# 1. INTRODUCTION :

The appearance of man though recent in the complex, ever continuing process of organic evolution, is very significant. Probably no single species ever played so wide and extensive role as the *Homo sapiens*, in the whole C.D. of evolution up to present date. Most people believe that man evolved a little more than 2 million years ago. Human population in general followed sigmoid or logistic pattern of growth for most part of their existance. However, following industrial revolution it is gradually shifting over to J-shaped form. In the last part of the 20th century we have seen the most dramatic increase in the history of human population. In merely 35 years global human population doubled from 2.5 billion to over 5.9 billion. Presently we are growing at the rate of about 9000 per hour, 214000 per day or about 78 million per year. In July 1999, the world populations passed 6 billion, making us the most numerous vertebrate species on this planet (Botkin and Keller, 2000; Cunningham and Saigo, 2001).Malthusian apprehensions have never been so real as at present. However, it is not only scarcity / non-availability of food and resource leading to drastic decline of populations as envisaged by Malthus (1978) but also increasing pollution load and loss of biodiversity, - all of which act synergistically to devastate ecological balance leading to "ecological crisis".

Moreover, the culture and traditional ways of life of those small ethnic populations who managed to survive till today are experiencing gradual extinction as a result of impact with advanced cultures.

The realization that humankind although superior to all other beings is yet only a part of the natural ecosystem and is also governed by the same laws as applicable to other organisms, gradually grew stronger. This concept led to the development of human ecology, now an important and busy discipline of ecology. Unlike other animals, culture as a determinant of behaviour played an important role in the adaptive mechanism among human populations (Laughlin,1963).

Different authors studied various aspects of human ecology. Some of the broad based studies are on : ecological stresses through appropriate physiological and biological means (Dill, 1964; Baker, 1971 and 1979); interrelationships among man, his culture and the ecosystem (Childe, 1952; Price,1971; Franzle, 1966; Palmer, 1966); social and ecological impact of water resources (Bird, 1966; Zimmerman and Russel, 1967; Sterling, 1971; Biswas, 1974); environmental factors and settlement pattern (De Planhol, 1966; McCaskil, 1954, 1966); functional nature of social structure as an adaptive response to environmental pressure (Cohen, 1968; Vayda, 1969).

Similarly ecology, culture and changing behaviour pattern of the food gathering and hunting peoples (Das-Jagnnath [a], 1998); Demographic implications of socio-economic transition among the tribal populations of Manipur, India (Heman-Natabar-Shyam; Reddy-B-Mohan, 1998); biodiversity value, status and strategies for conservation sacred groves of Meghalaya, India (Tiwari B.K. [a]; Barik, S. K. [a]; Tripathi R. S. 1998); effect of urbanization in the epidemology of diseases (Cockburn, 1967); effects of inbreeding of reproductive losses in Kota tribe (Sivakumaran, T. A. [a]; Karthikeyan, S. 1997); tribal health (Rajpromukh, K. E. [a],1998) nutritional deficiency disorders and high mortality among children (Rao, V. G. [a]; Sugunan, A. P.; Sehgal, S. C., 1998); social stress and cromic diseases such as cardiovascular and diabetes (Dodge and Martin, 1970; Galle et al., 1972); age sex and seasonal variations of sickle cell disorder (Das, B. P.; Das, R. K., 1998); allelic frequency of Hb and ABO genotypes in African and American negro populations (Allison, 1955; Livingstone, 1967); ABO gene distribution among the Totos (Pal & Sinha, 1983); protein genetic studies among the Tupi-Monde Indians of the Brazilian Amazonia (Salzano, F.M. [a]; Weimer, T. A.; Franco, M. H. L. P.; Callegari-Jacques, S. M.;

Mestrimer, M. A.; Hutz, M. H.; Santos, R. V.; Coimbra, C. E. A. Jr.; 1998); towards a sustainable natural resource management of tribal communities (Panda-Smita-Mishra [a], 1999).

