gypsum is found in Rajasthan. It is a layered mineral. It is mined at four major areas in Rajasthan:-



Fig. 24.3 : Gypsum mining in Rajasthan

1. Nagaur Belt-Goth-Manglod, Bhadwasi, Mangol
2. Churu-Bikaner Belt-Jamsar, Lunkaransar, Taranagar
3. Jaisalmer-Barmer Belt-Mohangarh, Hamirwali.
4. Pali - Jodhpur Belt-Falsund, Manglod.

The production of gypsum in the year 2012-13 was 27.18 lac tonnes. There are great possibilities for the development of this mineral in state. The maximum use of this mineral is in making fertilizer. Besides this, it is also used in making plaster of Paris, cement, paint, acid, ammonium sulphate etc.

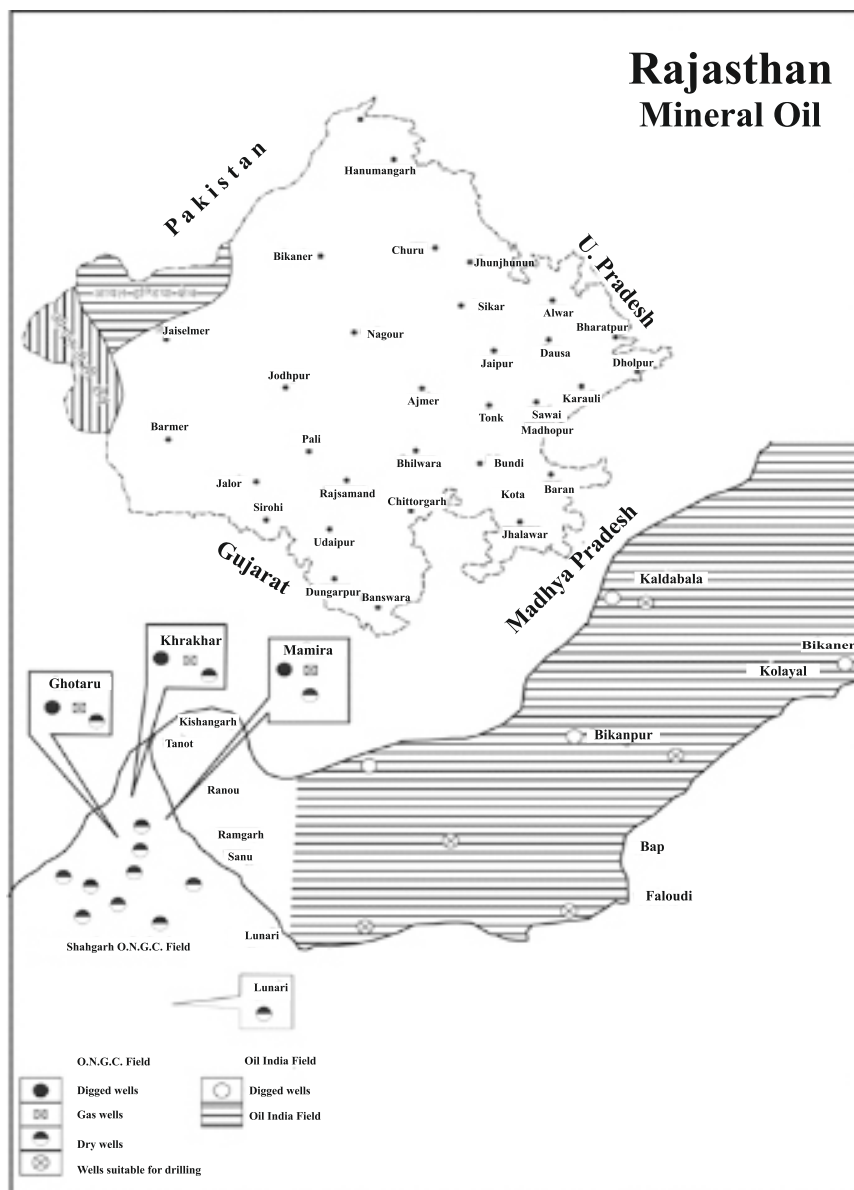
(C) Fuel Minerals :

Coal, Petroleum and natural gas are included in it.

