CHAPTER – 1

INTRODUCTION

"Our predecessors' perspectives guide to frame our own perspective."

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INTRODUCTION

1.1 INTRODUCTION:

The growing concern for man–environment interrelationship has been the basis of the present research which intended to circumspect and explore the true nature of the processes of evolution and transformation of man–environment relationship in a tribal space i.e. a region dominated by the tribes. Realizing the intricacy of the environmental system the study is circumscribed around the three nuclei viz. the hills (intercepted with forests) the tribes and the tribal settlements. Besides, emphasizing on these three nuclei, their associated phenomena are also emphatically studied.

Environment of any space is a combination of physical, human and non–substantial symbiotic phenomena irrespective of dimensions. These mutually interacting phenomena are significantly contributive in the modification and transformation of the environment. The role of human perceptions, preferences, evaluations and decisions regarding environmental potentialities and realities are also worthy of mention.

An indomitable transitive or involuntary successional change in erratic phenomena i.e. forms and processes, at each collateral interface may cause transformation. During transformation the system might reach self–sufficiency, crises or dependency depending upon the demand of the population of each constituent unit. In other words, it might attain climax, stability, instability or extinction at any interface depending upon the actions and activities of the population of the region. It is noteworthy that constituents do not only decide the nature of the evolving environment but also the nature of the operating processes and laws.

The significance of environment lies in its cardinal role in the survival of human and other beings. So, the survival of human beings necessitates the maintenance of symbiotism and resilience of the environment. It is mentionable that sustainability prevails in mutual adjustment, dependence and perseverance and not in struggle and indiscriminate anticipation. And the reverie of sustainable development could be true by the reappraisal of the problems, proper monitoring, management, and commensurate revival of the deteriorating environment. Such planning and management with an objective of attaining sustainable development must not only focus on conservation and resilience to satisfy the growing demand but also to curtail the unsatiable desires.

The basic theme of the study has been to explore and examine the processes of evolution of tribal space, their mutual interaction, interdependence and relationship with the pre–existing and evolving environment to attain multitudinal betterment and secure survival in perpetuity. In this context, various adhesive significant and regulating phenomena, such as location, history, demographic and socio–cultural evolution and perceptions and reactions to the various stimuli present in the environment are studied. Various symptomatic and synchronizing problems evolved during the course of evolution of the tribal space and their environment is also scrutinized. Finally an effort is made to synthesize comprehensive and syllogistic solutions and generating a simulation model relating to the evolution of a coherent development process.

1.2 BASIC CONCEPTS:

Environment of any space is a system of physical, human and non–substantial symbiotic phenomena irrespective of dimensions. These mutually interacting phenomena are significantly contributive in the modification and transformation of environment. Especially, the role of human perceptions, preferences, evaluations and decisions play a very significant role in the utilization of environmental potentialities.

An indomitable transitive successive changes in phenomena i.e. forms and processes, at each collateral interface may cause transformation.

During transformation the system might reach to self–sufficiency, crises or dependency depending upon the demand and population of each constituent unit. In other words, it might attain climax, stability, instability or extinction or stop at any interface depending upon the population and demand of the constituent units. It is noteworthy that constituents do not only decide the nature of the evolving environment but also the nature of operating processes and laws.

The significance of environment lies in its cardinal role in the survival of human and other beings. So, the survival of human beings necessitates the maintaining of symbiotism and resilience of environment. It is worth to mention that sustainability prevails in mutual adjustment, dependence and perseverance and not in struggle and indiscriminate anticipation. And the reverie of sustainable development could be true by the reappraisal of the problems, proper monitoring, management, and commensurate growth of deteriorating environment. Such planning and management with an objective of attaining sustainable development must not only focus on conservation and resilience to satisfy the growing demand but also on curtailing the unsatiable desires.

1.3 RESEARCH THEME:

The basic theme of the study is to explore and examine the processes of evolution of tribes and tribal space, their mutual interaction and inter–dependence and relationship with the pre–existing or evolving environment to attain the objectives of their multitudinal betterment or fulfill the needs and thence secure their survival in perpetuity. In this context, various significant and regulating attributes or phenomena such as tribes' origin, location, history, demographic and socio–cultural evolution and perceptions and reactions to the various stimuli present in the environment are considered. Also, various symptomatic synchronizing impediments or problems evolved or existing during the course of evolution of tribes, tribal space and their environment in the form of positive feedbacks, as staggerds and catalysmic events are scrutinized. Simultaneously, an effort is being made for synthesizing comprehensive and syllogistic solutions and preparing a simulation model for sustainable development in the tribal areas.

1.4 OBJECTIVES OF THE STUDY:

Any space, its folk and environment are dynamic. The dynamism may be nature or man induced but the pressure or absence of interactive components provides the basis of stimulation. These forces in turn regulate different processes of the environment and impel its components to react or adjust accordingly to attain stability or equilibrium and thence set platform or conditions for further processes. It is notable fact that each particle in the universe is conceived with energy and so subjected to unstoppable mobility. In other words, evolution of earth and its environment (lithosphere, hydrosphere; atmosphere and biosphere) have always been subjected to or inflicted by a continuous series of interrelated unending cyclic actions and processes. Meaning thereby any environment is not static.

The above described universal law is, applicable to the tribes, tribal space and their environment. Over time the interplay of different forces have drastically modified and evolved distinctive and spatially varying tribal environments. The contemporary conditions might prove key to their past and prospectives for their sustainable development.

It is pertinent, therefore, to study and examine the processes of evolution and postulate future probabilities. To satisfy the need a set of objectives are targeted to analyse and interpret the realities conceived within.

1. To trace out the origin, location and evolution of tribal space in the study area.

2. To reconstruct the pre–existing environment and to attempt a comparison with the existing environment.
3. To attempt an assessment of the existing and perspective potentials of the tribal environment.
4. To study the symbiotic relationship within the tribes, tribal space and their environment consisting of closely associated phenomena.
5. To analyse the trend of socio – cultural and economic evolution of tribes and resultant effects upon the existing environment.
6. To analyse the efficacy and role of associated phenomena such as time, distance, area, location, altitude, physiography, etc. in the evolution of existing physical, social, cultural and economic environment.
7. To develop a feasible planning model for sustainable development of hilly environment inhabited by the tribes with due consideration to the entire related human and non–human stimulating phenomena.

1.5 METHODOLOGY:

1.5.1 The Process of Research:

The methodology used in the study comprises of various stages, such as perception, conception, gestation and substantiation accompanied by the selection of approach, hypothesis formulation, conceptual bases, application of statistical techniques and cartographic techniques. The various stages of the study includes following:

1. Perception
   a. Reception of the ideas or knowledge and
   b. Framing the image of the environment
2. Conception
   a. Adoption of approaches
   b. Formulation of hypotheses and concepts
   c. Selection of Techniques
3. Gestation
   a. Reviewing the literature
   b. Application of approaches and techniques in surveillance collection and derivations of secondary and primary data,
   c. Examining the realities and probabilities,
   d. Detecting of the problems
4. Substantiation
   a. Computation and analyses of data

b. Analysing concepts, testing hypothesis and drawing inferences; finding solutions
c. Evolving models or theories
d. Conclusion

The above mentioned stages of study are further incorporated with the application of various qualitative and quantitative techniques. The various assets or techniques used or applied are:

1.5.2 Selection of Study Area:

Research theme and objectives of the study led to decide the study area comprising of three potent nuclei viz. The Hills, The Tribes and The Tribal Settlements. Besides this, considering the comfortability and applicability of the subject Eastern Panchmahals with its five talukas viz. Devgadh Baria, Limkheda, Dahod, Jhalod and Santrampur were selected for the study. Presently the area is known as Dahod District of Gujarat, India.

Some of the important factors which were considered for the selection are –

Location 1) The location of study area is at the transition zone of trpical and subtropical zone

2) Nearness and comfortable approachability from the institution.

Physiography: The hilly undulating terrain of the region.

Biodiversity: The possibility of diverse flora and fauna.

Socio – economic and cultural: The socio – economic and cultural backwardness of the inhabitants.

1.5.3 Sample Design:

The sample villages for the study were selected randomly. The sample area consists of nearly 1092 villages. So keeping in view the preciseness and accuracy of statistical analysis the proportion of villages was kept very less i.e. 110 samples (nearly 10%) for secondary level analysis and 30 villages (out of 110 villages) for primary level analysis. Households for survey from each village were also selected randomly. The list of villages and their geographical classification for the study is given in Annexure – I. The sample design of the study is presented in table 1.1.

Table 1.1

Sample Design

Sr. No.	Village Code	Name of Village	Total No. of Households	No. of Households	Total population	Total Tribal Population	Percentage of Tribal Population	Population surveyed (%)	Tribal Population (%)	Non–Tribal Population (%)
DEVGADH BARIDA										
1	51	Khanpatla	218	10(5)	1649	1618	98	132(8)	38(29)	94(71)
2	62	Chathi	120	10(8)	792	733	93	81(10)	70(86)	11(14)
3	105	Motimagoi	207	10(5)	1103	565	51	88(8)	72(82)	16(18)
4	163	Mol	233	10(4)	1485	1472	99	64(4)	64(100)	00(00)
5	178	Zinzari	375	10(3)	2676	2050	77	53(2)	48(91)	5(9)
6	185	Sarasava	78	10(13)	694	650	94	117(17)	105(90)	12(10)
DAHOD										
7	1	Dimgra	135	10(7)	970	970	100	83(9)	83(100)	00(00)
8	14	Rachharda	296	10(3)	2052	1493	73	71(3)	44(62)	27(38)
9	25	Kharod	346	10(3)	2547	2547	100	88(3)	88(100)	00(00)
10	36	Kharedi	447	10(2)	2816	2638	94	78(3)	78(100)	00(00)
11	65	Khangela	578	10(2)	3960	3894	98	72(2)	67(93)	5(7)
12	106	Garbada	1611	10(1)	10,782	8683	81	59(1)	53(90)	6(10)
JHALOD										
13	19	Mumkhosla	269	10(4)	1641	1117	68	50(3)	45(90)	5(10)
14	63	Moli	159	10(6)	1150	1142	99	136(12)	95(70)	41(30)
15	70	Pethapur	466	10(2)	2962	2533	86	86(3)	86(100)	00(00)
16	111	Malvasi	301	10(3)	2116	2097	99	81(4)	81(100)	00(00)

Sr. No.	Village Code	Name of Village	Total No. of Households	No. of Households	Total population	Total Tribal Population	Percentage of Tribal Population	Population surveyed (%)	Tribal Population (%)	Non–Tribal Population (%)
17	127	Simaliya	413	10(2)	2609	2602	100	85(3)	85(100)	00(00)
18	145	Amba	491	10(2)	3612	3581	99	101(3)	101(100)	00(00)
LIMKHEDA										
19	87	Zerzitgadh	164	10(6)	1137	1114	98	96(8)	775(78)	21(22)
20	128	Khirkhai	323	10(3)	1888	1256	67	90(5)	55(61)	35(39)
21	149	Ambava	230	10(4)	1175	1006	86	70(6)	65(93)	5(7)
22	178	Pav	332	10(3)	2155	2151	100	113(5)	113(100)	00(00)
23	189	Raiyavan	162	10(6)	935	935	100	98(10)	98(100)	00(00)
24	237	Panam	179	10(6)	1149	1143	99	85(7)	85(100)	00(00)
SANTRAMPUR										
25	185	Chhalor	213	10(5)	1557	1557	100	89(6)	89(100)	00(00)
26	209	Mota Sarnaiya	183	10(5)	1004	831	83	63(6)	54(86)	9(14)
27	255	Nara Borida	86	10(12)	574	574	100	83(14)	83(100)	00(00)
28	278	Hirapur	210	10(5)	1261	631	50	80(6)	80(100)	00(00)
29	335	Kanthagar	289	10(3)	2097	2095	100	68(3)	62(90)	7(10)
30	393	Margala	516	10(2)	3651	3516	96	131(4)	131(100)	00(00)
			9630	300(3)	64199	57194	89	2592(4)	2293(88)	299(12)

1.5.4 Time Frame:

For the objective of generalization and effective results data of three decades i.e. 1971, 1981 and 1991 were analysed. The analysis of three decades is further verified with the analysis of updated primary data.

1.5.5 Selection of Variables:

The evolution of any space, its inhabitants and their environment, in time-space continuum, is dependent primarily upon the availability or distribution of varying areal potentialities such as natural and human resources; climate; interacting spaces and interacting masses i.e. outsiders and the tribal inhabitants. The inhabitants, for their sustenance, have a tendency to struggle, manage and modify the environment to make it favourable. During their quest, sometimes they even overlook certain essentials and do not project or speculate the future consequences which is being observed and reiterated by many scholars, administrators and some other functionaries.

The comprehensibility and compatibility necessitates application of systematic approach which in turn generates the need to explore 'a point of initiation' or 'nuclei'. The quest "what could be the best nuclei?", had been a long course of exploration. The quintessence arrived in a concept, "Man and related phenomena or variables form the nuclei". But man and most of related attributes are subjected to mobility or non-substantiality and so this could not be considered cogent nuclei. Only the 'settlements' thought to be the succinct and substantial attribute from where man performs various actions and so could be the best for studying the man and environment relationship in any region. Settlements are not only human but a spatial attribute though a modified space. Beside settlements, hills and tribes are also considered nuclei for the convenience and comprehensibility of the study.

The above concept, complexity, variability and numerousity of variable necessitate the selection of some specific variables to satisfy or achieve the targeted objectives. Here, the variables forming the aspects reflect to be either radiating or merging or circumventing around the 'pivot' or 'nuclei' of 'settlements' inhabited by man i.e. 'Tribes' in hilly environment.

1. Nuclei or pivots of study chosen were tribes, hills intercepted with forest and tribal settlements.
2. Variables which were treated as catalysts in the study are locational (distance of samples from urban centres, river, forests, altitudinal ranges, physiography – highland, upland, lowland; distance between settlement agglomerations and extent of villages), temporal (historical and contemporary trends in

geographical factors), socio–cultural and economic in nature (Areal factors – cultivable land, forest, culturable waste land. irrigated land; soil depth; population – total population, total tribal population, population density, tribal density; cultural factors – tribal arable density, literacy, main worker, cultivator, health, crime rate, addiction, domestic vegetational density (trees per hectare), animal domestication, house type and electrification).

3. Analytical evaluation of geographical environment of the area.
4. A perspective on the tribal evolution and location.
5. Efficacy of geographical catalysts in transformation.
6. Association between various phenomena of environment.
7. Association or inter–linkage between problems.
8. Detection of problems and their solutions.
9. Planning and management of the tribal – system or environment for sustainable development.

1.5.6 Statistical Application:

Statistical tools and techniques are applied to simplify the study for better immaculate description, and drawing of inferences, by analyzing data, computing, significance testing, calculating probabilities, and establishing relationships, from the representative samples.

The course of action or techniques applied are mentioned below–

1.5.6.1 Collection of Data:

1. Data collection for the representative random samples –

Data collection was followed by compilation, computation and analyses. Data collection, compilation, computation and analyses are circumscribed for two sets of information or representative samples viz. secondary data for 110 villages and primary data for 30 villages. Various variables were selected for the above mentioned sets to satisfy the need of comprehensive study and centripetal conclusion.

The secondary and primary data were collected for various purposes keeping in view the subject and objective of the study. Secondary data for 110 sample villages were collected, from primary census abstracts of 1971, 1981 and 1991 of Panchmahals district of Gujarat.

Primary data for 30 sample villages were collected through surveying the study area and personally contacting the population. Keeping in view, the

convenience of survey and level of education of the target population. a format for data collection was used instead of questionnaire (Annexure – XI).

1.5.6.2 Data Computation:

Specific techniques were selected with due respect to the set of variables. Some of the techniques applied are–

1) Central Tendency.

2) Dispersion.

3) The tests of comparison –

a) Student 'T' tests.

b) Analysis of Variance.

4) Techniques to know the co–relationship.

