

On the usage of the term ‘Extra-Peninsular India’

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Abstract

The Indian subcontinent is characterized by highly complex and diverse physical features. Its geological structures and landforms are regionally coterminous, and hence many geologists, as well as geographers, have studied the geological and physiographic diversity of the Subcontinent on a regional basis. In the scheme of regionalization proposed by most of the geologists and some geographers, there is the use of the term ‘Extra-Peninsular India’ to mean the Himalayan Mountain Ranges. However, when used in a literal sense, this expression encompasses geological/physiographic units other than Peninsular India--i.e., the Himalayan Mountain Ranges as well as the Indo-Gangetic Plains. Thus, the mismatch between the general use of the expression ‘Extra-Peninsular India’ and its actual meaning creates confusion. After reviewing various classical and contemporary pieces of literature pertaining to the nomenclature of India’s geological/physiographic units, the paper discusses the appropriateness of this expression and advocates its replacement by separate terms–Himalaya Mountain Ranges and Indo-Gangetic Plains. The paper argues that this simple and direct expression not only eliminates the prevailing confusion but would also express its geological and physiographic identity more aptly.

Keywords: *Indian peninsula, Peninsular india, Himalayan mountain ranges, Indo-Gangetic plains*

Introduction

The Indian Subcontinent is unique for its diversified physical features comprising mountainous regions of the Himalaya in the northern margin, the hills, plateaus and uplands of Peninsular India comprising the southern part with the *Indo-Gangetic Plains* sandwiched in between. These physical features reflect a billion years of geological history and structure (Mathur, 1986). In their efforts to understand the complexities and diversity of the Indian Subcontinent, geologists and geographers have regionalized it based on its geological and physiographic characteristics. Most

geologists and a few geographers follow a three-fold regionalization scheme of the Indian Subcontinent– *the Peninsular*, the *Extra-Peninsular* and the *Indo-Gangetic Plain* (Fig.1). Some authors preferred the two-fold regionalization scheme--*the Peninsular* and the *Extra-Peninsular*. Still, others have proposed four or five-fold regional classification (i.e., regionalization) (Table 1). As it is, in literature, there are arguments and counter-arguments not only over the scheme of regionalization but also on the very nomenclature used for some of the regions. It has been a usual tendency by most geologists

and some geographers to use the term 'Extra-peninsula' for the Himalayan mountain ranges. However, as reflected by the literal meaning, the term 'Extra-peninsula' should stand for all geological/physiographic regions of the Indian Subcontinent other than Peninsular India. That means the term carries within its ambit not only the Himalayan Mountain Ranges but also the *Indo-Gangetic Plains*; so, the regionalization of the Subcontinent by using the terms--Peninsular and *Extra-Peninsular* India--makes the two-fold scheme an appropriate one.

In this context, this discussion follows the catechistic path by first raising a few questions and then finding answers for the same. The questions are--why the *Himalayan Mountain region* is called as 'Extra-Peninsular India'? To what extent it is appropriate to define the term 'Extra-Peninsular region' in this way? Where does the *Indo-Gangetic Plain* fit into this scheme of regionalization? Can there be a system of regionalization that covers the Indian Subcontinent in its entirety and at the same time does not create any confusion so far as the use of terms for those regions is concerned? What will be that system of regionalization and what are the terms which will more appropriately fit to those regions? And finally, is there a possible implication of these propositions for the geological and geographical study of India on a regional basis? All these questions pertaining to the regionalization of the Indian Subcontinent have been discussed, and appropriate nomenclatures for those regions are suggested in this article.