(i) Petroleum : Petroleum is the second important source of energy after Coal. Petroleum is used in means of transport and production of energy. The presence of petroleum is possible only in sedimentary rocks. Mineral oil is a mixture of hydro-carbon compounds. Petroleum was formed due to organisms living in sea being pressed between the sedimentary rocks in the geological age.

In Rajasthan, sedimentary rocks are found in Bikaner, Jaisalmer, and western Jodhpur. The reserves of petroleum are found in these rocks. The Gudamalani area of Barmer district is a major area of mineral oil reserve. Large reserves have been found in Barmer-Sanchor basin the Cairn Energy India Limited of Britain has got the permission of mining the oil in 'Nagar' village and Mamiyo ki Dhani of Gudamalani tehsil. This oil-well has been named 'Rageshwari.' 31 wells have been drilled including the 'Mangla' well in the Barmer-Sanchore Basin. Tanot, Ghotaru, Dandewala, Sadewala, Manihari Tibba and Longewala are the major areas of mineral oil in Jaisalmer. Its reserves have also been found in Mayajlar area of western Jodhpur.

The Rajasthan State Petroleum Corporation Limited has been constituted for the investigation,



Map 24.2 : Rajasthan - Mineral Oil

production, refining, distribution and transportation of petroleum in the state. There are high possibilities for increase in the production of mineral oil in the state.

Conservation of Minerals

Minerals are being exploited in an uncontrolled and unplanned manner in Rajasthan, This has resulted in the beginning of their end. Minerals are natural assets and they have come into existence by the procedure of long process of lacs of years. Hence, conservation of minerals is very

essential. For the conservation of minerals, there is a need for giving a second thought to the definition of development. To which limit, should the minerals be exploited at the cost of forest destruction, soil erosion, environmental pollution, land degradation and the end of biological diversity, is a point to be considered.

Industry

Presently, industry is an indicator of the comprehensive development and living standard of any area or region. The availability of natural

resources, sources of energy, human resources, level of technical development and means of modern transport and communication are the basic elements of modern industrialization.

In spite of vast area and being rich in natural resources, there has not been sufficient development of industries in Rajasthan.

At the time of independence, there were negligible number of big modern industries in Rajasthan. At the time of integration of Rajasthan, there were only eleven large industries and 207 registered small factories. After independence, the central and state Govt. started making efforts for the industrial development of the state in the Five year plans.

Presently, 36 district industrial centers and 7 sub centres are in operation for the industrial development in the state. By means of these centres, guidance, assistance and facilities for establishing industries are provided at one place to the industrialists in the state. For the industrial development, the special economic zone (SEZ) bill was passed in 2015 and the state govt. gave the slogan "Make in Rajasthan". The government has started several schemes for the development of industries.

Industrial policies were formed in 1978, 1990 and 1998 by the state govt. for the industrial development. Stress was laid on the development of industrial areas and parks. Various financial institutions such as Rajasthan Finance Commission, Rajasthan Industry and Mineral Development Corporation, Rajasthan Non-agro development authority, etc. were established. A detailed description of the cotton textile and cement industry of Rajasthan is as follows :-

Cotton Textile Industry

It is one of the oldest industries of the world. In the ancient times, there was a vast market for India's hand woven and hand knitted cotton clothes. The malmal of Dhaka, the print of Muslipatnam, the

calico of Calicut and the cotton textiles bearing the golden zari works of Surat and Baroda, were world famous for their quality and designs.

