Chapter I

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This thesis entitled as "Man, Natural Resources and Regional Development in the Himalayan Chenab Basin in Jammu and Kashmir" attempts to explore the pattern of human interaction with nature in the hilly environments within the specific institutional framework as it has evolved in the region over time. Most of what constitutes the Himalayan Chenab basin is encompassed within the limits of an administrative district, now known as Doda.¹ It lies within the lap of the Himalayan ranges, with some of its parts suffering from isolation of the highest order.² The rigorous environment coupled with difficulties in accessibility imposes serious constraints on human options to survive and eke out viable existence. The population in the region has maintained a balance with Nature at a low level of technology with very little interaction with the

¹. Doda became one of the districts within the state of Jammu and Kashmir in 1948 after the state's accession to India. It extended over parts of Udhampur district - 10 villages in all - which were later transferred to the newly created Gool Gulab Garh tehsil of the latter district (cit. District Census Handbook, Doda District, 1971, p.5.

². Places situated in sub-divisions such as Marwah and Paddar can be reached by most difficult mountains tracts involving a journey of several days from points connected by a motorable road.
outside world and has survived at a low level of development. The region seems to be in a perpetual state of underdevelopment and stagnation.

The question that the thesis asks is whether the prevailing underdevelopment has been caused by Nature alone or man has also contributed to it by his discriminate action in some areas and inaction in others. What has determined the human choice? This question has acquired a new dimension of meaning in the context of on-going emphasis on planned development in India since Independence - a process which is affecting the remote hilly areas as well.

I.1 THEORETICAL FRAMEWORK:

It would not be out of place if the broad theoretical framework is spelt out in the beginning. This will help in the proper evaluation of the philosophical foundations of the thesis. The environment in which man is living is biophysical in nature. The natural environment

3. Among the 10 districts of Jammu and Kashmir state, Doda ranks sixth in literacy rate and seventh in the level of agricultural development.

4. The on-going process of the participation of the people in the electoral politics has aroused a new consciousness about the state of backwardness and the development needs. The rival political parties during electoral campaigns play an educative role of great significance. Moreover, the planning process has brought the development gains to the people in the different regions in a variety of forms.
consists of a number of elements, both physical and biotic. The meaningful interaction of man with Nature started when he became conscious of the limits imposed by Nature on his freedom. The better he understood Nature the more adequately he dealt with it. In the early stages human economy was a slightly modified extension of the relationships which existed in the earlier situation. When man was a part of Nature. It was limited to gathering and collection from the forest including subsistence on wild animals. Later it evolved itself into primary cultivation and herding of animals. The human population increased in the wake of improvement in food availability and living conditions and thus the basic needs multiplied which resulted in the complex forms of development of natural resources with the help of better and superior technologies. This in its turn resulted in the generation of surplus which promoted the process of private ownership of means of production mainly consisting of land and subterranean water in these incipient agrarian societies. This accelerated the process

5. "...at every step we are reminded that we by no means rule over Nature... but that we ... belong to Nature,... and that all our mastery of it consist in the fact that we have the advantage over all other creatures of being able to learn its laws and apply them correctly." - Engels, *Dialectics of Nature*, p. 180.

6. The advent of technology in a social group is intrinsically linked with the social institutions which evolve in the course of social evolution.
of accumulation of assets by individuals giving rise to economic disparities of a varied nature within the society. 7

The hilly environments have not been an exception to this general norm of social evolution. Their problems were, however, slightly different. The rigorous environment and the limited agricultural potential permitted only a limited growth of the agrarian economy in the most favoured parts of the valley bottoms within the mountains. Once a balance in man-land ratio was attained the process of change was very slow. The pattern of economic diversification was even slower. The hilly areas also witnessed a unique pattern of survival of older modes of economies from gathering and collection in the forest on hill slopes to transhumance and dry farming of harder varieties of cereals. Under such conditions the process of social development remains at a low key and hilly areas are only marginally integrated with the economy of the plains. When such an integration takes place the hill economies are made to serve the interests of the plains economies.

7. An obvious example in hand is land in equality which operates as one of the most serious constraints on the development of agriculture in many regions of the country.
The cumulative human experience gathered in the hilly environments shows that the institutional frame being determined by forces located in the plains, instead of regulating the resources for development of these regions often leads to outflow of natural resources which become an input in the development of other regions within the same political space or in the neighbouring states. The process in the Kashmir Himalayas began with commercial lumbering and has been further accentuated by unbalanced inter-regional trade in a variety of commodities. The return inflow of developmental factors is generally negligible. This model applies admirably to the Himalayan Chenab Basin, an under-developed region within the state of Jammu and Kashmir.