Regionalization schemes

The Indian Subcontinent has been variously regionalized by geologists and geographers based on geological and physiographic /

geographic attributes, respectively. For example, Pascoe (1931) has divided the Indian Subcontinent into three broad geological regions--(i) the Peninsula, (ii) the Extra-Peninsula, and (iii) the *Indo-Gangetic alluvial plains*. Pascoe (op cit) included Baluchistan, the North-West Frontier, a portion of Punjab, an area north-west of the Jhelum, the Salt Range, the Himalaya, Burma and the Andaman and Nicobar Islands in the Extra-Peninsula. Wadia (1919) has also divided India into three geological and physiographic regions--the Peninsula, the Extra-Peninsula and the Great *Indo-Gangetic Plains*. Krishnan (1960: 1) has followed the same scheme and divided India into three physical regions--the Peninsula or Peninsular Shield (lying to the south of plains of the Indus and Ganga river systems), the *Indo-Gangetic alluvial plains* [stretching across northern India from Assam and Bengal through Bihar, United Provinces (Uttar Pradesh) to the Punjab and Sind on the west], and the *extra-Peninsula* (including the mighty Himalayan range and their extensions into Baluchistan on the one hand and Burma on the other).

Ramakrishnan and Vaidyanadhan (2008: 1-2) considered the *Peninsular*, *Extra-Peninsular* and *Indo-Gangetic Plains* as the three major physical entities of the Indian Subcontinent which have distinguishable geological and geomorphological characteristics. Interestingly, some geographers such as Pithawala (1939) and Chatterjee (1982) have also proposed the three-fold divisions of the Indian Subcontinent but have labelled them as physiographic regions. The three divisions show marked contrast in their geology (stratigraphical, structural, petrological, geochronological and tectonic characteristics) and geographical settings

(geomorphic and topographic) (Krishnan, 1960). Spate and Learmonth (1967:14) have rationalized the three-fold physiographic divisions of the Indian Subcontinent thus--"the physiographic contrasts between these macro-regions are most striking; broadly speaking the Peninsula is dominated by an open senile topography, witness to vast periods of geological quiescence while the Himalaya displays the most youthful and highly differentiated relief on the face of the earth, and the *Indo-Gangetic Plains* presents a monotonous aggradational surface of great extent".

Some geographers have also proposed a four or five-fold classification of the Indian Subcontinent. For example, Ahmad (1941) has regionalized the Indian Subcontinent into *Extra-Peninsular* India, Northern Plains, Peninsular India and Coastal Plains based on relief and physiographic characteristics. Spate (1952) and Singh (1971) have divided the Indian Subcontinent into four regions. But in Spate's scheme of regions (1952), coastal plains have been shown as part of Peninsular India, and a separate region consisting of the islands as an addition. On the other hand, Singh (1971) has considered the Indian coast and islands as a single physiographic entity. Valdiya (2016) has divided the Indian Subcontinent into five major provinces (Table 1).

Confusion over the usage of the term 'Extra-Peninsula'

As mentioned above, most geologists and a few geographers have used the term 'Extra-peninsula' to refer to the Himalayan Mountain region. For example, George Smith (1882) has used the expression *Extra-Peninsular Region* of India to denote the Himalaya and the associated mountain systems of South

Asia. In the same way, Wadia (1919: 1) has defined *Extra-Peninsular* India as consisting of the mountainous region which borders India to the west, north, and east, including the countries of Afghanistan, Baluchistan, and the hill tracts of Burma. Further, Chatterjee (1982) has defined 'Extra-Peninsula' as a belt of folded rocks of Tertiary age, though they do contain rocks of older age as well, now forming the Himalayan Mountain range. Khullar (2005) has used the term '*Extra-Peninsular*' region to refer to the Himalayas and their eastern extensions, including Andaman and Nicobar Islands.

The context being the same, some geographers and geologists have provided alternative systems of classification and nomenclature. A few of them have used the term '*Extra-Peninsular* India' in a literal sense to mean 'areas other than Peninsular India' (i.e. the Himalaya and associated mountains as well as the Indus, Ganga and Brahmaputra plains). For example, Baker (1928) has used the term '*Extra-Peninsular* India' to mean the Himalaya and associated mountains as well as the *Indo-Gangetic Plain*. Likewise, Singh (1983) has also favoured the inclusion of the Himalaya Mountains and the Ganga-Brahmaputra Plains within the domain of *Extra-Peninsular* India. Others have dropped the term '*Extra-Peninsular*' from their system of geological/physiographic regionalization of India (e.g., Stamp, 1928, 1957; Spate, 1952, Spate and Learmonth, 1967; Singh, 1971; Mathur, 1991; Singh, 1996; Valdiya, 2016).