Cotton textile is the traditional and ancient industry of Rajasthan. It is the major manufacturing industry providing employment to the rural population. The first cotton textile mill in Rajasthan 'The Krishna Mills Limited', Beawer was established in 1889 in the private sector by Seth Damodar Das Vyas. The second mill by the name of Edward Mills Limited was established in 1906 and the third mill by the name of Shri Mahalaxmi Mills Limited in 1925 was established in Beawer itself. Before Independence, Mewar textile mills in Bhilwara in 1938, Maharaja Ummed Singh Mills Limited in Pali in 1942 and Sardhul Textile Limited were established in Ganganagar in 1946. The Maharaja Ummed Mill is the largest cotton textile mill of Rajasthan. After independence, cotton textile mills were established in Kishangarh, Bijaynagar, Gulabpura, Jaipur, Bhawanimandi, Kota, Udaipur, Bhilwara, Banswara due to the encouragement by the government and availability of other basic facilities. From the viewpoint of textile production, Bhilwara is called the 'Manchester of Rajasthan and Textile city.' The major cotton textile mills of Rajasthan are as follows- Rajasthan Spinning and Weaving Mill, Gulabpura (Bhilwara), Sardul Textile Limited, Sriganganagar. Krishna Mill Limited, Beawer, Shri Mahalaxmi Mill, Beawer, Edward Mill, Beawer, Aditya Mill Limited Kishangarh (Ajmer), Mewar Textile Mill, Bhilwara, Maharaja Ummed Mill, Pali, Rajasthan Textile Mill, Bhawanimandi. Rajasthan Co-operative mill, Gulabpura, Bijaynagar Cotton Mill, Bijaynagar (Ajmer), Banswara Sintex, Banswara, Mayoora Mill Limited, Banswara, Rajasthan Spinning and Weaving Mill Rishabdev etc.

Presently, the majority of modern cotton textile mills have been established with the assistance of Rajasthan state industrial development and investment commission limited. There were 5

cotton textile mills in 1951 in the state, producing around 30 lac metres of cloth. Presently, there are 28 mills, which produce 482.07 lac metres of cloth.

In Rajasthan, in spite of constant rise in the production of cotton textiles and development, certain problems are a barrier in its progress, which are as follows-supply of raw material, arid-climate, lack of energy, old and small-sized machines, lack of capital, unskilled labour, etc.

The maximum part of the manufactured cloth in the state is used to meet the local demand. The cloth is also exported to north-eastern states as Nepal, Bangladesh and African countries.

Cement Industry

Cement is a basic infrastructural industry and it is used in the making of buildings, bridges, roads, Railway concrete sleepers etc. Due to the development of Portland cement in the modern age, the pace of construction works has increased. In the state, cement factories are established mainly near the availability areas of raw material (limestone and gypsum). Normally, 1.5 tonnes limestone, 1.2 tonnes coal, and 0.3 tonnes gypsum is used in making 1 Ton of cement. 3 tonnes of raw material makes 1 ton of cement.



Fig. 24.2 : Cement Industry

Rajasthan stands second after Andhra Pradesh in the country in term of cement production. There are 2.5 billion tonnes reserve of limestone in the state. From the viewpoint of localisation of this industry, the most favourable conditions are

available in the districts of Chittorgarh and Sawai Madhopur. The early localisation of the cement industry in the state has been in eastern and south-eastern districts Bundi, Sawai Madhopur, Kota, Chittorgarh and Udaipur, in the places having the availability of limestone. In the past few years, this industry has also been localised in south-western districts specially Sirohi, Jodhpur, Nagaur, Pali and Jaisalmer. Due to the availability of canal water in the western district of Rajasthan and the energy generated by the alternative sources of energy, there has been a rapid localization of this industry.

Development of Cement Industry

The first cement factory in Rajasthan was established in 1915 by A.C.C. Company at Lakheri (Bundi). Presently, according to the year 2012, 19 big, 4 medium and 104 small factories (production capacity 38.8 million tonnes) are established for cement manufacturing in the state.

There are large and medium major cement producing plants at Chittorgarh, Dabok (Udaipur), Chanderiya, Nimbhahera (Chittorgarh) Modak (Kota), Beawer (Ajmer), Kota, Raas (Pali), Pindawara, (Sirohi), Gotan (Nagaur), Khariya Khangar (Jodhpur). J.K. white cement factory is at Gotan (Nagaur) and Birla white cement factory is in Khariya Khangar (Bhopalgarh-Jodhpur).

