ENVIRONMENTAL DEGRADATION IN TIBET: IMPLICATIONS FOR SOUTH ASIA

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CERTIFICATE

Certified that the dissertation entitled "Environmental Degradation in Tibet : Implications for South Asia", submitted by Mr. Yamanappa S. Balavantgol, is in partial fulfillment of Master of Philosophy degree of this University. This dissertation has not been submitted for any other degree to any other University and is his own work.

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C O N T E N T S

INTRODUCTION

Tibet, the Roof of the World, is situated in the heartland of Asia. It is the source of many major rivers which rise in and flow constantly through Tibet. Tibet, with it's high fragile environment has long been the supportive of people. Buddhistic knowledge inspired the people of Tibet to consider the nature as something to be held in trust for all sentient beings.

Eversince the occupation of Tibet by China, an unbearable strain has been put on Tibet's resource base and environment. The profligate and unheeding extraction of minerals and timber and the transfer of large numbers of Chinese population to Tibet demonstrate the veritability of Chinese design. If China pursues the policy of colonization of Tibet, it can be detrimental to the survival of Tibetan people. The fact is very clear that Tibet's environment is in a position to sustain such pressures.

The high altitude of Tibet can bring about a change in climatic conditions and in turn affect the regeneration of vegetation. However, the damage done to the environment is becoming irreversible. The scientists all over the world have proved the fact, taking into account the relevance of

Tibetan plateau in todays global climatic patterns that extends beyond the Asian continent. Therefore, Tibetan plateau has wider impact on global climatic patterns.

With this background, an attempt is made to highlight some of the basic issues, especially the on-going indiscriminate exploitation of Tibet's natural resources and destruction of its fragile eco-system and its consequences on South Asian Sub-continent.

In the first chapter `Buddhist approach to environment; Definitions and concepts' an attempt is made to demonstrate Tibetan Buddhist approach to environment. The way they took to Buddhism after it was introduced in Tibet in the Seventh Century and how Buddhism subsequently helped them cooperate with the nature and its role in ShaPing the life style of Tibetan people and exist in all harmony with nature as well. Buddhism, as a religion, played a significant role in creating consciousness of interdependency among all major components. Thus, Tibetans lived a life with nature and had a great respect for nature.

Nevertheless, the first chapter also deals with the role of the Dalai Lama and people as a whole to abiding by the decrees issued by the Dalai Lama. In sustaining an

understanding with regard to nature and what Buddhism did mean about that. In the face of it all, this chapter gives an idea of how Tibetan people and nature lived in harmony in as much as they become inseparable parts subsequently through Buddhism.

In the second chapter, `Chinese Pattern of Economic Development and Ecological Crisis', an effort is made to highlight the implications of Chinese pattern of economic development in Tibet. Whether the whole range of Tibetan natural life can be sustained with the economic development. This chapter stands to be quite important for us in as much it explains the fragility of eco-system and seems averse to the present trend of economic development to which it is alergetic. Tibet's environment is the gift of nature. It exists and functions on its own. Therefore, development in any form is unacceptable it may amount to irrevocable consequences. It is with this, the chapter gives the contrary views of economic development and sustainability of fragile eco-system of Tibet.

The third chapter `Dimensions of Ecological Crisis: Deforestation, Mining and Depopulation of wild life', deals with different dimensions of ecological crisis. It reveals with facts and figures of deforestation, mining and wild life depopulation. The protracted attempt on the part of China to

deforest Tibet and profligate the unheeding extraction of mining and depopulation of wild life. The fourth chapter `The Impact of Population Transfer on Ecological Crisis in Tibet, deals with the critical analysis of the impact of population transfer to Tibet. The contents of this chapter are as follows. The total population of Tibet at the inception and the gradual increase in the population and whether the increasing population maintained with the sustainable eco-system of Tibet. The chapter also concentrates on harmonious existence of Tibetan people with the natural balance of eco-system. This sort of mutual interdependency seemed to exist among themselves with Buddhism being the constant sources of inspiration towards that goal.

The harmonious relationship got affected with the advent of Chinese. Chinese with the object of making Tibet an integral part of China pursued the policy of transferring the Hans population of China into Tibet. With the result, inhabitants of Tibet became minority community in it's own homeland, and put a great strain on the eco-system of Tibet leading to multi-dimensional crisis of ecology. Today the condition is quite different from those of before 1950. The equilibrium collapsed and this led to disequilibrium. Meaning thereby, the human population is the biggest strain on fragile eco-system. However, the fragile eco-system is breaking up its chain of relationship due to unsustainable growth in human

population and its adamant access to natural environment.

The fifth chapter `Militarisation and Nuclearisation of Tibet and their Impact on the Environment incorporates the process of militarisation and nuclearisation in Tibet and its impacts on its ecology and over South Asia at large. In the forgone chapter it was clearly mentioned that Tibet's environment is the gift of Nature and it exists and functions on its own. Any interference in any form is intolerable as to its mode of functioning is concerned. It is in this context the fifth chapter makes n attempt to narrate the causes and effects of militarisation and nuclearisation on the fragile ecology. Huge military cantonments throughout Tibet and dumping of nuclear waste throw a challenge to the sustainability of fragile eco-system. Military presence has threatened the existence of wild life while the dumping of nuclear waste is questioning the fertility of the whole of Tibetan landscape (terrain). This chapter correlates figures with respect to militarisation process in Tibet as well.

Sixth and most important chapter, Conclusion `Ecological Crisis in Tibet, Implications to South Asia' covers the wide range of ecological crisis and its impact not only within itself but beyond Tibet. By virtue of its geographical features like its altitude, location and environmental conditions, a unique biogeographic zone influences atmospheric

and hydrologic patterns over South Asia and in cases upto Northern hemisphere.

This chapter envelopes `Ecological Crisis and Impact on South Asia' and is to be studied under the following two sub-headings :

1 Transboundary Impacts

(a) Hydrological impacts, and

(b) Atmospheric impacts.

However, any change in respect of hydrological and atmospheric patterns within Tibet have greater impact beyond Tibet and that extends beyond South Asia as far as Northern hemisphere.

With that, this work envisages the significance of Tibet, instead of being for itself, it has much more than that for the world around Tibet.

CHAPTER ONE

BUDDHIST APPROACH TO ENVIRONMENT: DEFINITIONS AND CONCEPTS

The world of 19th century could be described as a heavy strain on the eco-system of the globe. Especially, the later decades of 19th century have witnessed world engaged in environmental devastation on a scale unimaginable. The important development that took place which made possible the total domination and destruction of nature was the type of phenomenon that emerged from the Renaissance. The knowledge gained from Renaissance with a view to the well being of mankind did not help itself; rather it helped at the cost of something else which in return affected the global eco-system very badly.

The science and technology developed on the basis of that view, and their application which has made the world what it is today. The masters of science and technology used it for their greed. Many of the European conquerors were humane and some loved nature but, their supreme duty was to `God' and country. In this process, the much loved nature and revered much according to many great religions came to be separated from this main stream. The supreme duty to `God' and country led to the profligate and unheeding extraction of natural resources on scale unimaginable for wealth by all means. Henceforth, knowledge became the source of worldly power totally different from the traditional civilizations which

taught for the protection of environment and equilibrium among major factors which were essential for the fabrication of an umbrella of environment. Their attachment to worldly power with the advent of science and technology since the days of Renaissance, the European men set out to conquer the globe. (This tendency is still found with all major powers and at the same rate). It was on this basis the industrial revolution came to be a total disregard for the environment. Since then all the lovers of nature got relegated, though a couple of romantics elsewhere in the world tried beyond to create consciousness of nature through their writings. Today, we find many people all praise for man's progress to a higher stage (scientific perfection) but actually we are far behind from actual progress because there can't be progress in the state of disequilibrium. Therefore, if one considers this as progress, it is utter nonsense.

With man's disregard for natural environment we ourselves find today at the threshold of becoming the extinct species. The man who himself prided to be the conqueror of globe and moon and declared himself independent of heaven has become the most endangered of all species.

The present world thinks that it solves it's problems on it's own. It can but no science can do beyond certain limit. Science is a fact and not a magic in as much as it's progress depends upon the availability of resources. However, science

can be progressive as long as there is a great deal of resource crunch i.e., natural environment. As a matter of fact, science could very well make use of earth, moon, sea, forest and different layers of atmosphere and underground resources but difficult for science to revitalize/restore at the rate that the nature does for itself. Therefore, negative thinking on the part of mankind may ultimately prove to be detrimental to the eco-system. It becomes hot spot if nature curses.

Nevertheless neither the West nor the East can be able to cope with the situation as a consequence of their own creation and contribution in terms of environmental crisis. Before it is too late, as there is no substitute for, the only way to do this is to go back to the traditional and metaphysical teachings in respect to the role of nature and sacredness which still survives in traditional societies to be a great guide.

From the above description it becomes clear that there was/is a constant onslaught on the eco-system and one may support looking into the present scenario where victimization of natural environment is taking place at no less rate. There is no positive thinking in the direction whereby some efforts can be made to stop the man-handing of environment.

In today's world also, there is a colonial orientation. Colonial tendency and more so the process of colonization may not be exactly the same as the one we had earlier is still in progress, may be different in nature, form and degree from the past. This sort of tendency would harm the "global eco-system" because it is borne out of human greed. In this process (if continued) the natural environment gets exhausted. Unless this instinct is suppressed the phase of extinction cannot be avoided. We are nearing it instead of that nearing us. However, since the mankind is an integral part of "eco-system" he prided ignorantly the victory over the universe and realized the consequences lately. and also the significance of universe and its importance for him in the "Green-house effect" conference held under the behest of UN in 1972.

The principle of inter-dependency prevents any thing that tries to separate itself from the whole universal unity and collective unity. Separation would mean death-knell for it. The universe, I believe exists because it's systems are working in harmony and never in hostile. So interference and inconsistency, and non conformity would mean a perceived detriment to the "universal unity". It swims as a whole and sinks as a whole.

There are two types of countries/States which are faced with extreme environmental crisis in two different ways.

1. The country/State which is facing environmental crisis within itself, and
2. there are some States (like Tibet) which are facing acute environmental crisis because of occupied forces and their control over the natural resources.

Of the two, the former is the better as it extracts its natural resources for its need, whereas the latter destroys the natural eco-system for its 'greed' hence there is no limit. Therefore, profligate and unheeding exploitation will have different ramifications on its eco-system and in cases on the entire sub-continent. For example, the degradation of Tibetan environment and its impact on South Asia.

The Himalayan mountain range as such is the richest repositories of animal and plant species in the world. Most of the environmentalists and scientists have termed it as the `Botanic Garden' and `Animal Zoo' on this planet, and which can afford the most ideal environment for the study of animal and plant life. Although at global level, the experiments are on and still thousands of new plant and animal species are yet to be discovered and studied.

The policy at world level of having at least 60 percent of forest, as it provides life support systems to many sentient beings, is very essential for it is the only source of water. oxygen, and soil and an ideal home for all kinds of wild life. The forest growth is basically old stock, clear felling and afforestation is irrational and nevertheless, these policies are impracticable to the Himalayan range. However, forest is directly or indirectly linked with the ecological balance and so it is quite sensitive to nuclearisation of this belt. The progress of humankind in the study of biology and botany at international level depends much on the protection of diversity of life in the Himalayas. Irrespective of its diversity, the whole Himalayan range as such is the source of water, oxygen, soil, and the richest flora and fauna, within which man is a potent biotic component in an ecological system and without which he can not forge even an inch.

Deforestation and land slides, and environmental degradation in Tibet are said to have contributed much to the siltation rate, therefore, today the rivers like, Huangho, Brahmaputra, Yangtse, and Indus rivers are rated as the highest siltation bound rivers in the world. The growing degradation of Tibetan plateau will affect the atmospheric pattern over the larger part of the globe and most importantly, the Tibet would suffer a big loss in the field of countless endemic species before they are being discovered, as

also the Tibetan culture which has become life breath for countless species and of course, the value of it to the world.[1]

An official Tibetan report says :

Tibet lies at the centre of Asia. The earth's highest mountains, vast arid plateau and great valleys make up the physical home-land for 6.1 million Tibetans. An altitude of 4,000 metres or 13,000 feet above sea level makes one of the most sensitive environments and a unique biogeographic zone as well.[2]

Asia's great rivers like, the Machu (Huangho), the Tsangpo (Brahmaputra), the Drichu (Yangtse), the Senge Khabab (Indus), the Phungchu (Arun), the Gyalmo Ngulchu (Salween), and the Zachu (Mekong) rise in and flow through Tibet[3]. These big rivers end up in sea by flowing throughout the year through all the neighbouring countries of Tibet.

As many as 10,000 higher plant species so far found in Tibet and are identified to be endemic. Vast and untouched wildernesses are home for a rich and varied wild life Endemic

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1 "Tibet : Environment and Development Issues, 1992", (Dharamsala, India), pp. 1-2.

2 "Tibet : Environment and Development Issues, 1992." (Dharamsala, India), 1992, P.1.

3 Ibid., P.1.

species such as the Tibetan antelope, wild yak, wild ass, and arali sheep got used to survive even at the height of 4500 metres[4].

At the time of its invasion by troops of the People's Liberation Army of China in 1949, Tibet was an independent State in fact and law[5]. This take over cannot be in the spirit of U.N. law and therefore, constitutes the aggression on Tibet. This continued aggression has been perpetuating to date the policy of exploitation of Tibet's eco-system for use and luxury in China.

According to international law, Tibet was an independent country with it's destin of socio-cultural background until 1949-50. In the aftermath of Chinese occupation of Tibet, a large number of Hans, population entered into Tibet. Consequent to that Tibet suffered a big loss in various fields due to sheer competition for scarce natural resources causing heavy pressure on it's eco-system. Thus, Chinese occupation led to large scale destruction of Tibet's forests, minerals, and annihilation of Tibetan culture. The Tibetan culture before the occupation of Tibet by Chinese was a powerful means to sustain the natural habitat. They lived a life in

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4 Ibid.,

5 Tibet : Proving Truth From Facts, (Dharamsala, India), 1993, P.1.

co-existence with the natural environment in the highest level of harmony. That inseparability ended with Chinese access to Tibet.

The disposal/ of nuclear and other toxic waste in hazard-ridden surface sites is contaminating many parts of Tibetan plateau as a result, widespread human and animal health problems including congenital deformities, and deaths,. More than 40% of Tibet's forests have been cut. The source is mainly old growth forest. Regeneration and afforestation was minimal, leading to manifold increase in soil erosion. Deforestation and land slides are believed to be big contributors to the siltation especially, across the rivers of Huangho, Brahmputra, Yangtse and Indus rivers. Four of the five big rivers on the earth have been rated as the highest siltation-bound rivers in the world. Tibet's fragile high altitude pasture and agricultural lands have been degraded at unimaginable rates. Military settlements, use of chemical and hybrid seed and their inappropriate farming practices have resulted in an unprecedented damage to the eco-system.[6]

Meaning and definitions of environment

"If we unbalance Nature, humankind will suffer. Furthermore, as people alive today, we must consider future

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[6] Tibet : Environment and Development Issues, Op. cit pp. 1-2.

generations, a clean environmentis a human right like any other"[7] Environment is nothing but a comprehensive study of earth's eco-system. It is a complex phenomenon which sustains through interlinkages, of which mankind is a significant part. Earth, sky, sun, moon, atmosphere, forest, water resources, biodiversity, humankind and innumerable natural resources underground constitute this complex phenomenon generally called `environment'. This umbrella of environment is being shaped by all those mentioned above, it's existance depends upon how healthily these sub-parts co-operate with the whole. There is a bound of inter-connectedness among all beings. They struggle to exist by being interlinked with one another and movement among themslves towards equilibrium; the princimple of equilibrium, is the core of natural environment. Ea ch part of it works in consonance with other with the result equilibrium is maintained by all means. In case of disequilibrium, it affects the whole structure resulting in an innumerable loss to eco-system.

With the advent of science and technology, the State of it's normal functioning has often been affected so far. Dis-quilibrium happens to be there when there is utter exploitation of it's resources beyond the limit. And so the unnatural activities like dumping of nuclear waste, military

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7 Tibet Report Update, The Year of Tibet, , (New Delhi), 26 Feb 1991, Vol. 526, No. 49, p.950.

settlements and use of chemicals and fertilisers, which nevertheless are harmful to the normal state of being. On the other hand, some factors like, rapid growth of population is said to have put a big strain on Tibet's eco-system.

The bond of interconnectedness and inter-being among all beings[8] is the characteristic feature of environmental fabrication. The quality of inter-dependency among all different factors themselves has a utilitarian basis also, in that respect human beings breath out carbondioxide which is utilised by plants and plants in return leave out oxygen which is must for the survival of mankind. Like that, animals provide organic manure for the plants and also help the propagation of plants through scattering their seeds. The plants in return supply them with fruits[9]. This reciprocity symbolises the continuity of life's circle and this relationship is only possible when they are left free to do their own job on the principle of non-intereference in the horizon of each others activities. This is the way the factors move on to equilibrium. The destruction of equilibrium will threaten their functioning as we have been seeing the distruction of equilibrium betgween people and natural eco-system, due to the exploitation of the later by the former.

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8 Ven Doboom Tulku, "Green Buddhism". Tibet House Bulletin (New Delhi), Cultural Centre of H. H. the Dalai Lama, Winter 1992, Vol. 7, No. 2, P.2.

9 Ven Doboom Tulku, op.cit., P.3.

The unplanned growth in human population in relation to available renewable and non-renewable resource is turning to be a greatest threat to the natural environment.[10] The rapid growth of population in fact causing a profligate exploitation of natural resources, worring the environmental scientists. Its swa y over eco-system might endanger the inter-dependency formula as it has been showing the trend of degradation for the last so many decades. To have more understanding of the composition of environment one has to go through the role of each component in sustaining its structure as a whole. Environment as I have described about it in the forgone pages, is made up of different components and they live with inter-relationship attitude and about such components I have made a mention in earlier pages.

In the first place, let us take forest as an important component and it's cntribnution to the contimuity of health y environment. Trees are the only source of oxygen, water and soil, an ideal home of all kinds of wild life and directly or indirectly linked with the maintaining the ecological balance. The consumers of oxygen and food grains are increasing in an unimaginable rate, but unfortunately the trend today seems to be quite unsatisfactory in as much as the source of oxygen. Water and soilare weathering away owing to exploitative trends

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10 G.S. Yonzone, "Mountain Ecology", Himalaya, an Indian Quarterly Today, (New Delhi), Sep-Nov 1991, Vol. 111, No. 2, P.40.

fast on to the extinction.[11] Similarly, animals micro-organisms, air, water, climate and pjhysical nature of the habitat work with inter-relationship motive so that the natural balance or equilibrium remains unaffected.

As far as Tibet environment is concerned, ecology should not be limited to a mis-antgropic concern for wild life and vegetation which excludes people, therefore it is important to consider the condition of the Tibetan people and their relationship with the land[12]
u although, man is a potent biotic component in an ecological system.[13] Thus, environment would mean a structure of various components and each such component works in harmoney with other and so the others. In all environment is a web of several components and their inter-relationship.