Based on geology, structure, relief and physiographic contrasts, and situational factors, Singh (1971) has divided India into four regions—the Himalayan Mountain Region, *the Great Plains*, *the Peninsular*

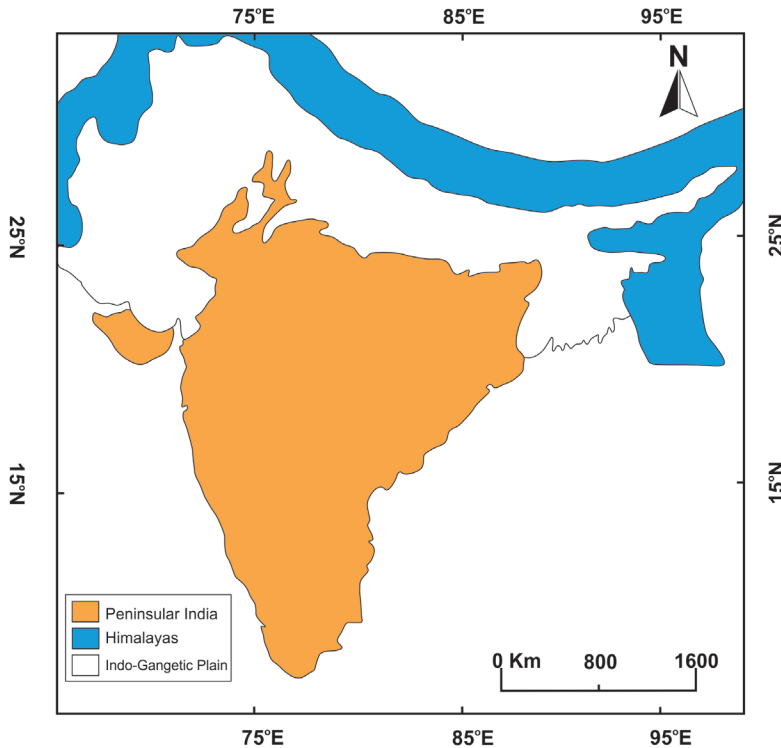


Fig. 1: The physiographic divisions of the Indian Subcontinent (modified after Singh, 1996)

Uplands and the Indian Coasts and Islands. Mathur (1986), on the other hand, has identified *the Himalaya, Indo-Gangetic Plains and Peninsular India* as the three fundamental units of the Indian Subcontinent. Stamp (1957) has also divided the Indian subcontinent into three natural regions on the basis of physiographic characteristics and structure--*the natural regions of the Mountain Wall, the natural regions of the Great Plain and the natural regions of the Indian Plateau.* Spate (1952), on the other hand, has proposed a four-fold division of the Indian Subcontinent on the basis of physiographic characteristics--*Mountain, Northern Plain, Peninsular India and Islands.* Interestingly, Valdiya (2016) has avoided the use of the term ‘*Extra-Peninsular*

India’ in his five-fold regionalization of the Indian Subcontinent. His regions are--(1) *the Himalaya, (2) the Indo-Gangetic Plains, (3) the Irrawaddy Plains, (4) the Mountains, Uplands and Plateaus of Peninsular India, and (5) the Coastal plains.*

Discussion

Being the oldest geological as well as a physiographic unit of India, Peninsular India is often used as a geographical reference point to describe the evolution and characteristics of other physiographic regions. The Indian Peninsula got its present shape and unity from the supercontinent *Gondwanaland* which was the southern half of the *Pangean* supercontinent that existed

Table 1: Terms used in geological/physiographic division of the Indian Subcontinent

