

Subarnarekha: The Scenario of Lower Course & Lower Catchment Area of the Gold Streak River Basin in West Bengal & Orissa, India

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Abstract: The Subarnarekha River is commonly known as the "Gold Streak of India" in the public domain. The river originated from Piska village near the Ranchi district of Jharkhand & joining the Bay of Bengal near the Balasore district of Orissa. This study is based on the Lower Course of the river which is extended from Ghatshila to Kirtaniaport. The total length of the river's lower course is about 126 km, 64 km in West Bengal & 62 km in Orissa. This river is a lifeline for the tribal communities inhabiting the Chotonagpur region of Jharkhand, West Bengal & the people of north Orissa. The LCA of the Subarnarekha River Basin is (about 6,103 km²) full of fertile alluvial soils (11% of the total basin area) due to the floodplain area. It's a rain feed Non-perennial River. In the lower course, the quantity of water flows fluctuates from monsoon to post-monsoon season. Flood & Bank Erosion is major issues in the lower course of the Subarnarekha River. Sand, Silt & Gravel mining on the river bed is a regular activity in the lower course. In the LCA the river water is used for regular agricultural practices but as a part-time occupation, people are involved in fishing for freshwater fish from the lower course of the Subarnarekha River.

Keywords: Gold Streak River, Lower Catchment Area, Lower Course, Sand Mining, Bank Erosion, River Ecosystem

1. Introduction

The word "Subarnarekha" literally means "streak of gold." It is a combination of two words; "Subarna" meaning gold and "Rekha" meaning line or streak in Indian languages. Traditionally, it is believed that gold was mined at a village named Piska near the origin of the river. This was the reason for the river being named as Subarnarekha (Singh & Giri 2018).

The river flows a distance of about 395 km from its origin before falling into the Bay of Bengal. Out of the total travel distance of 395 km, the river flows 269 km in Jharkhand, 64 km in West Bengal, and 62 km in Orissa (CBPCWP 1986; Giri and Singh 2014).

The Subarnarekha is one of the major rain-feed in India. As per ranks, it's the smallest river basin among fourteen major river basins in India. This is a superimposed river. The Subarnarekha River courses have been divided into three prominent reaches. The upper course is from the source of the river at Piska village near Ranchi district to Jamshedpur. The middle course is from Jamshedpur to Ghatshila in Jharkhand state and the lower course is from Ghatshila to the

mouth of the river submersed to the Bay of Bengal at Kirtania port in Orissa state.

In the lower course of the Subarnarekha River near Gopiballavpur CDB of West Bengal, the downstream valley is wider & meandered than the upstream valley of the middle & upper courses. This section of the river is under the sand, silt & gravel mining activities during the pre-monsoon & post-monsoon periods. Besides, fishing (by local fishermen) is one of the dominant activities in the lower course of the Subarnarekha River.

2. Study Area

The Subarnarekha River originates near Nagri village (23° 18' 02"N and 85° 11' 04"E) in the Ranchi district and runs through some major cities and towns, i.e., Jamshedpur, Chaibasa, Ranchi, Bhadrak before joining to the Bay of Bengal near Kirtania port (21° 33' 18"N and 87° 23' 31"E) in Orissa (Singh & Giri 2018).

The lower catchment area of the Subarnarekha River basin extends over 6,103 km² and accounts for 0.2% of the geographical area of India (Roy et al. 2013).