5) To know the trends effectively and estimates by using multiple regression.

The statistical techniques and analyses were further assisted by the graphical representation wherever needed.

1.5.7 Cartographic Application:

Geographical study is incomplete and cannot be appropriate and accurate in the lack of cartographic application. So, all the necessary techniques or tools have been applied to display numerical or subjective data in a visual form and represent the ground realities on the maps or graphs.

1.5.8 Devices and Apparatuses Used:

Devices like computer for the computation, graphical representation and illustrative printing of the work by using Microsoft Word and Microsoft Excel, calculator and camera for photographs were used during surveying of the sample area and accomplishing the research.

1.5.9 Approaches:

The study being related to the tribes, tribal space and their environment, systematic, quantitative and behavioural approaches are implemented for a lucic and propitious explanation.

(i) Systematic Approach:

The definitions of 'system' dictate, "A system is a set of interlinked units of varying forms and nature, regulated by the interlinked or interacting processes". The above definition implies that the tribes, tribal space and their environment i.e. the study area and various related

attributes, in an orderly arrangement, form a system. This consideration necessitates a systematic analysis of interrelationship between tribes, tribal space and their environment or related attributes or within themselves. The visible or invisible interrelationship is based on the dissemination or discharge and reception of energy in the form of matter (tangible or intangible). So, the various major relevant elements (variables) which regulate or monitor the system are selected to study the process of their action – reaction and discharge – reception and modifications within them and thence into the environment.

The systematic approach is adopted to focus on the various constituting elements of environment or ecosystem – such as

i) Processes operating landscape and spatial preferences, especially in terms of residential and functional desirability.

ii) Physical and human environment and their symbiotic relationship.

iii) Land–use investigation in a specific ecosystem and factors affecting man's decision.

iv) Modifications or transformation in the environmental conditions or attributes.

v) Simulating a model of environment evolution.

(ii) Behavioural Approach:

Environmental perception, preferences, evaluation and decision making are concerned with human behaviour and so primarily dependent upon the human behaviour and environmental conditions. Thus, to study man – environment relationship consideration of behavioural attributes are necessary. Behavioural explanations in geographical study of environmental phenomena, involving man and environment and their attributes, level the gaps caused during the analysis and explanations of various operating environmental processes. The complex or intricate relationship between man and environment necessitates not only the analyses of human but also varying environmental behaviour. It is notable that. the behaviour of each varies at every evolving stage caused due to their interactions. The existence, transformation or evolution of physical and human environment i.e. topography, soil, climate, bio–diversity, resources, settlement, cultural, economic activities and social conditions, extensively depend upon the varying behaviour of each at each evolutionary stage. It is realized by the researcher, exclusion of

behavioural attributes of environment' would simply mistify instead of providing a clear, lucid and logical explanation of environmental study.

(iii) Quantitative Approach:

The approach was applied to detect and explain the transformation of various environmental phenomena, efficacy of environmental phenomena and association between the environmental phenomena in space–time continuum numerically. Beside this, to estimate the evolving probabilities necessitated the application of statistical and mathematical tools. The application was also felt necessary for testing various hypotheses, formulating theories and preparing models on the basis of statistical and mathematical calculations.

1.5.10 Hypotheses:

1. Geographical catalysts perform a significant role in the transformation of environment in space–time continuum multifariously.
2. Relief, climate and resource potentiality (Physical geographical phenomena) cast their impact on the demographic, cultural and socio–economic structure (human geographical phenomena) and vice–versa.
3. Geological, geomorphological, climatic conditions and bio–diversity of the region regulate the process of soil formation, cropping pattern, productivity, availability water resource or drainage pattern or hydrological cycle, settlement pattern, accessibility and availability of mineral resources.
4. Infrastructural development increases the scope and leads to the socio–cultural and economic development.
5. Dispersion of settlements and increasing (growing) population are the cause for transformation of the pre–existing and evolution of the contemporary environment or ecosystem.
6. Influx and interference of non–tribals, Government and Non Government organizations has led to the socio–cultural and economic transformation of the tribal region.
7. Location of settlements is reciprocated by the environment.
8. Perceptions, preferences, evaluation, monitoring and decision making of man about the environment and his diverse activities depend upon the environmental conditions, awareness and mental efficiency.
9. Deflective, repulsive or reflexive characteristics of tribes, tribal space and their environment are now displaying absorbing and adjusting tendencies.

10. Plans or policies are injecting or infusing effective growth hormones for sustainable development.
11. Tribal region is a self sufficient environment.
12. The imponderable cyclic or inter causasive problems reveal the interruption, disturbance or deterioration in the cyclic eco–system. This signifies the need of resilience and commensurate enhancement or generation of basic attributes of ecosystem to solve the aggravating problems. In other words, the resilience or generation of one basic attribute of eco–system leads to the cyclic evolution of ecosystem and solution of the cyclic problems.

1.5.11 Scheme of the Study:

The essence of planning a scheme lies in its decisive role in the successful completion of any course of action in a disciplinary way. This vision allows to classify the whole course of action and subject matter. After a deep reappraisal the contents of study are subsumed under appropriate topics. Here, chapter wise summary of contents is given:

"Introduction", describes basic concepts, research theme, objectives of the study, study area, sample design, time frame, major aspects and variables, statistical application, cartographic application, devices and apparatuses used, hypotheses, review of literature and suggestions. "Methodology", describes the set of appliances utilized for an efficient completion of work in a disciplined manner. It explicitly explains about the guiding principles, approaches, process of action, qualitative and quantitative techniques adapted and followed during the study. "Literature Review" – 'Ideological Means and Deviations', analytically describes contributions of eminent scholars. An effort is to find out the point of agreement, vacuum areas and angle of perceptions for exploration, explanation and to decide the direction of study.

"Geographical Environment of Sample Area – An Analytical Retrospection", analytically explain the varying geographical constituents of the environment, their contribution and existing realities. Inclusion of this, conceives the simple intention of detection and explanation of the significance of geographical elements and processes and direction of transformation of environment.

"Evolution and Location of Tribal Settlements in Hilly Environments", explain the probabilities of tribes' origin and their settlement in the specified area. Some theories are evolved which explain the role of environment in the entire

process of origin and settlement of tribes. The theories postulated are supported logically by producing evidences.

"Efficacy of Geographical Catalysts in Transformation of Tribal Hilly Environment", describes geographical phenomena as catalysts realizing their commanding role in regulating the process of transformation and thence development. In order to find out the significance of geographical phenomena statistical techniques like multiple regression, t-test, analysis of variance and correlation are optimally applied. It is worth to mention that many scholars like Peter Haggate and R. J. Chorley emphatically advocate the use of multiple regression in geographical studies. This inspired to use the technique to detect the role of geographical phenomena like spatial differentiation, location and distance in space–time continuum.

"Integrated Nature of Phenomena and Sustainability of Environment", describes the mutuality between the phenomena. Description is based upon correlation analysis of secondary and primary data and includes the existing inter–causasive association between the phenomena, the influence of variations among and between the phenomena, the resultant variation in the system, the probable evolving or emerging alien or new phenomena, the probable consequences of the variations and the nuclear model and composite model representing the association of phenomena with their respective nucleic phenomenon and the composite network of association respectively.

"Planning and Development of Tribal Hilly Environment", describes the crude realities based on quantitative and qualitative data analysis. It includes brief appraisal and explains the drawbacks of developmental efforts and the need of necessary remedial measures. Beside these, nodal factors for the development of such environment are also proposed.

"Conclusion", concentrates on the centrifugal essence of the study. In this the various findings and recommendations are discussed elaborately.

1.6 REVIEW OF LITERATURE – IDEOLOGICAL MEANS AND DEVIATIONS:

1.6.1 Introduction:

Every creation is either foundation or assisting tool for further explorations and creations. So, the scholastic contributions reflecting their perception and dearth of knowledge must be reviewed. Here, review of literature is cognitive effort to ameliorate the study, though it is just like entering a dark wood with the hope of reaching to the brighter end with a broader scope. Significance of any subject is related to the varying crisis, desire and demand. Since the very beginning, these factors have been guiding and inspiring principles for the scholars to cogently cogitate and contribute accordingly.

Perceptions, themes, approaches and objectives to study about the tribals have been subjected to constant but deliberate change. One common characteristic feature emerge from the available literary sources is that they describe tribals and their environment as a distinctive and delineated element. Also, the earliest literary sources like vedas, purans, epics and history reveal that they were a significant group of the then existing human mass with a distinct environment. Evidentially, their distinctive characteristics, potent role and spatial and temporal varying contrasting features within themselves and comparative to others might have been the cause for being an alluring subject of study and description. The available religious, archaeological and historical sources dictate their rich heritage. But ironically, the contemporary existing tribals are like the weathered or eroded relicts and remnants of the mighty endangered space i.e. mountains, hills or forests, prone to exploitation and deterioration. And so, the contemporary scholars are concentrating and buzzing around tribals and their environment, considering them to be natural crude ore and features gradually getting extinct.

Undoubtedly, tribals and their environment have been described by numerous contributors of varying streams and time but not much extensive and intensive exploratory description are available specifically related to the hilly environment habitat and their settlement. The available sporadic contributions satisfy the need, upto some extent, and provide enough efficient material and scope for exploration. It would not be an exaggeration to accept each contribution as a foundation for expansion of the concept in strengthening the study and model preparation.

1.6.2 The Origin and Evolution of Tribes and Their Settlement:

The origin and evolution of tribes has been a contentious issue for the scholars of different disciplines. There study being influenced by eventualities and speculations do not reach to any concrete solution regarding the heart land or place of their origin, dispersal, genetic evolution and their relationship with the non–tribes. The lack of appropriateness and consensus reflects in the thoughts and descriptions of varied perceptions and frequencies.

Certainly the reviewed definitions lack unanimity and do have varied perspectives but indicate and reflect some common characteristics like groupism and territorial - linguistic, cultural and political unity. A very interesting and unique feature mentioned in each definition is territory or space. This reflects and exposes the significance and role of geographical factor in their evolution. And so, creates the need to define the term geographically for better understanding (Hasnain, 1992; Ahmad, 1999; Vidyarthi, 1982; Choudhary, 1977).

The presence of distinctive humane in a distinctive space i.e. undeveloped man, a man in primitive stage, in an isolated or remote natural regions attracted the geographers' attention. Their spatial approach accompanied by perception of aerial differentiation led them to a unanimous concrete conclusion. They found some inaccessible space–pockets or tracts like mountains, hills and forests inhabited by social, cultural or economic laggards and so they called them mountain, hill or forest dwellers. Most of the scholars unanimously call them forest dwellers as mountains and hills were and are also covered or surrounded by forests. The definitions and characteristics outlined by eminent scholars like Ms. Patnaik, Ms. Ghate, 1992; Mahapatra, 1997; Mohanty, 2002; Acharya, Mohara, 2002, Felix Padel, Agrawal, 2001 and many others clearly emphasise on the close affinity between the tribes and forests or isolated natural regions.

A deep and deliberate analysis of definitions and characteristics do not conceive, and state or diffract all the aspects of tribes. In other words, they lack in describing exactly the nature or extent of tribes. The exclusion and overlooking of certain potent aspects like origin, evolution dynamism etc. make the definitions unsaturated and direct the need to include these. It doesn't reflect that the scholars have not discussed or described about their ethnographic and anthropogenic and historical aspects related to their origin and evolution. They have, but did not include while defining. This led to the misrepresentation and misinterpretation. The scientists and theme readers perceived and treated tribals differently. The lack of holistic approach and perceiving and treating tribals as a distinct evolutionary being might have been the sole cause. This is evident in most of the scholastic

descriptions. The misperception, misinterpretation and lack of holistic approach have had indirect impact on the approaches and measures adopted in the process of development. It is notable that the descriptions outlined by Ahmed, 1999; Pathy, 1982; Vidyarti, 1982; Choudhary, 1977; Hasnain, 1992 indicate towards close association of tribals to their surrounding social masses.

The outcome of multidisciplinary and multi–temporal efforts remarkably reveals the mysteries related to their origin, evolution socio–cultural evolution and their affinity and association to the environment.

The contemporary archetypical remnants in the inaccessible remotes of the past and shrunken pockets of the presents are a ray of hope to solve the mystery of origin and evolution of themselves and whole mankind, depending upon the purity of their seclusion. And, only the bio–technology and genetic science are capable of revealing the various mysteries related to aborigines or tribals and their relations if with non-tribals. But in the lack of such evidences one has to carry forward and rely on the available resources to know the ethnic evolution and anthropogenesis of landscapes (Hasnain, 1992).

The studies based on ethnocentric assumptions like the linguistic, social, and cultural attributes of the ethnic groups or communities i.e. tribals or aborigines, does not reach to any conclusive end or single theory. Why? Certainly because of the mobility and interaction between the different ethnic groups since time immemorial. The expeditious explorations come up with astonishing evidences.

Guha (1999), while quoting Fried's Lattomore's, Leach's and Barth's experiences cautiously comments on the loss of ethnicity but such turbulence as in Burma is evidently faced by many spatial masses, more specifically all the parts of the inhabited world. His concept of human turbulence paves the way for Geographical or natural turbulence. Natural turbulence such as tectonic movements, quakes, vulcuncity, subsidence, upliftment, folding, faulting and climatic changes or disturbances might also have had significant impact on the evolution and dispersion of ethnic communities. The role of natural, socio-cultural and economic stimulants in the dispersion, fusion and interaction between the ethnic communities indicate the role of environment. The essence of this concept directly or indirectly, knowingly or unknowingly, seem to be emitting from many contributions like Ahmad (1999), Choudhary (1977), Guha (1999), Sahu (2001), Tiwari (2001), Upadhyaya (1983), Vidyarthi (1981) and many others. This, is further certified by the explorations and descriptions of pioneer scholars like Darium (1859), Lamark, Malthus, Ms. Semple, Trewartha, Copenhegen and many others who talk about the variability in environment, evolution, mutuality and hence the synergic consequences in space

time continuum. Meaning thereby, man the nucleic living element having similar necessities but ability to select and struggle must have been mobile and interactive, to satisfy their demand. Most probably this would have been the guiding principle for many scholars of varying discipline to study the man–environment inter–relationship from their perspective. Here, it is felt necessary to explore the contributions related to the man environment relationship. Even Upadhyaya (1983) and many earlier contributors mention about the socio–cultural diffusion.

1.6.3 Interrelationship between Tribes and Environment:

Available literary sources reveal that initially the tribal study was related to the origin, evolution and classification or anthropological, social or cultural description and later to the environment and development of tribals and their region. Most of the scholars are instead of deviating towards origin, evolution and classification, are concentrating on the symbiotic relationship between the tribals and their environment, environmental problems, development processes and sustainability.

The significance, venerability and viability of the environment, being realized by Fredrich Ratzel, and C. Semple or many contemporary scholar is well conceived in the following vignette i.e. in the sixth hymn of chapter seven, Atharvaveda, "The earth is the heaven, the universe, creator mother or father and born child. This is the replica of all Gods and Pentad or Panchjann'. Whatever is created or under creation is being regulated by the earth. While sailing in a strong boat, we surrender ourselves to the earth which fosters us, keeps us secured, gives us happiness and keeps us healthy. We eulogise for her deed of producing grams or food." The Vedas are reverent creations to nature. A deep analysis reveals the underlying mysteries and multiplier utilities of nature and above all the necessity of maintaining the equilibrium. The holy creations emphasise on the conservation and maintaining the sanctity or purity of land, air, water fire or heat and light. Even the epic, Ramayana, well describes the rich natural heritage of India and the varying seasons. But unfortunately such divine and propitious creations are overlooked and have not been considered as the basis for sustainability.

The declining environmental equilibrium being a threat to the life planet attracted the attention of the scholars of varying discipline. The growing crises compelled the think tanks to realize and perceive the neglected natural regions as the life–line and basis for sustainability. By this time, such life–line regions were not in wilderness. Such endangered environments or ecosystems found to be well inhabited by the so called tribes and encroached and exploited by the non–tribes

also. The prevalence or inhabitation of man necessitated the study and development of both the shrinking endangered environment and endangered tribes.