The region has remained under-developed both economically and socially. The economic underdevelopment is reflected in the economic set-up of the region which is dominated by activities such as forest gathering, subsistence agriculture and primitive herding simultaneously.

8. The larger geographical name for the north western Himalayas is "Punjab Himalayas" (cit. Wadia, Geology of India, 1976, p.9); they extend between the Sutlej and the Indus. However, the Himalayas between Ravi and Indus can easily be termed as Kashmir Himalayas.

9. In fact the two processes are intertwined and inseparable.
The social underdevelopment is reflected in the simultaneous presence of tribal or quasi tribal social order on the hill tops, skewed nature of land ownership in the valley bottoms and unbalanced structure of external trade.

The present study has been undertaken to analyse the structure of underdevelopment in the region and to reflect on the causative factors which have directly or indirectly engendered the present state of affairs.

I.2 SCOPE OF THE STUDY:

The study is initiated with the formulation of a conceptual frame giving a general picture of resource development in a hilly environment. It provides an insight into the development of different types of economies at various stages of economic development.

The space relations in retrospect and prospect have been analysed to establish socio-economic linkages in the past and to provide basis for reflections on the future course of development of linkages and trade relations within and with the adjacent areas.

The natural resource base of the region has been identified and its potential evaluated to find out the economic viability of the region for agricultural development. The natural resource base has been studied in all
its components, including land, and its attributes, such as slope conditions and soils, water bodies, drainage network, its density and texture; and climatic attributes determining the seasonal rhythm of moisture and temperature regimes.

Other natural resources such as forests, minerals and those based on animal wealth have been discussed in context of their spatial distribution. An attempt has been made to evaluate the various modes of economies as based on the exploitation of natural resources. Various modes of economies which have been studied at length suggest that within the framework of existing institutional structure only a low level of development has been attained and that a higher level of development can be reached if necessary changes are introduced in the institutional framework and new technologies are employed. An attempt has further been made to measure the levels of development selecting the revenue village as the basic unit of reference.\(^\text{10}\) The level of development has been measured with the help of 36 indicators. A relationship between the levels of development and altitude has been explored. It has been found that the valley bottoms of the main afflu-

\(^{10}\) A revenue village is essentially an administrative entity and may consist of one or several settlement units of varied size of population and bio-physical attributes.
ent streams of the Chenab are better off than the hill slopes and the tops. The villages lying above the altitude of 2134 metres (7000 feet) as well as those below 1220 metres (4000 feet) offer cases of acute underdevelopment.

Politico-economic decision making in the planning process seems to have led to the disparities in regional development within the state. While the economic development has been obstructed by a set of physical features, political economy of development has also made a significant contribution to the present state of affairs. There has been a general policy of low allocation of development resources in the region. A certain forest contract policy implemented during the last three decades has accelerated the process of outflow of timber resources with no returns to the region as such.

1.3 OBJECTIVES:
The study has set before itself the following main tasks:

(i) to evaluate the natural resources potential of the region;
(ii) to evaluate the typology of economies in the context of the natural resource base;
(iii) to identify the levels of development in the region with the help of suitable indicators at various regional scales;
(iv) to evaluate the process of economic as social
development in the region in the context of poli­
tical economy of development as evident in the
planning strategies and allocation of developmental
resources since Independence.

I.4 HYPOTHESIS :

Following hypothesis have been formulated with a
view to develop a framework of logic for the evaluation
of the problem.

Hypothesis I :

It may be hypothesised that the low level of deve­
lopment in the Himalayan Chenab Basin stems from human
inability to optimally utilize the natural resource poten­
tial at the present level of technology and social rela­
tions.

Sub-hypothesis I :

The human will to overcome the constraints imposed
by Nature on the optimal utilisation of resources is
thwarted by the incompatibility of the known technologies
which allow only a low-order exploitation of the resource
base and foster a quasi-tribal mode of production prevail­
ing on the ridge-slopes.
Sub-hypothesis II:

The will of the primeval human groups, who occupied alluvial valley bottoms in the initial phase of peopling of the region to exploit the natural resource base, seems to have been frustrated by an over-riding feudal order which discouraged spontaneous release of production forces and thus perpetuated the vicious circle of poverty.