Definitions

Ecology deals with the varied inter-relationship that exists between different interdependent components of the

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11 G.S. Yonzone, Himalaya, an Indian Quarterly Today. Op.cit.p.41.

12 Edward Lazar, `Collaboration behind an Environmental Mask', Tibetan Review (New Delhi), June 12, 991, Vol. XXVI, No. 6, P.9.

13 G.S. Yonzone, Op.cit., P.40.

environment and also the structure and function of each such component[14]. We may look into the components such as the plants, animals, micro-organisms, air, water, climate and the physical habitat of the nature. Ecology in this way is the scientic study of each such component and their inter-relationship. In other words, ecology is the web of component relationships. Therefore, ecology is a branch of science dealing with relation of organisms to one another and their surroundigns. No factor can work independently and yet can't sustain itself in case it does not conform to the natural law of inter-relationship or inter-dependency. However, it is a complex phenomenon where no disorder at any rate is entertained and ensjured that each component functins in the totality of this phenomenon.

"Climate System" means the totality of the atmosphere, bydrosphere, biosphere and geosphere and their interactions[15]The extended form of this will be the `ecology' whrere it means the totality of components and their inter-relations. Ecology studies the relationship between organism and the enviroment. In other words, ecology is the scientific study of plant or animal and its relationship with its natural environment. The term `ecology' was coined for the first time by Ernst Haeckel in 1869. He defines ecology as the "total

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14 Ibid, P.40.

15 `United Nations Convention on Climate Change "The Hindu , (Madras), 1993, P.179.

relations of the animals to both it's organic and its inorganic environment"[16]. Since then, a couple of scientists tried to define ecology but all of them were unanimous in the opinion of Ernst Haeckel. It would be worthwhile pointing out that the early authors emphasised on the structure of the relatinships while the later laid much stress on the functioning of these relationships. However, in the middle of the century it was realised that both structure and functining of the relationships are important in understanding the real meaning of ecology.

The first comprehensive definition of ecology was given by Eugene Odum in 1962. According to him, the ecology as "the study of structure and functin of eco-system"[17]. The term was coined by A.G. Transley in 1939 to express the sum total of organisms and their physical habitat[18].

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16 Madan Mohan, "Ecology and Development" Third Concept (New Delhi), January 1992, Vol. 4, No. 59, P.39.

17 Ibid.,

18 Ibid.,

In 1968, Margalf defined ecology as "the study of system at a level in which individual or whole organism may be considered elements of interaction, either among themselves, on with a loosely organised environmental matrix"[19].

On the top of it, ecology is the study of eco-system.

Tibetan Approach to Environment :

The gradual penetration of Buddhism in the 7th century into Tibet successfully shaped the cultural life of Tibetans. Thus, the evolvement of Buddhism in their life helped Tibetans lead a life on sustainable basis and taught them to show equal respect to all sentinent beings. The modern ecologists are seriously pondering over the negative impact on the environment causes by people through either direct or indirect exploitation of the earth. Just as mind and body are inter dependent and so the components of environment are equally dependent on each other. Our unlimited desires are attributable to the over exploitation and excessive material consumption, and misuse of natural resources. And these things have led to the destabilisation of the planet's position.

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19 Ibid.,

The major form of Tibetan Buddhism is Mahayana, the `Great Vehicle'. This Mahayana form of Buddhism is based on compassion, kindness, and bodhicitta, the attruistic accomplishment to realize enlightenement for the sake of all sentiest beings. Loving, kindness, and compassion are the goals through which the happiness of all living beings would be realised. Compassion is the foundation on which the Mahayana Buddhism is based, and the practice of bodhicitta is to realise the state of equilibrium and the exchange of oneself with others. As the compassion, klindness and the loving nature develop, we would feel thereby the significance of interdependency and effect on one another[20].

Peace and survival of life on earth[21] is the principle of every religion. Each religion in it's own principle stands non-violent attitude i.e. compassin to the peaxceful coexistence of all sentient beings. To my mind, it is Buddhism which evolves much more than any other religion with regard to the collective survival of all living beings. Other religious ethos like Hinduism and Islam too have compassion for other living beings, but nevertheless, no religion emphasizes as

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20 Kyabgoa Sakya Trizin Rinpoche `Ecology and interdependent Origination' A Turning of the Wheel (New Delhi) 2 October, 1993, P.43.

21 Tibet Report UP date. The Year of Tibet, Op.cit., P.1498.

much as Buddhism does in that respect. Therefore, on this count/score Buddhism is held in the h ighest esteem.

Since the time of Renaissance and industrial revolution a great deal of changes have occured in the approaches of mankind towards nature and his alleged attempt to strip the spiritual world now based on inter-relatedness and interdependency and inter-connection and the relation of the parts and the whole and the necessity of austerity and self-control to satisfy greed not need[22].

From the above description, it becomes clear that every religion has it's own approach to natural environment for the continuation of life"s cycle on the earth. Just as Buddhism creates a `mindfulness' of recognising all forms of life as part of universal unity, Christinaity also takes pride in revealing it's love towards nature.

Hinduism like any other religions substantiates its philosophy of non-violence (Ahimsa) which evolves compassion of highest degree towards the natural environment. Of course, this principle took to great popularity through Mahatma Gandhi across the globe. Likewise, Islam too expresses as much as other religions through Quarnic verse i.e., "We shall show

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22 Seyyed Hossein Nasr, "Religion and the Environmental Crisis." New Delhi; I.G. National Centre for the arts, 1993, p.7

them our signs upon the horizon and upon themselves"[23]. In this context, B uddhism stands to be much holiestic in as much it begins with non-violence to any living being on the preface of its philosophy and as much it was still in an experimental stage in the holy land of Tibet until the alien forces (China) embarked upon it in early 1950.

"It was the values and practices of indigenous peoples that shone against all others when it came to the understanding of all Nature as a community of related beings[24]. If the crisis is ecospiritual then, we have to develop eco-spirituality as Buddhism emphasises on the `mindfulness" of all forms of life as a part of a unviersal unity. Thus, Buddhism advocates these values and practices.The core of the Buddhist philosophy has no Pratityasamutpada which preaches that all objects and beings are inter-dependent. With this, one has to take into account that all beings and objects are inseparable parts of a universal unity[25]. As far as its (Buddhism) basis tenets are concerned it speaks often of the bond of inter-connectedness and inter-beingness among all beings, in other words, `ecological living". And this is only possible when there shold be a consistent expnasin of mind in the sense of inter-connectedness and inter-being and help us

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23 Seyyed Hussain Nasr, Op.cit., pp. 25-26.

24 Doboom Tulku, Op.Cit., P.2.

25 Ibid.,

to thwart ignorance and build up commune of all those living beings. In this connection, the Buddha preached how to end the suffering and that is possible when you drive away your ego which is the basic cause that leads to plunder of natural resources with the purpose that gives pleasure and comfort. Therefore, ecological living is impossible unless you control your own desires to sustain environmental preservation. The Buddhist philosophy deals with the co-existnece among the various forms of life. For this it needs compassion and that helps us to respect diverse forms of life. This can be aptly described as `ecospirituality" and that is relevant all the time[26].

According to Tathagatagarbha, all sentinet beings possess the essence of Buddha therefore, these is a deep linkage with each other. In addition to this, Buddha underlined the significance of oneness of the COSMOS. Because, the parts exist in harmony, not in hostility. Thus, he believed in the equality of all sentient beings and opposed to the superiority of one over the other. There is nothing of that sort, indeed human beings are also a part of nature and impossible to separate from it[27]. Although there are a couple of countries in the world which have embarassed Buddhism as their religion but never have I heard any of these practicing Buddhism in

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26 Ven Doboom Tulku, Op.cit., P.3.

27 Ibid, P.4.

their daily life as Tibetans did[28] ever since seventh century, that was the time when Buddhism reached into Tibet. To be precise Buddhism was not only practiced in religious activities but it was deeply rooted in everyday life. However, it is often said that the enormous natural environment like the vast and exrtensive plateau, animal and plant life, deep valleys with age old forest remained untouched until early 1950, to be a gigantic home to a rich and varied wild life[29].

Tibetan history is a record of Tibetan"s great respect for the environment. In an article in the Green Peace magazine, Galen Rowell quotes a book by Heinrich Harrier Seven Years in Tibet where he talked about ... the frustration of working with Tibetans on the dike that to this day protects the capital city of Lhasa from flooding. "There were many interruptions and pauses. There was an outcry if anyone discovered a worm on a spade. The earth was thrown aside and the creature put in a safe place"[30]. This shows the virtual practice of Buddhism which essentially prevents the harm to all sentient beings and ensures a commitment to the values.

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28 Li Rongxia "Tibet : Religious Beliefs and Reality" News from China Supplement (New Delhi), April 10, 1991, Vol. III, No. 15, P.17.

29 Tibet : Environment and eEvelopment Issaues, 1992, Op. cit., op.cit., p.1.

30 Issue No. 1 Tibet Report Update, 1991, Op.cit., P. 1498.

Because, anything contrary to natural environment takes place that is only due to ignorance greed and lack of respect for the living beings.

Buddhism has not been a mere belief for Tibetans, it evolvds the entirety of their culture and civilisation forming thus the social fabric connecting them to the land[31]. With the nourishment of Buddhism since it was flourished in seventh centuruy, the course of historical development crystalised the afinity and concretised the natural boundness between followers of Buddhism and natural environment.

The belief in Buddhism and practice did not confine to the generation which acceprted Buddhism for the first time. The practice of this kind, in course of time, metamorphised into the cultural fabrication of the society and passed on to the next generation. This trend continued until 1950. Therefore, culture does not lie in form only or the number of people who studied it, but in the heart of the people who pass it down from generation to generation[32]. The culture of compassion, love, kindness and equal respect to all sentient beings resulted in the formation of unversal unity.

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31 Tibet : :Proving Truth from FActs, Op. cit, P.64.

32 Kenji Babasaki, "Idealism, Material Prosperity and Cultural Heritage", Tibetan REview, July 1991, Vol. XXVI, No. 7, P.8.

As a testimony to the above description, is this. "Fish markets have sprung up in many towns and cities in Tibet where it was once a sin to go fishing"[33].

Tibet from 1950, took to the revcerse dirction. The "Natural eco-system" developed holes because of alien sway over the entire Tibetan belt. The duty of alien forces henceforth resulted in the promotion of the natural extinction of religion which took several decades to adorn the society to that end. The process to promote the natural extinction of Buddhism is still underway[34]. In an old Tibet there used to be a natural harmony among various components of natural environment like, Tiebtan people and the animals, plants, rivers and mountains of Tibnet. This spirit of harmonious relationship can be understood through the following Tibetan folk song. (This song of Tibetan folk version was translated by Lobsang P. Lhalungpa).

Above looms the blue sky, representing
The wheel of the Sacred Law
Below lives the pale earth, like an eight petaled lotus
Between them rise the majestic mountains
Manifesting the eight auspicious symbols,
In the meadows grows a profusion of medicinal plants

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33 Liu Shuiyu, "Fish Markets Brisk in Tibet", News from China. April 21, 1993, Vol. V, No.16, P.13.

34 "Religion". Tibet Information Network (London), 14 October, 1990, P.1.

The Valleys are adorned with green trees and fields,
While turquoise lakes and rivers dot the farther reaches.
Pure, crisp air forever refreshes life.
The moon shines brighter amidst the glittering stars.
The earth is full of precious treasures.
On this highland humans and nature coexist harmoniously
The land where spifritual and human law reign supreme,
In the land where celestial powers are revered
Where animals are partners in life"s struggle,
Where birds flag without fear,
Where fish swim in freedom,
Where wildlife is protected,
Where men and women cherish inner peace and outer freedom.[35]

This was the holiestic approach that Tibetans had in an independent Tibet towards preserving the ecological balance through Buddhistic dogma. They had spiritualised a whole lot about eco-system so that harmonious relationship might result in the equality of all living beings preventing the supposed ecological crisis.

Apart from low populatin pressure, Tibet possessed a diversity of animal and higher plant life. Despite Tiebtan peole had a great respect and concern for natural environment

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[35] Edward Lazar, Op. cit., P.9

and this was based on religious beliefs. Since Buddhism flourished in an independent state of Tibet the people settled down to live with nature seeking to learn and understand the nuances and rhythms of natural life on the land of Tibet. The general taboo against killing of any sentinent being was the direct result of Buddhist knowledge and belief abnout the life of interdependency and interconnectedness among all different components of natural environment. The life like this over many decaders made difficult for them to separate or differentiate between the practice of religin and concern for environment. This close relationship between religion and natural world with the time became the part and parcel of life. In a sense, they have always been aware of the spiritual coexistence with natural life of the world[36].

Tibet with its vast and extensive plateau, an unique one on this planet, diverse animal and plant life and four of the five big rivers of the world rise in Tibet and flow through the neighbouring countries many times bigger than Tibet assumes the role of much significance in many respects for the most part of South Asia. And so Tibet remained confined to the traditional mode of life to retain the balance out of common interest for the humanity as a whole[37]. Most part of

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36 Tibet : Environment and Development Issues, Op. Cit., P.28.

37 Tenzin P. Atisha, "The Tibetan Approach to Ecology", Tibetan Review, (N.Delhi), Feb 1991, Vol. XXVI, No.2,

the traditional approach/traditional mode of life of Tibetans was based on Buddhism. With the passage of time that traditional mode of life based on religious beliefs played a leading role in the formulatin of social and state policies. With the result so many decrees issued down in the decades of this century are to be seen here --

Rilung Tsatsig/Decree for the protection of animals and the environment :-

In the Horse WAter Year (1642) His Holiness the great fifth Dalai Lama, Ngawang Lobsang Gyatso, became the spiritual and political hed of Tibet. Since then in the tenth month of every year, a decree was issued for the protection of animal and environment in the name of the Dalai Lama. One of the decrees issued by the Great thirteenth Dalai Lama states :

"From the first month of the Tibetan calender to the 30th of the seventh month, with the exception of tigers, Leopards, bears, hyenas, rats and Rishu, nobody will hurt, let alone kill, the different birds of the air, animals of the hills and forest, fish and other of the water. In fact nobody, noble or humble, should do violence to or harm any animal on the land or water or air, no matter how big or small"[38].

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p.9.

38 Tibet : Environment and Development Issues, 1992, Op.cit., P.20.

In the absence of Dalai Lamas the Regent used to issue the Tsatsig. For instance the Tsatsig issued by the Regent Tagdra in 1940 reads like this.

"From this Iron-DRagon year, the Tibetan Government has decreed that in ech and every village and town in Tibet on every 8th, 15th, and 30th day of each month, the 4th day of the 6th month, the 22nd
day of the 9th month, and the 25th day of the 10th month, no domestic animals should be killed for the purpose of selling their meat for profit or food"[39]

On special occasins, the Decrees would be issued on the advice of the State Oracle. For example on the 28th day of the 7th month of the wood-monkey year (1944), The Regent Tagdra issued Tsatsig proclaiming: "For the health of
His Holiness the
Dalai Lama, for the sake of the Dharma,
and for the benefit of all sentient beings,
the village heads, officials and governors
of all districts of Tibet are commanded
to protrect the killing of all animals,
excedpt predatory hyenas and wolves.
The fish and the others of the warter,
animals of the hills and forests,

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[39] P. Tenzin Atisha, Op. cit., P.9.

birds of the air, all animals and insects, endowed with the gift of life, big or small, must be protected or saved."

The Tsatsig thus issued would have been circulated to all governors and district officials. And Tsatsig was to be read by village head also. The gathering of public people especially convened for this purpose would abide by it and memorandum to this effect had to be sent to the Tibetan government. In front of each and every office notice boards were installed whreby Tsatsig was displayed all the time. The governors and officials had to sent agents to see the Tsatsig being observed properly. In case of irregularity the report had tobe prepared to the Regent Tagdra with unbiased proof.

In case of violation of such Tsatsig and continue to violate them were checked out and punished without caring for his/her status. In this respect even the governors and heads of any isntitution were not spared. If proved he/she was guilty and punished according to the law of the land. Each and every governor of a respective district had to send the report of how they are enforcing these Tsatsigs.[40]

Similarly, in the fourth month of every year, the Tibetan government issued a "Meat Law". according to which eating of

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[40] Ibid., pp. 9-10.

meat was stopped up to the fifteenth day of the month. In cases it was to be extended to a full month by the fourteenth Dalai Lama. Howevere, certain exceptions were made during winter months to this law.

"If one cannot survive without either,
the sale or eating of meat (because of
high altitude) killing is permissible.
But if one can live without selling
meat, the killing of yaks and other
domestic animals should be avoided
and district officials must make sincere
attempts to look into the matter."

Besides the Dalai Lama and Regents, there are so many instances of even Lamas issuing Tsatsigs. These Tsatsigs were considered to be most effective way to preserve the religious life, peace, happiness and health for all sentient beings and to stop spreading diseases and war among all sentient beings.

The Tibetans were also encouraged to cultivate land. On the eighth day of the first month of the Water-Ox year (1913), the Thirteenth Dalai Lama proclaimed :

"From now on, no one is permitted to abstruct anyone
from undertaking cultivation for tree plantation
on any available vacan lands.
No one, including the government, private or
religious institution, should ever obstruct these

healthy and beneficial deeds".

His Holiness the Fourteenth Dalai Lama writes after a few decades in his widly-read- Human Approach to World Peace

> "All beings primarily seek peace, confort and security. Life is as dear to the mute animal as it is to any human being, even the simplest insect strives for the protection from dangers that threaten its life. Just as each one of us wants to live and does not wish to die, so it is with all other creatures in the Universe"[41].

Earth Conservation Ritual

Every year in the second month, the Tibetan Government organised anm Earth Conservation Ritual or "Vase". The ritual was performed by eight monks for seven days in whcih H.H. the Dalai Lama was also one of the participants. The text popularly known as `Sa-chue Bumpa" deals with the conservation ritual. According to which

> "Thousands of mud cvases were made and filled with different types of five precious metals, trees, grains, incence, water, milk, cloth, medicinal herbs and the eight belongings of "LU" (the water Godess). These vases were then divided between different dieties. One vase was made of silver, after the waters of a particular lake which always shimmers like silver to offer to the water Goddess. After completing the ritual, the vases were

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41 Ibid., P.10.

taken to be put in different mountaisn and lakes of Tibet. This was done by three Namgyal monks in the areas around Lhasa, and one monk each from Namgyal and Gruto monsteries, together with an "atning" (official postman) in western, northern, and southern Tibet. However, only one Atrung was sent to eastern Tibet. On the fifth day of the fourth month, the silver vessels were put into Meldro Lakew, 160 KM from Lhasa where the diety Lugyal Madoe Zechen resides.

The vessels were tied with three rain pills. The rituals of the rain-summoning pills were completed at the same time as the earth conservational ritual. These pills were intended to ensure the purtiy, equality and quantity of existing water, to give fresh life to the lake, and finally, to summon the rain to improve life and the environment on the earth"[42].

