

CHAPTER I

I N T R O D U C T I O N

GENERAL

Limestone, with which the State of Gujarat is richly endowed, is nature's one of the most precious gifts and its proper utilisation can bring considerable prosperity to the people. The author got the opportunity to work on this industrially important rock in Gujarat, and in this thesis he has presented a comprehensive account of the limestone resources of Gujarat State.

PURPOSE AND OBJECT:

Limestone is one of the important mineral raw materials, that finds extensive use in the modern civilization and plays an important role in the development programmes of a country. The demand for the limestone is increasing unabated because of its multifarious uses in industrial projects, irrigation and hydro-power schemes, construction works, etc. The most important uses to which the limestone is put, include those in metallurgical and chemical industries and the

manufacture of cement. In addition, this rock finds utilization in a large number of other industries. With the rapid industrial expansion of the country, the demand for limestone has been rapidly going up, and it has become imperative that more and more limestones suitable for various industrial uses are located and investigated.

The Gujarat State is one of the most dynamic region of the country, and the development in this State has been very fast. The people of Gujarat are well known for their enterprising nature, and the rate of the industrial expansion in the State has been phenomenal. Naturally the demand for the limestone as a raw material is steadily going up and it is in the fitness of things to assess the potentialities of this region in respect of this important raw material.

1 It is gratifying to note that the Gujarat State is richly endowed with various types of limestones suitable for a number of industrial uses, and the author feels that the need of Gujarat State can easily be met with from its own resources, and over and above, it may be in a position to fulfil the demands of other States as well.

In order that the vast resources of limestone

which the nature has placed at the disposal of Gujarat are suitably explored and exploited, it is imperative that a detailed study of the potentialities of this mineral raw material be made without any delay. With this in mind, the present investigation was taken up. This study has enabled the author to assess the limestone resources of Gujarat State and investigate in detail, the suitability of the various limestone deposits for different uses.

As a result of his study, the author has been able to prepare a detailed and systematic account of the limestone resources of Gujarat State. He has further been able to throw light on their industrial suitability and also their potentialities for future development.

The scope of his investigations included the following:

- (1) study of the present utilization of limestones, and the requirement of different sectors; and
- (2) investigation of the important limestone deposits, classification and assessment of properties, and further scope.

In Gujarat, limestones of different grades occur at different places in various stratigraphical horizons. From several areas these are extensively used in the manufacture of Portland cement and for other purposes.

There are already half a dozen cement factories in the State, and few more are in the offing. Large deposits of cement grade limestones are available to meet the requirement of such ventures.

In addition, the limestones find use as building stones, ornamental stones (marbles), as mortar in the form of cement or lime in construction works, plastering, paving, flooring, etc., and also in several other industries.

There are several chemical industries, who draw their requirement of limestones from sources within the State. Limestones of metallurgical grade also are available.

Gujarat State has provided beautiful marble varieties which have been widely used in the Jain temples of Palitana, Girnar, Delwada, and Mt. Abu.

Limestones, particularly of low grade are burnt on a large scale for the manufacture of hydraulic lime for using in construction works. In fact, the use of lime in the construction of hydraulic structures such as dams is preferred, as its behaviour in these cases found to be superior to the cement.

'Kankar', a nodular limestone is being burnt in open kilns, ground and sold as hydraulic lime under

the trade name as 'sagol'.

PREVIOUS WORK:

It is rather unfortunate that no systematic study of this important mineral raw material was undertaken in the past. Scattered references to the limestones of various horizons are available in the Records and Memoirs of the Geological Survey of India, and in the reports submitted by private geologists to the former princely States. Only brief information is given in these works, about their economic uses. Somewhat systematic account of the limestone resources of the region lying within the Gujarat State are found in the Government publications on the Mineral Resources of Bombay and Saurashtra States (Roy, 1951; 1953). Some references to the limestones of Gujarat are also available in the work of Geological Survey of India on the Limestone Deposits of India (Prasad Rao and others, 1965).

In recent years, agencies of Public Works Department, some private firms and the State Directorate of Geology & Mining, have investigated the limestone resources, and some information is now available.

However, all the existing data on the limestones

are scattered, and not easily available. The author has attempted to collect information about these rocks of Gujarat from all possible sources, which has been further supplemented by his own investigations.