In comparison to large and medium cement factories, more number of small factories are being set up in the state. Its reasons are as follows- (1) Low cost (2) Use of limestone reserve spread in the state (3) Less consumption of electricity.

Problems in the rapid development of cement industry in Rajasthan are - old production techniques, lack of coal, lack of broad gauge, irregular supply of electricity and insufficient demand, etc.

There are unlimited possibilities for the development of this industry. The production of cement in Rajasthan can be increased by adopting modern production methods. Presently, major

cement companies like Shree, Birla, Grasim, Ambuja, ACC, Bangur, Binani, Laxmi and wonder cement are working in Rajasthan.

Rural Development in Rajasthan

According to census 2011, 75.2 % of the population of the state resides in villages. Rajasthan is a state of villages. Before the arrival of the Britishers, the villages of the state were economically self dependent. The Britishers destroyed the structure of employment in the state. After independence many schemes were implemented to remove the poverty and backwardness of rural Rajasthan. A separate Rural Development Ministry was set up for rural development. Several schemes of rural development were made for poverty alleviations, economic and infrastructural development, equal distribution of income, removal of social disparities and for employment generation.

After independence, community development programme in the first five year plan and in 1959, Panchayati Raj system was adopted for the rural participation in development. Several programmes were implemented by the central and state govt. for the rural development in Rajasthan.

Rural Rajasthan got a impetuous in its development by programmes such as Desert Development Programme (DDP), Jeevandhara Yojna, Integrated Rural Development Programme, Development of Women and Children in Rural Areas (DWCRA), Training of Rural Youth for Self Employment (TRYSEM), Drought Prone Programmes, Anganbari, Centers for educating rural children, Indian Cow Breed Improvement Programme, Operation Flood, Green Revolution, Sheep Breed Improvement Programme, Bhamashah Yojna, Pradhan Mantri Sadak Yojna, Swarna Jayanti Gram Swarajgar Yojna (SGSK), Swajal Dhara Gram Peyjal Yojna, Rural Sanitation Programme, Pradhan Mantri Gramoday Yojna, Rural Water Supply Programme, Annapurana Yojna etc. For the

overall development of the country, the development of rural areas is very essential. Presently, the name of Rural Development Department is Rural Development and Panchayati Raj Department. Here we shall study some industries helpful in rural development.

Dairy Industry

Dairy farming, is the most widespread industry in India at both the small and large scales. Production of milk has a large-scale contribution in the economy of our state. It is an environment conducive industry, which never pollutes the environment. It can be easily started with a small capital at a small scale at family level. The Dairy department was established in 1973 to provide impetus to the dairy development programme in Rajasthan. Presently, the Rajasthan Co-operative Dairy Federation Limited has been established for this purpose.

The Dairy Development programme in Rajasthan is implemented through co-operative societies. Under this programme, till December 2012, 12631 primary milk producing co-operative societies were affiliated with the apex institute at the state level, The Co-operative Dairy Federation Limited, Jaipur. R.C.D.F. was established in 1973. In the financial year 2012-13 till dec-2012, all the milk federations affiliated to R.C.D.F. collected 18.01. Lac kilo milk per day.

Nutrition rich animal feed is being provided by this federation. Value based products like ghee, butter, paneer, milk powder, curd, ice-cream, etc. are also being produced by the dairy federation.

The work of producing milk and making mava, paneer, ghee from milk is done at Pokaran, Phalodi, Jodhpur, Raniwada, Bajju, Lunkaransar, Suratgarh, Alwar, Jaipur, Ajmer, Falna, Bhilwara, Udaipur etc. In villages the work of collecting milk is being done by the co-operative societies. By means of Co-operative societies, the dairy industry is providing employment to many people in the villages. In 1970,

along with the other states of the country, operation Flood was started in Rajasthan. The Rajasthan State Co-operative Marketing Federation Limited (RAJFED) has established an animal feed factory at Jhotwara, Jaipur which provides superior quality animal feed to the animals. The dairy industry is growing at rapid pace due to large number of animals in the state.