The tribal communities in India largely occupy forested regions where for long period in their history, they have lived in isolation but in harmony with nature. They draw their sustenance largely from the forest. They have had the symbiotic relationship with the forest which continues undisturbed in the interior areas even now Roy Burman. (1982), Mahapatra (1997), Ghate, (1992), Ahmed (1991).

The term symbiotic has widely been used by many scholars like Reddy (2002), Tarachand (2002). Naik (2002), Manoranjan Acharya (2002), Tuirupal (2002) and others. But most of them focus on 'output' aspect of the nature and do not much on to the 'input' i.e. they explain what nature gives to the man and do not explain what man gives to the nature. The 'symbiotic', a biological term does not only mean mutual relationship but also mutual understanding between the two living species living together and between the living and nonliving phenomena. Burman's (1982) statement "forest continues undisturbed in the interior areas even now" is/was certainly an exaggeration or misinterpretation. Meaning thereby, he is talking about the 'wilderness' which is extremely a myth in the contemporary dynamic world. "Environments are variable overtime and across space, however, making impossible broad generalizations about how conditions differ today from those 'back then'. The term 'symbiosis' besides explaining the concept of mutual relationships and understanding also conceives the concept of mutual relationship and understanding without harming each other". Unfortunately this approach was neglected by both, the population as well as the scholars. The population (rural tribal folk) did not realize the need to conserve or preserve and if they realized then could not follow it due to their ever increasing demand. Moreover, they were not enabled to realize by the scholars or elites. So, the traditional attitude of reverence and monitoring the resources kept on vanishing with increasing rate. The problem aggravated by the influx or encroaching of the urban or outsiders to satisfy their lucrative desires. All this has been well perceived and summed up in the following statement, "Though tribes are integral part of our civilization but tribal integration is not yet possible with the mainstream inspite of several welfare and developmental programmes initiated including tribal sub-plan. On the contrary, tribes live in harmony with nature and maintain symbiotic relationship with it. Another hallmark of them is that they accommodate others by retreating themselves to unfamiliar environments. As a result they become minorities in their own land. However, they have the tenets of resisting change to the extent possible and then get assimilated slowly" (Reddy, 2002; Ahmad, 1999; Vidyarthi, 1976).

The statement talks about the 'harmony and symbiosis' but this is self derived conclusion based on certain assumptions and generalizations. Tribals' venerability to the nature is derived from their reverence and monitoring of few specific species.

The studies clearly depict that there monitoring of the species or symbiotic relationship to the nature was solely based on theory of natural selection for sustenance. They did not have slightest idea of eco–system or cyclic processes which operate the eco–system. Even the scholars were unaware of the significance of each species in an ecosystem. Now they are more oriented and concentrated to the subject. Homji while realizing the significance writes "Every species has a particular role to play in the ecosystem and ecologists are trying to understand their importance." It is mentionable here that this realization too reflects from the Vedic literature. In the eight chapter of Atharvaveda it is described that the medicinal plants which grow on the mountains and plains could be found out with the help of animals or birds who know about them. This reflect many things, firstly the significance of biome, secondly the dependence between the beings, and thirdly their knowledge must have made them cautious to conserve the biome i.e. ecosystem. But this raises the question, how did the vedic knowledge and cautiousness towards nature vanish? The answer must be buried into the past (discussion).

The scholars do talk and describe about the tribes' dependence, harmonious relationship and adjustment to the environment. "The tribals have been living for centuries in varying degrees of isolation, agglomeration and in varying levels of economy. They are dependent on their physical environment for subsistence and hence agriculture and forest produces are the two major sources of their economy which are conditioned by their topography, climatic conditions and socio–religious standards" (Acharya, 2002). The tribes' dependence or adjustment was nothing but their struggle for existence. But their contemporary conditions reveal that they were helpless strugglers. They did not have ability as well as accessories to fight with the adversities. If they would have had they must have had carved, nurtured and made the environment favourable to them. Ibrahim Fail, coordinator of the United Nation's International Decade of Indigenous People (1995–2004) rightly described them as "people who have always lived where fate set them down before other people arrived on the scene to live alongside them" (Guha, 1999).

Discussion concludes to them as living matters' and laggards exposed to the natural adversities and surviving withering remnants of the past. Also, it would not be wrong to consider them as the losers in the struggle for existence and if they weren't the losers then they must had been the idle and effortless instincts but opportunists of the past. Actually from any angle they don't seem to be skillful or awakened. So

to call them as caring, self–sufficient or symbiotic creature as by Thirupal (2002), Guha (1999), Felix Padel and others is inappropriate. They lacked vision or foresightedness and never thought of the consequences of their acts and way of living. Acharya, et. al., (2002), rightly suggests that "forest and agriculture, the basis of their economy is conditioned by topography, climate and socio–religious standards". But a close peeving indicates the tribals' attitude was also responsible. What would have been the evolutionary causes for their present condition? The question remains unanswered. Was it an enforced destiny or rich environment or both?

Naik (2002), while quoting Vidyarthi's (1981) statement, 'tribal culture can be best understood in context of nature – man – spirit complex, doesn't give correct explanation against it. His deviation from understanding the truth reflects from his derivation, "it appears that each and every community has the ability to survive and reproduce in a particular habitat which in turn creates adaptation for that environment". He overlooks the mutual spirit.

The statement is partially true as it is not possible in all the geographical conditions. If a man is placed in Antarctica he won't be able to survive or propagate his generation or adapt to the specific adverse geographical condition. Moreover, if we compare the growth of human population and biome i.e. terrestrial, aquatic or arboreal beings then we find that the rate of growth of human population is comparatively more higher. So, man being an exponential consumer will certainly have negative effect in any eco–system. And in some specific geographical conditions like hilly or mountainous environment it would be very difficult to sustain very long without the outer aide. In other words, the proliferating eco–system of any region inhabited by man is going to be endangered due to either the accelerating consumption or continuous exploitation.

Sahu, 2001, an eminent scholar suggests, 'they (tribes) have adjusted themselves in their ecological and geo–climatic conditions through out the country.' The word 'adjusted' creates confusion because if they would have adjusted then there should have been stability instead of crises. But unfortunately most of the tribal community and their environment are recognized as endangered. And, the margin or scope for adjustment keeps on decreasing in any degrading environment i.e. subjected to exploitation. Actually, they never adjusted but accepted the adversities and turned about in search of alternate opportunities. Most probably this was the sole cause of their 'nomadic' behaviour.

1.6.4 The Problems and Their Causes:

The adhesive characteristic of poverty, illiteracy nomadism, shifting cultivation and gathering is not beyond the perception of any scholar. But the generally accepted characteristic lack unanimous explanation regarding why and how the basic characteristics did vanish? It could have been because of transforming political structure, acculturation, land legislations, inhabitation of the intercepted land, and loss of rich biodiversity. Or all the factors could have contributive to the same, such spatially and temporally diffusing concepts need more appropriate explanation. Some of the important causes, responsible for the present socio–economic and socio–cultural condition of the tribes, are described by the varying scholars like Sahu (2001), Mahto (2001), Naik (2002), Acharya et al (2002), Mishra (2002), Thirupal (2002), Ms. Patnaik (2000), Lakshamaiah (2002), Sinha (2002), Vidyarthi (1976), Ahmed (1999), and Burman (1992). Some of the problems described are – geographical location, leading to isolation and inaccessibility, inappropriate opportunities for socio-cultural and economic activities, political exploitation, land alienation, deforestation, growing population, migration and influx of aliens, illiteracy, lack of financial support, technological skills, infrastructure, etc.

Remedial measures as suggested by many scholars are merely either directives or suggestions which lack practical approach. In lack of practical process – model the problems either remained unsolved or temporarily solved by satisfying immediate needs with financial assistance (discussion).

1.6.5 Remedial Solutions or Models for the Problems:

The detection of the causes for the tribals' destitution was an accentuation to the need of development. The intentions spilt and reflected in their further explanations. Such initiations comprise the cause and objective of finding the solutions for eradicating the problems which had become the symbols and synonyms of the tribes. This necessitated the analysis of the problems, process of evolution of tribes and their environment, defining the development in context to tribal space and adoption of appropriate approach. A strategic move led the scholars and policy makers to find out the solutions and frame models for development.

Remedial Measures:-

1) Lakshamaiah (2002) suggests to safeguard interests of tribals to exploitation, land, indebtedness, traditional needs of life, provide education, employment, finance and economic opportunities, assess immediate problems, priorities and needs and implementation of restrictive measures.

2) Sinha A. K. (2002), suggests for settlement, land distribution, infuse of high yielding species, proper exploitation of minor forest produce, forest based industries to generate employment and food banks to lend grain on loan.

3) Viegas and Menon (1986) suggest to focus on social values and traditional mode of life. They also feel the need to divert the revenue oriented attitude of government while exploiting forest and other resources.

4) Pathy (1984) suggests for the allotment of waste land, restoration of land, irrigation and land development, providing kits of seeds, fertilizers implements cattle and other animals, providing institutional credit facilities, minimum wage scheme, abortion of bonded labour, food for work scheme, reservation in employment housing, education; public health etc. Beside these measures is centrality is in the initiation of collective farming for the welfare of tribals.

Analytical review of problems and associated solutions construe to some conspicuous conclusions. The monotony of problems reflects the deviation from the realities and grass–root causes. The problems might be similar but the causes must be different in different regions. The forest and hilly habitat do not necessarily have similar resource potentialities i.e. human, water, soil or minerals in the varying regions. On the other hand, the solutions as suggested by the scholars less concentrate on generating the available resources and more on the financial influx and long term measures. Though everyone knows reaching to ignition point for development is necessary as ignition temperature is required for burning any fuel. Moreover, derived sources can never pave the way for sustainable development. The developmental measures for erratic man living in erratic topographic and climate conditions must need multifarious programme and multi–Vitamin Capsule of development. "And it must not be forgotten, they vary along every imaginable dimension of socio–economic comparison (Kelly 1995): in the diversity and types of food and other resources consumed, in degree of task group and residential mobility, informs of intra– and inter–group exchange and land tenure, in group size and structure, in male and female role differentiation, and along a spectrum of egalitarian to more stratified social organization" (Bruce, 2001).

1.6.6 Development of Tribal Space and Their Environment:

1.6.6.1 Perceptions and Strategies:

The concept of Development is imbibed with simple meaning but wide ranges of perceptions. According to Oxford Advanced Learner's Dictionary of current English, it means, 'the action or process of developing or being developed' i.e. the action or process of starting or causing something to start to exist and become

greater. The meaning is certainly simple but it sets wide arena and scope for the scholars. So, the scholars of varying disciplines defined the term according to their own perception and need.

The definitions and criticisms along with definition by many like Nagpal, 1998, Schumter, 1934, Friedman, 1972, Hasnain, 1992 and Vidyarthi, 1981, clearly indicate the cause of discussion on development. Generally, the scholars have included either economic or socio cultural parameters and kept themselves away from the 'spatial aspects' while defining the concept of development. The irony lies in the fact that how the scholars overlook such an important component, the basis of development, to include in their definitions. It is well known fact, "the development of any matter is not possible without the development of space or more broadly the spatial environment." The development is certainly a phenomenon adhesive to the 'MAN' but man's development is a dependent variable. And the dependence directly or indirectly lies on the space and the environmental components. Any economic and socio–cultural activity takes place on the space in a specific environment. If the spatial or related environmental components are not managed properly then the development is a dream beyond blue archway. Actually, the scholars do not cogitate deeply on the process of development. Even the economist accepts the need of five basic factors for the establishment of any industry or economic activity, viz., land, resource, labour, capital and entrepreneurship. But while defining they forget the very first element, the land'. Exclusion of any element can not provide favourable environment for the development of any activity. So, the spatial and environmental i.e. geographical aspects are to be considered while talking about or defining development because the existence, expansion or diffusion of man and their socio–cultural attributes are solely spatial in nature. Above all, a space is the stage for any function and so without modifying the space accordingly nothing is possible (Dash, 2003; Burman, 1992; Ahmad, 1999).

The definitions given by scholars like Sahu (2001), Acharya, et. al. (2002), Ningaiah (2002), Singh (2000) and many others though included the human attributes but failed in correlating to the space. Singh et. al. (2000) mention about the 'rural space' but their effort is only to limit the area of development. So, what could be the definition of development from geographical point of view? The researcher thinks the inclusion of spatial and environmental factors along with the human is must. If this element is included then the development would certainly be a realistic development which would ultimately pave the way for sustainable development. The development programmes formulated by the policy makers or plan framers do have the same perception that is why they often become ineffective

in shorter or longer period. Development based on such perceptions, ideologies or guidelines are vanishing or fluctuating like the electrocardiogram. Certainly, because the economic or socio–cultural development of mass do not ensure or secure the stability as well as well being of mass in long run due to certain reasons–

(i) The ever growing population leads to the shrinking of opportunities.

(ii) Lack of ecological approach leads to the deterioration of environment which is the life–base as well as resource base for any economic activity.

(iii) Such development creates rivalry for excellence and profit maximization, which in turn widens the gap between rich and poor. The laggards fail to keep pace with the ever growing system.

(iv) Also, this kind of development does not ensure the rational distribution and consumption.

(v) Development means do not concentrate on restrictive measures for the conservation and rational exploitation of life support system i.e. air, water and land.

So, the question arises how the neglected aspects of tribal space development can be fulfilled? What elements are to be included for the well being of tribals? In this context many approaches or strategies are suggested by the scholars like Hasnain (1992), Vidyarthi (1976), Burman (1992), Singh (2000), Menon (1986), Hasnain, 1992, and indicate the inclusion of certain essential elements like –

(i) Movement, programme, method process and institutionalization emphasizing on organizational structure, activities, achievable ends, impacts on human and innovative skills for social change, respectively (Hasnain, 1992).

(ii) Ecological system, traditional economy, supernatural beliefs and practices and recent influences (Vidyarthi, 1976).

(iii) Development authorities and integrated approach (Hasnain, 1992; Ahmad, 1999; Dash, 2003; Burman, 1992).

(iv) Aspects like scope and integration of tribal welfare, development activities, role of government statutory bodies, voluntary agencies and tribal institutions and objectives like satisfaction of minimum needs, control and management of resources, employment optimization, participation of population and socio–cultural and political integration (Burman, 1992).

(v) Approaches like the urban industrial impact hypothesis, the theory of induced technical change while dealing with institute on building and economics of bureaucratic behaviour (Singh, et al, 2000).

(vi) Strategy of organizing development activities, effective implementation of rural development programmes for optimal exploitation of political and economic resources, concentration on increasing per capita production and reforming social structure to increase the accessibility of opportunities (Singh, et al, 2000).

(vii) Strategy of socio–cultural reform through education, participation in decision making and action, freedom of work and choose employment and equitable distribution policy (Burman, 1992; Singh, 2000).

(viii) Ecological indicators of development like conservation, recuperation, basic need satisfaction, optimum standard of living, equity and aesthetic quality (Burman, 1992).

(ix) Dash (2001), suggests grass root level planning focusing on socio–cultural, watershed and spatial development at micro level with the application of multitudinal integrated environmental approach having geographical essence and global perspective, compatibility and applicability.