Water amd Rain Ritual

The rain usually would be scarce in the third and fourth months in every year. At that time the Tibetan Government would take the following measures :

First, during these months eight monks from Namgyal monstery were sent to seven different lakes in and around lhasa where they would recite special texts to summon the

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42 Ibid.,

rain. Second, the Tibetan government decreed to ban the construction work when rainfall was not satisfactory. Third, the Government would invite hermits who specialised in summoning rain over lakes through the specialritual rites in and around Lhasa. Finally, in case rain did not come, mass reading of Kangyur was to be staged for seven days in the fields. After this the scriptures were carried in procession, in which, ppublic was also participated.

Similarly, the usual method the Tibetan government undertook in case of no rainfall through above practices was to play with water in streets for two to three days. Even Lamas and ministers were not spared. The water was thrown on one another and on those who went in the streets to propitiate the water God during these months.[43]

Purification of Environment

The Government of Tibet, on and often, ordered the performance of purification of rites of religin and environment. The basic reason behind this was to eradicate all evils which were deemed to be confronting the environment and thus attempted to restore its originality. In terms of atmosphere, through the traditional method i.e., by offering incense or "Sangsol". They tried to purify the atmosphere. This Sangsol could be performed individually or in groups. On

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[43] Ibid., P. 11.

occasions such as the Dalai Lama"s birthday, marriages and the day of the Tibetan New Year.

The incense has to be burnt on a stone heath and should not be trampled by either men or animals. The incense should be wood and should be fragrant therefore, onlyh leaves of fern or juniper or the branches of coniferous trees, rhododen dren, red or white sandal wood and yet tsampa, butter, sugar, medicinal plants and other substances of that kind had been used to purify the atmosphere. At the end of that ceremony, people stand up in row and throw a handful of Tsampa in the air while shouting "Ki Ki Soso Lha Gyalo" (victory to the Gods). Incense offerings were also made to the Lamas, protector dieties, country dieties, lords of the soil etc., to promote the healthiness among all components of natural environment and bring peace and propserty to all living beings. The purpose of incense burning was to smell the smoke by all dieties and living creatures so that the harmony and prosperity are brought to the land of Tibet.[44]

The monks and nuns, farmers, nomads and other lay Tibetans had their own prescribed traditions and conventions which had a great concern for environment[45]. Besides, they

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[44] Ibid.,

[45] Tibet : Environment and Development Issues, op.cit., p.20.

could hold meetings at times to make rules and regulations for the current year.

The Tibetan approach to environment and its successful implementation to balance the natural environment and their practices in that respect can be seen in the records of western travellers, explorers and naturalists. Some of them are mentioned here. The British explorer Kingdom Ward wrote before the first world war :

> "I have never seen so many varieties of birds in one place, one great zoological garden". In the 1940s Leonard Clark reported : "Every few minutes we would spot a bear, a hunting wolf, herds of musk deer, kiangs (wild asses), gazelles, big horned sheep or foxes. This must be one of the last unspoiled big game Paradises".
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> In the 1940s, Hugh Richardson, wrote about prescribed practices and conventions which the monks, nuns, farmers, nomads and other lay Tibetans folowed in order to conserve the natural habitat "I have never seen less evidence of hatred, envy, malice and un-charitableness ... The majority of people made efforts to live as much as possible with nature, not against it"[46]

Joseph Rock wrote in the National Geographic in 1930 :

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[46] The three quotes mentioned above are taken from : Tibet : Environment and Development Issues, 1992 (Dharamsala, India), P. 28.

"Whenever I looked, saw a wild animal grazing contendly"[47]. Now we must go back to them in order to draw from them a philosophy of nature, renewal of an attitude towards the natural world. The science of traditions and conventions of age old Tibetan, is being repalced with the unscientific approach. Because, the true science is one which believes in the sustainance of all sentient beings with the sense of equality and equal respect for all natural habitates i.e., `natural balance'. They have been sunk and now they need to be revitalised. Otherwise the consequences will be of much higher rate. However, `spiritual coexistence" with the natural world is the pre-requisite of time and forge with the idea of restoring it to its original place because of the crucial importance for South Asia and beyond that.

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[47] P. Tenzin Atisha, P.10. Op. cit.,

CHAPTER TWO

CHINESE PATTERN OF ECONOMIC DEVELOPMENT AND ECOLOGICAL CRISIS

To retain healthy environment there must not be killing and destruction beyond the capacity of "Mother Earth". In the name of development since the time of great industrial revolution men have set to exploit the cosmos at an unimaginable rate. His ignorance and irrespect for natural ecosystem deemed to cause an unprecedented loss to all sentient beings. His victory over natural environment and his declaration of independence from heaven through renaissance and industrial revolution has set no limits for his greed. And exploitation of nature lavishly seems to be carrying him on to the destruction of "Universal Unity" of which he is a significant part. Tibet might be taken as an example to examine what damages has been done to nature. Tibet is an unique spot on this planet. It has capacity to survive, sustain and prosper on it's own. So the interference would cause adverse impacts on the entire South Asian region.

Until 1950 there was a harmonious relationship between men and ecosystem and far away from present environmental crisis. This untouched gift of nature was working to the well being of all on the principle of "spiritual coexistence". With the advent of Chinese rule the "spiritual coexistence" lost its validity leading to grave geological crisis. Unlike

elsewhere in the world, it has nothing to do with science and technology.

Tibet is a source of the Asia's great river and home for millions of species. Its vast and extensive plateau, a unique spot on the earth, large mountains and deep valleys with age old forest remained untouched until 1950. This natural gift was protected through Tibetan traditional and conventional practices. The exploitation of its natural resources on the basis of none other than old practices would cause an "ecocide of appalling proportions". Its sustainable development depends upon the age old traditional and conventional values and at no point allows the interference with ultra-modern equipments to which it is quite allergetic.

With the colonization of Tibet by Communist China, Tibet's traditional environmental protection system has been collapsed with maximum impact in various fields.Chinese model of development and approach has proved detrimental to the whole biogeographic zone and all effects today are noted in the grass land areas, crop land areas, the forests, the water resources, and the wild life.[1]

With the colonization of Tibet, there has been Profligate

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1 Tibet : Proving Truth from Facts (Dharamsala, India), 1993, P.78.

and unheeding extraction of natural resources beyond the capacity of mother Earth. In the name of development and for human greed destruction of natural habitat is taking place at an unimaginable rate and therefore it is deemed to cause an unprecedented loss to all sentient beings.

The devastation of natural world in Tibet shows that it is not taking place according to one's need but for greed and luxury and their use in China. Chinese pattern of economic development and ecological crisis are running hand in hand. Economic development should not be at the cost of ecology because in the process of development if ecology gets exhausted development, however, would never be in the true spirit of the word `development'. If at all there is development it has to be in the interest of all components of natural environment. Today's `development' concept in no way stands for healthy and harmonious relationship between man and natural world. This attitude based on ignorance and irrespect for nature will have a multi-dimensional impact on the coexistence of this world, and development must have equal respect for all living beings.

After a prolonged journey of development since the time of renaissance and industrial revolution, the word `development' has meant destruction of natural cover. It's impact was realised of late and hence development and ecology

are taken into consideration for the sustenance of the global ecosystem. Because economic activities are causing us to reach risky environmental thresholds. Economic and ecological concerns are interdependent. And so "In order to retain our environment we must not kill and destroy beyond the capacity of mother Earth".[2]

The UN Conference on Environment and Development felt that they are part of an adjustment process to the deepening awareness that the unprecedented level of global economic activities are taking us to risky environmental thresholds. We depend on nature to provide the physical resources for our development as well as a sink to absorb the resulting wastes. Though substitution of physical resources, and increasing reliance on renewables is possible, we are reaching the limits of the Earth's sink functions. The consequences could well be catastrophic.[3]

From the above definition we can well mean that the economic development and ecology are interdependent and

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[2] "Ecological Mindfulness" Tibet House Bulletin, Cultural Centre of H.H. the Dalai Lama, (New Delhi) Winter 1992, Vol. 7, No. 2, P.4.

[3] Development : Developing Environmental Sustainability Special Issue of UNCED Brazil, 1992. Society for International Development - Palazzo Civitta del Lavoro 00144 Roma.

inseparable. With this UNCED, the sustainable development Concept has assumed a greater significance as a process of change in which the orientation of all means has been changed to contribute to enhancing the quality of ecosystems. This process of change in attitude, behaviour and application of means are to be pursued to bring about `nature balance', therefore, adjustment process is the need of hour.

The process of change in attitude, behaviour, and adjustment process and the sustainable development are needed in the process of ecological regeneration in the heart land of Tibet. Basically, the fragile topography of Tibet does not by any means get along with the development process being followed by China. Since the quality and nature of the existence are different from the land elsewhere outside Tibet.

Tibetan identity and nature, and quality and characteristics of the biogeographic zone are to be seen in the following lines.

Millions of years ago now occupied by the Himalayan Kingdoms was the site of the shallow Tethya Sea. During the tertiary period in the earth's geological history, powerful compressive forces folded and thrust marine deposits, which rose out of the waters in gigantic earth waves, and under the

erosion of water and ice became a land of broken and irregular mountain masses. These crustal movements led to the development of a series of longitudinal valleys.[4] Nowhere in the world is there any mountain as high as Himalayan mountains and gap between the bottom of hills and the top of the mountains. In such zone life becomes difficult as it restricts human existence there. Only animals and plants of various kinds are the companions of such region and unsuitable for any use. Natural conditions being different puts a barrier to human activity. The forests of this region is old. As such, the growth and the rejuvenation of forest is a difficult task. Hence the felling of such a growth needs one's attention with clear understanding of its nature and history.

> Land use and resource development in the Himalayan Kingdoms are dominated largely by physical forces beyond man's control.[5]

Himalayan mountains are still quite young and are still in the process of making up. They are growing and that can not be obstructed under the present economic philosophy of exploitation. The impact of man on the fragile geomorphology

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[4] P. Karan, The Himalayan Kingdoms, Bhutan, Sikkim and Nepal (Princeton; D Van Nostrand, 1963, P.6.

[5] Ibid., P.14.

of the Himalayas has been showing the results of degeneration of its growth. Mountain and plane areas of Himalayas are sensitive to human intervention. Himalayan mountains are still young and in the process of buildup. Due to heavy pressure caused by the Indian tectonic plate moving northwards at the rate of five centimeters per year causing the mountain upward fold by about two centimeters per year. This process has subjected the Himalayan mountain range to a natural washing in order to maintain its own equilibrium.[6]

The Himalayan mountains and their topography has been (characterized) by their unique specificities such as inaccessibility, fragility, marginality, diversity or heterogeneity and natural suitability. They are interrelated and in some cases show considerable variability.[7] However, these characteristics are inherent qualities of Himalaya and therefore, interference at any level is opposed.

Tibet itself covers the most part of Himalayan region. Under the economic planning based on the philosophy of extraction and exploitation at its resources at an

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[6] B.G. Verghese "A Water Management" Seminar (Himalaya), (New Delhi), 1991, No.378, P.24.

[7] N.S. Jodha, "The Missing Perspective". Seminar (The Himalaya), 1991, No. 378, P.15.

unprecedented rate has weakened the Himalayas' inherent quality of carrying capacity. Continuing and growing degradation in this fragile mountain region will have considera ble impact on its foothills and planes especially, as climate. Water region, soil characteristics plant life and social moves. Once the plant species are removed, the denudation begins. The young mountains instead of growing begin to drift apart.

China ranks the third largest country in the world, occupying 6.4 percent of the world's total land area. But this entire land is not economically viable. The presence of mountainous regions spread over 33% of it's total geographical area, plateau covering 26% of land area and hills scattered over 10% of it's total land area have provided a limited scope for economic development. Today, of 12% of the plain land only 10.4% is under cultivation. Any attempt on the part of Chinese to extend cultivation to pastures and the mountainous region is deemed to be detrimental to the environmental system. The efforts of this kind have already proved to be a failure and cultivation in this region catapulates the land area after a few years/harvests into barren land. With drastic reduction in forest cover in view of `food first policy' raised serious consequences for the economy and environment of the country. At present the forest cover is found only on 12.7% of its total land area, while

pasture cover is only 5,300 M Mu. Further, only 1,880 M Mu land is considered to be fit for afforestation, animal husbandry and cultivation. However, only 500 M Mu is declared suitable for cultivation. But the un\suitable land is rich in natural resources and as a result over 140 minerals have been determined in China.[8]

Just as land resources the mineral resources in China are not concentrated in one particular region and the industrial sectors based on these resources are found on the main rail lines and along the banks of rivers, instead of being established in the vicinity of production area. With the help of advanced transport and communication system, the mineral product is being transported from inaccessible areas of Tibet to those industrial sectors. Both the places where minerals are located and industrial establishments are concentrated are virtually environmentally delicate. So the prevailing conditions in the respective regions may have a direct implication for the environment of a country. The existing capital-oriented technology instead of environment-oriented technology has led to the ecological degradation.[9]

In the event of the present development pattern in the

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8 Gopa Joshi, "China's Environment in the Nineties", (New Delhi), Jan-Mar 1993, Vol. 29, No.1, P.15.

9 Ibid., P.16.

Tibetan fragile mountain regions, plateaus and grasslands, today we are witnessing multidimensional crisis. Felling of forests, cultivation of grasslands, and farming practices together have resulted in soil erosion, siltation, destabilisation of climatic pattern. Millions of endemic species and micro-organism are virtually disappearing under the perpetuation of ultra-modern development pattern, leading to immeasurable loss to the world bio-diversity. However, the mismanagement of grasslands and mountains and forest cover will have un-bearable ramifications on the entire ecosystem of Tibet.

As for Chinese view of development, it still believes in the legacy of historical development. China opines that the history tells us that evolution of human civilisation is a gradual process from less advanced stage to more advanced one. The cultivation of one stage cannot last forever and by no manner of means confines to that. In course of evolution mankind takes a look beyond that and makes through new discoveries and progress with wisdom and knowledge he gained with the passage of time, we came to acquire wisdom and knowledge and thus in course of time shaped his splendid culture. Thus the mankind is capable of meeting the existing fall outs of development theory.[10] With intense persuasion of

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[10] A statement made by Dr. Song Civilization, a Minister in-charge of the Science and Technology Commission and Chairman of Environment Protection Commission of the

present economic policy the land, water and atmosphere are gravely threatened. So the consequences of unsustainable development pattern are air pollution, weather destabilisation, depletion of ozone layer, drying up of fresh water resources including coastal zones. And yet floods, draughts, soil loss, land degradation, desertification, depletion of forests and bio-diversity and acid rain might be the resultant consequences.

China has already been facing a serious threat of environment pollution having adopted to speed up economic development process. With over exploitation of land, forest, minerals and bio-diversity, the problem of air pollution and acid rain are likely to worsen.[11] Though Chinese records show appreciable progress but the consequences are uncontrollable. Because of steep slopes and fragile soil and vegetation cover, the very diversity of the milieu render mountains highly susceptible to environmental degradation and weather change. Mismanagement of mountain lands may cause irreversible damage to the mountains and perceived devastation to the surrounding

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State Council of China at the Plenary meeting of the United Nations Conference on Environment and Development on June 8, 1992, Published in Beijing Review , "China's Position on Environment and development", Vol. 35, No. 22, P.8

11 An interview with Beijing Review, Li Peng, Xia Kunbao, a member of the China Inter-Ministerial Coordinating Group for the 1992 U.N. Conference on the Environment and development, published in Beijing Review "A World Issue", Vol. 35, No.23, P.15.

planes. The ecosystem having been a life support system would lose it's carrying capacity rapidly. This planetary's richness and genetic materials are passing through critical phases owing to human actions. Rain forests and wild lands are believed to protect this biological wealth, today these components are being threatened and rate of impoverishment seems to be very high under the current pattern of economic development and the Institutional arrangements.[12] The often application of mechanical equipments like plough etc, have been causing enormous damage to scenetic materialism.

Another consequence may be the spread of "biological draught" i.e., the depletion of millions of micro-organisms and earthworms that is indispensable to retain moisture and lands fertility and efficiency. With the excessive use of mechanical means and fertilisers and chemicals without the incorporation of organic manures[13] the biological draught may hamper the lands fertility and efficiency.

Tibet's fragile grasslands and agricultural lands have been subjected to perpetual degradation by Chinese policy makers. Permanent settlement of Hans population in an

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12 Dr. Jayanta Bandyopadhyay, "Towards Sustainable Development in the Mountain Areas" State Energy and Environment (Calcutta), May 1993, Vol. 2, No. 2, pp. 11-12-13.

13 B.S. Shetty, "Environmental Degradation and Farming" World Focus (New Delhi), Vol. 12, No.1, P.8.

environmentally delicate ecosystem and their inappropriate farming practices to yield more wheat instead of barley, fencing, excessive use of hybrid seeds,[14] chemicals, fertilisers and most importantly, the extension of farming practices on to the mountain steep lands and grass and pasture grounds, would invariably cause the above consequences. Chinese, pattern of economic development and ecological crisis, as Tibetan land does not get along with the modern concept of developmental philosophy. (i.e. economic planning on the basis of economic philosophy of squandering the natural resources). It's forceful implementation against the nature of land shows highly deplorable consequences in several areas, such as, mountain parameters, transfer of population, deforestation, degradation of pasture ground, abuse of farm land. And Yamdrok Yumts Hydro Power Project and nuclear and toxic waste disposal and their impact on atmosphere and soil erosion, and siltation, etc.

Chinese economic development programme in Amdo and Kham, are two large industrial areas in eastern part of Tibet. Two being equipped with better industrial infrastructure and popularly known for their higher output. With the industrialization of these two major cities in Tibet have brought less opportunities for Tibetans themselves since large

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14 "Environmental Destruction of Tibet" Tibet Today (New Delhi), May 1993, pp. 17-18.

number of beneficiaries are Chinese and however, Chinese settlers have reached a majority on scale in proportion to Tibetan inhabitants in both regions. From the agricultural field the gross output was of the order of $ 431 million in 1987. The low lying areas with irrigation facilities and suitable environmental conditions slated a higher proportion of income of about 44% from farming although the output was less from animal husbandry as high as 42.9%. The total output value from nearly 1,300 industrial units was estimated at $ 811 million in 1980's.[15]

It is in these two Tibetan regions, the industrialisation is at the higher order. From 1962 onwards the influx of Chinese settlers reached the highest point as builders, workers, and technicians and as a result, today the concentration of Chinese population is much higher as per the ratio than the Tibetans.[16] Amdo is a rich region for natural resources. This provides a strong impetus for Chinese concerted effort for the extraction of natural resources and helped Chinese avoid the development of tertiary levels of industry. Hence their concerted effort was directed towards the Amdo's rich natural reserves o iron, copper, lead, zinc, petroleum, salt, borax, magnesium, lithium. This condition

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15 Tibet : "Environment and Development Issues", (Dharamsala, India), 1992, P.36.