Geological/physiographic division	Authors	Interpretation
1. Peninsular India 2. <i>Extra-Peninsular</i> India or the Himalaya and associated Mountains 3. <i>Indo-Gangetic Plains</i>	Smith (1882) Pascoe (1931) Wadia (1919) Krishnan (1960) Chatterjee (1982) Ramakrishnan and Vaidyanadhan (2008)	In both the systems of regionalization, the term ' <i>Extra-Peninsular</i> region' is semantically used to mean the Himalaya and the associated mountains only.
1. <i>Extra-Peninsular</i> India 2. Northern Plains 3. Peninsular India 4. Coastal Plains	Ahmad (1941)	
1. Peninsular India 2. <i>Extra-Peninsular</i> India	Baker (1928)	Here the term ' <i>Extra-Peninsular</i> region' is literally used to mean (1) the Himalaya and associated mountains as well as (2) the Indo-Gangetic or Ganga-Brahmaputra or the Great Plains of India
1. Peninsular India 2. The Himalaya and associated Mountains 3. The <i>Indo-Gangetic Plains</i>	McFarlane (1924); Stamp (1928, 1957)	In these systems of regionalization, the term ' <i>Extra-Peninsular</i> region' is not used.
1. Great Plain 2. Himalayan Mountain Region 3. Peninsular Upland 4. Indian Coasts and Islands	Singh (1971)	Names of all the geological/physiographic regions have their own meanings in both literal as well as geological sense.
1. The Himalaya 2. The <i>Indo-Gangetic Plains</i> 3. The Irrawaddy Plains 4. The Mountains, Uplands and Plateaus of Peninsular India 5. The Coastal Plains	Valdiya (2016)	Similar to the four-fold classification-- <i>the Mountain Rim, the Indo-Gangetic Plains, the Peninsula and the Islands</i> by Singh, Spate (1952) and Spate and Learmonth (1967).

around 300 million years ago (Meert, 2011). Consequently, 'Peninsular India' is considered as the primaevial unit and a singular geological entity. The development of the other two physiographic regions is chronologically dependent upon and geologically linked to Peninsular India. According to plate-tectonic reconstruction models, during the breakup of Pangea, the Indian Subcontinent (which was to become Peninsular India) became isolated from the Gondwanaland, at around 130 Ma, moved northwards and eventually collided with Eurasia to push up the early Himalaya

at about 40–50 Ma (Storey, 1995; Collin, 2003; van Hinsbergen *et al.*, 2011). With the rising of the Himalaya, the *Indo-Gangetic Plains*, covering a significant part of the Indo-Gangetic basin, were built up by the mighty rivers--the Ganga, Indus and Brahmaputra and their numerous tributaries, in between the Himalayan mountain ranges and Peninsular India. The Indo-Gangetic Basin is an active foreland basin formed in response to the uplift of the Himalaya after the collision of the India and Eurasia plates (Singh, 1996). Suess (1893-1909) was the first to propose

that the Indo-Gangetic depression is a 'fore-deep' (quoted in Burrard, 1914: 220). This 'fore-deep' was formed due to the resistance to its (Eurasian plate) southward migration by the rigid land mass of the Indian Peninsula (Wadia, 1919: 4). It expanded and deepened until the Late Quaternary (1.5–1.7 million years ago) as sedimentation proceeded progressively. During this time, it broke up into two unequal parts along the Himalayan Frontal Thrust (HFT); the northern 25–45km wide belt evolved into Siwalik Ranges, whereas the southern 200–450km wide zone became the subsiding basin (Valdiya, 1998, 2001, 2016). It was eventually built up into vast *Indo-Gangetic Plains* by rapid accretion of sediments derived from the Himalaya and partly from the hills of the northern parts of Peninsular India (Valdiya, 2016:723). This region also includes aeolian deposits from north-western and western India (Burbank, 1992; Valdiya, 2016). The basement of this plain is Precambrian with Late Proterozoic rocks of Peninsular India (Singh, 1996). In fact, the entire *Indo-Gangetic plains* have Precambrian basement rocks with alluvium accumulated over it. In a nutshell, Peninsular India is the oldest, and the *Indo-Gangetic Plain* is the youngest physiographic feature of the Indian Subcontinent, and Himalaya has a chronology in between these two features.