The strategies formulated by varying scholars are not complete and perfect capsules for the development of tribals but the summation of various strategies presented might prove to be propitious. This clearly indicates the need of interdisciplinary approach in evolving a significant strategy. Meaning there by, without considering economic, anthropological, sociological, geographical and ecological factors, the development of not only tribals but any other region is merely a myth in true sense. Besides this, the appropriateness and performance of approaches and strategies also depend on the temporal aspect. The 'stage' of development must be evaluated and thence considered while formulating strategies. Also, there should be readiness for revival or transformation of strategies with the changing time. Another, important factor is the adoption of regional approach with universal application in similar conditions because the diverse geographical conditions have diverse problems and if the problems are similar then also it is certain that the mode of development cannot be same. One more noticeable and considerable point of thorough discussion is to know the distinction between evolution, growth and development along with the detection of the stage in which any particular tribe is living. This core aspect of the process of development has often

been overlooked. Some intermittent efforts by the economist indicate the need of distinction. Instead of peeving deeply it is worth to give a soft touch to this aspect. The scholars, reformers and administrators lavishly use these terminologies and most of them are stuck to the development. But the meaning itself of these words signify the cautious use of them. The concepts of evolution and growth conceive the sense of continuous dynamism where as development doesn't. The dynamism in the process of development may not necessarily be continuous but intermittent. So, it can be derived whether the tribal space need incessant process of upliftment or intermittent.

1.6.6.2 The Phases of Tribal Development:

The literary records classify the tribal development in two phases, i.e.

(i) Tribal development in Pre–Independent India.

(ii) Tribal development in Post Independent India.

The scholars do not forget to mention little or more about the tribal condition in the pre–independent India specifically in the British Colonial period. Because the imprints of imperial and colonial infliction as well as the impacts of then prevailing socio–cultural and political structure reflects from the contemporary condition of tribal space. The archaeological, historical and contemporary evidences focus on the mysticism and ambiguity of the subject.

Tribal Development in Pre–Independent India:-

The course of tribal development has undergone ups and downs throughout the history of evolution of mankind. It has been like undulating or erratic terrain. The archaeological and historical and other literary sources like epics present some interesting features about evolution and various stages of development. The prehistoric accounts like archaeological evidences, Vedic and epic literature and historic accounts strengthen the viability of Darwinism i.e. The Theory of Evolution or natural selection explaining the concept of (1) struggle for existence and (2) survival of the fittest. Some of the broad features derived from the various sources are–

(i) Initially, every man was a food gatherer or hunter and so they kept on wandering in search of favourable abodes for their sustenance. The forests, forested hills, and mountains or aquatic bodies were the best suitable for their sustenance.

(ii) The individual struggles developed into organizational struggle i.e. the struggle between clans. These organized struggles brought into existence, 'The Concept of territory or political entities or regions'.

(iii) The struggle between different clans is followed by imperialism and imperialism was followed by colonialism.

The man's struggle for existence reflects three characteristic features.

(i) Initially the struggle was for the self. Later it transformed into struggle for the clan or society and thence for the region and society.

(ii) The struggle for capturing and expanding the resource rich region as the life was based on resource extraction.

(iii) The struggle for existence transformed into the struggle for supremacy.

Though the words like 'welfare' or development' are not directly used but the cause of the struggle seems to be the same.

The following is concluded from the literary evidences given by Pathy (1984), Choudhary, (1977), Vidyarthi (1972), Ahmed (1999), Tiwari (2002). Burman (1992) –

(i) The wars were for the well being or secured life by capturing the fertile and resource rich land for the people of their clan or society.

(ii) The losers had to either flee away or settle in the remote.

(iii) There was tendency of developing by extending the territory under their reign.

The exercise of capturing the rich fertile or resource regions and expansion of territory kept on getting momentum upto the colonial period. The ways and means changed but the objective was the expansion of territory for resource extraction. The tendency was certainly because till the late eighteenth century man was mere a primary producer and had simple techniques. So, they kept on exploring the new lands. The quest might have ended with the improved technologies and industrial revolution. The utility of land widened. The abandoned places proved to be rich mineral or forest resource base for the supply of raw material for industries. Once again, the people who took refuge in the forests or hills became the victim of advancement (industrialization) in the colonial period. The problem caused due to industrialization (Choudhary, 1977).

Prasad (1977) writes, "The people who forced the tribals into their present habitats had not then visualized that these areas were underlain with valuable

mineral resources and endowed with other necessary which could become the backbone of their future industrial economy.

The problem which started during the British Colonial period is well perceived by many scholars. Haimendorf (1985) writes "A problem even more important is the impact of industrialization on the tribes in areas rich in mineral resources."

Sahu (2001) while quoting Chandrayaa's (1999) statement, "Prior to independence, the British Government adopted a policy of isolation of the tribals. This policy kept them off from the main stream of other Indian life and culture. Though the preservation of the tribal culture was the idea behind this policy of isolation, this led to the development of a cleavage between the tribal and non–tribal communities," comments, "the British Government did not take any attention towards development of tribal communities because it mainly aimed at regulatory functions, such as maintenance of law and order and collection of revenues. They treated the tribals differently from the rest. This policy of isolation increased the misery of the tribals as they were left to the free exploitation by rapacious money lenders, unscrupulous traders. forest contractors and local chiefs." Many scholars acquainted with this policy of isolation do not forget to mention in their contribution. But their perceptions and comments against the policy differ. This is an important part regarding this. Mishra (2002), commenting on the same writes, "The resources among the tribes have established beyond any doubt that they have not been isolated population as the British tried to portray them."

The researcher agrees with Mishra (2002), Ahmed (1999), Vidyarthi (1972), Mohanty (2002), Hasnain (1992), Choudhary (1977), Pathy (1984), etc. But the question arises, "why did they keep them in isolation and behave differently? The probability lies in the tribals' retaliation. The girdle of hills and forest running from the southern India along the western coast to the Central India and from Northern Tarai to North–Eastern hilly region must had been strategically significant. So the British troops would have captured the land along this girdle and might have enforced and pushed back the inhabitants into the forest. Secondly their adverse policy of land revenue might have compelled them to flee away from the plains to the hills or into the forests. Though the people were already living in these remotes since the Vedic period but the intermittent causes like Mughals and Turks plundering waves, revenue policies followed, by draughts and famines during the varying regimes must have made the situation worse. "It is evident that during Mauryan reign there was a person appointed as 'Ant Maha–Matya' to look after the welfare of the people living in the forest"(Mahto, 2002, 252)

Mohanty (2002, 90) is of the similar opinion. He commenting on the Scheduled District Act of 1874, writes, "the need they felt to isolate these people from the rest of their countrymen and to separate the entire Tribal Areas". He also strengthens his views by quoting a statement of J. H. Hutton about the effects of British Rule over them.

"Far from being of immediate benefit to the primitive tribals, the establishment of British rule in India did most of them much more harm than good."

Mahto (2001), comments, "The British Government did not pay any attention to the development of tribal communities, because it mainly aimed at regulatory functions, such as maintenance of law and order and collection of revenues. Therefore, it adopted a policy of pacification towards tribal communities when some of them were violent. The British Government treated the tribals differently from the rest. The British Tribal India Policy was framed to isolate tribals from the main stream of national life." The development and administrative regulations for tribal spaces where based on regional approaches and political interest.

He evaluates British Policy as, "Pre–independence approach to tribal development was ameliorative in nature. Some programmes and legislations were implemented and enacted just to mitigate the tribals' suffering and prevent exploitation from the outside. There was no deliberate attempt to strengthen the economic base of downtrodden, backward communities. A few missionaries or voluntary organisations were doing some welfare work among tribals with their limited resources."

Guha (1991), describes implementation of transformation in the English policy i.e. policy of intervention, both ecologically and socially against the policy of non–intervention till the beginning of nineteenth century. He writes latter half of the nineteenth century saw the colonial government embarking on policies of constructive conservation for both society and environment."

The explorations of varying scholars clearly indicate the shifting attitude followed by shifting approaches and policies towards tribals by the British Government during the process of colonization. Change in the attitude, approach and policies reflect nothing but their opportunism.

Tribal Development in Independent India:

The framers of the constitutions recognized that weaker sections of the Indian population need protection and development. For this purpose certain groups were identified, who are popularly known as Scheduled Tribes (Mishra, 2002). The initiation certainly had good objectives and intentions but it was just like a old wine in

a new bottle. It is so because the soul of the reformative approach was not different. The English representatives in the independent India carried over the policies framed by the English and made Indian Government liable to follow and implement similar policies.

Patnaik, (2000), Acharya (2002), Mohara (2002), Mishra (2002), Ningaiah (2002), Guha (1991), Ghurye (1963) and others in one or the other way realizes this initial weakness of the Indian Government which followed the Britishers policy. Ghurye (1963) writes – the Britishers wanted to keep them as a museum specimen by keeping them isolate from the general mass. The main purpose of their policy towards tribal development was to secure peace and not necessarily to help the people to advance on the road to progress either by integration with the plains people" Mahto (2001). The following of such policies reflect only the political interest of electoral stability. Patnaik (2000) concentrating on the policy adoption writes,

"There have been two conflicting policies pursued by the central government with regards to the tribes. The first one mainly advocated and pursued by Pandit Jawaharlal Nehru, aims at preservation of the tribal culture in their original habitat without inflicting on them any programme or change. The second policy which was pursued much later, after Nehru, aimed at sustained efforts to integrate the tribes into the larger Indian society and the national main stream of development." Further she writes about the effects of Policy.

"As a result of the first policy changes in the tribal mode of living occurred with response to stimuli originating within their own society and the second policy resulted in inducing changes towards development and a destruction of their traditional mode of living and habitat resources. Secondly it also led to the movements of the tribes away from the traditional hill habitat to surrounding plains agricultural areas and to the modes of the tertiary and secondary sector economy."

A great proponent of tribal philosophy, Verrier Elwin in 1957, advocated the isolated approach, to keep the tribals as Museum specimen by establishing 'National Parks or Human Zoo'. This was to avoid exploitation by general public, and keep the tribal culture undisturbed. Accordingly to Ningaiah, 2002, this approach attracted criticism from many quarters of the society and later Edwin himself accepted the idea of tribal development (1959). He was also criticized for his 'academic' thoughts particularly 'National Park Policy' by V. S. Ghurye and others." The government's vision about tribals welfare and development reflects in appointing a person as an advisor who himself exploits a tribal innocence.

The tribal development has been a gradual but accelerative process of planned development. Each successive Five Year Plan consisted of some special

capsules for tribal development since the independence and inception of first plan. The tribals were considered as a very sensitive, socio–culturally backward class which needed special care and plans. Many scholars advocated the need of tribal development with a special approach. Ghurye (1963) advocated the policy of total tribal assimilation into the mainstream. Hasnain (1992), Vidyarthi (1972), Sahu (2001), Burman (1992), Mishra (2002), Mahto (2001), and others emphasize on the assimilation or integration of tribes into mainstream. Most of the scholars have viewed tribal different from the perspective of planning implementation and the performance of the varying plans. The assimilated and evaluated essence of the studies of few scholars is mentioned here. Some excerpts and derivations from various scholars mention about educational, socio–economic, social justice, administration of tribal areas. financial support, task force for development, multipurpose tribal development blocks, sub–plans, integrated development, constitutional safeguards, legislations for land alienation, employment, health and sanitation. They also have talked about and priorities of various plans, appointment of committees, problem detection, quality of life.

The plans or policies formulated and implemented by the government through planning commission during various plans must have anticipated positively and would have given the desired results but the perceptions of the scholars, based on the surveys and study of the varying tribal regions reveal the truth and narrate a different story. Mahto (2001) in his conclusion comments, "Due to implementation of Five Year Plan for the betterment of tribal people, the socio–economic scenario of the tribal communities has not remained static. A huge amount has been spent over the upliftment of the tribal committees but desired results have not been achieved." He further writes, "in our country the problem of tribal development had reached a critical stage and has assumed an added significance in the context of the high priority accorded to social justice in the new planning effort."

Mohanty (2002) visualizes differently and focuses on various objectives and priorities also, focuses on the appointment of various committees to assess the performances of the measures adopted by the government and detection of the loopholes for evolving a more realistic approach by including those. He mentions about the observations and recommendations of Elwin Committee in 1959 against the forty three Multipurpose projects, Dhebvar Commission (1960–61) to study the whole gamut of tribal development, a reviewing team of Shilu Ao in 1969 to evaluate the measures adopted and their performances in the first three five year plans. The recommendations made by the trio had emphasized on the geographical aspects directly or the geographical aspects directly or indirectly. The recommendations

certainly indicate the significance of geographical aspects for the Tribal Development. Some of the significant recommendations of the trio were–

(i) Elwin recommended – Revival of the tribal blocks i.e. new tribal blocks must have 60 percent tribal component, priority to irrigation, land reclamation and soil conservation.

(ii) Dhebvar Commission Recommended for solving the problems of land alienation, indebtedness, promotion of education, protection of tribal interest in forest and sectoral development, establishment of Tribal Cultural Research and training Institutes.

(iii) Ao Shilu commission suggested an 'area approach' for tribal development.

(iv) Balwant Rai Mehta Committee (Panchayati Raj).

The significance of geographical elements do reflect from the various programmes, projects and schemes adopted by the government through planning commission during various plan period. For example–

(i) Special Multipurpose Tribal Blocks (SMPT Blocks) – Second Plan

(ii) Small Farmers Development Agencies (SFDA), Marginal farmers and Agricultural Labourers Development Agencies (MFAL), Tribal Area Development Programme (TADP), Pilot Project Tribal Development (PPTD), Pilot Intensive Rural Commend Areas Development Programme (PIRCADP) during Fourth Plan.

(iii) Integrated Tribal Development Projects (ITDP) Fifth Plan.

(iv) Large Scale Agricultural Multipurpose Societies. (LAMPS) – Seventh Plan.

The review of the tribal development finds a alarming distinction between the approaches and strategies adopted before the fifth plan and afterwards Mohanty (2002) observing the same he writes, "The strategy which has been adopted from the Fifth Year Plan onwards has yielded results and has proved beneficial to the development of the tribals and the tribal areas. The strategy has generally helped in focusing the attention of the planners and implementers on the special needs of the tribal society and tribal areas and on adopting a more integrated approach for their development. As a result of this there has been sudden increase in investment in tribal areas."

It must be accepted that the policies and plans formulation and investment by the government is truly impressive but if the outcome is not satisfactory, it is because

of lack in the implementation. The essence of governments realization and their right approach adoption is conceived in the objectives to improve the 'quality of life' (fifth plan) and waging as all–out war against poverty and mobilizing all the country's latent energy' for the creation of more 'dynamic and equitable society' (Sixth Plan).

1.6.7 Development of Environment:

Development, a dependent variable, is conceived within the concept of 'crises' or 'need' for existence and survival. Griffith Taylor, the propounder of Neo–Determinism, wrote, "Man is able to accelerate, slow or stop the progress of a country's development." The vision in the philosophy clearly explains the contemporary environmental crises evolved due to irrational exploitation of nature. The ever increasing desires, the tendency of profit maximization or lust for wealth instigated man to adopt lucrative–rash practices and lose conscient approach. The crises caused by man is well illustrated in the Singh's Statement (1991), "Of all the other organisms man is the most intelligent and powerful animal and is capable of not only affecting the environment like other organisms but also altering the basic composition of the environment at a scale detrimental not only to all biota but also to his own existence. Phenomenal increase in human populations pressure on natural resources which has resulted into accelerated rate of rapacious exploitation of natural resources in order to meet out the demand of ever increasing population, rapidly growing industrialization and urbanization. The development of modern technologies and increased economic functions of man have further accelerated the rate of exploitation of natural resources. All these have contributed to the depletion or near depletion of a few precious non–renewable resources, degeneration of renewable resources (e.g. forest, grassland, surface and groundwater etc.), environmental degradation and pollution at regional and global levels and above all ecological crises." Meaning there by, the accelerating environmental crises, realized and perceived by the scholars and administrators, created the need of diligent efforts, constant surveillance and study to combat the related problems for the procurement of lost potentials. The cause of the problem lies in between the philosophies of 'pragmatism' and 'existentialism' which dictate, "our thoughts determine our acts, and our acts determine the nature of the world" James. W. (1932) and "man is responsible for making his own nature" respectively.