16 "Tibet : Proving Truth from Facts", op. cit. P.73.

encouraged Chinese authority to instal heavy industries. Just a few years ago Chinese had planned to establish such industries in the districts of Amdo. This large scale industrial development meant nothing for local Tibetans. Since Chinese being in majority near total benefit goes to Chinese settlers, with Tibetans having been reduced to a minority. The impacts are : economic stagnation, pauperization of Tibetans, and depletion of natural resources except for a open range land where Tibetans could domesticate their yak herds. But they are no longer going to have a control over their own destiny.[17]

The basic intention behind the unmindful exploitation of Tibet's natural resources through industrialization and agricultural development is to support Chinese population and help them to a maximum extent possible. The need to feed the Chinese military, civil personnel, and the settlers and export of agricultural produce to China as well caused the use of hybrid seeds, pesticides and chemical fertilisers to grow more food.[18]

"The expense of keeping one Chinese in Tibet is equal to that of four in China. Why should Tibet spend its money to feed

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17 "Tibet : Environment and Development Issues", op. cit., P.37.

18 "Tibet, Environment and Development Issues", op.cit, P.37.

them? ... Tibet has suffered greatly because of the policy of sending a large number of useless people. The Chinese population in Tibet started with a few thousand and today it has multiplied manifold".[19]

The large tracts of agricultural land, plenty of water resources and good soil have made Kham a don of agricultural production. As per its traditional pattern is concerned Kham would have traditionally traded grain and other crops in exchange for animal products. Since the centralised subsidies for grain and other products are being practice, today the same pattern is existing. Earlier the Kham region would produce wheat etc, but with the introduction of chemical fertilisers the production rate and quality of land have fallen down the scale. In other words, land is constantly loosing its fertility due to previllous use of chemical means. Another important factor as the population pressure is increasing due to unprecedented influx of the Chinese pastrolists are moving on to a higher regions reducing the available of pasture ground and affecting it at the highest point.

The moves on the part of Chinese, like, integrated agriculture, horticulture and grassland development plans are on to raise the agricultural production. But the marginal

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[19] Ibid., P.74.

condition of Tibetans in Kham implies that the 99% share goes to the Chinese. Although the industrial growth is satisfactory with the availability of natural resources in Kham (mainly situated in towns and cities of Kham.) The subjects of Tibet generally based in rural areas however, are not beneficiaries at all. Chinese settle in such places and enjoy every drop of it besides many schemes inclusive of subsidies of all sorts.[20] Man is an important component of ecosystem, it is important to take into account the Chinese pattern of economic development and its implications to it. Let us look at Chinese view.

Taking into consideration the harsh realities of Tibet's special geographical location the Chinese government has adopted some policies which are harmful to it. Before the penetration of domestic system into Tibet, feudal serfdom was the prevailing system in Tibet. And the area then being less close to the outside world remained utterly backward. Agricultural land and grassland, and forestry were publicly owned, the farmers enjoyed every right to domesticate and rise any livestock they liked. Therefore, in view of this system the Chinese government was forced to adopt some special measures to speed up the economic development of that region. Throughout the long 40 years period after liberation of Tibet

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20 Tibet : "Environment and Development Issues", Op.cit, Pp.37-38

China has given enough financial and material support to Tibet for it's speedy economic development. Tibet was allowed to retain all the foreign exchange it earned. The State has recently started nearly forty three key projects. Further the rate of investment is larger than any other autonomous region besides allowing agricultural and animal husbandry sector tax free. In addition, in order to improve economic environment and regulate economic order the State at once within three years took an immediate step to control the price rate and inflation.[21]

The total number of livestock in the region stands at 22.99 million heads whereas this figure stood at 2.41 before the democratic reforms were carried out in 1959. Since 1959 the Chinese government has sanctioned financial assistance to the tune of 13 billion yuan for agricultural development and various projects in this vast region. More than 80 varieties of field crops have been introduced in many parts of this region to expect high grain output. The region has finished the construction of nearly 16,500 water conservatory projects inclusive of small hydro power stations in rural areas generating a total of 75 million kilowatt-hours each year.[22]

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21 Ling Bin, A Guest Commentator, "Special Economic Policies for Tibet" `Beijing Review' (Beijing), June 3-9, 1991, Vol. 34, No. 22, P.4.

22 "Tibet Expects Record Grain Output" News from China", New Delhi), October, 1990, Vol.II, No,. 42, P.10

Agricultural production facilities have improved greatly since the days of peaceful liberation, 40 years ago. This region enjoys to the fullest extent the modern means of agricultural production such as science technology. Tibetan farmers have shifted from cattle and wooden plows to the mechanization of agricultural fields. They enjoy today the fruits of science and technology inmost parts of tibet. Use of iron plows and tractors have replaced the traditional method of cultivation of land. Tibet has now 41,000 tractors, over 3,000 farm trucks and over 20,000 winnowers. The total agricultural machinery power is equal to 300,000 horse power. Tibetan farmers never had this idea in their mind in earlier days. Whenever the crops became infected they used to call upon the Lamas to pray for better conditions but today, the condition is just the other way around. At present, Tibet is having 30,000 agricultural technicians who can assist the farmers in improving the quality of soil by proper counselling on the use of pesticides and herbicides, and other chemical and biological means. About 33,000 hectors of crop land is undergoing this experience through this modern science and technology.[23]

In the field of agriculture, Tibet has witnessed a record harvest of 555,000 tons, surpassing last year's figure by

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[23] "Tibet's Agricultural Production Facilities Improved" News from China, December 12, 1990, Vol. II, No.49, P.7.

20,000 tons. The output of meat was 93,000 tons, while the milk output stands at 180,000 tons. The region's estimated total output value for agriculture is 789 million yuan, while the industrial output value in the region exceeded 235 million yuan. Throughout 1990 Tibet expanded economic and technological exchanges and cooperation with the outside world. Import-export figures increased by 17.6 percent and border trade particularly has exceeded 75 million yuan. Tourism too has not remained behind, with steady increase this year the visitors number has gone up to 9,000 foreigners in this region.[24]

Last year the region saw real record grain harvest of 555,000 tons. According to Vice Chairman, Mr. Mao, the average grain per capita in the region will rise from 253 kg last year to 263 kg in 1994 and 282 kg in the year 2000. The total output of meat in the region will be 112,000 tons to 1995, averaging 47.3 kg per person. The region turned out 93,000 tons of meat last year, averaging 42 kg per person. Mr. Mao said, that the Tibet will make full use of its rich natural resources to boost the power industry. The region's power generating capacity will take off from 150,300 KW last year to 258,000 KW in 1995 and 390,000 KW in 2000. While expanding highways and expanding the airport near Lhasa,

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24 "Roundup : Tibet Sees Stability and Development" News from China, January 2, 1991, Vol. III, No,. 1, pp. 10=11.

capital of the region, and even so, the planning is on to develop satellite communications.[25]

According to Mao, the regional government would undertake steps to develop the mining, handicraft and light and textile industries on the present model However, he said, "that Tibet will accomplish its objectives by making full use of its natural wealth and the preferential and special policies pursued by the Central Government"[26]

It seems that the Chinese government has turned Tibet into the `heaven through multifaceted action on the stage. As the first chapter deal with the nature of land and people this development shows the temporary phase of development to such the land is quite sensitive. These various colours show that this has been directed to the advantage of Chinese people as they are in majority in every field of developmental activities. As the land and mountains are being young this sort of development have severe ramifications, on the larger section of mankind and ecosystem. This whole lot of Chinese developmental activities indicate there that these activities are leading to destruction of ecosystem at many levels. Unlike other countries, Tibet is like a breath for most of the

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25 "Tibet : Blueprints Economic development" News from China, March 6, 1991, Vol. III, No. 10, pp.11-12.

26 Ibid., P.12.

countries in this region. Because of its capability to influence different components of ecology which are a must for mankind. Today's accessibility will one day embrace the human kind. In support of this conclusion, I am pleased to pout up a question as to why then there is a great deal of beggars in Tibet today? Today, the number of beggars particularly, local Tibetans is in proportion to the Chinese settlers in Tibet. Then whom does the development benefit?

"There is deforestation in many parts of the world. What makes the Tibetan deforestation of special interest is that it is being carried out by a colonial power as one part of a larger pattern of devastation".[27]

The Chinese occupation has been one of attempted annihilation of Tibetan culture, ruthless exploitation of Tibetan labour, and widespread destruction or extraction of the land's living and other natural resources. Before the Chinese take over, by all accounts, Tibetans subsisted off a rich natural resource base and a stable environment, people and wildlife lived together in extraordinary harmony.

"China's fourth population census in 1990 put the Chinese population both registered and unregistered in the non-

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[27] Edward Lazar, "Collaboration Behind an Environmental Mask" Tibetan Review, June 1991, Vol. XXVI, No. 6, P.9.

TAR Tibetan regions of Kham and Amdo should be about 7.4 million whereas the Tibetan population at present accounts for below 6 million".[28]

Thus, there are number of facts and figures in support of devastative measures adopted in Tibet by Chinese government to boost up economic and agriculture development putting the ecosystem to peril.

There are countless truths and facts with foreign visitors and some of such have been mentioned with regard to `nature imbalance'. For Tibet being vulnerable to the mechanization process will have multidimensional consequences on the global ecosystem. Chinese are pursuing the policy of exploitation of natural resources of Tibet without paying even a grain size importance to the ecosystem. Chinese often and again say that Tibet would make use of its high natural resources in connection with agriculture and industrial development. This profligate and unmindful extraction of its natural resources causing embarrassment to the fragility, marginality and diversity that are the specific features of Tibet environment.

The prevailing trends in natural resource use in Tibet is being marked by two important features. First, the

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[28] Tibet : Proving Truth from Facts", op. cit., P.74.

marginality and pauperization of Tibetan inhabitants and leaving them outside the development process. Second, in appropriate administrative pattern and lacking local participation at the watershed, village or commuinity level which performs only through heavy subsidies and policing. The centralised schemes sponsored by Chinese will have impact of national, regional and transnational level.

To shift in terms of developmetn from subsistence economy to the present ultra modern pattern of development needs appropriate and countgervailing stress on conservation methods, and management of area under Protected Area Management Scheme. The apathy to conservation methods and subsistence method of agricultural development pursued by Tibetans over the decades may end up causing considerable damage to the resource base in Tibet. The super-imposition of ultra modern pattern of development on the traditional pattern of conservation would lead to the unsustainable pattern of overall utilisation.

Tibet with its fragile tokpography and great wilderness had showed the response with regard to conservation projects. The Tibetans with rich and vast experience in conserving the Tibetan environment today do not enjoy any way their accessibility and thus has created a substantial amount of discontent among Tibetans. TGhe modern method of develoopment

has completely neglected their role abnd that is still quite relevant in that connection.

The protected area policy among many has resulted in the pathetic conditions of mankind living around this. The protected area policy is an illogical one as it is persistently questioning teh existgence of population around, and challenging the sustainability of their traditional livelihood. To mention few, the Chang Than Wildlife Reserve. a recently designated 237,000 Km area in Tibet's north of the Himalayan Ridge bhas been declared the Chomolungma Nature Preserve. With this now the total area of 310,000 KM or 12% of Tiebt's total area is being declared as the protected area as per the 1991 -- information is concerned. This protected network is required to conserve the 118 mammal, 505 arifaunal, 49 reptile, 44 amphibian, 61 fish and over 10,000 higher plant species reported in the country.[29] This token shake effort by Chinese government in this connection has led toi the rampant destruction of forest reserves and encroachment of habitat and growth of population. With the result, countless threatened species in the neighbouring regions of China have made eastern Tibet's forst their last refuge.

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[29] "Tibet : Environment and Development Issues", op. cit., pp. 47-48.

The nature and quality of land cannot be unversal. Within the country or region, the nature of land will not be the same in as much as there are deserts, mountains and hills, and plain areas. They all are varying on account of their nature therefore, they need respective treatments. In case of Tibet the treatment is unsuitable irrespective of their nature and quality. The development of mountains, and hilly areas must be followed differently from that of plains. Although the mountains and hilly areas are sensitive to changes especially under the present economic

philosophy. Due to enforced changes the mountains and hilly areas lose their significance leading to affect the global ecosystem at various levels. This being the major source of hydrology and climatology, will endanger the existence of entirety.

In the process of economic and industrial development, a large number of Chinese Hans population has penetrated into the Tibetan region in the guise of skilled labourers, technicians, and scientists. Pushing Tibetans to peripheral line of Tibet on the ground that they are unskilled, backward, and hence their primitive method will not help the Tibet keep pace with the developing countries in the neighbourhood. With teh result, Chinese migrants have outnumbred the inhabitants

and today has become a big strain on teh Tibetan ecosystem. However, this penetration in a big way has marked the pauperization of local people and destruction of Tibetan natural environment. The following table shows the gradual increase in the Tibetan population.

Year	Population
1334	1 million people
1737	1,002,746 million
1952	1.15 million
1964	11.25 million
1982	1,892,000 million
1990	2,196,000 million

Source : News from China, April 4, 1991, New Delhi, P.15.

"The gradual increase in Tibet's Population" is mentioned in the `News From China'. The population growth is mentioned against the year shows the slow growth rate of Tibet's population.[30] This actual Chinese population, both registered

[30] "Tibet Backgrounder : Tibet's Popoulation Today and Yesterday", News From China, Vol. III, No. 14, April 3, 1992, P.15.

and unregistered in the occupied Tibet accounts for 7.4 million.[31] The present rate of growth of Tibetan opopulation and total strength at present (1993-94_ is not available but there must be a marked growth rate indeed to date.

However, the influx of Han population is putting a heavy strain on the economy of Tibet. Degradation of crop lands, denigration of grass lands and occupation of plain land and its expansion to sensitive area are attributed to this massive influx. Their presence in all walks of life led to the pauperization of local people. The very intent of development is to make it more suitable for Chinese settlers. Their practices in agriculture, industry, forestry and pasture management shows that they are backed by Chiense administrative apparatus. The net result it seems to put Tibetans at the bottom of developmental scale and thus is an issue with serious political, social and environmental implications for the people of Tiebt.[32] Chinese pattern of economic developoment has put the Tiebtan flora and fauna to the state of extraction. Large scale deforestation cajusing an unimaginable rate of loss to hydrology and climatology. This unmindful destruction of forest has been marked by two reaons : first to export forest produce overseas for foreign exchange, two, to utilise the produce in China. The road net-

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31 Tibet : Proving Truth with Facrts, op. cit., P.74.

32 Tibet : Environment and Development Issues, P.50.

work in Tiebt mirrors the location of forests and mines in Tibet.

In 1987, the centre road net-work in Tibet comprised approx. 21,600 Km.[33] In 1949, Tibet's ancient forests covered 221,800 square kilometers. In 1985 that stood at 134,000 square kilometeres. The tree line varies from 3,800 meters in the region's moist south to 4,300 meters in the semi-dry north. Tibetan forst is primarily old growth, with trees over 200 years old predominating. The timber extraction util 1985 was amounted to worth $ 54 billion or totalled 2,442 million cubic meters.[34] The principal types are tropical montana and subtropical montana coniferous forest, with spruce, fir, fine, larch, cypress, birch, and oak among the main species. China suffers from timber and paper shortages. To fill this gap, Chiap needs to redress this through logging Tibet's forest at an ever-increasing pace.[35] To develop timber and paper industries, the Chinese Government embarassed to this plan of extracting forest resources and for their use in China.

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33 Ludmilla Tutling, "The ecological destruction of Tiebt". Tibetan REview, November, 1988, Vol. XXIII, No. 11, P.8.

34 Tibet : `Proving Truth from Facts', op. cit., P.80.

35 These lines are taken from a paper called `International Committe of Lawyers for Tiebt' Presented by M<r. Fatima Ksentini, "The Relationship between Environmental Management and Human Rights in Tiebt", Geneva, P.4.

Richardson quotes figures to show that in U-Tsang annmual log production under the STate Plan was 300,000 m in the 1980s and most of this comes from old forest growth.[36] Timber extraction from Tibet since 1950 totals 2,990 million m, amounting to 46% of the available forest stock in 1950. From Amdo and U-Tsang the total forest cover is beinhg reduced by 10% to 5% and from 5% to 2.6% respectively between 1950-85.[37] The total destruction of forest for the year 1980 in Amdo and U-Tsang was valued at $ 2 billion per year. It remained consistently in the 1980s.[38] Tibetan prisoners and Chinese soldiers are employed in extraction of forest resources. The method is clear felling. The continuing effort in this direction has been causing denudation and desertification on the `roof of the world'. As a matter of fact, the forest cover being a source of hydrology, climatology and bio-dicversity is loosing it's carrying capacity of such varied rich natural resources rapidly. Everyday it's increasing implications are noted in many areas. These highly dangerous consequences are attributable to the intense developmental activities of Chinese in Tibet.

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36 "The Role of National Resources in Economic Development" (Dharamsala, India), 1992, P.51.

37 Ibid., pp. 51-52.

38 Tibet : Environemnt and Development Issues `Deforestation'. op. cit., pp. 51-52.

The escalation of degradation and desertification of Tibetan plateau, the unique and most extensive land mass on the earth would affect it's influencing capacity of atmospheric circulation pattern and jet stream wind pattern over South Asia and beyond upto northern hemisphere.

The degradation of pasture ground is another remarkable achievement in the history of Chinese economic development pattern in Tibet. The large number of Chinese settlers are extending their farming pracatices on to these pasture grounds. Thus, the extensionof farming practices to the pasture ground and trampling by men and animal have reduced the efficiency and fertility of pastures at an unprecedented rate.

Such growing and continuing expansion of farm land to a delicate environmental condition has resulted in the perennial soil erosion. The pastrues expropriated for farming are often the former winter pastrues of herders.[39] Tibetan nomads are adapted to the needs/conditions of their fragile grasslands. Annual records of pastgure use, systematic migration of nomads with herds of yhak, sheep and goats and responsibility for and use at sustainable level are experiences derived from the

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39 This is an excerpt of a paper submitted by Fatima Ksentini on 2 Aug, 1991 to U.N. Sub-Commission. Title - 'The Relationship Between Environmental Management and Human Rights in Tibet', International Committee of Lawyers for Tibet, GEneva, P.13.

experience of millennia. The large tracts of pastures having enclosed for militgary use has resulted in abuse of pastures. Heavy pressures onlow lying lands and planes due to extensive settlementts of migrated Chinese. Hans population and their increasing demand for meat and its export to Hong Kong. Such interventions have largely affected the traditional migration pattern of nomads by restricting them to even smaller areas. However, these activities are attributable to the irreversible land damage.[40] This process constantlyh reducing the land's fertility. China is violating not only Tibetan's present rights but their future right to self-determined and sustainable development.[41]

Cultivation of food crops through chemicals and fertilisers and over-grazing of pastures have also caused desertification of grasslands. As with the pastures the number of cattle has dramatically been reduced to unsustainable level.[42]

The Tiebetan nomads had well adapted to the needs of fragile grasslands. Teh traditional agricultural system of

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40 Tibet : Proving Truth from Facts, op. cit., P.79.

41 This information is derived from `The Relationship between Environmental Management and Human Rights in Tibet' A Report submitted by Mrs. Fatima Zhora Ksentini on 2 Aug. 1991 to U.N. Sub-commission, General (International Committee of Lawyers for Tiebt), P.16.

42 Ludmilla Tuting, op. cit., P.9.

crop rotation, mixed crops and at times failures were quitge suitable and appropriate for a fragile mountain environment. Deployment of military and civil personnel, export of meat and agricultural produce and yet fencing and extension of farming practices to pastures on steep of mountains[43] have led to conditions of irrecversible land damage.