Effort for Dairy Development in Rajasthan

The white revolution was also started in 1970 in the state, in which several programmes for animal wealth promotion and dairy development were undertaken. The dairy development got expected speed. Rajasthan state milk corporation is responsible for the execution of the entire programme of animal promotion and milk production at the rural, district and state level. Rajasthan state milk co-operative federation is the apex organisation at the state level for co-ordination and mutual help.

Future Plans for Dairy Development in Rajasthan

Cow Rearing :

Animal rearing has an important role in the economy of Rajasthan. Due to limited possibilities of agricultural activities in the desert region, animal-husbandry has been the basis of livelihood since the time immemorial.

The recent 19th animal census was organised from 15th September to 15th October, 2012. According to the census 2012, the total livestock in the state was 577.32 Lac. The livestock density here is 169 per sq. km. Presently, the no. of animals per thousand of population has become 842. The 20th animal census will be organized in 2017. In comparison to 121.19 lac in 2007, the number of cows increased to 133.24 lac in the year 2012 in Rajasthan. There has been a rise of 9.94 % in these 5 yrs. The highest number of cows in the state is in Udaipur and Chittorgarh respectively and lowest is in Dholpur. But in the desert districts of Barmer,



Fig. 24.5 : Rearing of local breed cows in Rajasthan



Fig. 24.6 : Rearing of local breed cows in western Rajasthan

Nagaur, Bikaner, Sriganganagar, Churu and Hanumangarh, cow rearing is an important occupation. Lack of other means of livelihood, availability of pastures in rainy season, nutrition rich Sewan grass, experience of traditional occupation, transhumance and presently the water of the Indira Gandhi Canal project are the assisting elements for cow-rearing in this area. 8 % of the total cows of India are found in Rajasthan. The regional distribution of the major breeds of cows in Rajasthan is as follows:-

(i) Gir - The cows of this breed are found in Ajmer, Bhilwara, Pali and Chittorgarh districts. It is known as Gir in Gujarat and Renda and Ajmeri in Rajasthan. This Indian breed of cows are famous for milk (production).

(ii) Tharparkar - The origin of this breed of

cows is the Malani region of Jaisalmer. They give sufficient quantity of milk even in arid conditions. The maximum number of cows of this breed is found in Jaisalmer, Barmer, Jodhpur, Bikaner and Jalore.

(iii) Nagauri - The original place this breed of cows is the Suhalak region of Nagaur district. The Nagauri bulls are fast runners, strong and can carry lot of weight. This breed of cow is found mainly in Nagaur, north-eastern part of Jodhpur and Nokha (Bikaner).

(iv) Rathi - It is a mixed breed of Lal Sindhi and Sahiwal breed. Due to high milk giving quantity, it is called the 'Kamdhenu' of Rajasthan. It is reared in Bikaner, Sriganganagar, Jaisalmer and some parts of Churu.

(v) Kankrej - The native place of these cows is the Rann of Kutchh in Gujarat. They are famous for loading capacity and milk production. They are reared in Barmer, Sanchore, Nehar area (Jalore) and some parts of Jodhpur.

(vi) Hariyanvi - These are also famous for load carrying capacity and milk production. These cows are reared in Sikar, Jhunjhunu, Sriganganagar, Hanumangarh, Alwar and Bharatpur.

(vii) Malwi - The origin of this breed is the Malwa region of Madhya Pradesh. It is mainly a loading breed. Its main areas in Rajasthan are Jhalawar, Baran, Kota and Chittorgarh districts of Rajasthan.

(viii) Sanchori - This breed is found in Sanchore of Jalore district, Sirohi and Udaipur districts in large number but have average yield of milk.

(ix) Mewati (Kothi) - This breed is appropriate for ploughing and load carrying. It is found more in Alwar and Bharatpur districts.

(x) Foreign Breed - Presently, the foreign breed cows like Jersey, Holstein and Red Den yielding more milk are also reared in Rajasthan.