Hypothesis II:

The existing underdevelopment is attributable to the prevailing process of politico-economic decision making since Independence.

Sub-hypothesis I:

The process of decision-making has failed to break the historically determined stagnation as it continues to operate within the logical frame of sub-colonial exploitation by inducing the outflow of resources from the region without ensuring the inflow of developmental resources on an equitable basis.

Sub-hypothesis II:

It is assumed that a regional development strategy within the existing institutional framework will only benefit the national trading interests, accelerate the process of depletion of natural resources, accentuate social dis-
parity and rejuvenate the process of underdevelopment
ab novo.11

I.5 EARLIER STUDIES :

Studies in the process of development in the hilly environments within the Indian sub-continent are not too many. Notable among them are the pioneering contributions of Kayastha12 on the Himalayan Beas Basin, and of Harjit Singh on Ladakh. However, a number of scholars have worked on regional development under Indian conditions. Lalit K. Sen13 and L.S. Bhat14 have done remarkable work from the view point of regional planning. M.N. Paul,15 Moonis Raza,16 B. Chattopadhya and A. Kundu17 have developed comprehensive

11. In the common parlance underdevelopment is often used as a synonym to backwardness. It has, however, been used here in an entirely different context:


schemes of indicators of development as applicable to Indian conditions.

Not much literature is available on the region, which is of direct relevance. Historical writings on Kishtwar contain little information on the people and land. Information in Kalhanas' 'Rajtarangini' also does not throw much light. It is in the Territories of Jammu and Kashmir and 'Northern Frontiers of India' by Fredric Drew that one finds a good geographical information of the area. Other writings of the British period on geology, resources and history in sources of the Geological Survey of India, and in the gazetteers are of great value in this regard. Of special interest are works of Medlicott\(^ \text{20} \), Wadia,\(^ \text{21} \) and Didwal,\(^ \text{22} \) on geology; and of Raina\(^ \text{23} \) on general geography of the state. Among the contemporary works

\begin{enumerate}
\item[21.] D.N. Wadia, Geology of India, New Delhi.
\item[23.] A.N. Raina, Geography of Jammu and Kashmir, New Delhi.
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the most important sources are the District Census Handbooks, District Statistical Handbooks, Forest Digest of Jammu and Kashmir, departmental reviews and the publications of the tourism and information departments.

I.6 STUDY AREA:

As indicated earlier, the study area extends over one district, i.e. Doda, which lies divided into four tehsils, viz., Doda, Bhaderwah, Ramban and Kishtwar (Fig. 1.1). The district encompasses an area of 11691 square kilometres and has a population of 342220 persons, according to 1971 census.

The district is connected with the rest of the state by the national highway which passes through the western part of the district. The nearest railway station, i.e., Jammu, is located at a distance of 110 kilometres.

The Himalayan Chenab Basin in Jammu and Kashmir includes the catchment area of Chenab and its tributaries from Betwas village to Pari Jagir village. The basin presents a partially closed eco-system bounded on all sides by a rim of lofty mountain ranges. The mountain ranges which border the district and occupy a vast chunk of its territory form highly intricate relief features. They have created a variety of landforms and the associated fauna and flora.
Diversity in topography and altitude has produced corresponding diversity in climate which is sub-tropical in summer and almost Arctic in winter.

Agriculture is the economic mainstay of the people. Owing to the steepness of the slope and rugged terrain the holdings are generally small and scattered over a vast hilly area. The cultivated area accounts for 14.75 per cent of the village paper area. Food crops occupy a prominent place in the cropping pattern. Maize is the staple food crop in as many as 509 villages of the region.

There are 648 villages with a total rural population of 322684 persons making the region overwhelmingly rural with 94.29 per cent of its population living in villages. The rural settlements are widely scattered but have a relatively high concentration in the side valleys. Apart from this there are 6 towns well-distributed over the region. Four of these towns belong to class VI and the remaining two to class V. Kishtwar with a population of 5276 and Bhaderwah with 5211 persons are the two largest towns.

Kishtwar tehsil accounts for 28.59 per cent of the total population of the district followed by Ramban and Bhaderwah tehsils with 25.94 and 23.81 per cent respectively.
Doda tehsil accounts for 21.66 per cent of the total population of the region.