1.6.7.1 Development of Physical Environment:

The man has been cautious and conscious about the management and favourability of the nature and its resources in the Vedic age. The Vedic literature propounds the significance of nature. It describes the rich biodiversity, mineral resources and the favourability of the terrestrial energy, heavenly space, water, vegetative medicines, village, forest, animal, fire, planets, and earth, space, stars, directions and seasons of varying characteristics and utility. The eighteenth chapter of Yajurveda do describe about the 'Integrated Earth' within which whole world is conceived and which is made favourable or managed by 'Ved–Vani' i.e. 'Scientific Ways'. The scientific approach, knowledge and vision of our Conscient Primates, vanished in the darkness of ignorance. The causes for the loss of environmental awareness are in ambiguity.

Once again the concept of environmental awareness, its conservation and management gained momentum with the realization of the growing crises. Presently, the advocates of development irrespective of any discipline are considering the quintessence of the environment. The scholars of various disciplines and administrators realize the necessity of environment oriented development.

Homji (1994) presents a vivid picture of environmental problems caused due to the rural development processes and their respective solutions. According to him, industrialization, use of pesticides and chemical fertilizer, over exploitation of water, loss of biodiversity and deforestation, are the major problems for environmental degradation. He feels the scars or the wounds of degradation are ironically related to the development processes. He writes. "Development is intended for improving the standard of living but unfortunately it is accompanied by deterioration of environment in one form or other," and so feels the necessity of curing the same, therefore, today, and the emphasis is on sustainable development or development without destruction keeping in mind the maintenance of ecological balance in nature."

The measures as suggested to solve the problem include

(i) The concentration of industries in one single sector where the density of population is thin / sparse,

(ii) Organic way of farming without the use of pesticides or chemical fertilizers,

(iii) Creation of bio–village as suggested by M. S. Swaminathan,

(iv) Massive plantations with bunding for proper storage of rain water,

(v) Mastering the technique of harvesting dew water,

(vi) Adoption of dip irrigation system,

(vii) The policy of conserving the living natural resources to enrich the biological material and genetic diversity for our material betterment,

(viii) Afforestation to increase wood track, for increasing evapotranspiration, albedo, mechanical friction, effect of forest etc.,

(ix) Decreasing the reliability on forest for livelihood by educating, augmenting income, opening small scale remunerative cottage industries, and plantation of perennial economic crop species, and fuel wood plants.,

(x) Use of cartographic tools for planning conservation plans.

Roberts R.D., et al explicitly emphasise on the need of ecological considerations in planning. Though the study is related to a different spatial conditions' or environment but some of the suggestions derived from the study could be fruitful in any environmental conditions. He is of the view, "Both planners and ecologists make a broad range of contributions to the management of the rural environment." This clearly explains the need and role of the planners and ecologists in the development of environment in any space. But it is notable, without cooperative effort of each the development of any kind, related to the environment, is impossible. Some of the essential suggestions (ecological considerations) derived from his description are–

(i) The gradation of land on the basis of agricultural productivity to avoid the use of high grade land for development purposes

(ii) Combating urban encroachment to protect culturable land

(iii) Urbanisation or industrialization is to be allowed on low graded land

(iv) Combating extension and intensification of better quality agricultural land because the former leads to the removal of hedges, machine maintenance of remaining hedges, uncontrolled use of agro–chemicals leads to entrophication and herbicides and pesticide toxicity on non–target organisms etc. where as the later leads to the loss of wild life habitats, effects on fisheries through increased situation and acidity of streams and fresh water lakes and loss of landscape or recreation value.

(v) Comprehensive environmental management as described by the authors,

"Environment description (including climatic and edaphic constraints, current land use and potential for a range of uses) is an integral of sound environmental management and planning optional land uses. Monitoring the distribution and abundance of plant and animal communities in areas of different land uses and the responses to changing land use are an essential basis for positive management.

Prediction of changing priorities, constraints and development in rural land use are in the realm of forward planning but prediction of the environmental consequences must be based on sound ecological information. Optimization of land use by zoning for priority uses, or planning for multiple uses must be based on an understanding of the interactions of the main land uses.

Shafi (1994), another visionary scholar, writes about the 'strategy for rural development'. He while describing various problems associated to the rural space and population emphasises on the programmes plans and policies of the government for the rural development. The statement, "Rural Development has recently engaged the attention of many disciplines: geographer, economist, sociologist, political scientist, psychologist, agricultural scientist and the administrators. The Government of India convened a meeting of all the Chief Ministers of the states, Union territories on August 8, 1992, to examine this problem and suggest measures," indirectly describes the severity of the rural problems and a critical stage at which there is no scope to avert from the realities. It is certainly realized that India avowedly being rural in nature, has to develop its rural space and mass for the development of the country. So, the "Government of India promulgated schemes to improve the conditions of the rural poor". Some of schemes described by the author are–

(i) The Small Farmers Development Agency Programme (SFDA), aimed at the target group of small and marginal farmers and agricultural labourers (1971)

(ii) Rural Works Programme (1971)

(iii) Drought Prone Area Programme (DPAP, 1973) for

  a. The development and productive use of water resources of the area,
  b. Soil and moisture conservation,
  c. Improving dryland agriculture on the basis of agro–climatic conditions,
  d. Afforestation, and
  e. Livestock development with emphasis on the development of pasture resources.,

(iv) Minimum Needs Programme (1974)

(v) Desert Development Programme (1977–78) for controlling desertification, restoring ecological balance, and improving the level of people in desert areas.

(vi) Accelerated Rural Water Supply Programme (ARWSP) and Technology Mission (1980), on drinking water in villages

(vii) National Rural Employment Programme (NREP, 1980) for generating additional employment opportunities, improving the quality of life and creating durable assets

(viii) National Scheme of Training of Rural Youth for Self Employment (TRYSEM) in 1979 for training rural youth in the age group of 18–35 years having an income of less than Rs. 400 per month

(ix) Rural Landless Employment Guarantee Programme (RLEGP) to –

a. Improve and expand employment opportunities to guarantee employment to at least one member of every rural landless labour household upto six months in a year,

b. To build infrastructure for rapid growth of the rural economy and

c. To improve the overall quality of life

(x) A Council for Advancement of Rural Technology (CART), to act as nodal point for the transfer of appropriate technology to all the villages of the country.

(xi) Integrated Rural Development Programme (IRDP, 1976–77–80) based on the local needs, resource endowments and potentialities in all the blocks of the countries to eradicate poverty and to enable families to acquire productive assets, technology and skill to make their economic activities viable.

It is evident, the above mentioned schemes or programmes are formulated with the ecological considerations directly or indirectly. And the initiation of such innovative developmental measures comprised of objectives of environmental development took place in the seventies and since then it has been an ever accelerating process. But the author laments with the unprecedented low rate of development in all the speculated spheres. He comments on the performance, "The schemes and programmes that have been promulgated during the last two decades have been very comprehensive, well thought out and oriented to still. It was officially stated that of the money spent on rural development, only 15 percent reached the people. The Prime Minister of India announced that a sum of Rs. 30 thousand crores shall be spent during the next five year plan (1992–97) on rural development and it has been admitted that inspite of all the programmes for rural development no significant dent has been made in improving the lot of the rural people." The author's suggestions for the proper implementation and result oriented programmes are remarkable. He suggests–

(i) The need of simple, less time consuming and less intricate process of implementation

(ii) Resource allocation and financial outlay must be proportionate to the growing population and problems

(iii) Reducing the idleness of rural folk by introducing small scale industries or such other things to engage them in productive work

(iv) Increasing the skill establishing the regulated markets, progressing electrification and road connectivity

(v) A comprehensive. workable plan based on a proper scientific and accurate survey for the reclamation of wasteland

(vi) Restricting urban encroachment in rural areas

(vii) The classification of land on the basis of maps

"Against the features of rural development are the constraints of ever increasing population pressure on resources, social tension, environmental deterioration and pollution, lack of health facilities, growing malnutrition, lack of inputs and or erratic supply of provisions of seed, manures / fertilizers, irrigation, and the energy / fuel problems, have tended to prove hindrances to an Integrated Rural Development Programme, aimed at institutional, structural and attitudinal changes in a process of self–help and community participation".

The explanations from the scholars are diffused with the realization of the thunderous threat of endangered environment and thence the threat to the existence of the population. To draw a clearer picture of the environmental development it is necessary to view some specific environmental phenomenon.

Land, the bases of all the activities and existence of living world, has either been undermined or not given due concentration by the 'Man', specifically the fore runners of the contemporary world, overshadowed by the economic phenomena. Imagining of the existence of any visible thing beyond the land, a visible space, would simply be a myth. If the above statement is valid then it necessitates the management and conservation of the existing land, otherwise the consequences would be devastative and the arrival of doomsday is certain. Some of the scholars emphatically explain the necessity of land conservation, wasteland reclamation and proper management of land.

Shafi (1994), realizing the significance writes, "It should be firmly realized that proper use of the land constitutes the base, if the present and future progress and prosperity, not only of the rural areas, but of the whole country is to be realized. In the scientific land use planning no patchwork and window dressing would be

effective. Further he writes, "If the land is considered to be country's ultimate resource, its healthy use should be promoted and misuse should be checked." The literary sources reveal that there is no specific Act or regulation on 'Land' protection, conservation and management. Constituting a wasteland board for the reclamation of land is a ray of hope in this context. The English must be the pioneers in this regard, being the land of industrial revolution, the value judgment, classification and Land – use mapping initiated very early compare to other parts of world. Stamp (1937–47) and Coleman (1961) contributed to a great extent. The ecological consideration was realized by the English scholars, planners and administrators. Some snippets from the various scholars reveal about the problem policies and performance in India. According to Shafi (1994), "There is a constant urban encroachment on first class fertile agricultural lands, but in the absence of land classification map for the country, no measures can be taken to preserve the good fertile lands for agricultural purposes only." He further writes, "The Government has Constituted Wasteland Board at the center and even in the states such 'Boards' have been constituted. There are various types of wastelands; saline and alkaline lands; ravine lands, water logged lands, lands covered by saved demes. Precise data in regard to these lands are not available. According to one estimate, the saline and alkaline lands are between 6 to 7 million hectares. It was in 1976, that the National Commission on Indian Agriculture pointed out that the alkali conditions were mainly due to Sodium Carbonate and bicarbonate while saline soils were characterised by the presence of sodium chloride and sodium sulphate. The methods of reclamation are different for the saline and alkaline soils. The commission lamented that no systematic attempt was made to delineate these areas separately; instead they are mapped together. On the basis of detailed mapping the reclamation measures to apply."

Rosencranz, et al (1995) mention about the many Acts and regulations but there is no specific Act or law to prevent the potent land. He further writes about Water (Prevention and Control of Pollution) Act, 1974; Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986 but not about land. Meaning there by, the constituting body of the constitution and the contemporary policy makers concentrate on the areal factors and do not cogitate about the base on which everything, natural or human, exists. On the other side the problem is growing with accelerating rate. He writes, "In a country teaming with a fast growing population, the agricultural land, comprising basely 43% of the total area, at present, is getting lost due to soil erosion where more top soil gets washed away than what is used in making all the brick houses in the country every six months; that the problem

of land degradation is revealed further in the fact that 6 cm of top soil in the Siwalik hills, taking almost 2400 years to form is often washed out by the rains of a single monsoon. Between a quarter to a half (10 to 20 m ha out of 40 m ha) of the land brought under irrigation may be lost for cultivation due to increasing salinity and water logging resulting from inadequate drainage in areas under canal irrigation. At the same time areas prone to floods has increased by two times (from 20 m ha to 40 m ha) in the last ten years."

Shafi (1994), suggests, "If land is considered to be country's ultimate resource, its healthy use should be promoted and misuse should be checked. This is possible only if in the first instance a land use map of the whole country is prepared taking village as the unit of study. Assistance may be sought from aerial photograph and remote sensing methods. A Central Land Use Board should be constituted along with the state land use board with the specific objective to conduct a land use survey of the whole country. The cadastral maps which show the field boundaries, the use of land may be recorded along with data showing the quality of soil, its texture, drainage, irrigation facilities also the type of wastelands. On the basis of the base maps, land classification maps be prepared and the first class agricultural lands be demarcated and by legislation it should be ordained not to utilize first class land for purposes other than agriculture."

Forest and its biodiversity, the ornamental feature of any space, has always been a center of gravity with great attraction for the scholars of varying discipline. According to speculations based on archaeological evidences the primitive man in the pre–historic age was solely a hunter or gatherer or forager and so for his survival, was dependent on the forest resources i.e. flora and fauna. Man's struggle for existence was two fold or bi–directional, and with the nature and another with the man and faunas to avail the advantageous land decorates with forest and its biodiversity, as he was not a producer but hunter or gatherer. It is historical fact, since the origin the dependency of living beings especially man, on forest and its biodiversity has never decreased or remained constant but ever increasing. The ultimate consequence of this resulted into declivitous deterioration of the life supporting environment Guha (1999).

Haimendorf (1985), writes, "as long as there was no interference by advanced populations the ecological balance was usually well maintained. He stresses on the degradation of forests due to commercial exploitation of forests for providing the raw material to allied industries. Some causes according to him are increased accessibility and interference of non–tribals. He gives an example of commercialization of forest, in Madhya Pradesh Rs. 46,000,000 are to be spent on

converting 8000 hectares of forest in Bastar Hills to pine forests to feed the paper pulp industry. The author's surveillance of forest of Amrabad plateau in 1940 and 1980, found a drastic change such as large scale in road and destruction of bamboo forest to supply raw material to the Sirpur Paper Mills. He mentions about the policy of announcing forest reserves as early as in 1894 which was modified in 1930. In 1979 the Forest Conservancy Programme created danger to the traditional life style of Chenchius.

Mahapatra (1997), in his study on 'Podu: An Ecological Hazard', states that "the way of life, the culture, the arts and the crafts and the occupation of the bulk of the people lean heavily on forestry and innumerable products derived there from. This very dependency makes forests invaluable for the people in India." First after stating this he takes a sudden turn and states the impact of high dependency on forest stating that, "heavy pressure of human and cattle population have led to the disappearance of forests from densely populated areas. The biggest single demand that the community places on forest is for fuel wood. This demand is estimated to be nearly 150 million tones while the recorded production of fuel wood is nearly 16 million tones. Besides fuel wood, the forests have to provide fodder for cattle, wood for house construction and agricultural implements and gainful employment to the rural population. The disappearance of forests from rural areas has brought about a crisis in rural economy." To meet the increasing demand of rising population, establishment of industrial, mineral and hydro–electric projects, rehabilitation of colonies, industrial and commercial needs, hunting–gathering, shifting cultivation and grazing (Thakkar, 1997; Mahapatra, 1997).

The numerous causes and intensity of deforestation exposes the contemporary reality of parabolic sustainability of both, forests and other living beings. Because,

(i) the endangered forest is a primary producer, source of food for wild and domestic animals and even man upto some extent;

(ii) it monitors or regulates the energy transformation and exchange, i.e. energy cycle and maintains weather cycle;

(iii) it controls the geo – morphologic as process

(iv) maintains the ecological balance or environmental equilibrium.

In other words, it is the nucleic medium through which all the natural phenomena especially the energy flow are regulated. So, it necessitates the conservation as well as enhancement for procurement of forests. Many remedial

measures by government have been adopted at one side and on the other the researchers' models have been testified to avoid the arrival of critical stage i.e. the stage of extinction of life from the planet earth. Some of the remarkable measures adopted by the government or suggested by the scholars to accomplice the onerous task are –

(i) Restrict deforestation as it increases gully erosion in hilly region (Das, 2001).

(ii) Far sighted policy of conservation of species as it enriches the biological material and genetic diversity for our material betterment. Combating deforestation and adopting afforestation may control the soil erosion, run–off rate, diseases like yellow fever (South America) and viral diseases (Karnataka) (Homji, 1994). Homji writes, "With proper planning, keeping the forest dweller at the center of the conservation schemes, the conflict should disappear. Under Eight Plan, eco development is planned around national parks, wildlife sanctuaries, tiger projects and sacred groves to avoid the kind of disturbance observed in north east India and in Kanha." He also suggests proper medical and schooling facilities and thence writes, "There should be schemes to augment the income of the Adivasis who else out miserable living showing inferior millets or on minor forest produce, with the contractors exploiting them." Some other visionary potent suggestions from him are plantations of perennial economic crop species like lemon grass, vetiver, fruit trees like sapota, passion flower fruit; fast growing fuel wood; small scale remunerative cottage industries and cooperative societies for extraction of lemon grass, oil, vetiver essence, neem oil, canuing industries for fruits and plants for bottling sapota juice, passion flower fruit juice. The profits should be ploughed in for the Adivasis uplift." Regarding management he advices the preparation of vegetation maps for preparation of conservation plans.