The degradation of grasslands in Tibet may have grave transnational consequences. GRass and range lands comprise nearly 70% of Tibet's tgotal area. Most of them are concentrated in Chang thang Plateau stretching across U-Tsang and Amdo and in the high lands of South and East Tibet, which was the source of livelihood for 70 million domestic animals and one million nomads. It was the backbone of Tibet's agro-pastoral economy.[44]

Considerable reduction in the pastures led to the following results, Clarks purts it like this. "In studyinhg three transhumant communities in U-Tsang, I found an increase in animal population's of 25% over 1981-87 on the site, but this was accompanied by a decreese of 50% to 75% over the same period at another site".[45]

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43 Tibet : Proving Truth from Facts, op. cit., P.79.

44 Ibid., P.79.

45 Tiebt : Environment and Development Issues, op.cit., P.53.

According to Goldstein and Beall's account "a net reduction of 8% in animal numbers at Phala in the Southern Chang thang over 1981-88".[46]

Zhang reports "an increase of 64% in animals in Nyemo county between 1959-79, followed by a decrease of 10% at the time of de-collectivisation of livestock in 1979-80".[47] In important places loke, Palden Shang, Serthang, Ngulthang and Kangtse in Amdo where a large tracts of pasture are available. Husbanding of varieties of animals are seen in this part of Tibet by Pastoral nomads.

> Due to various reasons like the influx of Chinese population, establishment of military cantonments, and mining, mechnaization of pastures, and unlimited wants of Chinese soldiers and export of agricultural produce, the pastures are vanishing beyond the limit of sustenance. Further, the export of meat and other animal products have resulrted in vanishing the animal resource at an alarming rate. Slaughter houses at Chabtsa and in Amdio

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[46] Ibid., P.53.

[47] Ibid.,

and U-Tsang have come up in a large scale to meet the meat demands of Chinese and export to the possible extent have threatened the sustainability of animal resource.[48]

Tibet has of a small amount of 2% of farming land. This is qjuite delicate and fragile which was cultivated through their own pattern of agricultural development which was more than the present scientific method and extremely suitable to the environment. This meage percentage is situated across the valley of Tsangpo, Zachu, Drichu and Machu Rivers in Southern and Eastern Tibet. In the good olden days this region would trade with other regions of Tiebt in exchange for animal products and cattle. Barley and other pulses were only things to be sown in that region. It has it's own limitations and thus it is characterised by several environmental factors such as, the rugged tgerrain, the relatively small maount of low-lying areas, the lack of irrigation and the low rain fall,.[49]

Tibet's croplands were cultivated on the basis of traditional methods which was efficient and environmentally sound. Traditional methods like crop rotation, mixed crop and at times failures were apt suitable for it's high altitude mountain environmetns. The early 20th century travellers such as Sir Charles Bell described the traditional method of cultivation throught the following lines :

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48 Ibid., pp.53-54

49 Tiebt : Environment and Development Issues, 1992, P.55.

"Intelligence and resourceful, adapting to local conditions".[50]

Grtain yhields that time remained exceptionally high growth, on an average 2,000 kg/ha in U-Tsang and still higher in the lower valleys of Amdo and Kham. This surpassed the growth rate in comparable climates as in Russia 1,700 kg/ha and Canada 1,800 kg/ha.[51]

Agriculture figures for Lhasa district between 1958-84 suggest about this typical area and productivity for various crops in U-Tsang. The crop land in U-Tsang district shows an increase in agricultural output in the 1960s and early 1970s. the total peaking at 28,352 ha in 1975 then declining moderately to 27,430 ha in 1984. In the period between 1978-80, the wheat growth stood at a satisfactory level though the staple diet of Tibetans is barley, and the growth of what shows the need for Chinese.[52]

The abuse of farm land begins with the increasing need for Chinese military and civil personnel and settlers and the export of agricultural produce. The escalating demands

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50 Ibid.,

51 Tiebt : Proving Truth from Facts, op. cit., P.79.

52 Tiebt : Environment and Dvelopment Issues, 1992, op. cit., pp. 55-56.

pressurised the Chiense authority to take off the farming method on to the steep and marginal terrain. An increase in the area under wheat and to produce more to meet the needs on such terraihn required Chinese to harp on hybrid seeds, pesticides and chemical fertiliser. As a result, disease became the order of the day affecting new wheat varieties, and in 1979 a devastative even took place with regard to wheat crop.[53]

> Today the total area under farming accounts for 50% due to exftension of farming land on to the steep of the terrain. Wtih the introduction of mechanisation of Producing Process through chemicals and fertilizers caused an unprecedented soil pollution, water, and killing of domestic animal.[54] Today. the farmers, believe that they are being used as guines pigs to test dangerous and highly toxic subsrtance.[55]

The exloitation of hydro power potential of Tiebt and the implications at regional, national and international level. The hydroelectric plan for Yandrok Tso was approved by China in 1985. This Plan was opposed by Tibetans for many years

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53 Tiebt : Proving Truth from Facts, op. cit., P.79.

54 Ibid.,

55 Tiebt : Environment and Development Issues, 1992, op. cit., P.56.

during the lifetime of the Penchen Lama. Further at that point of time Tiebtan Autonomous Region delegation to the National Peoples Congress in China had filed a petition for the cancellation of this project.[56]

The aim and objective of these projects are different. These projects are mainly designed to tap Tibet's hydro power potential for the benefit of Chinese inside and outside of Tiebt. But the consequences are borne by the Tibetans. A large number of Tiebtans have been thrown out of their places and those places are being occupied by Chiese as workers, technicians, and engineers and doctors, etc. The beneficiaries are Chinese whereas Tibetans are being denied such benefits and have no say over such proejcts. At present, this project is guarded by PLA and no civilian is allowed near that. Tiebt has an exploitable hydro power potential of 250,000 Megawatts, in this connection the richest in the world. U-Tsang alone has a potential of 200,000 Megawatts.[57] The total exploitable sources (potential) from small hydro power projects is estimated to be 35,000 to 40,000 MWs, giving an average capacity of 58.8 KW per capita. Forth percent of small hydro power projects built by Chinese are remained

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56 These lines are taken from a paper on `The Relationship Between Environmental Management and Human Rights in Tibet', International Committee of Lawyers for Tiebt, P.20.

57 Tibet : Proving Truth from Facts, op. cit., P.81.

unproductive and mal-functioning. Wtih regard to solar energy Tiebt surpasses the world's highest solar energy potential per unit after the Sahara, an estimated annual average of 200 kilocalories/CM, and significnat geothermal resources as well.[58] This will be the largest hydro power project so far in Tibet by China. The cost of this was estimated at 660 million yuan ($ 140 million), the annual output is estimated at 200 million kilowatt horse. The intention seems to be the just double the capacity of U-Tsang electric generation. It aimed to finish by the end of 2000. China has petitioned many big Western and Euroepan countries like, Norway, Germany and Italy and Switzerland to direct their vast experience and technology for the completion of this p[roject. With the total surface area of about 624 KM has a storage capacity of 15 billion cubic meters\, thus Yamdrok is the third largest in the U-Tsang region, with total catchment area of 61,000 KM. It's impacts, "the cosntant turbulence caused by the daily draw-down and replenishment cycle would affect the fragile ecology of the lake. Water turbility would increase, affecting the survival of fish and other aquatic species as well as water quality for drinking purposes. Given the size of the project, a considerable area around the lake would suffer a variety of as yet undetermined environmental impacts relating to changes in hydrology, associated construction and

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58 Tiebt : Environment and Development Issues, 1992, op. cit., P.23.

settlements, and interference to the traditional life styles of nomads. Such issues as the impact of pumping on the biological oxygen demand of the lake's water do not appear to have been adequately addressed by the project".[59]

Wittingly the Western aid is directed towards the Yamdrok dam without determining the consequences. Similar plans are being anticipated to create environmental hazards in Tibet. Tsangpo dm is aimed to produce about 40,000 MW. 50 projects of this magnitude will also have considerable downsteams and transnational impacts. According to the Chinese sources with regard to mineral resources in Tibet, Tibet has the largest share of world's reserves in lithium, chromite, copper, borax and iron. Amdo being the largest producer of oil over one million tonnes per year. The entire road network and communciation system mirror the lcoations of forest and minerals, as they are connected with these places. As with timber, the extracted minerals are sent to China for processing and manufacturing, while the Substantial Proportion of minerals are also exported to foreign countries for profit or for foreign exchange of financial assistance. The exploitation of mineral resources is taking place to the fullest extent. With the result, seven of fifteen major mines

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[59] Ibid., P.58.

are due to exhaust within this decade, poor management and safety measures have resulted in degration of terrain, slope destabilisation, land degradation, and hazards to human health and life. Mining processing may have a very bad impact on the down-stream nations' people.[60]

In traditional Tibetan society, minign was regarded as the improper intrusion into the earth. Prior to 1959, this belief has limited mining to a very few locations. From 1959 onwards with no heed whasoever to the Tiebtan concern for mines, Chinbese set out to develop mining systems with available Tiebtan rich natural resources with no demonstrable concern for the resulting discomfort felt by Tibetans. This extensive exploitation of minerals account for largest share of economic activity in industrial sectors in Amdo and U-Tsang. Mineral resources underground has an attachment to the cultural life of Tiebtans. For example, the hill behind the Trachen-Ma Temple in Riwoche is considered sacred by Tiebtan Buddhists. Finding it's richness in mineral resources, Chinese embarkment took place leading to the destruction of minign and mining as a part of Tiebtan cultural life.[61]

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60 This information is gathered from a paper `The Relationship between Environmental Management and Human Rights in Tiebt' submitted to U.N. Sub-Commission by Mrs. Fatima Zohra Ksentin on 2 Augu, 1991, P. 10 (International Committee of Lawyers for Tibet).

61 It is drawn from a paper on `The Relationship Between Environmental Management and Human Rights in Tibet' International Committee of Lawyers for Tiebt, pp. 9-10.

It is beleived that China is planning to shift its major mining operation into Tibet by the end of this century.[62] In doing so, if China becomes successful, its implications will be of much greater degree for the ecosystem of Tibet. Exhausting of mines, poor safety records, and no skill to manage, will all together cause an unlimited loss to the land, human health and life.

China is said to have around 90 nuclear war heads in Tibet. The Ninth Academy, China's North-West Nuclear Weapoons Research and DEsign ACademy in Tibet's north-eastern area of Amdo, is reported to have dumped nuclear waste of unlimited quantity on the Tibetan plateau. As we all know that China has confirmed Tibet's richness in Uranium reserves in the world . That uranium is being processed in Tibet itself as a result so many local inhabitants (Tibetans) died after drinking contaminated water near the uranium mines in Amdo and Ngapa,. There are innumerable reports to the birth of deformed human beings and animals. There are also reports in support of diminishing water stability underground at a rapid rate, and water supply is seen at the depth of 340 to 4.0 billion cubic feet. The protractred processing of uranium in Tibet itself might result in contamination of ground water supply is of great concern. From 1976 onwards, Thewo and Zorge regions of Amdo where large scale minign porcession is taking place. In

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62 Tibet : Proving Truth from Facts, op. cit., P.82.

1991, GReen Peace Plan proposed to ship on to china, the toxic municipal sludge from U.S.A. to use as `Fertiliser' in Tibet. That toxic municipal sludge in U.S.A. itself had caused the outbreak of diseases.[63]

More so, Chinese authroities offered nuclear waste disposal facilities to other countries like Germany, Switzerland, Taiwan, etc. in return for fdinancial assistance.[64] China processes uranium in Tiebt itself but its waste too is stored in Tibet. Most diposal facilities are thought to be surface sites with minimal safety measures. Tibetans from Amdo have reported extensive and inexplicable pollution of land and water, wide-spread deaths form mysterious causes after fever, vomiting and dysentery, and many more probelms. China's own nuclear waste is suspected to be stored at several places in Tibet. Hai Yen Ginghai Provincees, constitute a major sites for nuclear waste storage.[65] The reports mention that about 4,000 tons of nuclear or toxic waste is expected to reach China for rthe exchange of $ 5.45 billion by the end of 20th century. The scientific research has to take place extensivelyh although a small amount of research with regard

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63 Tiebt : Proving Truth from Facts, op. cit., P.83

64 Nuclear Tibet, Report by International Campaign for Tibet, April, 1993, pp. 31-32.

65 Ibid., P.31.

to its (dumping of toxic municipal sludge) impact on the neighbouring countries has been done. According to one assumption the dumping of such waste may be carried away down the river flows for a considerable distances. As of Chinese experiment in nuclear warfare in Tibet and its implications for neighbouring countries are to be studied although about experiment was reported in the chinese News Media itself.[66]

The typical conditions of altitude and temperature prevailing in high altitude have resulted in a high rate of endemism among animal species. Nearly a quarter of Tibet's Known plant species are endemic. Animal species such as, the Tibetan antelope, wild yak, and argali sheep have evolved to suit altitudinal conditions on the Tibetan plateau. Chinese conservation measures covered about twelve percent of Tibet's conservation area by the end of 1992. There is sufficient information about the unrestricted hunting of wildlife by Chinese officials and military. Grotesque new hunting `tours' organised to wealthy foreign clients, bring considerable

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[66] Tibet : Environment and Development Issues : 1992, op. cit., pp.60-61.

amount of revenue to Chinese government.[67] Displacement of local Tibetans on account of large number of Chinese influx and presence of peoples army in the natural resource base creating a severe problem of survival. No habitat is being provided with even lip-service protection.

The estimation of plant and animal variety puts at 10,000 species of higher plants, 118 of mammals, 505 birds, 49 of reptiles, 44 of amphibian and 61 of fish. Among the plants are over 1,300 tree and shrub species. Among the plants are over 1,300 tree and shrub species. The plant species also include around 1,000 varieties of medicinal herbs used in the traditional medicine system of Tibet, China and India. Medicinal herbs getting destroyed with the deforestation at an alarming rate.[68] The protected areas are said to cover 310,000- sq.km. or approximately twelve percent of Tibet by the end of 1991, but the effectiveness of protection cannot be measured because of China's strict limited access, plus secrecy concerning areas and control of data.[69] The following table shows the name of animals that are being hunted and cost of each such animal during grotesque new hunting "tours".

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67 Tibet : Proving Truth from Facts, op. cit., pp. 82-83.

68 Tibet : Environment and Development Issues, 1992 op. cit., P.26.

69 Tiebt : Proving Truth from Facts, op. cit., P.83.

Animal	Cost
Tibetan antelope	$ 35,000
Argali	$ 23,000
White-lipped deer	$ 13,000
Blue sheep	$ 7,900
Red deer	$ 3,500

Source: Tibet : Proving Truth from Facts, 1993, P.83

Thus the cost of each animal varies during hunting `tours'. Mostly participants are Westerns. This has become a source of revenue for China. The growing degradational Tibetan plateau, the most extensive land mass on the earth, is continuing. This area influences the atmospheric circulation and jet stream wind pattern over the Asian Continent. Even so, its impact is felt as scientists have proved it as far as the north hemisphere. If this present rate of destruction continues for sometime from now, it causes a large scale destruction and loss to the state of bio-diversity. There are innumerable plant and animal species are yet to be discovered but the degradation is creating a suspicion as to whether these species are to be discovered but the degradation is creating a suspicion as to whether these species are to be discovered before something happens to them. Increasing

rampant disturbances due to silation and flood most of plant species are disappearing. Uranium process system in Tibet itself and toxic waste dumping at various levels especially at surface sites have worried environmentalists and scientists. Its effects are already noted in wide-spread human and animal health problems, including congenital deformities, and deaths. Killing of animals for commercial purpose is another big loss to the bio-diversity.

George Schaller, Director of Conservation International, made the astonishing observation in this connection "that the Tibetan nomads no major problems in their wind-proof tents. Their sheep skin clothes kept them warm and they had adequate food supplies and yak manure as fuel. Since they lacked fodder for their animals, they had no choice but to slaughter many of their sheep. Many eye witness have reported that large herds of antelopes, gazelles, wild donkey's yaks and wild sheep which existed before `liberation' have disappeared.[70] The following table gives the entire view of major threats to endangered and endemic animals.

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[70] Ludmilla Tuting, op. cit., P.7.

Species	Main Habitat	Principal Threats
1. Tibetan Antelope	Chang Thang (Northern Plateau)	Hunting, wildlife trade
2. Snow Leopard	Himalayas, Chang Thang	Insufficient numbers of Prey wildlife trade
3. Giant Panda	Eastern Tibet	Habitat loss
4. Wild Yak	Chang Thang	Hunting, Habitat loss
5. Asian Wild Ass	Chang Thang	Hunting, Habitat loss
6. Tibetan Takin	Southeast Tibet	Habitat loss
7. Red Panda	Southeast Tibet	Habitat loss, wild life trade
8. Musk Deer	Himalayas & East	Hunting wildlife trade
9. Muli Pika	Extreme Southeast	Habitat loss

Tibet poisoning

Source Tibet Environment and development issues, 1992 (Dharamsala, India) P.62.

Environmental Implications of Economic Development

The multi-dimensional ecological crisis in Tibet will have trans-boundary impacts. Tibet is perhaps exceeded only by the Amazon Rain forests. Increasing and growing degradation on Tibetan Plateau, influence the atmospheric pattern over South Asia. Its influence still relates to the atmospheric changes uptil northern hemisphere, as scientists have realised. As the highest and most extensive land mass on the earth, Tibet's fragile ecological system and its significance for South Asia orginates from the inherent qualities conditioned by its altitudinal, geological and temperature conditions. As these conditions are so sensitive, the degradation causes irreversible damage to the ecosystem, leading to unprecedented impact on the whole of South Asia. The rain shadow created by the Himalayan mountains to the South determines the acidity of the plateau as well as the characteristics pattern of precipitation over South Asia. The extent of Tibetan snow cover and the rate of melt form the principal mechanism of the Indian Ocean monsoon. In this complex phenomenon Tibetan

plateau influences and in the process gets influenced by other natural forests.[71]

The impact of the Tibetan plateau on the jet streams is considered a major influence on the global climatic conditions. In this context Tibetan plateau assumes the significant and most sensitive resources for the most part of the globe. Apart from being a major source of rivers in South Asia, its snow cover and glaciers provide life-support system to the plains of Asia. The population of the region between the valleys of the Senge Khabab in the west and the Machu in the east accounts for forty seven percent of the total population of the world.[72]

The impact of the tibetan plateau at transnational level can be divided into two major divisions. First, the hydrological impact and the second, atmospheric and climate effects.

The environmental degradations is quite rampant in the regions of Inner Mongolia and Xinjiang due to the surrounding deserts. China's deserts today amount to 11.4% of it's total

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71 Tibet : Environment and Development Issues, 1992, op. cit., P.66.

