DSPMU UNIVERSITY, RANCHI.

DEPARTMENT OF GEOLOGY

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PHYSIOGRAPHIC DIVISION OF JHARKHAND

The physiographic division of Jharkhand comprises of many divisions and based on geomorphic parameters Jharkhand may be divided into a number of geomorphic domains as follows-

Ranchi Plateau

This is the largest part of the Chotanagpur Plateau having an average elevation of about 700 meters above MSL. It is bounded by state boundary to the west, Damodar basin to the north, Singhbhum plain in the south and the Subarnrekha and Kharkai rivers in the southeast. The Ranchi plateau is further divided into northern Ranchi and southern Ranchi plateau. The northern Ranchi plateau lies just south of Damodar basin and covers the area of Ranchi and its adjoining areas. It is a gently undulating area having less fertile uplands called Tanrs and more fertile lowlands called Dons. The southern ranchi plateau comprises of south portion of Ranchi district, Simdega and Gumla districts . they are highly rugged areas and hilly with forest areas and small fertile valleys. There are many waterfalls at the edges of Ranchi Plateau where rivers form waterfalls when they descend through the escarpments of the plateau down to the area of significantly lower height. That is the reason the plateau is highly dissected at the edges. Hundru Falls (75m) on Subarnarekha River, Dassam Falls (39m) on Kanchi River and Sadni falls on Sankh River are some of the examples of scarp falls.

Hazaribagh Plateau

This lies to the north of Ranchi Plateau and is separated by E-W running Damuda valley in which deposition of Gondwana sediments took place. The north-eastern and southern faces of this plateau are mostly abrupt but to the west it narrows and descends to the south and connects with the Ranchi Plateau through Tori Pargana. As the plateau is highly dissected at the edges, seen from the north, the edge of this plateau has the appearance of a range of hills.The Hazaribagh Plateau measures about 64 km (east-west) and 24 km (north-south) with an average elevation of 610 m. It includes the Lower and Upper Hazaribagh Plateaus and the Chatra plateau. Lower Hazaribagh Plateau comprises of districts of Koderma and Giridih and is towards the eastern and northern part of the Upper Hazaribagh plateau. The Chartra plateau is located to the west of Upper Hazaribagh plateau and extends between Amanat river valley in the west and Mohane river valley in the east. It is the region of plateaus, residual hills,andinter mountain valleys with isolated hills such as Satpahar and Kolhua hills.

Damodar Valley

The Damodar Valley is a trough between the Ranchi and Hazaribagh plateaus resulting from enormous fracture and covers most part of Dhanbad and Bokaro and lesser part of Ranchi and

Hazaribagh districts. This basin had been the place of deposition of several hundred meters of Gondwana sediments (both sedimentary and metamorphic rocks) mostly ranging in age from late Carboniferous to early Cretaceous, later constituting the great belt of Damodar Valley Gondwana Coalfields.

The Pat Region

The Netarhat Planation Surface locally known as PATS has also been referred to as Western Ranchi Plateau and the Palamu district. This is the highest plateau region of the Chhotanagpur Plateau with an average height of 1000 meters the highest point being 1164 meters. Pat Region is characterized by level surface. The denudation and secondary enrichment of Granite Gneiss of this region has given rise to some of the best Bauxite deposits.

Simdega-Singhbhum Uplands

The Ranchi Plateau gradually slopes down towards south east into Singhbhum region (which includes the Chaibasa plains, the Panch Pargana plain, the Porahat Dalma highlands, Dalbhum plain, Kolhan uplands and Dhanjori ranges). This region is characterized by highly dissected high (600-900 m) rugged hills, steep hill sides, cliffs and narrow valleys; the reason of this high dissection being the type of rock more susceptible to erosion and structurally highly disturbed area. The prominent tectonic feature, the Singhbhum Shear Zone (SSZ) runs south of Dalma Range arcuately for a length of 150 km in this region. To the north of Tatanagar, the Dalma hills (500-600m) form a prominent east-west trending hill range.

Rajmahal Plateau

The Rajmahal hills composed primarily of Mesozoic volcanic basaltic traps along with Gondwana sediments in the form of Intra Trappean Beds form a plateau (150-200m) above MSL in Shaebganj and Pakur districts of the eastern part of the state of Jharkhand. The Rajmahal plateau trends N-S with a slope towards east possibly as a result of uplift in the west. The subsidence of the eastern region had led to the deposition of Recent Ganga sediments on this part.

Santhal Pargana uplands-

The north-eastern part of Jharkhand state forms the Santhal Pargana uplands which is mainly the rugged and dissected region, and Deoghar district, is the central point of it. The land of this region displays wavy terrain with average relief of about 400m. to 650m. The region is mostly composed of basaltic rocks and make a chain of hills with good margins running from west to east and covering the areas of Dumka, Godda, Pakur and Sahebganj. The western and south-western side of the Rajmahal hills has been deeply dissected while the eastern side of the region rises abruptly and forms boundary with West Bengal.