Mega studies, however, require extensive arrangement and facilities which are often hard to meet. Again in such studies it is not usually possible to give proper attention to details of certain aspects. On the other hand, workers can venture to go at considerable depths when studying small human communities in their natural setting even with moderate facilites and arrangements. Eyre and Jones (1966) aptly called small human communities as analogous to the single ecotype. Small populations that is the populations of comunities in which most people have lived prior to extensive urbanization, donot behave in the same way as large statistical aggregates. Such societies have had relatively stable or slowly changing material culture for exployting their natural environment, and rather unstratified simple social system for governing relations between individuals or between groups.

Such social units be it hunter gatherer, agricultural-gatherer, all are governed by the balance between the carrying capacity of their habitat and biotic potential. It has been estimated that the primitive societies, i.e., the hunter-gatherers at best utilized about 30-40% of the available resources of their habitat (Birdsell, 1957; Lee and Devore,1968; Casteel, 1972; Polger, 1972). Micro-studies have contributed much in the understanding of various novel facets of human ecology particularly for those small ethnic communities which reside in remote areas in different parts of the world. Some of the notable contributions of this type are : on Amerindian groups including Quechua Indians at high altitude (Salzano, 1972); indegenous population of the great basin region of North America (Steward, 1938); Native people of central Brazil (Gross et. al.,1979; Warner et. al.1979); in the American continents. In Africa on pygmy hunters (Turnbull, 1972); Kung Bushman (Lee, 1969); Karimojong (Dyson-Hudson, 1966); Djibwa (Bishop, 1974). In Australia on Asmat Hunter-Gatherers (Van Arsdale, 1978). In Asia, Bataks of Philippine (Eder, 1978); Thai cultivators in the tropics (Kunstadter, 1972). In India, on non-pastoral and pastoral nomads of Maharashtra (Malhotra et al., 1983). Human and cattle population of West Bengal (Odend'hal, 1972,1980); Schedule caste population at Mirpur (Mukhopadhyay, 1981; Basu et. al., 1980); High altitude Sherpas and Lepchas of Eastern Himalayas (Basu et. al., 1979; Gupta, 1980); Santal and Birhor (Verma, 1977).These studies in general showed complex multidimensional interactions among climate, soil, agricultural practices, resource utilization, settlement pattern, population distribution, demographic characteristics and components of Biological and Social structure.

The tribals (Santals, Mundas & Oraons) provide us with such a small demographically transitional group of about 2582 Santals, 2803 Mundas and 1526 Oraons (2000) confined a particular spot i.e., the Hili Block region , situated at the Indo-Bangladesh border of Dakshin Dinajpur District whose Social taboo is apparently strong enough to maintain identity of the race. The arguments infavour of selectioning the small ethnic communities such as the tribals (Santals, Mundas & Oraons) were :

i) Their homeland at Hili Block region was relatively free from outside disturbance.

ii) Effective application of simple procedure were possible.

iii) Total count of pupulation and direct observations were possible in most cases.

iv) Digital analysis of various Socio-ecological aspects was possible due to their rather simple mode of life.

(v) Response of any disturbance 'be it, social, environmental or any other became readily apparent.

## 1.2 Aims and Objectives of the study :

This dissertation involves socio-ecological, economical and ethno-zoological studies on the tribal populations, i.e, Santals, Mundas and Oraons at the Hili Block, Dakshin Dinajpur. No data on these tribals was available prior to this work.

The main objectives of this study are to collect and analyse qualitative and quantitative data on some of the specific aspects listed below which are essential to evaluate the present level of development of the communities. Data were collected to determine the following aspects :

1. Abiotic and biotic factors prevailing in the area.
2. Crop productivity of this area.
3. Bio-resource utilization by the communities.
4. Demographic scenario of the tribals.
5. Tribal Blood group analysis.
6. Child labour and the communities.
7. Traditional folk medicine of the tribals.