Efforts for Promotion of Cows in Rajasthan

Efforts have been made for planned development in the central and state plans for the conservation and promotion of cow wealth in all the areas of Rajasthan. Efforts have been made for promotion of cows by means of desi cow Breeding Improvement programme, Gopal Programme, Kamdhenu Yojna, establishment of central and state cow breeding farms, the schemes of giving aid to self supporting organizations for cow keeping houses (Gaushala).

Producing good breed by artificial insemination, establishment of cattle feed production units, necessary medical arrangement, modernization of Gaushalas, distribution of advanced breed of calves, subsidy for promotion of cow-rearing, arrangement for the production and distribution of dairy products, organization of animal fairs, etc. are the major programmes of cow resource development. Presently, due to the mechanization in the agricultural sector and popularity of buffaloes milk over cow milk, the cows are in danger. The cow wealth can be promoted by making useful and health promoting products with the milk, dung and leather obtained from the cows.

Cottage Industry

Cottage industry is the combined name of those industries under which, skilled labourers make things with their own hands using less capital and more skill. Cottage industries are those, which are run wholly or partially by the members of the same family.

On the basis of availability of raw-material, the cottage industries can be divided into the following parts- (i) Agro-based industry (ii) Mineral-based industry (iii) live stock based industry (iv) Industry based on forest produce.

There are many such cottage industries which can be skillfully developed or have been developing in the rural areas. These industries are as follows :-

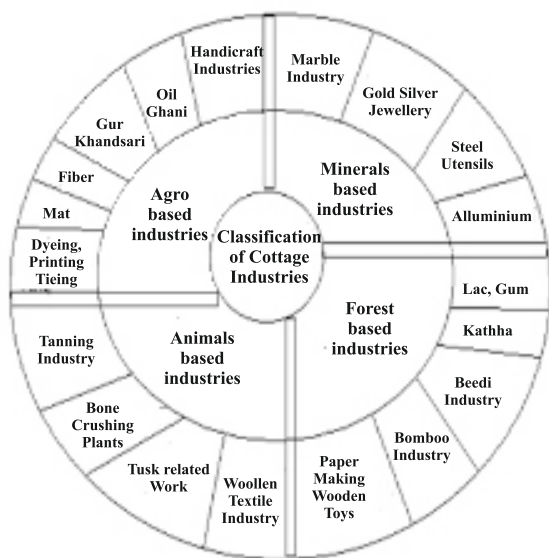


Diagram 24.1 : Classification of Cottage Industries

(i) Agricultural Related and Agricultural Subsidiaries :

Making various types of Chutneys, Murabba, making pickles and pulses making rice from grain, Crushing of wheat and other food grains, Preparation of gur-sugar and khandsari, Different types of tobacco making, Operating milk producing centres, Poultry and honey bee rearing.

(ii) Textile Industry : Extracting cotton seeds, making Cotton yarn, knitting of clothes, Silk worm rearing, Removing wool from the sheep and goats, Cutting of wool, Making blankets, Carpets etc. Printing of clothes, Making embroidery, etc.

(iii) Wood Industry : Cutting of wood, Making furniture, Making toys and other artistic things, colouring them and making small tools.

(iv) Metal industry : Getting pure metal by melting raw metals, Making knives, Scissors, Bronze utensils, Copper utensils and Wires.

(v) Clay Works : Pottery, Making of bricks and Khaprel, Making china clay utensils etc.

(vi) Leather Crafts : Removing the leather from dead animals, Preparing it, Dyeing of leather, making shoes, Bags and other things, Making combs from Horns, Making manure from bones etc.

(vii) Other works : Making bangles and other things from 'Lac', Making soaps, Colours and Varnish etc.

