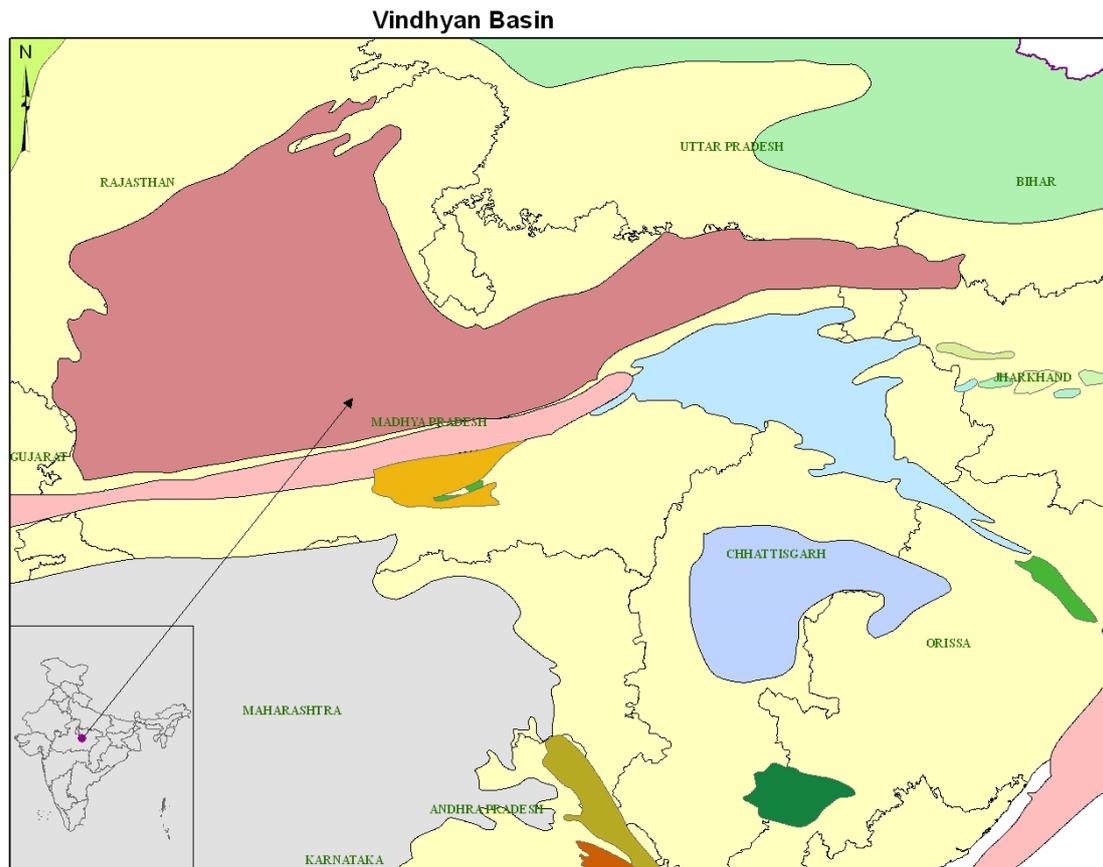


## Basin Introduction ::



Chhattisgarh basin is the largest Purana basin I Bastar craton. The craton is dotted with several smaller basins like Khariar, Ampani, Indravati and sabari (Sukma), besides many outliers like Keskal, Singanpur and Chedrapal. Although Kale (1991) believed that each Purana basin is unique with well-defined boundaries and not an erosional remnant or atectonic depression, the prevailing opinion is that the isolated basins and outliers in Bastar craton are part of once-continuous basin fill that got fragmented by basement doming and denudation (Ahmad, 19558; Ramakrishnan, 1987; Chaudhuri et al. 2002).

Chhattisgarh basin covering an area of about 36000 sq. km is situated on the northern edge of Bastar craton. It is bounded by the Kotri-Dongargarh orogen in the west, Satpura mobile belt in the north, Gondwana graben of Mahanadi in the northeast and the Eastern Ghats mobile belt in the southeast. In the south, the basin overlies the basement gneiss enclosing the Sonakhan greenstone belt. Chhattisgarh basin is the third largest Purana basin after the Vindhayan and Cuddapah, and extends for about 300 km in the E-W and 200 km in the N-S directions, with an irregular rectangular configuration. Vast limestone and dolomite resources of the basin feed the Bhilai Steel Plant and the cement factories in the vicinity. The granitic terrain surrounding the basin has been recently found to host a number of kimberlite pipes.

Pioneering geological work in the basin was carried out by V. Ball, W. King and F.D. Smith, followed by N.V.B.S. Dutt in 1964 and W.A. Schnitzer in 1971. Muti (1987, 1996), Das et al. (1992, 2001), Chaudhari et al. (2002) and Deb (2004) provide recent geological summaries of the basin. The basin contains about 2500 m thick sediments of orthoquartzite-carbonate-pelite suite, deposited in multiple sedimentary cycles, intercalated with minor felsic volcanics and pyroclastics and punctuated by unconformities. Each cycle starts with arenaceous facies and ends up with shale-limestone facies. The basin is divided into two sub-basins, the Hirri in the west and Baradwar in the east separated by the Sonakhan high over the Sonakhan greenstone belt. Two small proto-basins containing the oldest

sequences in the east at Singhora and Barapahar.

**Lithostratigraphy of Chhattisgarh Supergroup :**

Group	Formation(thickness(in m))	Lithology
Raipur Group (1900 m)	Maniari Shale (70)	Purple shale, dolomite, gypsum
	Hirri Dolomite (70)	Grey dolomite
	Tarenga Shale (180)	Dolomitic shale, shale-chert beds, purple shale, limestone
	Chandi Limestone (670)	Stromatolitic dolomite, limestone, glauconitic sandstone, shale
	Gunderdehi Shale (430)	Shale with limestone interbeds, arenite-shale, ignimbrite
	Charmuria Limestone (490)	Phosphatic limestone with shale interbeds, cherty limestone and phosphatic dolomite, chert-shale interbeds
	Bijepur Shale (100)	Green and brown calcareous shale with sandy interbeds
Chandrapur Group (400 m)	Kansapathar Sandstone (200)	Galuconitic sandstone
	Chaporadih Shale (200)	Shale with arenite interbeds
	Lohardih Conglomerate (20)	Purple arkose, gritty arenite and basal conglomerate
	Chhuipali Shale (300)	Shale with chert, limestone, dolomite, siltstone
Singhora Group (400 m)	Bhalukona Sandstone (20)	Sandstone, siltstone, minor shale
	Saraipali Shale (60)	Variiegated shale with siltstone, limestone, porcellanite, felsic tuff
	Rehatikhoh Conglomerate (20)	Felspathic arenite, arkose and basal conglomerate
<b>----Nonconformity----</b> Crystalline basement of Bastor craton		