The density of population according to 1971 census is 29 persons per square kilometre. The density of population comes to 82 persons per square kilometre if one considers the village paper area instead of the geographical area. It is the highest in Bhaderwah tehsil (247) and lowest in Kishtwar tehsil (59 persons).

The average urban density in the district is 556 persons per square kilometre. In Kishtwar and Bhaderwah towns the urban density is above 1000 persons square kilometre, whereas it is below 360 in all other towns of the district.

Industrially the whole region is backward as there is no major industry in the region. The industrial backwardness of the region is often considered to be related to a number of factors such as lack of capital, lack of power and other infrastructural factors.

1.7 METHODOLOGY:

The narrow analytical methods used in the course of this work are described below:
(i) Slope analysis has been attempted by using the 'Average Slope Index' of Wentworth.²⁴

(ii) Drainage network and its characteristics have been studied with the help of 'Strahlers' methods.²⁵

(iii) To evaluate the forest resources the distribution of population of important species has been worked out at division level. Temporal analysis has been conducted at division level and regional analysis at range level. Extraction of timber in money value is also examined.

(iv) Areas of transhumance and other forms of nomadic grazing have been specified.

(v) Household industry is evaluated on the basis of investment and production pattern in organised and unorganised village industry sector.

(vi) Levels of development have been identified by taking into account a set of demographic, agricultural, economic and social indicators. Village level data


were collected for 36 indicators and a computer programme was run for Principal Component Analysis using Kundu’s modified method for each set of indicators. Later a composite score value was found out for each observation. On the basis this composite scoring the villages have been grouped into three categories of underdevelopment.

I.8 DATA BASE:

The data for this study were derived from primary as well as secondary sources. The major sources of data are listed below:

(i) Exercises on morphometric analysis and drainage analysis are based on the topographical sheets of the region.

(ii) On forests data have been collected from the official sources such as Forest Conservator Chenab Circle, Divisional Forest Office Doda, Divisional Forest Office Batote, Divisional Forest Office Kish­twar, Divisional Forest Office Bhaderwah, Soil Conservation Division Batote and Soil Conservation Division Doda.

(iii) Data on animal wealth have been derived from records
of Revenue Department, Department of Animal Husbandry and Department of Sheep Husbandry, Doda.

(iv) Data on workers engaged in household industry and other sectors of economy as well as on social amenities at the village and other levels have been collected from the Census Reports on the Doda district.

(v) Land use data have been collected from the official records of the Revenue Department.

(vi) Data on budgetary allocations have been collected from the Five Year and yearly Plans of the state of Jammu and Kashmir as well as all-India Plans.

I.9 CHAPTER SCHEME :

The thesis has been divided into 10 chapters and has the following lay-out.

Chapter I : Introduction :

This chapter states the problems of the thesis. The problem of regional development in hilly areas has been discussed. The chapter also discusses the significance of the study, main objectives of the work and the hypothesis methodology, data base and literature survey. A brief introduction to the study area has also been included.
Chapter II: Space Relations: Historical and Contemporary:

In this chapter the linkages with the surrounding areas have been highlighted within the historical situation as well as today.

Chapter III: Physical Framework:

Elements of the physical environment have been analysed in this chapter. These include land and its attributes as well as climate.

Chapter IV: Natural Resource Base:

Natural resources, such as forest animal, minerals, soil and water resources have been studied in this chapter. The regional patterns in the distribution of natural resources have been brought out.

Chapter V: Development of Natural Resources: Modes of Economies:

In this chapter modes of economies have been discussed. The types of economies discussed include primitive gathering, herding of animals transhumance and forest-based economies.

Chapter VI: Development of Natural Resources: Agrarian Mode of production:

In this chapter agriculture and its attributes have been discussed.
Chapter VII: Development of Natural Resources: Primary Processing of Raw Materials:

In this chapter processing of raw materials, employment, investment and production patterns have been discussed.

Chapter VIII: Levels of Development:

Regional patterns in the levels of development at village level have been worked out with the help of 36 indicators of development, using the modified principal components analysis.

Chapter IX: Political Economy of Development:

In this chapter the history of development planning has been surveyed with a view to evaluate the role of the state in decision-making regarding the allocation of development resources to the region.

Chapter X: Conclusion:

The concluding chapter presents a summary of the main findings of the study.