A brief description of the some important cottage industries of the state is as follows :-

- Oil and Vanaspati ghee industry has been developing in Jaipur, Bharatpur, Sawai Madhopur, Ganganagar, Kota, Bundi and Ajmer districts due to the large production of oilseeds in these districts. The works of making oil through Ghani and machines is done in the form of cottage and small scale industries. The Engine Brand mustard oil, Bharatpur and Veer Baalak brand oil of Jaipur are famous brands. Jaipur, Niwai, Bhilwara and Chittorgarh are the famous centers of Vanaspati ghee. Chana, Moong, Urad, Chanwle etc. pulses related industry are found in different areas of Rajasthan. The small scale industries for making pulses and, Flour are in all districts.
- The Bandhini, printing and dyeing industry of the state is famous in the entire country. The work of temporary-permanent coloring and printing with organic and chemical colours using wood-blocks is done in Barmer, Balotara Bagru, Sanganer, Akola, Sawai Madhopur, Nathdwara, Pali, Pipaad and Udaipur. The Ajrakh print of Barmer and Jajam print of Chittorgarh are famous. Bhandhej work is done more in Jodhpur and Lehnga-chunni work is done in Jaipur.
- Khadi industry is the traditional industry of the state. In the state, it is wholly or partially being done in the districts of Jaipur, Jodhpur, Dausa, Bhatarpur, Kota etc. The Khadi Gramodhyog Board is involved in work to promote the Khadi industry in the state. Besides these, other agro based cottage industries as Gota industry (Ajmer, Jaipur), Bakery (Jaipur, Udaipur, Kota, Alwar), Dal (Pulses)

(Ganganagar, Hanumangarh) Spices (Alwar), etc. are the major industries.

- Leather industry, Woolen industry, Milk industry, Bone powder industry are the major animal based industries in the state. Woolen thread making mills are in Bikaner, Churu, Ladnu and Kota in the state. Amongst woolen Khadi, the 'Bardi' of Jaisalmer, the woolen blankets of Bikaner, and the 'Khes' of Chaumu are famous. Many consumer goods are made with the leather obtained from dead animals. The work of making 'Mojdi' and 'Jutiya' of leather is done in Nagaur, Sirohi, Bhinmal, Tonk, Jodhpur and Jaipur.
- Amongst forest produce based industries, Bidi industry (Tonk, Bhilwara, Ajmer, Beawar), Match stick industry (Ajmer, Alwar), Bamboo industry (Jaipur, Ajmer), Kathha, Gum and Lac industry (Ghosunda, Sanganer) are important.
- Amongst mineral based industries, more than 9,000 registered small industrial units are in operation in the state. Under it, Marble, Granite tiles making and Polishing, Bricks manufacture, 'Gitti' making from stone, Cement net making, Sanitary wares, Tiles industry, Diamond and Gems cutting and Polishing, Soapstone etc. are included. The work of making marble toys and statues is done in Jaipur, Sirohi, Jaisalmer, Makrana, Kishangarh, Ajmer, Rajsamand, etc.

Table 24.1 : Handicraft Industry

S.No.	Handicraft Industry	Famous Place
1.	Doriya or Mansuria sarees	Kota
2.	Khesla, Tukadi	Balotra, Falna
3.	Bhandhej Sarees	Jodhpur
4.	Chunriya or Lahriya	Jaipur
5.	Earthen Sculptures	Molela village of Rajsamand
6.	Marble Sculptures	Jaipur
7.	Wooden Toys	Udaipur, Swaimadhopur
8.	Fad painting	Shahpura
9.	Puppets	Udaipur

The state government is promoting the development of cottage industries in its budget by making special clusters (Zones).

The Handloom industry is in a prosperous stage in Rajasthan. Certain regions are famous for the textile production of specific kind by handloom industry. The weavers do this work in many areas of Rajasthan. Woollen shawls, Doriya sarees, Kota, Khes, Carpets, Nivar etc. are made through handloom. Since freedom movement, the Khadi and Gramodhyog are occupying an important place.

Artificial silk (tasar) is being developed in the districts of Kota, Udaipur, Banswara. For this purpose, 'Arjun' trees are being planted in these districts. On these trees and the trees of mulberry, the silk worm is reared.