(iii) Sahu (2001) indicates towards joint forest management. According to it the villagers and the State Forest Department enter into partnership by signing a memorandum of understanding". This idea evolved in a conference of the foresters of West Bengal State Forest Department in 1972. In the conference it was observed that "effective forest protection is possible only through the cooperation of the local people and by meeting the needs of the local population without losing sight of the ultimate aims of scientific forest management in the region." The concept realized by

the West Bengal Government was adopted very late by the Union Government which issued similar resolution in June 1990.

(iv) Mahapatra (1997) insists on the inclusion of monitoring practices of forest dwellers and forest dwellers participation in forest management and considering environmental factors while implementing development processes. It is derived from his writings that the development processes accompanied with environmental considerations, removal of poverty, generation of employment, increasing awareness and education, are capable of protecting environment. The above derivation is based on the observation of the Planning Commission during Eight Plan. Some of the notable measures for forest development are–

a. Forest became a part of the concurrent list by a constitutional amendment in 1976.

b. Since the inception of the Fifth Plan Social Forestry Scheme is included in the all India policy on the recommendation of National Commission on Agriculture.

c. Programmes of afforestation, social and farm forestry were included in the new 20 point economic programme of the Prime Minister.

d. The Planning Commission wisely recommended the decentralization in power and management over forest with the intention to transfer of control from government to people, effective management through appropriate local bodies and institutions, accessibility of information, knowledge and technique especially to tribes or communities dependent on natural product, and enable them to be decisive on their own priorities.

e. Roy Burman Committee recommended the Right to Use Minor Forest Produce is to be given to tribes without restriction. The committee also emphasises on the consideration of human factors, cooperation and partnership in the forest management, to avoid conflict (1982).

f. The Forest Conservation Act 1980, the terraced land cannot be recorded as private property if, "either the land is above 10 percent slope, – and the land settlement officials are not empowered to get this land recorded as privately cultivated land with ryotwari rights, or the Forest Department claims the land as under some category of forest and thus cannot be diverted to non–forest use and recorded as land under cultivation,

g. Some of the important recommendations of Roy Burman Committee include – consideration of tribal factors, restriction on deforestation in the area prone to soil erosion, land slide, desertification etc. tribal association and rehabilitation, national parks, sanctuaries, bio–sphere to be located far from tribal villages and modifications in the laws in the interest of villagers.

Ghate (1992), elaborately describes various forest Acts policies prevailing in India in the pre–British period, British Period (1855–1947) and Post Independence Period (1947–1988). Her derivations from the British travelogues or Gazetteers reveal the status of forests in the pre–British period. There were no state controls upto the mid–nineteenth century but then also the forests were prudently utilized or exploited. The monitoring and management was controlled by social and cultural institutions. Some of measures followed by the then existing societies or cultures included restrictions on indiscriminate exploitation of resources, restrictions on the exploitation of life in some stages like pregnancy period or before maturity of fruits, protection to sacred species like peepal, protection to entire ecosystem and restrictive use of certain resources. The bases of all these measures was, the welfare of community considered to be superior to the individual interests. In the British Period (1855 to 1947) the policies favoured the interests of English only. It is derived from her explanation; the British Policy favoured or fostered only them either ways. The extraction or exploitation provided the precious wood or money from selling resources or raw material for industries in one way and on the other they got revenue from the land converted into agricultural field. They did not follow any policy of conservation. The tribals declared or considered to be the intruders in their own land. The commercial attitude of the British broke their traditional and ancestral bond of the tribes by alluring them and providing money or materials against their labour in exploitation of resources. Establishment of Forest Department in 1862 for ensuring constant and sustainable supply of wood for various purposes (specifically for making railway sleepers). This department took the form of Imperial Forest Department in 1864. The intentions of extruding tribals from their ancestral rights reflected clearly in the memorandum of 1884 (which was a modified form of 1855). It proclaimed public benefit but stated, "_ _ _ _ _ in all most all cases the constitution and preservation of a forest invokes, in greater or lesser degree, the regulation of rights and the restriction of privileges of the users in the forest area." The flexibility of the statement reflects from the phrase in greater or lesser degree and this flexibility was enough in making forest dwellers deprived of any advantages. The problem was already

aggravated with the Government Forests Act, 1865 and Indian Forest Act 1876 which empowered government to declare any wooded land as forest and to declare or classify any forest as reserved protected or village forests and cancel or assign the rights to village community, respectively. "The loss of community ownership had effectively broken the link between the man and the forest." National Forest Policy, 1894, "facilitated the extension of agriculture to forest areas," largely benefiting the landed inhabitants and adversely affecting the Adivasis for whom the concept of property rights over land was almost unknown. "Indian Forest Act, 1878 was replaced by Indian Forest Act, 1927 with a little modification in the form increased penalties for defaulters and according to the Government of India Act, 1935 the subject of forest was included in the provincial legislature. It is concluded that the forms of regulations or the words replaced by the synonyms but the soul of regulations or actions remained same which instead of minimizing the misery aggravated the problems of forest dwellers on the one end and forest degradation on the other. She well quotes Dr. I. H. Hutton, who wrote about the effects of British rule on tribals, "Far from being of immediate benefit to the primitive tribes, the establishment of British rule in India did most of them much harm than good." "The government of free India disappointed everybody by adopting all the basic principles laid down by the Britishers. Tribals remained intruders and labourers, and did not get back their erstwhile rights over forests and forest produce." The government justified the exploitation for irrigation, hydroelectric project and ammunition industries but treated the cultivation on land without actual tree cover as encroachment. It is derived that Ghate feels the National forest policy, 1952 as the replica of 1894 policy of Britishers. The basic objectives of the policy were to evolve system of balanced and complementary land–use; to check–denudation of mountainous regions, erosion progressing space and the invasion of sea sands; establishing tree lands; increase the supply of grazing, small wood for implements and fuel; sustained supply of timber for defense, communication and industry; and perpetuity of maximum annual revenue. The forests were classified as protected, National, Village and Tree Lands. Though the management of these forests was scientific and business lines but the needs of tribals or forest dwellers were given low weightage. "The National Commission on Agriculture, 1976 not only holds tribals responsible for depletion of forest wealth but also finds them to be a real hurdle in the development of forests." The recommendations of the National Agricultural Commission (1976), is the repetition of the objectives of the 1952 Act. The interesting concept of this recommendation was the functional classification of forests as protection, production and social forests, with the objective of providing timber and fuel wood, grazing and

grass and recreation. Another mile stone was the analysis of Ford foundation and Planning Commission in 1971 which concluded that India's forestry programme must be geared upto increase production and to accomplish this Forest Development Corporation was evolved for commercial purposes. The Indian Forest Bill, 1980 gave some weightage to the dependence of tribals on forests but she feels the 1980 Bill and its revised form in 1987 was simply a cosmetic change to the 1952 policy. Lastly she describes about the National Forest Policy resolution, 1988 which reflects the pro–trial attitude with clarity. But this was certainly a very delayed initiative from the government. Though they accept the highly depleted state but expecting the tribals to take the reign of afforestation for the restoration of the lost treasure. It's nothing but offering a squeezed pulp. So, the past experiences might restrict them to participate. She concluded "The Policy adopted by the Indian Government is in continuation of the Britishers' revenue–oriented approach. Forests continue to be raw material for industries' and 'income for government'. The people living in forests still continue to be treated as cheap labourers living on the mercy of the forest department officials.

An environment is a system, so, even a minute change in any component leads to a series of changes. Some might be constructive but many are devastative and have multiplier effect in degrading the natural composition i.e. in the deterioration of resources. "Climate modulates biodiversity and food availability, thus, the variety of edible plants is wider in the rainforest than in Savannah and wider in Savannah than in the cold desert" Steven and Stiver (2001).

The statement clearly signifies the role of availability of water in the breeding or availability of primary resources i.e. living resources, without which the sustenance is quite difficult or struggling. Archaeological and historical evidences do reveal the concentration of population along the water bodies. This also proves that the people were aware of the necessity and significance of water for the survival. Then, how did the stage of water crises arise?

Many scholars realize and describe about the problem. They emphasise on the environment awareness and educational improvement. This simply indicates, the sole cause behind the present crises is/was the environmental ignorance of the commons and lack of visionary management or monitoring. Hardin (1968) and Ludwing, et. al. (1993), believe that human greed and short sightedness almost always led to overexploitation often to collapse of the resource."

Rao (2000), while dealing with Common Property Resources and Development in Tribal Areas, focuses a little on the watershed development. He just mentions about the watershed development through community participation and

participatory micro–level planning, execution and monitoring. The most surprising fact mentioned by him is, people are less interested in developing common property resources. This is certainly a transformation in attitude and tendency of tribals. And the scholars have to find out the cause for such psychological change.

Swaminathan (1999) raises the problem of water as a global problem while dealing with 'Water and Sustainable Food Security'. Though the book is not specified to the tribals but the whole humanity and so it necessitates the review and consideration for better understanding. Some excerpts from him clearly set and reveal the significance of water for healthy environment. He writes, "Without safe drinking water and environmental hygiene, the biological absorption and retention of food will be poor. Countries with freshwater resources in the range of 1000–1500 cubic metres per capita per year face water stress, particularly in drought years. Population rich and land–hungary countries like India and China have no option except to produce more food and other farm commodities from less per capita arable land and irrigation water in the coming millennium. Government pricing policies, particularly with reference to electricity for pumping groundwater, often result in inefficient and unsustainable exploitation of precious water resources. On the other hand, private ownership of ground water resources leads to the emergence of water lords and water markets. Currently water is used in four major sectors–domestic needs, agriculture, and industry and ecosystem conservation. Disruption of hydrological cycles hastens the process of desertification. At the global level, several initiatives have been taken in recent years such as the organisation of a Global Water Partnership and World Water Council. At a meeting held at Valencia in Spain in December 1997, the participants recommended the establishment of an International Water Centre for undertaking research, analysis, appraisal, information, dissemination, training and consultancy activities. It was felt that a new age instrument for promoting sustainable water security in the world is urgently needed."

He besides discussing about the crises and need also concentrates on the strategic approach, policy reforms and formulation and management to solve the problem. He feels the need of integrated attention and holistic approach while discussing some important aspects necessary for water management. The aspects discussed by him are mentioned below–

1. The demand and the qualitative aspects of water for various purposes are to assess at local and national level,
2. Promotion of different methods of enhancing water availability and conjunctive use of different sources of water,

3. Efficient system of water management, equal distribution and control of pollution,
4. Resolving the conflicts related to water and cooperative imitative to prevent adversities at local, regional or international levels,
5. Priority to Technology development and dissemination for economic and efficient harvest and use of water,
6. Importance to public awareness, social mobilization, and information empowerment,
7. The mobilization of requisite managerial, institutional and financial resources, and
8. Coalition of all concerned–scientists, engineers, political leaders, mass media, civil society, farm families, private sector industry, women's organisation and donors.

He also supports the speculative and visionary idea of Mark W. Rosegrant (The International Food Policy Research Institute) and Clandia Ringler (International Irrigation Management Institute) that "the re–allocation of water out of agriculture can have a dramatic impact on global food markets." His speculation about the increase in water consumption in household and industries in developing countries is alarming. According to his estimate demand could double in the next 25 years which might aggravate the environmental degradation. So demand and supply is to be managed in an integrated fashion. His indication towards the water transfer from agricultural sector to urban sector is not only threat to food security but to the undeveloped or underdeveloped tribal regions because tribal regions are basically agrarian economy. Agriculture is the basic source of their livelihood. They do not have many options to sustain themselves. So if water from tribal region is also diverted to the urban sector then they won't be able to grow surplus to plan for their future and divert their income to fulfill other needs. In other words the tribals will be trapped in the vicious circle of poverty and helplessness for forever. And no outside or derived assistance could be helpful to them.

Quathryn, et. al. (1999) describe various aspects of the watershed development, for example, watershed planning, strengthening the participation of women at wider scale and stronger momentum. Some of the important aspects highlighted by the varying contributors are–

1. 'Strengthening the Participation of Women in Watershed Management'– The study focuses on the issues related to women and their participation in Rayalseema Watershed Development Programme in Andhra Pradesh

and Indo–German Watershed Development Programme in Maharashtra (Pangare, et. al., 1999).

2. Gender And Participation in Watershed management by describes the way gender issues were treaded in the Rayalseema Watershed Development Programme (Rao, 1999).
3. The impacts of Indo–German Watershed Development Programme (in Maharashtra) in generating employment and income opportunities, food and fuel security, water availability and credit accessibility for women (D'Souza, 1999).
4. Recommendations related to women's participation by Pangare, searching for sustainability in watershed development by Shashi Kolavalli, scaling up participatory watershed development: the Indo–German watershed development programme by Farrington and Gispino Lobo, developing village funds to sustain watershed management in the Doon valley project of Uttar Pradesh by S. V. Sharma and K. J. Virgo are some of the major contributions (Pangare, et. al., 1999).

Gole (2001) presents many aspects related to the environment and focuses on "watershed development and nature conservation". Some considerable suggestions given by him to make a watershed development plan are worth mentioning–

1. A drainage (stream flow) and contour map of the area
2. The area's soil at different locations and soil characteristics,
3. Geology including the character of strata and their moisture–holding and water percolation capacity
4. The number of existing wells, their depth, the area under their command and the types of crops irrigated
5. Meeting the ecological needs of the sources of water
6. Minimizing the adverse effects like deforestation, destruction of wildlife habitats the source region and thus maintaining the adequate supply of nutrients to the stream.
7. Stopping slash and burn or shifting cultivation

Singh (2002) describes many aspects such as spatial, temporal, ecological or environmental, of irrigation system in India. His study on irrigation system in India emphasises on equity and sustainability, history, ecological change, irrigation

development, impact of irrigation on Green movement and the probable alternatives of irrigation in India. Some of the highlights of his book are–

(i) Relationship between the development of irrigation technology and the changing social and ecological relations

(ii) Critical appraisal with an objective to explore sustainable and equitable agricultural and irrigation development

(iii) The history of irrigation technologies and ecological change related to irrigation in India in order to know the India's present policy of irrigation and related hydropower development

(iv) Planning and development of irrigation

(v) The need of participatory developmental policies and

(vi) The need of consideration to environment and management and understanding the relationship between environment and development

1.6.8 Human Environment: Socio–Cultural and Economic Environment:

The contributions of many scholars either state or reach to the conclusion that the natural and human phenomena are interrelated and interdependent. One is the semblage of other. The development of either depends upon the symbiotic causation, balance or equilateral positive action. The deteriorating or deteriorated state of physical environment, foretell the story and state of human phenomena i.e. socio–cultural and economic traits or attributes.