72 Ibid.,

geographical area and mainly concentrated in the north-west and the north. However, the increasing desertification could not be contained and the land grabbing phenomenon added to more to this increasing desertification until 1949. The policy of extension of agricultural land from 1945 onwards to grasslands led to the desertification of about 65,000 square km and in addition learning another 160,000 square km for dangerous desertification. Out of 86 banners and countries in Inner Mongolia, 66 have already suffered from this constantly growing desertification phenomenon. In 198,0, 33,000 square km of farms and grasslands were surrounded by wind blown sand. About 12,000 square km of grasslands became sandy in the league, between 1957 to 72, thus, during the late seventies the desertification at the rate of 2,000 km per year was the prevailing trend. And yet, forty percent of the league's grasslands were turned into sandy and the same is applicable to the places like, Ulangab and Xilia Gol leagues. Like this, the environmentally vulnerable places like Ningxia, Gansu and Xinjiang have lost much of their grasslands.[73]

The total land area under desert in China today stands close to 1,308,000 km. The accounts of Zhu and Liu state that the 23.3 percent of the desertificaiton is caused by human interference. Over grazing has led to 29.4 percent, fire wood collections 32.4 percent. Vegetational vulnerability due to

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[73] Gopa Joshi, op. cit., pp. 32-33.

factories, mining, laying communication lines, and building of cites 0.8 percent unscientific exploitation of water resources 8.6 percent, and increasing sand-dunes and sand encroachments 5.5 percent.[74]

The consequences of salinisation and alkalisation are widely noticeable in most parts of North and North-West. About 366,000 square km land area across the China is estimated to be largely affected by salinity and alkality. The main regions like, Xinjiang, Gansu, Inner Mongolia, Ningxia, Shaanxi, Heilongjiang, jilin, and the coastal areas of Bo Hai and Huang Hai and the North China Plain area worst affected by salinity. Salinsation and alkalisation are caused by constant leakage of water from dams, canals and hydrological projects.[75]

The extension of farming practices under the `grain first' policy to the forest cover further added to the increasing desertification of land. The forest growth along the river banks of Tarim acted as a catalyst to fix the sand surfaces and wind breaks, but the clear feeling of forest growth in order to increase land area under farming reduced the original 300,000 hectares of forests to 100,000 hectares in 1980. This growing and increasing forest reduction led to the sand cover

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74 Ibid., pp. 33-34.

75 Ibid., P.34.

over 30,000 square km.[76]

The desert area in Argan has increased to twelve percent 1958 to fifty two percent in 1978, following the construction of the Dexihaizi reservoir at Tikanlik in 1957. Uighur settlements have been facing acute water problem and transport system got affected due to sand dunes formation. In 1970, the export business of liquorice and roots affected 55,333 hectares of land resulting in substantial shortage of fodder. As a result, it greatly reduced the number of cattle from 250,000 in 1970 to 30,000 head in 1982. However, in 1988, Zhu Zhenda, admitted that despite innumerable controlling measures over the last thirty years, desertification in many respects is worsening.[77] The environmental degradation caused by sand storms has a direct bearing on the livelihood of the local people, particularly, in Qira country where just on 7,600 households have been reduced to utter poverty line. As with the people, the cattle number has also fallen rapidly owing to the conversion of grasslands and forests into agricultural land leading to scarcity of fodder for cattle. There is a report saying that the large number of animals are dying due to starvation and the number is more than the number of cattle delivered to the State. In 1985, Wang Pei, admitted that about seventy million hectares of land got degraded on account

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[76] Ibid., P.35.

[77] Ibid.,

of sand and alkali, and about 670,000 hectares of grassland deteriorated due to soil erosion.[78]

The grasslands being reduced at a substantially level both in terms of quality and quantity, the agricultural development still remains a low key. In Ningxia, after the conversion of grasslands of thirteen communes of Guyuan county into agricultural land, the land under cultivation increased to about 82,000 hectares, but this land instead of yielding to high growth rate declined subsequently to 250 kg per hectare. However, this trend shows a sharp decline compared to 1949, trend when the average per capita share of grain stood at 410 kg. And the same case was with cash income falling with a great pace to nineteen Yuan per capita. The average perception food consumption was 2.4 kg of edible oil, five kg of fish and 7.7 kg of meat in 1978. The CPCCC, in 1979, admitted to the fact that over 100 million people all over the country side of china faced with acute paucity of foodgrains. Further in 1980, the phenomenon was a almost the same, the authorities even could not provide its people with basic necessities.[79]

Millions of people in 1980, were faced with acute paucity of water, being highly polluted was unfit to drink. The

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78 Gopa Joshi, op. cit., P.36.

79 Ibid.,

environmental degradation in the regions of shallow and sandy regions where percolation is easy and therefore, water vulnerability is very high leading to a greater pollution of water. Dumping of urban and industrial waste, oil products, phenólic compounds, cyanide, aresenic, heavy metals lead, chromium, cadmium, mercury, chlorinated hydro-carbons, nitrates and sulphates have led to water pollution, despite water pollution at countryside is being attributed to fertilisers and pesticides. In the regions of North-West, the modernisation of agricultural practices have proved detrimental to human health as most part of the region is considered to be highly porous and where the percolation rate will be at the highest point. The energy crisis have still worsened the situation, if the people have food but no fuel to cook it. It has worsened to such an extent where people would often prepare to exchange food for fuel.[80]

The another consequence will be the air pollution. Due to the industrialisation process, the rate of air pollution is unimaginable. China is basically dependent upon solid fuels, but that dependency on coal and use of raw coal are attributable to air pollution. Today's as a result of substantial amount of air pollution, thousands of people have been infected by lung cancer and at least 6.5 percent of

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80 Ibid., P.37

Chinese coal miners suffers from silicosis.[81]

Unless one coincides the environmental exploitation with conservatory measures the environmental degradation would continue to have sway over human, plant and animal species. As reports say, China has attached a little importance to the environmental significance and is seen last on the Chinese papers. The industrial belts, farming practices, forest destruction, and mining systems in the whole of China lack of safety measures. The modern technology based exploitation in the absence of environment oriented technology would cause immeasurable loss to this, balanced ecosystem.

The unmindful deployment of army settlements, construction of huge dams across major rivers, and mining system in the heart of delicate ecosystem are the additional pollutants of healthy environment. Dumping of urban and industrial waste and yet a large amount of urban sewage and nuclear waste import from foreign counties for exchange of financial assistance and it's dumping on fragile and most delicate land surface will nonetheless have direct impact on the human and other life forms.

However, the environmental degradation in the entire Tibetan belt may have far greater implications on the hydrological and

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81 Ibid.,

atmospheric patterns which have greater significance for the people of South Asian Sub-continent. Therefore, technology oriented exploitation has to be coincided with the environment oriented technology by all means. And the fact that the science cannot work beyond certain limit and ultimately is the exploitation at a subsistence and sustainable level which signifies the survival of the present generation and care for future generation.

CHAPTER 3

DIMENSIONS OF ECOLOGICAL CRISIS; DEFORESTRATION MINING AND DEPOPULATION OF WILD LIFE

Tibet is facing multidimensional ecological crisis. Some of them are; Deforestration, Mining and wild life depopulation. As has been discussed at various levels in the first two chapters, cological crisis was virtually unknown to Tibetans until 1950. There was an existence of harmonious relationship between nature and humankind. The gradual growth of Tibetan population has also maintained confirmity with the available natural resources; they led a life at a sustainable level. In all, there was an understanding of balance among various components of natural environment.

The sustainability of ecosystem remained consistently normal through Buddhistic knowledge over several centuries. Seventh century witnessed the birth of Buddhism in Tibet and hence worked for 'Uiversal Unity'. Unlike other states, Tibet enjoys a Unique place because of it's sociocultural and geographic features. By virtue of its platue, the highest and most extensive land mass on earth, deep valleys with age old forests, thousands of plant and animal species, and four of the world's five big rivers that rise in Tibet and flow through many neighbouring coungries have a major transboundary impacts.

Tibet's protected ecosystem thus remained untouched until 1950. This untouched natural environment was subjected to perennial destruction with the advent of Chinese power in Tibet in 1945-50. Hence, Chinese pattern of economic development and industrialisation, farming and transfer of large number of Chinese Hans population to Tibet to assist in construction work put a heavy strain on Tibet's economic system and delicate natural ecosystem.

Tibet, in other words was a 'gift of nature'. Therefore human inteference with its functions may have worst implications for the entire south Asian region. However, its transnational impacts in relation to hydrology and climatology are very important to consider in the context of Tibet's ecological destruction. Implications over South Asia are a proven fact but atmospheric scientists have gone to the extent of relating it to the weather destabilization upto northern hemisphere.

The Buddhist philosophy lays emphasis on the co-existence among the various forms of life. (Co existence with animals and co-existence with plants). For that we have to develop compassion and eco-spiritual attitude which help us to respect and value the other forms of life. Unless we show concern, compassion, and develop heart in that direction, it is difficult to save them for all of us. It has an utilitarian base too. As human beings breathe out carbon dioxide which is

utilised by plants and in return leave out oxygen without which hunman being can not survive. Thus animals give organic manure for the plants and also help the spread of plants by dissipating their seeds. The plants also in return supply fruits to the animals. This symbiosis liess at the heart of life's continuity and this is only possible through the spirit of compassion. With that, according to Jataka, all life forms like, fish, birds, animals and plant have equal importance and have linkages with each other. In this context mahkind is a part of that and therefore cannot veiw themselvs as masters of the Universe and seperate from it. The parts live in harmony and in totality.[1]

The priciple of interrelatedness interdependency and interconnection and the relation of the parts and the whole and the necessity of austerity and self control, and Ahimsa as another principle demand restraint and man's resolve not to assault Earth and Nature.[2]

The understanding of Buddhism by Tibetans in the context of interrelation-ship between plants, animals and other various forms of life helped them live in co-existence with all

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1 Ven Tulku Doboom, "Green Buddhism", Tibet House Bulletin, (New Delhi) Winter 1992,Vol.7, No.2 pp. 3-4

2 Seyyed Hossein Nas. Religion And The Environmental Cirsis, (New Delhi, IG. National Centre for the arts, 1993), p.7.

sentient beings. Buddhism prohibits the killing of any setient being by restoring right ot live in their own capacity and kill on their own.

The kind of environment & practice suited most that region. However the year 1950, marked the replacement with destructive forces and hence destruction or exploitation of its natural resources beyond the capacity of `mother earth' is the order of the day.

The entire Himalayan range is dominated by delicate, fragile mountains, hills and other plants and animal species. It is capable of engineering its own functional system and that functional system involves a mechanism through which it provides a life support system for various forms of life including human kind. Today that natural ecosystem is dessipating from its accomplishment with the rapid rise in explitative attitude. The inherent quality of Himalauya is that it does not cope with this rising trend. Its resources are exaustible and difficult to regenerate due to variation in diurnal temperature and high temperature rate at surface level. Therefore interruption and interferenc which might lead to irrecoverable consequences for the physical environment around the Himalayan region.

Forests dominate land use in the Himalayan kingdoms. The

lower parts covered by deciduous and confers species with either persistent or deciduous leaves having adapted to the lower temperatures have been greately reduced by clear felling. The forest at the higher altitude develops its relation with itself. soil and climate. There is always shrubby vegetation composed mainly of prostrate mountain pines and rhodedendrons marking the slow transition from forest to the alpine pasture areas. The high mnountain pasture forms the plant resource of the Himalayan kingdoms while encouraging the livestock raising at a minimum level. This is contrary to the altitude ~~increases~~ decreases the vegetation decreased. "The land use and resource development in the Himalayan kingdoms are dominated largely by physical forces beyond man's control".[3]

Forests provide stability to mountains ans so they are gaurds of soil errosion. Himalayan mountains are still young and in the process of build up therefore they are most delicate and fragile. With the denundation of forest the consequential soil errosion becomes uncontrolable leading to immeasurable loss and further, the mountain growth will be hampered thereby leading to dangerous natural calamities like earthquake etc.[4] Vegetationally, in the differing altitudes of the Himalayan

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3 P.Karan, P. and (William M.) Jenkins, Himalayan Kingdoms, Bhutan, Silkkim, and Nepal. (Princeton, D ran Nostrand, 1963), pp 12-14. 1963. pp.12-14.

4 Sailendra NothGosh, "HIgly vulnerable", The Himalaya: A symposium on the problems of Mountain Terrain, (New Delhi), February, 1991, p.378.

ranges, there are rainforests, evergreens and Semi-evergreens, wer temperate forests and dry temperate forest mix. (limatologically the Himalaya in its different altitudes , presents an extremely wide variation from the tropical to the alpine and even arctic, as well as a very close juxtaposition of different types of climates. If the vegetation of the Himalaya is destroyed, the highly leached soils of the eastern Himalaya and the characteristically loose soils of the Himalya which are held together by the forest cover, will come down to choke the rivers, reservoirs and lakes. The destruction of forest -means-the destruction of the richest flora and fauna and more so, the mountains as they are too high and velerable to collapse leading to halt the functioning of the whole eco-system. Forest therefore are teh common regulator of soil, water and air, and the base camp of oxygen dependent life forms journey on this planet.

The Forest is the only source of oxygen, water and soil, and an ideal home for all kinds of wildlife and directly linked with maintaining the ecological balance. Moreso, the natural forests serve as gene pools wherein throug natural crossing and hydridisation and through progressive mutation ---- new characters appear in plants leading to the evolution of new species. This is how the diversity of flora and fauna develped on this planet for over millions of years. Nevertheless this forms the sustainable wealth of the nations. Forest is the source

for the existence of all living beings for it produces oxygen, food and health climate for the benefit of mankind.[5]

Today the losss of forest cover causing an embarassment to all living beings. This escalation of forest destruction has thrown a callenge questioning the survival of all living beings. The environmental catastrophe is looming large because of increasing threatened owing to water pollution and over exploitation of forest resources. The air is not fit to breath as result the existence of countless species including human beings is threatned.[6] In the name of progress agricultural and industrial development large chunks of forests have been dnuded, lakes, rivers have been poisioned with pesitciedw and under ground water level has considerably been regulated. Millions of hectares of land has been degraded to substatial loss to biological productivity and hurting even other ecosystems. The factors behind this phenomenon are soil erosion, --- formation, alkanity, water-logging, over grazing, intense farming, deforestration etc. Another consequence of this has been the disruption of raifall pattern throughout the globe. Relentless pumping of water from underground, and cutting down of forest growth may lead

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5 G.S Yonzone, "Mountain Ecology" Himalaya: an Indian Quarterly (New Delhi), Sept-Nov-1991, Vol.III, p.III, p.41.

6 Maneka Gandhi "Environment in the Third World" World Focus (New Delhi) Jan 1991, Vol.12, p.3.

to the disruption of hydrological balance. Further, with deforestration millions of microorganisms and earth worms which retain moisture and efficiency to land may easily wane away.[7]

Forests are indispensible for ecological, socio-economic and cultural reasons. They provide fruit, fibre, medicine, firewood, timbre and shade and fodder for human and animal consumption. They also clean air by absorbing carbon dioxide while releasing oxygen and thus, play an important role in maintaining healthy climate. It is therefore hardly surprising that there is widespread concern for the forests being destroyed in Tibet until today.

Mountains cover at least 20 percent of earth's surface and provide life support of millions of populations on this planet. Forest is a source of water, oxygen, climate, energy and timber despite being a source of spiritual inspiration for millions and a store house of boidiversity. Mountain willands are the habitat for millions of endangered species which find a refuge in difficult terrain and varied environments at higher altitudes.[8]

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7 B.S. Shetty "Environmental Degradation and Farming", World Focus, p.8

8 Jayanta Bandhyopadhyay, "Towards Sustainable Development in the Mountain Areas", Safe Energy & Environment (Calcutta), May 1992, pp.11-12.

However, forests are the centre of sustainance of all living beings, and around which the entire ecosystem revolves. Therefore existence or survival of ecosystem will be under extreme threat if this unabated exploitation and denudation continue at this rate.

Environment in the Third World

Tibet's forests have its own identity. Unlike the forest covers in many parts of the world it has multiple implications for the most part of of South Asia and thousands of plant and animal species are yet to be discovered for the benefit of mankind and scientific research as well. "There is a deforestration in many parts of the world-what makes the Tibetan deforestration of special interest is that it is being carried out by colonial power (China) as one part of a larger pattern of devastation, some would say genocide of Tibetan society."[9] Chinese are destroying the forest wealth of Tibet recklessly in the name of agricultural Progress and industrialization. This fact of the matter can also be seen in the records of the Hughe Richardson, that the forest destruction is takig place at an alarming rate with minimum afferestation effort. Chinese have also taken away the gold,

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[9] Edward Lazr, "Collaboration behind an envorinment Mask" Tibetan Review June 1991, Vol. XXVI, No.6, p.9.

silver and other objects to China.[10]

Let us take a look at the Chinese efforts with regard to forest reegeneration attempts. On the land of Tibe, the aforestration activities began with U.N. funded project known as project 3357 in the autonomous region of Tibet, started in 1987. It was designed basicaly to develop 3,999 ha of farm land, 578 ha of grassland and 2,095 ha of forest, and reconstruct 581 km of irrigation canals.[11] It clearly indicates that the Chinese government having given less importance to the replantion efforts by spending a very meagre amount and reforestration efforts in a limited space.

In the past just on 4,000 Tibetans who would lead a secluded life in the primeval forest of BaoXing county, Sichuan province, today, enjoy the fruit of modernisation, thanks to the development of smal scale hydropower station.[12] This seems to be a false procalimaition as Tibetans are averse to this kind of developmental activities. This is a ~~sore~~ sheer pretence on the part of china, and Tibetan fragile eco-system cannot on the part of China, and Tibetan fragile ecosystem cannot ger

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10 Tibetan Report Update (London) Issue No.1. The year of Tibet, 26 Feb. 1991, Vol. 526, NO. 49, p.957

11 "WFP Funded Project Goes Smoothly in Tibet", News From China (New Delhi), Aug 14, 1991, Vol.III, NO.33 P.11.

12 "Tibetans in Primeral Forest Now Live Moden Lives" News From China. Aug 5, 1992, Vol.IV. No.37. p.13.

along this line of development.

In the light of such activities, in an interview on Regioal Autonomy and Special Policies, a Chinese official said that the Chinese government has enacted a series of policies, and several measures to protect ecological balance in Tibet. Nonetheless, the governmet has spent millions of Yuans on the grass land development and the construction of 1,967 ditches for irrigating 3 million Mu of grass lands. In addition, there is a proposal aimed at the reconstruction efforts of about 2.65 million mu of grass land, and natural reserves of forest, Wild animals, and plants.[13]

The realisation in connection with the importance and significance of natural resources came to Chinese mind very lately. To date Chinese Persued the policy of reckless exploitation of natural environment believing in the historical development of human civilization. According to which there is alwatys action in man and that action creates gradual movement of a man from a lower stage to higher/advanced stage. In this process with his wisdom exploits the natural environment for the well being of humankind while finding solution to the crisis developed thereof. Under this baseless philosophy of exploitation

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13 An interview with Chinese Official on `Regional autonomy and Special POlicies' A dialogue on Tibet (III). Beijing Review, Beijing Nov, 23-29, 1987. Vol.30, No.47, P.22.

Chinese destroyed their own ecosystem. Now the importance of that hitting their own head and making them conscious of it without further delay, therefore, Chinese today are adopting drastic measure to control this trend beyond capacity.