The question arises on the rationale and appropriateness of the term '*Extra-Peninsular India*'. As discussed above, the major period of the geological history of the Indian Subcontinent is dominated by events associated with the evolution of *the Peninsular India* and the Himalaya. Among these, the formation of Himalaya has a geologically secondary and dependent status in relation to Peninsular India. Therefore, the usage of the term '*Extra-Peninsular*' is acceptable for two reasons, viz., (a) the domineering status of

Peninsular India in terms of its geographical distribution and primary signature in the Indian Subcontinent, and (b) its leading factor in the formation of the Himalaya and role of both in the formation of the *Indo-Gangetic Plain*. The nomenclature of Peninsular India and *Extra-Peninsular India* could also be due to the fact that both these units stand opposite to each other and have a dominant place in the geological history of India (Negi and Singh, 1999: 1). On the other hand, according to Wadia (1919: 4), the *Indo-Gangetic plains* of India are not autonomous geological entities; and compared to this, the Peninsula and Extra-Peninsula (the Himalayas) have fundamental bases. The sediments from the Himalaya and partly from the hills of northern Peninsular India were responsible for the formation of the *Indo-Gangetic Plains* (Valdiya, 2016: 723). Therefore, its identity as an autonomous physiographic unit has been established only since the late Quaternary. Moreover, historically, the *Indo-Gangetic Plains* have not attracted similar research interests from geologists in comparison to Peninsular India and the Himalaya till very recently. In the geological history of India, they are only the annals of yesteryears, being the alluvial deposits of the rivers of the Indo-Gangetic systems, borne down from the Himalayas and deposited at its foot (Wadia, 1919: 4). As a matter of fact, its geological importance remains confined mainly to the deposits of rich alluvial soils and to the evolution of the river system (Krishnan, 1960).

Conclusions

The usage of the term '*Extra-Peninsular India*' for the Himalaya by most of the geologists and some geographers is a matter of convention. However, it creates confusion in the minds of students and teachers. Two possible schemes of regionalization/nomenclature are proposed here in order to clear the confusion.

- (i) *The Peninsular India* being the mother to all other physiographic units, it is recommended to go with two fold classification scheme for physiographic division of the Indian Subcontinent as has been done by Baker (1928: 447-455) *the Peninsular* and the *Extra-Peninsular*. The *Extra-Peninsular region* should be sub-divided into the Himalaya and *Indo-Gangetic Plain* regions. Adopting this system of nomenclature for regions of Indian Subcontinent has certain advantages. First, it retains the conventional use of the popular term ‘*Extra-Peninsular*’ and secondly, it ensures the pre-eminence of ‘peninsular India’ in the Indian Subcontinent. Also, the term ‘*Extra-Peninsular*’ in a literal sense clearly indicates the physiographic regions of the Indian Subcontinent beyond the ‘peninsula’.
- (ii) The use of the term ‘Extra-peninsula’ should be dropped altogether from the system of physiographic regionalization and, in its place, names of all the three major physiographic units--‘*Peninsular India*’, ‘*the Himalaya and associated mountains*’ and ‘*the Indo-Gangetic Plains*’ --be used separately to give them their individual identity. There are certain advantages in adopting this system of nomenclature of regions. First, it correctly connotes the autonomous identity of each region, irrespective of their geological association and relation, by giving each region the same order of significance. Secondly, it is a better alternative to the two-fold regionalization, suggested above, which places the Himalaya and associated mountains as well as the *Indo-Gangetic plains* at a level down in hierarchy in relation to Peninsular India.
- Both the schemes of regionalization and the names of regions proposed above

have some inherent advantages. They are as scientific as all the previous schemes of regionalization mentioned in this article. However, unlike some of the existing regionalization schemes and nomenclature of regions, the proposed schemes do not leave scope for any confusion. The proposed three-fold scheme, as suggested above, has an additional advantage. It places all three regions on the same spatial scale for geological and geographical investigation. Therefore, it is recommended to adopt the proposed three-fold regionalisation schemes and regions’ nomenclature.