The descriptions endowed with multifarious socio–cultural and economic adversities and realities reveal and indicate the enduring life of tribals. The monotonous perceptions and revelation are in real bifocal i.e. indicate towards the crude extractive and exhausting approach towards nature and the failure of governments strategies, focusing on the infrastructural development i.e. induction or infusion approach based on borrowing instead of monitoring, generating and developing the potentials of the tribals and then environment. Dash (2001), a visionary and innovative mind, in his paper 'Geographical Perspective of Tribal Area Development,' explores the causes, especially the lack of geographical approach in the tribal area development, for the failure of tribal area development. According to him the influx of non–tribals broke the 'delicate balance with their ecologically fragile milieu' which was maintained by 'age old social and economic traditions'? Regarding the performance of governments and scholars' efforts, he comments, "Concerted efforts have been made during last 50 years of planned administration to induce developmental impulses into the tribal areas. Scholars belonging to various disciplinary backgrounds have contributed enormously by way of enlightening ideas

concerning the development of tribal areas of the country–voluminous literature has accumulated today prescribing planning measures, and most of them have been designed and implemented. Notwithstanding all these efforts, the outcome has not always been satisfactory." His above rhetoric comment explains a lot in few words and indicates towards the need of orientation in approach and strategies. Some of the major causes detected by him are colonial policy of divide and rule, the reflections of 'divide and rule' policy in Independent India, misinterpretation of the problems and misallocation of resources, industrialization and rehabilitation measures. He finds breathe of relief in some of current measures such as, Joint Forest management Programme 1988 and Panchayat Acts 1996 to provide autonomy to the tribal villages, and empowering Gram Sabha. While evaluating the current developments in certain pockets of tribal India, displays promising prospects for tribal area development. "Unfortunately, what is lacking in theory as well as in practice is the geographical perspective." The author feels, "It is necessary to keep in mind that while tribal areas may provide a unique socio–geographic space, they are nevertheless, part of the entire geographic i.e. the earth surface space within which they must be analyzed." Besides this some other adoptive measures suggested by him are, understanding the inter linkage between the processes which are globally effective, heterogeneity of socio–culture Indian tribes, identifying micro social spaces of Indian tribes, working out the correspondence between the tribal ecological inches and respective watersheds, its scientific management, people's participation and application of quantitative techniques, aerial photography and remote sensing.

Steven and Mary (2001) write, "It is often said that humans have lived by hunting and gathering for more than 99% of our evolutionary history". If this is true then it implies the contemporary socio–cultural set up of the tribes in the imprints or reflections of their past. They do feel the impact of environment or ecological factors on the tribes and accept that," Environments are variable over time and across space however, making impossible broad generalizations about how conditions differ today from those 'back then'. They besides considering ecological factors do concern and consider about the demography. The authors agree with the Layton, Birot David (1991) and Woodburn (1991) that the world was not exclusively occupied by the foragers but they had contacts with i.e. come across with the colonial societies, either in regular or close proximity with agriculturists, pastoralists or merchants and the surviving hunter–gathers have been the part of world system. This reflects the social cultural and economic contacts with others also carved and curved and theme modified the life of tribes. They write, "Researchers have identified a number of

robust patterns of variation in subsistence, technology, land use, and social life among ethnographically documented hunter–gatherer groups. There is environmentally linked variation in the range and importance of food sources. The clearer patterns of variation in modern hunter gatherers diets follow latitude. Durable elements of technology provide direct and indirect dues about economic adaptations complexity, variety and degree of labour investment in artifact production and maintenance all are closely connected to how the food quest is organized? Torrence (1989), Shott (1986), Oswalt (1976), Brinford (1979), Bousman (1993), also mention and agree with the concept of 'residential mobility' and 'fluctuating resource distribution' (Binford 1980 and Kelly 1983); 'Social boundary defense' to keep the resource base secure in case of scarcity of surplus (Dyson–Thomson and Smith (1978) and Kelly (1995, 98); rights of access via Kinship, friendships, or partnerships (Peterson 1975, Chashdan, 1983); exchange of goods (Wiessner 1982, Chashdan 1985, Burch 1988). In their conclusion write, "Modern hunter – gatherer adaptations in diet and technology were globally established by the late upper Paleolithic (20,000 BP), perhaps even by the early upper Paleolithic (45,000 BP). The derivations from the antiquity of hunter gatherers prove, they had a growing trend of socio–cultural and economy but dependent on the physical or natural environment potentials. And the present civilized or cultured economies might be the culminations of the ancient foragers or tribes and the tribes might be either the laggards or remnants.

"The capacity of a substance to satisfy human needs depends primarily on the numbers and socio–cultural characteristics of the population in a resource region and the standards of living of peoples, their cultural attitudes and expectations, all which influence man's perception and utilization of resources, Clarke (1973), mean that the socio–cultural backwardness is the cause for under utilization of resources and low level of living and vice–versa. The author thus, emphasizes on the solution of such problems by mitigating population pressure, developing resources by enhancing financial assistance and resolving the conflicts and agitations against development measures or projects to be resolved.

Rao (2001), observes, the growing self centered attitude and loss of community assistance or collective action to be cause of backwardness along with other causes. He writes, "In the journey towards modernity and progress the traditional institutional arrangements have been ignored. Development has been equated with giving up traditional practices and adopting innovations. Community centered activities, which have been the order of the day, have been replaced with individual family centered development activities. The recent realization that people's participation and collective action are essential for sustainable development, has

resulted in the emphasis on participatory schemes focusing on CPR" (Common Property Resource).

Folke, et. al. (1998) reiterate like other scholars but differently and more logically to create a trans–disciplinary framework to evaluate examples of socially and culturally evolved management practices based on ecological knowledge and understanding, and the social mechanism behind them as "the well being of social and ecological systems seems to be closely linked." A society's survival is ultimately dependent on the finite capacity of ecosystems to support it with essential resources and ecological services. To secure human well–being, there is an urgent need to design institutions that safeguard this dynamic capacity. Conventional resource management has been successful in producing yields and economic growth in short term, but has not been very successful in safeguarding the dynamic capacity of ecosystems or in managing ecological and social systems for resilience and sustainability.

Rudolph (1992) concentrates on the tribal education. Some of the focusing elements of the work are the students and their families, the community and its school and the mission and its education. These are explained and interpreted in the social context and historical background. The most significant factor raised by him are the society and the relationship of the education system to the other sub–systems in Indian Society, education and social change, particularly through elementary education, the tribal community in India and the integration of educational institutions in it and the socio–cultural alienation caused by these. The excerpts tell about the hurdles and performance of efforts made by the government and others, "The reasons for the failure of tribal education in India are not just economic. For too long, the internal constraints of the system and socio–cultural context of the community have been neglected. The resulting mismatch between educational institutions and tribal life has been responsible for a colossal economic and human wastage. There is no wonder that the tribal people are not keen to take advantage of an education which appears to them be a calculated move to destroy their social fabric. Reformist measures have been proposed, but as yet this has been no break through in tribal education as the statistics unambiguously testify. And the vicious circle of educational change waiting on social change and vice–versa persists, as also the downward spiral of the Adivasis towards tribal marginalization in society."

Lakshamaiah (2000), visualizes the gravity and variety of problems as, "Scheduled tribes constitute seven percent of the total population of India. These tribes remain at widely different stages of social and economic development. Physical isolation, difficulties arising from the terrain and socio–cultural background

have made them somewhat passive in the matter of development." The author finds revitalization to be the best approach to integrate the tribals into mainstream but finds the efforts and processes gradual and bit slow and suggests, "special attention should be given to each tribe to preserve the good elements of its culture and to remove the not–so–good ones gradually by contact and motivation, this means people's participation in development activities. The development spectrum is so designed that growth and development are generated from within the society." According Sinha (2002) tribes epitomize poverty, mal–nutrition, neglect, ill–treatment and exploitation. Besides drawing their socio–economic realities he emphasises on the selection of pockets for the execution of adopted programmes to develop the socio–economic, political and cultural life.

Singh (1984), feels western offence against the rearguard of primitive societies; extermination, eviction or subjugation, conversion, and ethno–centrism in an isolated eco–system to be the cause for their primitiveness or backwardness. He thinks their socio–cultural fabric is fragile and resting on a matrix of shock prone economic base at the fringe of the Nation's consciousness, encysted in remoteness anchored in tradition and nurtured by Nature. He suggests adopting, "an admixture of proportion of protection and exposure varying with reference to the situation of a particular group." According to the author the primary groups are described as unevolved, disorganized set of people in the early stage of human evolution. The Government of India has recognized 74 such primitive groups based on criteria like pre–agricultural or early modes of agricultural pursuits, practice of simple technology, low level of literacy and numerical exiguity. Their population is around 14 lacks. Regarding the performance of developmental measures and real contemporary conditions he writes, "there is an opinion that notwithstanding the exalted impulses vibrating through the policies and programmes for scheduled tribes, achievements in the field are not altogether inspiring and that, in fact, some scenarios reveal negative results." Some of the interesting points of tribal techno–system and cultural heritage are – harmony with nature, equity in society collectivism in economic activities, joint ownership of land in clans, village and community, cooperation in transplantation, shifting cultivation, tank digging etc, equitable distribution of produce before marketing and building boulder walls, terrace making, ethnic–medicines and youth dormitories to impart training and education to tribal boys and girls. A very significant or potent suggestion in the paper is the need of careful evaluation of the effects of (a) super–imposition of modern science and technology over the extant ethno–sciences and ethno–technologies and (b) juxtaposition of modern science and technology with the extant tribal ethos and socio cultural dynamics.

Sachidananda, et. al. (1996) describes the various causes for tribal backwardness and focuses on the role of voluntary agencies in social and ecological development in tribal areas. According to him the Indian tradition of voluntary action got impetus during the period of freedom struggle for the uplift of downtrodden. The roles of Thakkar Bapa and Raghvaiya, the disciples of Gandhiji, for developing tribals are worth mentioned. "Voluntary agencies have engaged themselves in the fields of health, education, rural and tribal development and anti–untouchability programmes." The author while envisaging the issue write about the perception of social workers, "To meet of then the tribal way of life is full of social evils and it is their mission to do away with these. Education is the main instrument of social changes." The social workers' process of detribalisation include, education, prohibition, health programmes, raising income through agricultural livestock development, spinning and weaving programmes, and thence reforming tribal culture and society. Adim Jate Sevak Sangh, Adimjati Seva Mandal in Chotanagpur (Bihar), Santhal Paharia Seva Mandal (Bihar), Bhil Seva Mandal in Rajasthan (specifically in Dungarpur and Banswara), Nilgiri Adivasi Welfare Association (1958, Kotagiri); Shramik Sangathan in Dhulia Kashtakari Sangathan in (Thane) Bhumisena in Thane (Maharasthra); Gram Vikas in Ganjam district of Orissa; and Vikas Bharati in Gumlapur, The Nav Bharat Jagruit Kendra in Hazaribaugh, and Prayas in Patna of Bihar; and Ramkrishna Mission in Arunachal Pradesh are some of the popular organisations which have done a remarkable work in the field of education, Medical assistance, nutrition, socio–economic, ending land alienation, land restoration, increasing income, women liberalization and upliftment, abolition of money lenders, enhancing collective participation etc. The five modes or objectives i.e. Janashikshan (people's education), Janajagruti (people's awareness), Janakarya (people's action), Janasangathan (people's organisation and mobilization) and Janshakti (people's power) of the Kashtakari Sangathan, working in Dahahu Taluka of Thane (Mumbai), are worth mentioning. The author for the real development feels the need of, "full participation of the beneficiaries in the development process from planning to implementation and evaluation of the expected outcome is a prerequisite for success. This can be done only through building up critical awareness, organisation and mobilization. The social and economic issues have to be linked up with their cultural identity. Social transformation, if it has to be effective, has to restrictive the iniquitous power relations. Only then the Adivasis can take full advantage of the vast resources available in the area. Towards this end adult education programmes with components of literacy, numeracy, functionality and social awareness may be seen as an important instrument."

Burman (1992), in his paper, describes about the need and role of technology in the development of tribals. He mentions about the tribal resistance to the good things' i.e. technology and other developmental measures as a sign of cultural backwardness, the value of technology lies in its integration in the totality of quality of life, neglect of past experiences and technological implementation in harmony with their cultural needs. He visualizes, "the tribal communities in India know that they cannot and they do not live in isolation, they want to expand their social horizon; but at the same time they do not want to be swept off their roots; they require to know what is happening around; they feel the need of understanding the same; they not only aspire for the satisfaction of their basic needs, but also to improve the standard of living. A blending of physical quality of life and psycho–social mooring is definitely in the mental horizon of many tribal communities and perceptive and enterprising individuals belonging to those communities and it is this which provides the context of application of science and technology in the tribal areas and tribal communities. For operational purpose, a differentiation is to be made between application of science and technology for development of tribal areas and tribal communities. According to the author except few middlemen the whole tribal area and communities are eroded of their economic and social base because of fragmented development and visualizes a heavy material as well as moral loss in the future. The emphasis is given on considering the natural factors and maintaining the harmony with nature while applying scientific or technological measure. Some of the important schemes with the application of modern technology are–

(i) Soil and water conservation measures;
(ii) Soil conservation in the catchment of river valley projects;
(iii) Integrated watershed management in the flood prone areas;
(iv) Energigation or installation of shallow tube–wells and treatment of land for restoration and improvement of crop productivity
(v) Distribution of improved seeds;
(vi) Encouragement of horticultural crops;
(vii) Distribution of frozen semen;
(viii) Opening of clinics for control of livestock diseases;
(ix) Setting up milk–sheds and milk cooperatives for dairy development;
(x) Establishment of fish farmers' development agencies.

The author do talks about the role played and services rendered by the National Institute of Science, Technology and Development Studies (NISTADS), The Departments of Tribal Development in Welfare Ministry (Government of India), and

Tribal Research Institutes of States and Union Government and other research departments. In the last he suggests to adopt approach harmonizing indigenous processes and exogenous productive potentials, continuous communication and interaction between various agencies involved in technological and socio–economic development of tribals and tribal areas and stepping up evaluation activities and evaluating competence of the Tribal Research Institute.

The vicious circle of critical condition of tribes is characterised by poverty, underdeveloped or degraded socio–cultural system, degrading environment and thence poor health. The point of origin of this cycle is not known but might be the birth in socio–culturally impaired environment the cause behind the poor health and numerous diseases. Contrary to this the studies of many scholars reach to the conclusion, the tribals have rich heritage of herbal medicine. The same is being observed by Venkatrao (2000), in 'Medical Geography of Indian Tribal Communities'.

The cells of 'Politics' is infused within the beings since their birth but the political abilities and potentialities vary as it is a dependent variable such as mental, physical and environmental factors. It makes people advantageous and enables to create opportunities and reap them. The level of political consciousness depends upon the potentiality of natural environment and human environment such as social, cultural and economic environment and has positive relationship with the all the above mentioned components. Sisodia (1999) defines Political consciousness as "the knowledge about the political phenomena. It constitutes the knowledge about the political institutions and processes and is a key concept in the understanding of the political system." He feels that "Political consciousness has a strong correlation with the participatory orientation, cynicism and political efficiency of the people". The authors' political consciousness refers to the awareness of Formal Political phenomena or systems set to run efficiently the political entities or territories with the help of regulations or laws in a systematic manner. He finds the difference in the political consciousness of the tribals and non–tribals because the tribal areas are not elaborated and many of them are illiterate, and unaware of the parties and their policies. The lack of political consciousness leads to less or no participation, which is necessary as it fulfils your functions viz. means of pursuing economic needs, means of satisfying a need for social adjustment, means of meeting subconscious and psychological needs. An excerpt from him explains close relationship between the political participation and society, "Political participation is determined by the basic social and political attitudes of the individuals, which are closely associated with his personal and social characteristics as well as with the social and political environment which influences his political behaviour. Because this social and

political environment varies from one society to another, political participation also varies from one political system to another. In tribal society political participation is closely associated with the social characteristics of society."

Summing up the whole illustration given by the author it can be said that the poor social, cultural, economic, political and eco–systems are the inter–dependent and inter–connected cause for the each condition. And so, there is need to perceive and, consider as a unified system of all and necessitate simultaneous attention and development. In other words, it implies the application of coherent and cogent cogitation and cohesive developmental approach for the comprehensive development of Tribes and Tribal areas.

1.6.9 Miscellaneous:

The following contributions deal with varying environmental and ecological problems and their probable remedies. The following papers are significant from the view point of methodologies and conclusions.

Dash (2001) and Mishra (2001), emphasize on the study of traditional agro–ecosystem and their interaction with other biophysical and socio–economic characters. According to them agricultural production can be stabilized through available rainwater management application of organic manure to agricultural fields and protection of existing forests.