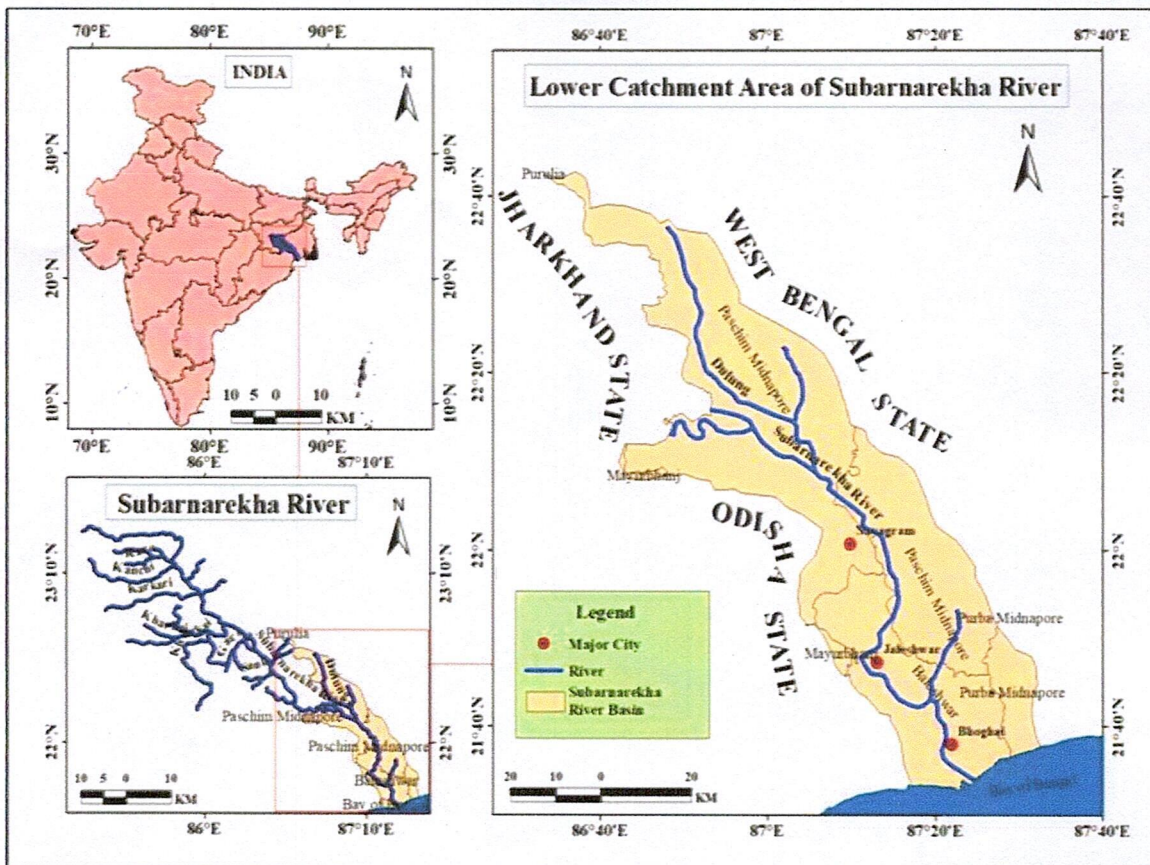


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The lower catchment area of the Subarnarekha River basin is bounded by north latitudes of 21° 33' to 22°42' and east longitudes of 86° 33' to 87°32'. The lower catchment area of the Subarnarekha River basin is restricted by the Brahmani & Burhabalang River basin in the southwest, the Kansai River basin in the southeast, and the Bay of Bengal in the south side. The study area is under Jhargram, Paschim Medinipur districts of West Bengal & Balasore district of Orissa.

3. Major Tributary in the Lower Course of the Subarnarekha River

The Dulung is one of the main tributaries of the Subarnarekha River. It originated near Dulungdiha (22°9'34"N 87°4'41" E) in the Jhargram district of West Bengal. It terminates with its confluence with the Subarnarekha River near Rohini. It is one of the left side important tributaries in the lower course of the Subarnarekha River. The total length of the Dulung River is about 84km. The Dulung River catchment area is 1200 km². This tributary flows from a North-West direction to a South-East direction. Rainfall is the main source of water for this tributary during pre-monsoon, monsoon & spring seasons also. This tributary carries a huge amount of water during the monsoon season but in the dry season, it carries a very less amount of water. Besides, this tributary received water from so many sub-tributaries which are small in size called Nala.

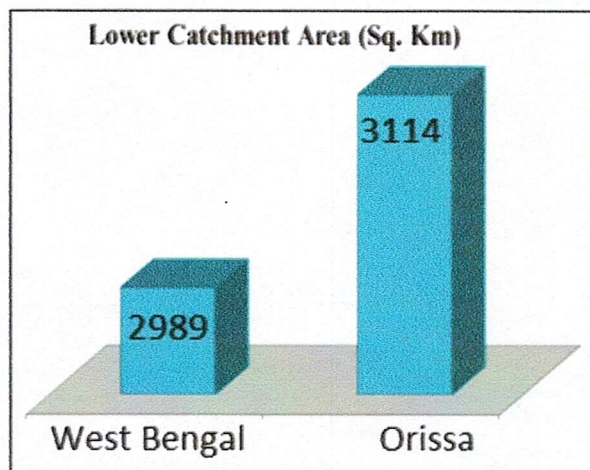


Figure 1: State-wise Distribution of LCA in the Subarnarekha River Basin

Data Source: SOI (1923-1979), Rao (1975)

Table 1: Tributary in the Lower Course

Sl No	Name of the Tributary	Bank	Length (km)	Catchment Area (km ²)
1.	Dulung	Left	84	1,200

Source: <https://indiawris.gov.in>

4. Topography & Soils of the LCA

The lower stretches comprising of the gently undulating alluvial plains of Tertiary deposits that are overlain by unconsolidated Quaternary sediments (Guha & Patel 2017).