References

- Ahmad, K. S. (1941). Physiographic Divisions of India. *The Indian Geographical Journal*, 16 (3), 257-267.
- Baker, J. L. N. (1928). Notes on the Natural Regions of India. *Geography*, 14 (5), 447-455.
- Burbank, D. W. (1992). Causes of recent Himalayan uplift deduced from deposited patterns in the Ganges Basin. *Nature*, 357, 680–682.
- Burrard, S. (1915). On the Origin of the Indo-Gangetic Trough, Commonly Called the Himalayan Foredeep. *Proceedings of the Royal Society of London, Series A, Containing Papers of a Mathematical and Physical Character*, 91, 628, 220-238. Source: <https://www.jstor.org/stable/pdf/93443.pdf>; accessed on 09/07/2020.
- Chatterjee, S. P. (1982). *An Introductory Regional Geography*, India. New Delhi, Orient Longman.
- Collins, W. J. (2003). Slab pull, mantle convection, and Pangaeian assembly and dispersal. *Earth Planetary Science Letters*, 205, 225–237.
- Khullar, D. R. (2005). *India. A Comprehensive Geography*. New Delhi, Kalyani Publishers.
- Krishnan, M. S. (1960). *Geology of India and Burma*. Madras, Higginbothams (Private) Ltd.

- Mathur, S. M. (1991). *Physical Geology of India*. New Delhi, National Book Trust.
- McFarlane, John (1924). *Economic Geography*, London, Sir Isaac Pitman and Sons, Ltd. Source. <https://archive.org/details/in.ernet.dli.2015.223958/page/n225/mode/2up?q=Ceylon>; accessed on July 6, 2020.
- Meert J. G. (2011). Gondwanaland, Formation. In. Reitner, J. and Thiel, V. (Eds.), *Encyclopedia of Geobiology, Encyclopedia of Earth Sciences Series*. Dordrecht, Springer, 434-436.
- Negi, B. S. and Singh, U. B. (1999). *Regional Geography of India*. Meerut, Kedar Nath Ram Nath.
- Pascoe, Sir E. A. (1931). A Sketch of the Geology of India. *The Himalayan Journal* 3, source. <https://www.himalayanclub.org/hj/03/3/a-sketch-of-the-geology-of-india/>; accessed on 09/07/2020.
- Pithawala, M. B. (1939). Physiographic Divisions of India. *Journal of Madras Geographical Society*, 14 (4), 428-435.
- Ramakrishnan, M. & Vaidyanadhan, R. (2008). *Geology of India*. Bangalore, Geological Society of India.
- Singh, I. B. (1996). Geological evolution of Ganga plain. An overview. *Journal of Paleontological Society of India*, 41, 99-137.
- Singh, J. (1983). Geomorphic Evolution of Extra-Peninsular India. *Indian Geographical Studies Research Bulletin*, 20-21, 45-48.
- Singh, R. L. (1971). *India. A Regional Geography*. Varanasi, National Geographical Society of India.
- Smith, G. (1882). *The Geography of British India*, Political & Physical, London, John Murray. Source. https://books.google.co.in/books?id=68c5AQAIAAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false; accessed on July 6, 2020.
- Spate, O. H. K. (1952). A Suggested Regional Division of the Indian Subcontinent. *The Indian Geographical Journal*, XXVII (1&2), 1-14.
- Spate, O. H. K. & Learmonth, A. T. A. (1967). *India and Pakistan. A General and Regional Geography*. London, Methuen and Co Ltd.
- Stamp, L. D. (1928). The Natural Regions of India. *Geography*, 4 (6), 502-506.
- Stamp, L. D. (1957). *Asia. A Regional and Economic Geography (9th edition)*. London, Methuen.
- Storey, B. C. (1995). The role of mantle plumes in continental breakup. case histories from Gondwanaland. *Nature*, 377, 301-308.
- Valdiya, K. S. (2001). Reactivation of terrane-defining boundary thrusts in central sector of the Himalaya. Implications. *Current Science*, 81, 1418-1431.
- Valdiya, K. S. (1998). *Dynamic Himalaya*. Hyderabad, Universities Press.
- Valdiya, K. S. (2016). *The Making of India (2nd edition)*. Berlin, Springer.
- Van Hinsbergen, D. J., Steinberger, B., Doubrovine, P. V., & Gassmüller, R. (2011). Acceleration and deceleration of India-Asia convergence since the Cretaceous: Roles of mantle plumes and continental collision. *Journal of Geophysical Research: Solid Earth*, 116(B6).
- Wadia, D. N. (1919). *Geology of India*. London. Macmillan and Co. Ltd.

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