Gafur, et. al. (2003), focus on the shifting cultivation in the upland association variability in the water run off and vegetation depletion of soil organic matter due to shifting cultivation and erosion, and association between hydraulic resilience and shifting cultivation practices.

Jeffrey (1999) explores relation of the local variability of rainfall to property rights and degree of hierarchy in tribal societies. According to the findings the local variability of rainfall, the welfare of tribal members can be enhanced by an institution allowing every member access to all land controlled by the tribe. Greater local variability also lowers the degree of hierarchy, both directly and indirectly.

Zurayk, et. al. (2001), highlights or the necessity of rural participation, in land capability classification and land use analysis for sustainable land management. They fine

a. some physical and biological constraints in the land management,
b. marginality of land for conventional farming,
c. shrinkage of grazing fields followed by expanding or chards explains the reduction in the small ruminant flocks.

Nagothu (2003), explores

d. the need of local peoples' participation protected areas management as an important element of bio–diversity conservation,
e. the association between the benefits obtained by the local people from wildlife tourism and other sources and support for protected areas existence,
f. benefits impact people's attitude towards conservation.

Jesus, et. al. (2001), explores

g. The irreversible change of fragile ecosystem by economic activities and demographic pressures,
h. Historical analysis between people and environment,
i. Mining and the accompanying large consumption of wood agricultural expansion and a demographic explosion destroy the forests and alter the ecosystem.

Das (2001) emphasizes on the space–society relation in rural India and is of the view that material interests of the classes and other social groups are normally tied to particular geographical areas.

Prasad, V. Krishna, et. al. (2000) explores the carbon dynamics and no emissions in an area covered by tropical deciduous forest having slash and burn agriculture practice to study the impact of biomass burning on physical, chemical and biological properties of earth's atmosphere.

Adeniyi, et. al. (2000), emphasizes on the community oriented management strategy and collaborative strategy such as that of coordinated resource management which has the features of promoting an atmosphere of open communication, ensuring voluntary participation and guaranteeing decisions by consensus instead of administrative enforcement for sustainable development.

Lalita (1996) explains about the impact of fossil fuel burning upon human health specifically upon human health specifically women probable climatic changes deteriorating forests, and the exploitation of renewable energy as for sustainable development.

Mehrotra (1996) describes about the deforestation due to population growth, increasing demand for land, urbanization industrial activities, fuel and timber. Due destruction of forest has resulted in to soil loss, habitat destruction environmental degradation and ecological imbalance. He feels the need of progressive awareness for conservation and restoration of habitats and declaration and protection of reserve forest areas.

Bowonder (1981), while focusing on the environmental assessment issues in the third world suggests some imperatives like developing a strong education base,

motivating administrators, instituting a strong early warning system, stimulating private property options and establishing proper links with policy making.

Dearden (1995), while focusing on development and bio–cultural diversity tries to convince that environmental context of the communities must be considered and encouraging cultivation of specific species narrows the economic, cultural and ecological characteristics of the area from heterogeneity to homogeneity.

Akhtar, et. al. (1986), describe about the growing disparities in the spatial distribution of welfare facilities.

Christian, et. al. (2003), intelligently highlights the significance of biological activities specifically earthworms in the maintenance of soil fertility and emphasizes the need of considering the role of biological activity by the agronomists and soil scientists.

Schaller, et. al. (2003) explain a practical approach to reduce soil erosion at one hand and increase the productivity of fields in the slopes. The results of the study suggest that strips of competitive grasses can reduce the lateral root development especially of young trees, when planted in contour strips, and this may reduce and / or delay root competition with neighbouring field crops.

Klass, et. al. (2001), point out that "differences in agricultural management and land use lead to differences in soil structure, soil organic matter dynamics and composition."

Shiu–hung Luk, et. al. (1997), explain about the water and sediment yield from a small catchment in the hilly granitic region. It is found that "The gullies produce most of the sediment yield of the basin and the pattern of sediment discharge mirrors that of rain fall. However, gullies contribute comparatively little runoff to the basin outflow. Other surface types, including bare slopes, bare rills and the valley floor, together yield considerable runoff because of their large areal coverage".

Jugmar, et. al. (2003), suggest "a partitioning into characteristic soil types for erosion modeling, land evaluation and participatory planning".

Kevin (2003) proposes a model of tropical agricultural intensification through cultivation lengthening that applies to non–industrial cereal production in moist–to–wet tropical lowlands under conditions of high population density.

Veerle, et. al. (2003), realize major ecological and environmental problems occurring due to slope movement hazards.

Guobin et. al. (2003), opine that "soil surface characteristics are closely related to soil surface depressional storage, infiltration, run off generation and soil erosion, especially in highly erodible loess soil. Soil surface random roughness, soil

cohesion and aggregate stability are necessary parameters in the Limburg Soil Erosion Model (LISEM) and helpful in developing alternative land use and conservation strategies. The results show that soil random roughness, soil cohesion and aggregate stability differed significantly between land–use types".

Stamatios et. al., (1999), describe the need of geoin formation technique in identifying and mapping areas of erosion in a hilly landscape for planning sustainable land management and sustainable development.

Bronstert, et. al. (2003), suggest that modelling of infiltration excess surface runoff is related with high uncertainty due to small scale variability, such as small scale spatial variability of soil properties or temporal variations in rainfall intensity.

Arunachalam, et. al. (2002), explore that Bambusa Nutan, a bamboo specie, could help in rehabilitating the jhum fallows with special respect to soil nutrient enrichment.

Spiecker (2003) emphasizes on naturalistic silvicultural management in maintaining biodiversity and resistance of forests. The application of more site adapted mixed forest approach keeping in view the local and regional needs could increase economic and social benefits of forests and reduce the risks by maintaining sustainable forestry.

Jankauskas, et. al. (2003), have observed that a combination of perennial grass species and selected crop rotation can help to prevent soil erosion in upland regions..... The main attributes of the proposed land conservation and sustainable land use system were the careful selection of optimum erosion preventive ecosystems (sod–forming perennial grasses or erosion preventive crop rotations) with high erosion resisting capabilities. These systems must vary in response to slope conditions. Such ecosystems assist erosion control and thus ecological stability of the undulating topography of the temperate zone.

Mander, et. al. (2000) while studying nutrient run–off dynamics in rural catchment find the influence of land–use changes and climatic fluctuations, suggest eco–technological measures, such as riparian buffer zones, buffer strips and constructed wet lands to control nutrient flows from agricultural catchments.

Tonmanee, et. al. (1999) is of the view that land degradation and soil depletion result in low crop yields and pollution of the environment. Nutrient uptake by crops and loss by leaching is much greater than the nutrients applied. Hence soils become less productive and it results in more land requirement for food production. Forest land declines rapidly in highly watershed areas. They also warn against the constant use of fertilizers and pesticides which may pollute water.

Herlina, et. al. (2003), while studying factors affecting runoff and soil erosion: plot level soil monitoring for assessing sustainability of forest management" suggest the appropriateness of runoff plot monitoring in forest areas with different levels of logging disturbances and the role ecological factors such as canopy cover, sapling density, litter depth and woody debris in minimizing soil erosion.

Wang, et. al. (2003) focuses on understanding of the characteristics of soil organic matter (SOM) and soil nutrients at the field and catchment scale is important for refining agricultural management practices and for improving sustainable land use.

Nichols, et. al. (2001), are of the view that as tropical deforestation progresses, increasing areas of land are being degraded through erosion, overgrazing and other processes, leading subsequently to soil infertility and loss of agricultural productivity. Reforestation is a potential way to rehabilitate some of these lands. Their results show that timber trees in species – diverse plantations can perform at least as well as monocultures. The more diverse systems provide ecological benefits including nitrogen fixation and multiple products for human.

Ananda, et. al. (2003), reviews the Boserup's theory on population pressure, poverty and erosion and Lopez's theory on environmental and institutional dynamics and analyses that negative impacts of technical change, in appropriate government policies and poor institutions are largely responsible for the continued soil erosion in developing countries.

Niemeijer, et. al. (2003), emphasize, local soil theories are a better point of departure in terms of creating the necessary comprehension of farmer practices required for effective collaboration towards sustainable development.

Akinbami, et. al. (2003), mention that with the increasing population come the attendant demands on the biotic environment through increased land clearing deforestation, de–vegetation, desertification with attendant soil erosion, flooding, sand dune formation, and changes in the micro climate with consequent loss of biological productivity and associated socio–economic and socio political problems in the country. They also suggest, a holistic and integrated strategy that can be adopted to minimize the observed forest depletion must take cognizance of options from various land use practices, energy and forest sectors for sustainable forest–energy environment interactions.

Dar, et. al. (2003), evaluate the regional function and determine that low land–use and climate modify biological, chemical and physical processes.

Graniger, et. al. (2003), in their study of the impact of changes in agricultural technology on long term trends in deforestation propose to assess the likely

effectiveness of agricultural policies to control deforestation by improving sustainable farm productivity in the core and periphery, generating sufficient manufacturing / service jobs for ex–farmers, reforming land tenure, and decentralizing stage agriculture departments to promote farmers participation in the design of appropriate technologies.

Some other considerable contributions are – vertical distribution of grass and tree roots in arid ecosystems of southern Africa: niche differentiation or competition? (Hipondoka et. al., 2003), Risk alleviation via in situ agro biodiversity conservation (Bardsley, 2003), common property institutions and sustainable governance of resources (Agrawal, 2001), relationship between economic growth, biodiversity loss and conservation effort (Dietz, 2003), conflict management in tropical fisheries (Elizabeth, et. al., 2001), food security and land use deforestation (Shriar, 2002), the causes of land use and land cover change (Lambing et. al., 2001), hydromorphic and clay related processes in soils (Boixetra, et. al., 2003) and the social causes of environmental degradation and factors that affect land–user decision making in soil conservation (Jones, 2002).

Conclusion:

Every creation is either foundation or assisting tool for further explorations and creations. So, the scholastic contributions reflecting their perception and dearth of knowledge must be reviewed. Here, review of literature was cognitive effort to ameliorate the study, though it was just like entering a dark wood with the hope of reaching to the brighter end with a broader scope. Significance of any subject is related to the varying crisis, desire and demand. Since from the very beginning these factors have been guiding and inspiring principles for the scholars to cogently cogitate and contribute accordingly.

So, review of literature was carried out with an intention to find out ideological means and deviations and vacuum area of study. The researcher in his effort reaches to the following conclusions –

1. Anthropologically and ethnographically the tribes and their environment could apparently be studied and standardized on universal plains.
2. The contemporary archetypical remnants in the inaccessible remotes of the past and shrunken pockets of the present explain the mystery of their origins and evolution of themselves, whole mankind their environmental system, and depending upon the purity of their seclusion.
3. Natural and human turbulence need to be studied and focused simultaneously to know the true nature of evolution of the tribal space.

4. The symbiotism which diminished with the growing population in the tribal regions might have been a compromise with the time in the lack of technological knowledge.
5. Struggle between the laggards and advanced might have restricted the mobility and economic and cultural expansion of laggards.
6. Vedic period symbiotism became selective with the vanishing knowledge about the cyclic nature of ecosystem and interdependence of each component.
7. Nomadism and shifting cultivation reflect their opportunism and not the monitoring.
8. Their retreat, assimilation with others and adjustment with miserable conditions show their socio – economic and cultural inferiority.
9. Their emergence as tribes is most probably forced destiny and that is why they had been living as withering remnants of past in the adverse environment though increasing numerically.
10. Lack of neutrality amongst the scholars and reformers kept on undermining the realities and problems aggravating. They and their environment had never been self–sufficient or self reliant or complete entity.
11. They never adjusted but accepted the adversities and turned about in search of alternate opportunities and this probably was the sole cause for their nomadism and rapacious exploitation of natural resources.
12. Scholars, planners or administrators did not give due consideration to geographical factors which are the actual cause for the preserved remains of naturally proliferating biomes or entities of the past.
13. The remnant natural entities consisting of tribals' inspite of being perceived as systems, the synergic inter–linkage between different phenomena and related problems are not detected.
14. Remedial measures as suggested by many scholars are merely either directives or suggestions – which lack practical approach. In the lack of practical – process – model the problems either remained unsolved or were temporarily solved to satisfy immediate needs with the flux of financial assistance.
15. The scholars have mostly adopted a descriptive approach. A very rare effort has been made to study the efficacy of geographical phenomena numerically and then evolve a model for problem detection or solution representing synchronization and synergies between them.

16. The monotony of problems and solutions based on derived or borrowed resources for varying reasons might have been the other cause for growing crises and diminishing sustainability.
17. Lack of interdisciplinary approach might be another cause for growing crises.

Subsuming from the above it is concluded that anthropologically and ethnographically the tribes and their environment could apparently be studied and standardized on universal plains. The contemporary archetypical remnants in the inaccessible remotes of the past and shrunken pockets of the present might explain the mystery regarding the origin and evolution of the tribes, the mankind as a whole and their environmental system.

Natural and human turbulence need to be studied and focused simultaneously to know the true nature of evolution of the tribal environment. Natural turbulence must have led to the human turbulence and thence influenced their mode of life. Some of the transforming characteristics adhered to the mode of life of man such as nomadism, hunting, gathering, shifting cultivation in the past and then settlement in the adverse conditions and hobosity (wandering in search of work) in the contemporary period explain the influence of transforming environment upon the mode of life. This indirectly explains the change in the perception, anticipation and more specifically change in the mutual interdependence.

Struggle for survival seem to be a general law in space–time continuum. But the struggle of tribals kept on intensifying multitudinally with the diminishing resources such as forest and changing climate on the one hand and increasing demand within the system, growing competition, increasing interference of non–tribals and implementation of legislations and restrictive measures on the other.

Wealth and resources were the nucleic cause of struggle amongst men and groups. The struggle for wealth and resources with an objective to secure future survival would have resulted in social, economic cultural and political discriminations. The socially, economically, culturally and politically weak people, emerged as laggards, kept on receding and adjusting to the adverse conditions.

The diminishing symbiotism between the various phenomena within the system indicates the lack of futuristic approach while exploiting various resources. It is well understood that the monitoring and adjustment of various resources of environment was directed by the immediate needs. Therefore, the adjustment or mutuality between the man and other phenomena would have been selective. Man having regulatory role and being at the receiving end was supposed to carry forward

their traditional knowledge about the significance of various elements, inter–causasive association between the elements and multitudinal integrity of the system.

Undoubtedly, tribal environment is unanimously perceived as a problem or crises zone and it is realized that there is a need to revive its proliferating characteristics and to make it sustainable. Simultaneously, the scientists have succeeded in detecting the cyclic and integrated nature of environment. But due to the lack of appropriate strategy and plan the problem has been aggravating. This could be simply because scholars, planners and administrators have not given due consideration to geographical factors which play a significant role in creating a sustainable environment and preserving the remains of naturally proliferating biomes or entities of the past. Similarly, we have failed to restrict the human interference into the self regulating and adjustable system.

The quest for achieving sustainability emanates from the objective of human survival. But man himself seems to be deviating from realizing the crises. The efforts of the government and other organizations seem to be infused with political and instantaneous interests. Their endeavours to satisfy immediate needs of food, fodder and finance go in vain and the problem persists. The effects of such instantaneous efforts are liable to vanish and indicate the need of judicious implementation of sustainable development measures.

Generally, the remedial measures suggested by different scholars are merely either directives or suggestions, devoid of practical application of sustainable approaches. Due to lack of systematic practical model the problems keep on growing. This could be because of the descriptive approach adopted by the scholars.

Rarely any effort has been made to study the efficacy of geographical phenomena and evolve a model for problem detection or solution representing synchronization and synergies between them. At this alarming stage, there is need to think on universal plane and inseminate the seed of sustainable development at micro level to generate synergic impact at macro level. Therefore, multitudinally active micro–level planning based upon interdisciplinary approach and systematic coordination between various essential elements with an objective of sustainability, universal applicability and universal impact could have diffusing impact in space–time continuum.