IMPORTANT POINTS

1. Minerals are those naturally available substances, which have a fixed internal and chemical composition.
2. Due to the availability of various minerals in Rajasthan, it is called the 'Museum of Minerals.'
3. The plant for copper smelting, the Hindustan Copper Limited is in Khetri.
4. Lead-zinc are found as mixed alloy in Galena.
5. The major reserves of tungsten in Rajasthan are found in Degana and Bhakri of Nagaur district and Balda area of Sirohi.
6. The marble of Makarna in Rajasthan is world famous. The Taj Mahal and Victoria palace have been built with the marble of Makrana.
7. The maximum use of gypsum is in making fertilizer.
8. The presence of petroleum is possible only in sedimentary rocks.
9. In spite of vast area and richness in natural resources, there has not been sufficient development of industries in Rajasthan.

10. The maximum cement plants in the state have been established near the availability of raw-material.
 11. Presently, Shree, Birla, Grasim, Ambuja, ACC, Bangur, Binani, Laxmi and Wonder cement are the major cement companies in Rajasthan.
 12. Various programmes have been made for poverty alleviation, economic and structural development, equal distribution of income, removing social disparities and employment generation.
 13. Total milk production has contributed largely in the economy of our state.
 14. Many people of villages are getting employment in the Dairy industry by means of co-operative committees.
 15. The number of cows in Rajasthan has increased from 121.19 lac in the year 2007 to 133.24 lac in the year 2012.
 16. There are also such cottage industries which are being skillfully developed in the rural areas.
- (C) Bikaner (D) Jodhpur
 5. How many kinds of minerals are found in Rajasthan?
(A) 44 (B) 67
(C) 23 (D) None
 6. The biggest mine of lead zinc production is -
(A) Debari (B) Alwar
(C) Kho-dariba (D) All of the above
 7. Tungsten is produced in which district of Rajasthan?
(A) Ajmer (B) Nagaur
(C) Bhilwara (D) Sirohi
 8. Which of the following district is industrially developed?
(A) Jaipur (B) Kota
(C) Sriganganagar (D) All of the above
 9. Where was the first mill of Rajasthan was established at?
(A) Beawar (B) Kishangarh
(C) Bhilwara (D) Pali
 10. Krishna Mill is located in -
(A) Ajmer (B) Jaipur
(C) Beawar (D) Bhilwara

EXERCISE

Multiple Choice Type Questions

1. The percentage of total livestock of the country available in Rajasthan is-
(A) 10% (B) 30%
(C) 35% (D) 40%
2. Kankrej breed is found in-
(A) Jalore (B) Sirohi
(C) Pali (D) All of the above
3. The 'Gopal programme' is for the promotion of-
(A) Camel (B) Horses
(C) Cow (D) Sheep
4. The highest number of sheeps are found in-
(A) Pali (B) Nagaur

Very Short Answer Type Questions

11. Tungsten is obtained from which ore?
12. How many kinds of minerals are mined in Rajasthan?
13. For what is Chanderia famous?
14. Where is rainbow marble found in Rajasthan?
15. From the viewpoint of mineral reserves, Rajasthan stands at which place in India?
16. Mention the major cotton producing districts of Rajasthan?
17. The first cotton textile industry was established in which city of Rajasthan?

18. Which is the main raw material for cement manufacturing?
19. Gir breed of cows is found mainly in which districts?
20. When did the white revolution in dairy field started in Rajasthan?
21. Which districts of Rajasthan are famous for Gota industry?

Short Answer Type Questions

22. Why is, Rajasthan called the 'Museum of minerals'?
23. Mention the names of the minerals of state, producing more than 75 % of the total production of India?
24. Name the major copper producing districts of the state.
25. Give a description of petroleum in the state?
26. Mention the obstacles in the industrial development of Rajasthan?

27. Mention the names of major cement producing centres of Rajasthan?
28. Write the name of the dairy development programme in the state?

Essay Type Questions

29. Describe the major metallic minerals of Rajasthan?
30. Describe the cotton textile industry in Rajasthan?
31. Write a geographical article on the cow rearing in Rajasthan?
32. Write a note on the cottage industry in Rajasthan?

Map / Skill Based Questions

33. Show the major minerals and industries in the map of Rajasthan.
34. Show the Cow breeds in the map of Rajasthan.