As for Chinese resources, the rapid growth of population in China today share a very little amount of natural resources, such as water, timber and land,is far lower than that of other countries. Even at the present level of economic development (on large scale) the rate of consumption of natural resources is higher than ever before. The general trend of Knowledge resulted in the reckless destruction of natural resources. According to reliable sources, the removal of forest cover degeneration of grass lands, and mountain steep cultivation have also altogether resulted in the soil erosion of bout 1.5 million square kilometers, more than 300,000 square kilimeters in the early post-liberation period. Thus, the land area largely affected by such soil erosion covers not less than one-sixth of total land area of china. Further, 328,000 square kilimetres of land of 12 provinces and 207 counties have been virtually converted into desert. The consequences of salinisation and akalinization are expected on another 26 million hectares of land of 17 provinces, regions and municipalities. The forest growth has been consistently falling by 1.5 million hectares every year with the increasing timber consumption of 200 million cubic metres. However, due

to vegetational vulnerablility the desertification of land woud expand at an annual rate of 666,000 hectares by the year 2000.[14]

Chinese are therefore in a big dilemma as to how to protect natural environment and at the same time meet the increasing demands of rapidly growing human population. China has long been suffering from scarce natural resources and has been under constant pressure from increasing demands of Hughepopulation.

That increasing pressure today is attributable to the large scale exploitation of Tibetan natural resources leading to multidimensional ecological crisis. The important dimensions of ecological crisis in Tibet today are:

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[14] Cui Li, Protecting Natural Resources and Environment, Beijing Review, (Beijing), September 14, 1987, Vol-30, No.-37, p-4.

A. Deforestration

B. Mining, and

C. Wildlife depopulation.

A. Deforestration: In 1985 the total area under forest in Tibet was about 13.57 million ha or 5% of its area, where it was 25.2 million ha or 9% of its area in 1950. The total forest stock in 1985 was estimated at 3,483 million m. Much of this forest could be seen to the east of Tibet allong the valleys of great rivers such as the Manchu (Huangho), the Drichu(Yangse). te Zchu(Mekong), the Gyalmo Ngulchu (Salweeen) and the Tsangpo (Brahmaputra). The last four rivers run at the depth of 3,000 metres from the surface level until 45 years ago. These were unaccessible and unviable from the commercial point of view. In other words, commercial felling of trees was unviable and reminied untouched over many decades.[15]

From 1959 onwards, they were worked extensively and clear felled, Particularly, around the rivers in Kham and U-Tsang. According to available sources in this connection, more than 40% of forest cover in Kham has been reduced in a limited time period between 1950-85. In both kham and U-Tsang it declined form 10% to 5%, and 5% to 2.6% of total area respectively.

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[15] Tibet : Envinroment And Development issues 1992 "Deforestation" (Dharamsala, India), 1992, p-51.

Forty six percent of timber extraction from Tibet has taken place since 1950 amounting to 2,900 million m. However, till 1985 the total extraction of timber was worth $54 billion.[16]

Aforestration efforts in order to regenerate forest growth seems to be quite negligible. As of now the total area undertaken for this task amounts to 45,000 ha in U-Tsung and 165,000 ha in Amdo. This scheme comprised mostly of quick growing commercail species such as poplar and pine along with willow, cypress and juniper. Regeneration of forest after clear felling of old growth is a difficult task because of the high diurnal temperature variations, high soil surface temperature and soil erosion.[17] Looking into these typical conditions it can be termed as a non-renewable resource as once Richardson spoke exactly the same after his visit to U-Tsang in 1988. Most forests grow on the steep, isolated slopes in the river valleys of Tibet's low-lying south eastern region. The principle types are tropical montane and subtropical montane coniferous forest, with spruce, fir, pine, larch, cypress, birch, and oak are among the major speecies. The tree line varies from 3,800 metres in the region's moist south to 4,300 metres in the cemi-dry north. Tibetan forests are old growth with over 200 years predominating the world's

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16 Ibid.,

17 Ibid.,

highest stock density for conifers.[18]

New roads in Tibet mirror the destruction of forest growth, for this purpose Tibetan exiled prisioner and PLA are being used. This extensive denudation of forest has resulted in an increasing rate of soil erosion on the steep mountains and its impact on Plainland, lakes, rivers uprecedented. Deforestration as an order of the day over 20,000 Chinese soldiers and Tibetans prisioners are involved in the tree felling and transportation of timber. The year 1949 represents the total area under forest cover in Amdo, about 2.20 million ha. It's timber stock then stood at 340 million cubic metres. Similarly, till 1985 China exploited 6.44 million cubic metres of timber from Kanlho Tibetan Autonomous Prefecture alone. Due to inept practices Tibet lost timber valued $2 billion per year in the 1980s.[19]

Although woods make up only 4.1 percent of the centre ginghai-Tibet platue, these are still the second largest natural wooded areas in China. They are situated in the East and Southeast below 4,000 metres. According to the information with Chinese, the timer stock of Tibetan autonomos region

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18 "State of Tibet's environment", Tibet Proving Truth From Facts, (Dharamsala, India), 1993, p.80.

19 Ibid

amounted to 610 million cubic metres in 1984.[20]

China in the first place suffers from timber and paper shortages. In order to fill this gap China is logging Tibet's forests at an alariming rate. China has targeted the logging of Tibetan forest with two basic objectives. Firstly exploit it for the purpose of being used in China. Secondly, exploitation to the fullest extent from the point of view of trade.[21] There are reports regarding floating of woodcuts down the river stream to such an extent that rivers are so jammed with logs that the water is barely visible. They have cut forest to such an extent even the small shrubs are not spared, only those considered non valuable are left on the ground. Revetation of that land will be extraordinarily difficult in a human, as opposed to geological time frame. This process signals a permanent loss of the value of the land even for grazing.[22]

Chinese government is not only taking away the wealth of Tibet

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20 Ludmilla Tuting, `The ecological destruction of Tibet' Tibetan Review, Vol.XXIII, No.11, p.7.

21 This information is collected from a paper on `The Relationship Between Environmental Management and Human Rights in Tibet. Submitted by Mrs. Fatma Zhora Ksentiti on 2nd August 1991, to Sub-commision (UN) international committee of lawyers, Geneva, p.4.

22 Ibid., 5-6

but also, the Tibet's future ability to develop by destroying the land ability to support it forest. The wholesale destruction of Tibet's forest can't be in line with their culture. Being firm believers of Buddhism they aspire for a society in which all sentient beings are respected and protected. Chinese government has failed even to respect their sentiments being attached to some mountains and forests. That too has not been spared. Such forests have a cultural significance for Tibetans. It is in this context it is a direct violation of human rights to self-determined and sustainable development. The right of the peoples, guaranteed by the international human rights doctrine, to "freely persue their economic, social and cultural development " and to "for their own end, freely dispose of their natural wealth resources."[23]

Despite clear felling of forests, the other activities of Chinese liek, uranium mining and disposal of toxic waste in the mountaineous regions of Tibet would also affect the health of forest. Tibet being the largest depositor of Uranium in the world helping china grow a nuclear power of this region. The Uranium deposits are located aroud Lhasa, Tibet's capital, and Ngapa Tibetan Autonomous prefecture in Sichuan province, Gannan Tibet Autonomous Prefecture in Gansu province and near

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[23] Ibid p.7

Da Quidam in Qinghai province.[24] On confirming this rich reaserve of Uranium, Chinese are planning to instal a plant for Uranium processing in Tibet itself. Thus, both Uranium Processing system and Strontium on the Tibetan platue, though the qualityo or concentration is not fully confirmed will have a far greater consequences for millions of plant and animal species. The consequences are already confirmed for human health due to pollution of water around the nuclear plants in Tibet.

Environmental safegaurds are virtually non-exixtant in Tibet's mines. Particularly in fragile terrains. It is leading to slope destablisation, land degradation and hazards to human, floral, and faunal health.[25]

Regenerating and afforestration is impossible at a rate that develops in cource of time on its own. This is difficult because of temperature variations at the surface level and diurnal temperature variations. At this critical juncture the effects of destruction of forest are irreversible. The impacts of deforestration in Tibet are transnational because the most forested region of Tibet serves as a major source of

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24 "Nuclear Weapons and Nuclear Waste on the Tibetan Plateau", Report by International Compaign for Tibet, (Washington), 1993, pp.40-42.

25 Prof. S. Rinpoche, "Militaristic, Destruction of Tibet's Environment" South Asian Vision, (New Delhi), October, 1993, p-3.

water shed for at least five major Asian rivers. The denudation of forest leads to soil erosion. As a result it would cause siltation across the rivers and that in return causes floods down streams. Forest use is multidimensional without which existence becomes impossible. Scientists have presumed that deforestration in Tibet may have a negative effect on India's agricultural production. Since forested areas absorb more of the sun's energy than either grasslands or exposed rock, the air temperature warms less above the deforested regions. Increasing the proportion of the Tibetan platue that will be unforested may cause a late monsoon with serious results.[26]

The protracted exploitation of forests since 1950, at an rate has resulted in 40% of barren land. The consequence of this grave action led to immeasurable damage. Tibet is suffering from ecological cirsis at this point of time but its suffering is going to include many neighbouring countries and particularly in terms of climatology. So many countries will fall in this trap. Deforestation, landslides, and environmental degradation in Tibet are believed to contribute at substantial level to the siltation across the all major rivers risen in Tibet and flow across many neighbouring

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[26] "International committee of lawyers for Tibet" An extraction of a paper on "The Relationship Between Environmental Management and Human Rights in Tibet" Presented by Mrs.Fatima Ksentini, Geneva, pp.7-8-9.

countries. They are said to be highest siltation bound rivers in the worls. Today the natural calamities like floods and pollution are the consequences of deforestation in Tibet.[27]

At the higest point, degradation and desertification of Tibetan platue, a unique and most extensive land mass on the earth, is continuing. This vast extensive platue influences atmospheric circulation and jet stream wind patterns over South Asia and as scientists felt its relation to the destabilization of weather patterns over the northern hemishpere.[28] As the forests of eastern and Southern Tibet are denuded, and the soil is washed away, then there will a substantial reduction in evaporation. The moisture halted in the soil, will not remain ever there until warm sunshine and vegetation send it back to the atmosphere. Instead, it will cut into shortest path to creaks, streams and rivers to get lost in the sea. Some of this moisture, by not re-evaporating, will be missed in the air streaming farther into the dry heart land of Tibet, developing further concern about desertification.[29] Once this reaches the climax, the normal

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27 Tibet Today "Environmental Destruction of Tibet" (Committee for solidarity with Tibet liberation Movement", Tibet Today, (New Delhi), pp.17-18

28 "State of Tibet's environment",Tibet Proving Truth From Facts, Op.cit., p.80.

29 Dr. R. Elnar Rieter, "Tibetan deforestation and possible climatic effects", Tibetan Bulletin. (Dharamsala), May, 1991, p.24.

functioning of monsoon patterns gets affected which the Tibetan forests have enough capacity of influence over South Asia.

Before we conclude we ought to have a look into the records of HugheRichardson, who frequented Tibet in 1988. Who thus aptly describes the the prevailing rate of deforestation. In U-Tsang region alone the log production would contine to be at the rate of 300,000 m in the 1980, on an average annually. The major portion of it was obtained from age old forest growth of fir, spruce, and pine. Only one-sixth of the total production was meant for the region and the rest was being exported to China.[30]

In U-Tsang non-plan production pattern rather than plan production pattern has been significantly exceeded. The east of Tibet being the major log production area, the log production was being exported throught water flow Southeast and South.[31]

These opinions are collected in the end because the arbitrator will be the third person (neither Chinese nor Tibetan). However, unless the profligate and inheeding exploitation of

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30 Tibet: Environment and Development issues, 1992, Op.cit., p.51.

31 Ibid.,

forest is halted, this vast region will be bound to face the natural calmities in various forms.

B. MINING:

Mining system is one of the most devastating means of today's environmental crisis (destruction). Mining process in the heart of Tibet symbolises a journey towards self-destruction. Young and still rapidly growing mountains cannot withstand this profligate and unheeding exploitative attitue of Chinese in Tibetan mountain ranges. Mountains and hills are still in the making. Their growth as yet is not completed and mainly contains solubles like, limestones. Thereofore, mining in such delicate mountains and hills would hamper their growth leading to devastative natural calamities lie, earthquakes etc. The earthquake would take place basically to maintain the natural balance, in this Process, the Consequences are immeasurable.

However, the development activities/human inteference cannot be conducive for natural growth of mountains and hills. It leads to diminishing utility of mountains for mankind and other forms of life. Mining therefore is the most cruel way of destruction of land mass which stands for the benefit of millions of living beings.

Tibet has the richest mineral deposits of 126 in the world. For instance, Amdo's oil fields produce more than on million tones of crude oil per year. The total road net work in Tibet mirrors the location of forests and mineral deposits, and the indiscriminate exploitation of these resources by China. So far there are no envrionmental safegaurds nor is there any attempt on the part of China in all these dangereous mines. This inept activity would cause slop destabilisatio, land degradation and hazards to human health and life.[32] Almost fifty years late, the sacred and fragile and on of the most `ecologically balanced' states of the world has been endangered with devastative measures such as, the intensive exploitation of its natural environment. This is an act of deliberate plan on the part of Chinese authorities. Consequences are; the rich wildlife including birds, forests, plants, minerals and water resources have suffered irrepairable damage in Tibet. Chinese are exploiting all the 126 minerals at an unprecedent rate causing water pollution, Air pollution and other ecosystems.[33]

Another consequence may be the wealth of Tibetans is being trasferred to China and further the land fertility is destroyed. This fast decreasing land efficiency and fertility

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32 Prof. s. Rinpoche, op.cit., p.7.

33 "Environmental Destruction of Tibet", Tibet Today, op.cit., p.17

will ever remain incapble to support and sustain the ecosystem in Tibet. The large scale destruction of minerals would cause substantial amount of loss of life in the heart of delicate natural environment. Water pollution,air pollution human deaths and birth of deformed human body and animals have been reporteed from across the Tibetan region.

Tibet has rich reserves of borax, chromite, iron ore, lithium, and Uranium forming the major share of global reserves. It was known for its rich mineral reserves since medival times, then some of its precious metals and gems such as gold, siver and turquoise were traded with Inia and other neighbouring countries. However, traditional Tibetan society had enforced some restraints on mining until 1959. There were few mines in Tibet. According to Dharamsala estimation mineral deposits in Tibet today account for 126 major types. Such deposits are in bauxite, borax, chromite, copper, gold, iron, silver, lithium, each of which comprising a significant share of world reserves. In addition, recently more number of oil, coal, tin, and zinc minerals have been discovered in Amdo and U-Tsang.[34] Tibet's lithium deposits are the largest in the world. Comprising more thatn 50% of total world reserves. Iron reserves are believed to constitute some 3.65 billion metric tones, which is estimated to be 2.3% of world iron

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[34] Tibet: Environment had Development Issues. 1992, op.cit., pp25-26.

reserves. In respect of Uranium Tibet surpasses all the countries' Uranium deposits in the worl. There are some reports sate that Tibet has confirmed recently about 200 more mineral deposits, although the exact number is not available as Chinese have this record kept secret well gaurded. Today, the exploitation of mineral reservess constitute a major part of economic activity in the industrial sectors of U-Tsang and Amdo. Norbusa in Lhoka district alone earned around 12 million Yuan i the early 1980s, which was almost 50% of the total industrial output value of all the industries under the `TAR'` industrial sector. Employees number is small compared to agricultural sector. However, Chinese are in majority with token Tibetan staff.[35]

Tibet's fragile ecosystem cannot withstand this trend any longer. In the delicate and fragile ecosystem mining can be one of most unstalbe and disruptive activity of organised human life. In the Indian and Nepal Himalayan ranges mining has always disrupted agricultural, forests, and buildings. And the social cost was much higher than the profits from mining. For example, in the Doon valley of India dolomite mining destroyed aquifers and got affected by hydrological flows, causing supreme court passing strictures in favour of

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[35] Tibet: Environment and Development issues. 1992, Op.cit p.26.

banning the mining in 1989.[36]

Tibet mineral deposits/reserves had a natural protection. Because of their location in remote areas of Tibet, remained in accessible for sometime. The exploitation of highest order commenced with the construction of roads to their location, and recently they have planned to linkup with the main industrial sectors in China. Therefore this is one of the reasons for the large scale exploitation of mineral in Tibet.

China has determined that Tibet contains rich natural resources while neglected the consequences of reckless exploitation and cultural importance of it for Tibetans. Tibetans in those days believed that mining is an improper intrusion into the earth. This belief helped them conserve the mineral reserves. However, in cource of time it evolved cultural significance for Tibetans. In the village of Riwoche in Kham, the rich Uranium hill had a cultural significance for Tibetans and it was considered `sacred' by Tibetans. But the Chinese deliberate plan led to the destruction of this `sacred' hill without showing any respect for their (Tibetans) emotional attachment to that. As with timber, mineral produce is being exported to foreign countries and sent to China for use. It's implications are mainfold. Mining processing Causing water and air pollution and as a result loss of life

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36 Ibid.,

and it's impact on animal species has been reported. Mining and dumping of toxic waste in Tibet has also resulted in polluting the flowing waters, the result will be the suffering of down stream countries.[37]

The total strengh of `PLA' at present accounts for 50,000. The number of Tibetan prisioner is not known. This Hugheforce is used to assist in road construction to the locations of mines and forests. The autonomous region of Tibet has already been connected to China by four large highways with the sole aim of trasportation of mineral and forest prodce to China. In 1987 the entire road network in Tibet comprised approximately 21,600 kms.[38]

The Radioactive waste produced by Uranium mines and milling is considered to be dangerous as far as it's effects on human health is concerned. As the rain water flows through major tailings can pollute the water. This is only water source used frequently by the people for all purposes. Therefore, it is deemed to be of dagerous consequences on humans, animals and crops. And in addition, the excess and exposure of all sentient beings to heavy metals or radon gas combined with

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37 The Relationship Between Environmental Management and Human Rights in Tibet, Geneva,Op.cit pp 9-10.

38 Ludmilla Tutin, Op.cit., pp.8-9.

Uranium mining may cause perinnial deseases.[39]

China has resolved of late to shift the mining processing systems to Tibet by the turn of this century. There are reports of injury and death in Amdo and U-Tsang. similarly, some loss of life has also been occured in the places under Gansu province and Sichuan Province. With 7 of 15 key minerals are expected to run out within this decade. What is more concerned is the non-existent of environmental safegaurds in Tibet's mines. Especially, in fragile terrian it amounts to slope destabilisation, land degradation, and hazards to human health and life of flora and fauna.[40]

Unless there is full stop to these inept activities the time will come when the entire South Asia will be under unbearable sufferings. The present rate of exploitation and mining system in Tibet would hamper the smooth functioning of Tibetan ecosystem and diminish its capacity to influence the hydroligical and climatological patterns to a considerable extent for South Asia. Particularly, the Tibetan platue has a wider significance for South Asia, dumping of toxic waste at a higher altitude causes enormous damage to it. However it needs to be protected by all means.

