

## LITHOSTRATIGRAPHY OF BAR-MOHRA KHURD-RAIRA KHURD AREA OF PALI DISTRICT, RAJASTHAN AND THEIR RELATIONSHIP WITH THE SOIL AND VEGETATION

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18/11/16  
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### ABSTRACT

The paper deals the study a metasedimentary sequence, overlying schistose formation of Sendra Formation of Delhi Supergroup and the underlying Banded Gneissic Complex of Pre-Delhi age, in Birantiya Khurd –Raira Khurd areas in northwestern Rajasthan. The sequence is important due to its heterogenous lithologic association. It shows by different type of conglomerates imbedded in quartzofeldspathic schist. The process of soil formation by breaking up the rock particles and organic matter from weathering and erosion of subterranean parts are influenced by different biological activity. This sequence has been defined as the 'Bar conglomerate horizon' in this paper. The soils derived from the parent rocks which sustain different vegetation, depends upon the climatic conditions. Hence, the nutritional status is required to be studied from the point of view of sustenance of flora in the area. There is no clarity, so far, regarding the exact chronology of deformation in the area. At the same time, the lithostratigraphic history of the area also needs a further revision. In view of the above, the Bar -Mohra Khurd –Raira Khurd area have been studied extensively and results are presented in this paper.

**Key words:** Lithostratigraphy, Delhi Supergroup, Bar conglomerate horizon.

### Introduction

The rocks of Delhi Supergroup belonging to the Alwar and Ajabgarh basins in Rajasthan continue into southwestern part of investigated area and extend further southward. A number of conglomerate bodies belonging to the Bar conglomerate horizon of Delhi Supergroup occurs in the type locality of study area. This paper presents a synoptic view of the more significant geological, structural features and their relation with soil and vegetation, as an introduction that would help to place in a proper perspective the several aspects of Delhi Supergroup that are discussed in this paper. The western basin consists of two sub-basins namely Barotiya basin in the western part and Sendra basin in the eastern part. The Barotiya Sequence of Heron (1953) is equated with Alwar Group whereas Sendra Complex of Heron, 1953 with Ajabgarh Group. The usage of Alwar and Ajabgarh series (Heron, 1953) for southwestern Rajasthan is now changed (Gupta *et al.*, 1980). The main South Delhi Fold Belt (SDFB) is divided in two i.e., Barotiya- Sendra in the western side and Rajgarh- Bhim basin in the eastern side.

The rocks of the Bar- Mohra Khurd- Raira Khurd villages in Pali district are included under the three main tectonic divisions from SW to NE viz. Banded Gneiss Complex (BGC), Barotia Formation (Barotiya Sequence) and Sendra Formation (Sendra Complex). The same name has been followed in this paper. The BGC constitute

the southwestern and the lower most tectonic unit of the area. It is separated from the overlying rock of the Barotia Formation with an unconformity. The Barotia Formation consists of Bar conglomerate horizon, calc schist, quartzitic schist and calc amphibolite schist. Bar conglomerate horizon further divided in to feldspathic schist, Bar conglomerate schist, garnetiferous mica schist, staurolite schist and kyanite schist, out of these Bar conglomerate schist consists of different types of pebbles and boudins of quartzite, granite and pegmatite Plate 1A. The overlying Sendra Formation constitutes the northeastern part of study area. Kalab limestone (equivalent to Nandana crystalline limestone of Heron 1953) separates the upper part from the underlying Barotia Formation. The Sendra Formation is constituted of mostly gneisses viz. calc gneiss, foliated quartzitic schist, calc amphibolite gneiss, metamorphosed limestone and calc gneiss with intercalated quartzite. Huge intrusive granite exposed over the Sendra Formation in the northeastern part of the investigated area (Fig. 1). There has been changed in earlier concept with recognition of several strike faults leading to a number of tectono- stratigraphic units. The depositional environment varies gradually from arenaceous to argillaceous in Barotiya and Sendra basin and changed in mixed calcareous to argillaceous. On the basis of lithological and structural homogeneity, strike

**Mean soil depth increased from 5 cm on 15 year old scars to 20 cm on 82 years scars and the measured soil depths were attributed to the rafted soil, colluviums and bed rock weathering.**

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