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39 Nuclear Tibet, op.cit., p.43.

40 Tibet Proving Truth From Facts, Op.cit., p.82.

C. WILDLIFE DEPOPULATION

Tibets rich mountains, hills and the plateau, a vast and most extensive land mass on the earth, and valleys with enormous forests constitute a home for wild life. The practice of Buddhistic philosophy since seventh century underlined the significance of wild life in natural environment, where a large number of components work in unison for the sustainability of life on earth. Buddha himself underpines the essence of oneness i.e, `cosmos'.

The greatest achievement on this planet with Tibetan Buddhists was the virtual Practice of Buddhism in cooperation with other life forms. As a result until 1950 Tibet had the richest wildlife stock. Their understanding of interrelationship and interdepending among all the components which form the natural environment gave rise to the ecologisation of mind. Buddha's `cosmos' means the concept of no-duality, accordingly, no component can seperate itself from `cosmos' therfore he meant life in totality.

The major principles such as interrelationship, interdependency, interrelatedness among several omponents according to Buddhism, that shaped the Tibetans life in Such a way that they continued to lead a life with other living beings as much as possible. Buddhism termed this as

`Universal Unity'.

With this typical environment in Tibet, wild life existed on full scale. With the colonisation of Tibet by communist China, Tibet's traditional environmental protection system has given way to an `ecocide' of appalling proportions. The effects of this are notable especially in the grassland areas, cropland areas, the forests, and the wild life.[41]

In differing altitudes of the Himalaya ranges, there are rainforests, evergreens and semi-evergreens, ~wer temperate forests and dry temperate forest mixtures. Different altitudes produce different tempermental zones and in ~~earth~~ such zone various kinds of animal life appears. However, today the Himalayan range with rich animal and plant species is considered the richest repositories of the world. Some of the species can only be found in Himalaya and most of the species are yet to be discovered. And so from botanical and biological point of view it is the abode of knowledge.[42]

The countries around the `Hiamalaya region have never been able to exploit it in a positive manner. Therefore it is imperative to know the nature of Himalayan vulnerabilities. Its mountains and forests are the youngest systems in the

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41 Prof. S. Rinpoche, Op.cit., p.6.

42 Sailendra Nath Ghosh, op.cit., p.41

world. Its rocks are easily erodable and yet the downflour from precipitation and the Snowmelts form great heights erode the rocks ever more. The degrading mountains cause destruction of forest and forest as an animal habitat.

The quality of compassion has a utilitarian basis. Accordingly, human beings breathe out carbon dioxide which is utilised by plants, and plants in return leave out oxygen which sustains human life. Animals provide organic manure for the plants and also propagate plants by scattering their seeds. The plants in return provide fruits to the animals. This chain of interdepedency is tearing apart owing to reckless destruction of natural environment.[43]

Forest and wildlife are closely interconnected. With the destruction of forest wildlife diappears, because trees are the only source of oxygen, water and soil, and an ideal home for all kinds of wildlife and directly or indirectly linked with maintaining the ecological balance.[44] Unfortunately, the sustainance of wildlife stands in peril with the enormous wealth of forest being destructed. In Tibet Chinese forces are working towards ecological distruction, pirticularly, the wildlife is endangered in many ways. With the distruction of animal habitat under agricultural and industrial development,

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43 Ven Tulku Doboom, Op.cit, p.3.

44 G.S. Yonzone, Op.cit., p.41.

animals are seeking refuge in the most interior part of the forest. Hunting and killing of animals for eating and export of their meat reducing the number at an alarming rate. The successful implementation of Tibetan traditional approach to ecology kept the number on increasin and at sustainable level. Today, there is no case of any extent for conservation, instead degeneration and distruction of all forms of life is the order of the day in Tibet.

The evidence of the successful implementation of this approach can be found in the records of various western traveller, naturalists and visitors, and explorers as well. For example, the British explores Kingdom Ward wrote once before the First World War that I have seen never of so many kinds of birds concentrated in one place that was like the one Hughe Zoological garden.[45] Like wise, in the 1940, Leonard Clark described in his account about the richness of wild life in Tibet. For every few minutes we used to watch a bear, a hunting wolf, herds of musk deer, Kangs (wild asses), gazelles, big horned sheep or fixes. He concluded his experience by saying that it would be one of the last great unharmed paradises.[46] This sort of existing paradise was only possible because of Tibetans' belief and practice in the

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[45] Tibet: Environment and Develpment issues 1992 Op.cit., p.26.

[46] Ibid.,

spirit of Buddhist knowledge. In this connection also, several western scholars who visited Tibet brought in their account the description of Tibetans' attitude towards conservation of wild life. For example, Hugh Richardson wrote that there was no evidence of hatred, envy, malice and uncharitableness... Most of the people tried to live as much as possible with nature, not agianst it.[47] (Richardson 1984). The Tibetan way of life restricts the killing of animals and would teach their children from their childhood days that all life is sacred and as important as any other living being. Of this Heinrich Harrer writes in his classic, work, Seven Years in Tibet as there used to be an outcry if anyone noticed a worm on a spade. The work was put off and the creature was placed safely.[48] In those days Tibetan government in the hope of conservation as wild life would issue decree and the failures were punished accordingly irrespective of his/her statu either in Public or private life. For, example, One of the decress states like this "For the health of H.H. Dalai Lama, for the sake of the Dharma and for the benefit of all sentient beings, the village heads, officials and governers of all districts of Tibet are commandeed to prevent the killing of all animals, except hyeas and wolves. The fist and others of water, animals of the hills and forests, the birds of the air, all animals endowed with the gift of life, whether great

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47 Ibid., p28.

48 Ibid.,

of small must be protected and saved. Governers must see that the contents of this decree are carried out fully".[49]

Tibet is a country of rich biodiversity. Despite harsh climatic conditions, a number of factors have turned Tibet into a habitation of rich and natural biodiversity. Unilike elsewhere in the world, a significant proportion of it are only found in Tibet and yet equal proportion of it is still unearthed.

The significant characteristic fetures of this is the prevailanc of high rate of endemism in this kingdom of animal species. Traditional beliefs and practices as per the tenets of Buddhism helped conserve this natural endowment for over centuries.

According to the extimates available reveal that U-Tsang has 118 mammals 473 birds, 43 reptiles, 44 amphibians and or fist sepcies. According to Vaurie's survey it lists 505 bird species. Vaurie writes "The common belief the the whole of Tibet is disinherited and has a poor arifauna is false. The is very far from poor..." (1972). Moreso, Vaurie comments on the Wildlife and so over centuries remained untouched by human access. The animals which adapted to such erratic conditions

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[49] "Committee for solidarity with Tibet liberation Movement" Tibet Today, Op.cit., p.16.

in highlands are the wild yak, takin, Asian wild ass, golden monkeys, argali and teh Tibetan antilope. Endemic is widely prevailant among these animals.[50]

.The year 1950 marks the beginning of enviromental degradation. The conditions for conservation have been drastically changed. Modern means of communication and technology replaced the traditional way of life. Modernisation nevertheless failed to accompany the necessary means to check the balance and that however amounted to irreversible loss of Tibetan biodiversity or wild life. The various animal species are in the state of extinction. This extensive biodiversity is deplated under this unscientific approach on the part of Chinese authority towards conservation.[51]

The 1990 red list of threatened animals published by IUCN (The International Union for the Conservatio of Nature and Natural Resources) consists only of 30 endangered species in Tibet. At the same time, the World Resources of 1990-91 reveals that `China' has 30 mammals and 7 bird species that are endangered, totalling of 37 species as a whole. Though these two records don not differ much but what is revealing is that of the proportion of endangered animals in Tibet. In a statement Mr,

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50 Tibet: Environment and Development issues. 1992, Op.cit., p.62.

51 Ibid., pp.62d-63.

Galen Rowell, states to the office of scientific authority in the U.S., Fish and wildlife service, about his long experiences of Tibet's wilderness. That experience he has compiled in the following lines:

He says in his report that he himself was the witness to the widely destructed natural habitat by over grazing of domestic animals, and yet due to change in agricultural pattern persued by Chinese authority in the delicate and most fragile ecosystem. Before the Chinese occupation, Tibet had lived on subsistence economy. Since 1950, Tibet had to suffer mostly due to high growth food grains to export to China combined with large scale population transfer to Tibet. Indiscriminate hunting of wild animals by Chinese soldiers and civilians with no proper regulatory mechanisms was an additional damage to the Tibetan ecosystem. However, he further notified the non-existence of protection for several species.[52]

Further, with regard to information concerning the measure undertaken to protect Tibet's balanced natural ecosystem Rowell says that large number of mistakes were being noticed by me in the information supplied to me by both Tibetans and western travellers. But the information supplied to me by Chinese sources proved to be total false and such environment

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52 Tibet: Environment and Development issues. 1992, Op.cit., p.63.

related information was laced with falsehoods.[53]

The only two factors are taken into account which are basically responsible for the serious deplation of Tibet's biodiversity: Fristly, the loss of habitat, this is related to the loss of forest cover, which from 1950 to 1985 was drastically reduced from9% to 5%. However, the combination of habitat loss and widespread hunting that has lead to the embamed deplation of animal numbers. Evenso , the shift in land use, upward movement of farmer i.e., into the high lands, and mass slaughter by the half a million Chinese ``PLA permanently placed in Tibet, have been attributed to the loss of great herds of will ass and wild yak. Today, less than 100 Giant pandas survive in the wild in thirteen Giant panda reserves covering a total area of 5,827 KM of bamboo forest along

Tibet's eastern border with China. Bamboo forest is the only place where Giant pandas can survive. This flowers once in its lifetime and dies, resulting in the death of atleast 10% of panda population.[54] Giving the principal reason for the disappearance of panda at an alrming rate , the world wide fund foir nature reports that the greatest threat to the panda is from the people. The species have been pushed out of their habitat by human expansion. The pandas been pushed further

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53 Ibid.,

54 Ibid.,

back and upwards as farmers have moved further into the hills. (wwF 1989).[55]

The another principle reason behind deplation of wild life in Tibet is the killing of large number of animals like, Bulu sheep, Musk deer, Snow leopard, and various kinds of animals for export of their meat to Europe, Hongkong, and some other countries. Musk deers are suffering heavy mortality in eastern Tibet due to the market for their musk pods, and there is a market for both their petts and bones, which are used in traditional Chinese medicine. Moreso, Chinese medicine shops also providea market for the velvet antlers of red deer and white lipped deer, as well as for the lives of Himalayan brown bear.[56]

Unrestricated hunting still continues to be a part of international trade, and earns a some percent of revenue to Chinese government. Hunting tours are organised for wealthy western clients-for trophies of endangered species-this takes to the regular advertisement through Chinese media. The trophies of endangered species are laced with different rates. The cost of such trophy as follows:

Name of Animal	Hunting Cost Upto

55 Ibid.,

56 Mrs. Fatima Zohra Ksentini, Op.cit., p.17.

Tibetan antelope	$ 35,000
Argali	$ 23,000
White-lipped deer	$ 13,000
Bule Sheep	$ 7,900
Red bear	$ 3,500

Source: Tibet: Proving Truth From Facts, Dharamsala, 1993, p.82.

If the present rate of killing continues in this form within few years it is likely to prove an end to the existence of wild life in Tibet, even before they will have been discovered and studied, and finally it will be no doubt: a big threat to the immeasurable value of it to the world.[57]

It is hard to believe: The People's Republic of China is making every possible effort to protect animal species threatened by extinction, such as pandas, whereas it does not hesitate on the other hand to violently destroy the culture of an entire nation.[58]

Chinese conservation measures in Tibet were initiated long after similar efforts in China itself. Declared areas said to cover 310,000 sq.km. or approximately 12% of Tibet's total

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[57] Tibet: Proving Truth From Facts, Op.cit., p.82.

[58] Ludmilla Titing, Op.cit., p.7.

land area. The effectiveness of protection cannot be measured because of China's stirctly limited access, plus secrecy areas and control of data.[59]

A recent survey for a nature reserve around chomolungma showed remarkable species diversity in a limited area of 27,000 km. north of the Main Himalayan Ridge, including 53 mammals, 205 birds, 6 reptiles, 8 amphibians and 5 fish species. In 1990 the protected area net worth in Tibet was about 40,100 km. comprising 1.6% of Tibet's total land area. In 1991 the Chang Thang Reserve had been declared under 237,000 km., was established in techinical collaboration with wildlife conservation International. Situated at the heights of between 4,700 and 5,000 metres, the reserve was expected to conserve a large number of mammals including antelope, gazelle, wild ass, argali: sheep and brown bear, all endemic in the Tibetan palteau. Another area of about 10,000 km. aroud Lake Nam Tso is being considered for protection of birds in collaboration with Domestic Technology International, a private U.S. agnecy. However, protected area increased to 310,000 or 12% of Tibet's total land area during 1991.[60]

Principal Threats to Endangered And Endemic Animals:

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59 Tibet: Proving Truth From Facts. 1993, Op.cit., p.83.

60 Tibet: Environment and Development issues. 1992, Op.cit., p.27.

Species	Main Habitat	Threats
1. Tibetan Antelope	Chang Thang	Hunting, wild life trade(wool)
2. Snow Leopard	Himalayas, Chang Thang	Insufficient number of prey; wildlife trade
3. Giant Panda	Eastern Tibet	Habitat loss; wildlife trade (pett)
4. Wild Yak	Chang Thang	Hunting; habitual loss
5. Asian wild Ass	Chang Thang	Hunting; habitual loss.
6. Tibetan Takin	Southeast Tibet	Habitat loss
7. Red Panda	Southeast Tibet	Hunting, wildlife trade(pett)
8. Musk Deer	Hmalayan East Tibet	Hunting, wildlife trade (Must pod)
9. Muli Pika	Extreme Southeast Tibet	Habitat loss, poisoning

(Source: Evnironmental an Develop issue Dharamsala-1992)

The disposal of nuclear and other toxic waste by the Ninth Academy on the Tibetan plateau[61] might contaminate the parts of Tibetan palteau, causing widspread diseased and death among plant and animal species, besides human death already recorded.

These problems under the present conditions make the sustained survival of Tibet's biodiversity a doubtful prospect. The damage of current rate has economic, environmental and cultural implications. More importantly, these problems hamper badly the plan of The Dalai Lama to make Tibet a zone of peace and non-violence, including non-violense to nature and animal life.[62]

"The grasslands of Tibet need not loose their wealth of flora and fauna nor their Unique pastoral cultures. Their future lies in the nands of conservationists and development planners willing and able to devise programmes that are sensitive to this Unique ecosystem.[63]

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61 Nuclear Tibet: Nuclear Weapons and Nuclear Waste on the Tibetan Plateau., Op.cit., p.28.

62 Tibet: Environment and Development issues, 1992. Op.cit., p.65.

63 J.D. Miller, "Wild Yaks of Kunlun", Himal : The Himalayan Magazine, (New Delhi), May-June, 1992, p-36.

CHAPTER FOUR

THE IMPACT OF POPULATION TRANSFER ON ECOLOGICAL CRISIS IN TIBET

The most critical threat to Tibet today is the Chinese demographic influx. The massive transfer of human population either by direct or indirect support by Chinese government is not a recent phenomenon but it has its roots in the early communist directives. The situation today has reached such a point there is hardly any Tibetan identity is left to be seen. This is all to transform or subverse Tibet identity to assimilate in China. The beginning was made in this direction since early 1952 to populate Tibetan Plateau with Chinese Hans population. Over 40 years later, the whole gamut of political and economic spheres are dominated by majority Chinese settlers on Tibetan plateau. With this, most Tibetans find among themselves being reduced so to speak absolutely to minority. The long-standing issue before Chinese to populate the area being sparsely populated by Tibetans with Chinese is successfully operated. As a result, most of the eastern and northern Tibetan Autonomous Prefectures including "TAR" regions are overwhelmingly populated by Chinese leading locals to microscopic minority. In TAR region alone their population

increase is 12 fold. The situation in Sinkiang and Inner Mongolia too is not different.[1]

Chinese officials have proved the fact to the present demographic change and crisis as a result. The official statements state that they had a long-standing issue of transfer of population from east to west of China including TAR, Qinghai and other Tibetan areas. On this issue they exposed that they had even talks with President Jimmy Carter. Under many pretexts and in disguise what once Panchen Lama in his speech in 1987 referred to as, many useless people have been transferred and today with small families they have grown into multiplied manifold.[2]

Tibet, with an area of 2.47 million square kilometres and an average altitude of 4,000 metres, is situated at the centre of Asian continent. By virtue of its geographical features, environmental conditions in Tibet have transnational impacts. It's highest mountains, deep valleys with enormous forest wealth, and the highest and most extensive Plateau, a unique land mass on the earth, constitute Tibet a major watershed and unique biogeographic zone. Several vegetation zones ranging from tropical mountain forest to high cold desert Plateau are

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1 John Ackerly, "Population Transfer and the future of Tibet", Tibetan Review, (Dharamsala, India), July 1993, Vol. XXVIII, No. 7, P.11.

2 Ibid.,

the natural gifts in Tibet. The annual average rainfall varies from 100 mm in the north and 1,000 mm in the southeast.

Until 1949, Tibet, because of its traditional approach to environment, continued to protect the natural environment in Tibet. More so, its cultural traditions inclusive of its sustainable lifestyle put Tibet into a high esteem particularly, in terms of its richest repositories of plant and wild life species until the take over of Tibet by China in 1950. (In this regard, Buddhism had a big contribution. Creating a sense of respect for all sentient beings shaped the life style of Tibetans to universal unity and ecolization of mind. For all this Buddhism was the root cause. Even the Tibetan government showed a special interest in protecting this national environment through decrees issued by H.H. the Dalai Lama.

Without having access to the advantages of scientific world, they lead a simple and rich life in true sense of the term in cooperation with different components of natural environment. This co-existence disappeared with the advent of Chinese occupation of Tibet, leading to irreversible damage to the eco system in Tibet. As for the population, it was quite in line with the available natural resources. However, the

life at the sustainable level had suited the prevailing conditions in Tibet before 1950, got vanished due to rampant infiltration of Chinese Hans population into Tibet.

This continued influx of Hans population at a rapid pace into Tibet, placed the inhabitants into minority trap which accounts for six million today, whereas Hans population is estimated at 7.6 million. Thus, this increasing number is in majority, causing lots of suffering for Tibetans by sheer domination in every walk of life, and more importantly, removed the cultural buffer between India and China.[3]

Since the "liberation" of Tibet in 1951, the Tibetan population has more than doubled to 2.19 million people. Unlike other countries, Tibet found a gradual increase in its population,. The following Table indicates the gradual increase in Tibet's population since 1334.

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3 M.P. Mohan Singh "Memorandum of Parliamentarians to the P.M. of India", South Asian Vision (New Delhi October 1993, P.7.

S.No.	Year	Population
1.	1334 (as per Yuan Dynasty record)	1 million people.
2.	1737 (Qing Dynasty record)	938,651 to 1,002,746 people.
3.	1915 (Macdonald estimate)	3.9 million people.
4.	1952	1.15 million people.
5.	1964	1.25 million people.
6.	1982	1,892,000 people.
7.	1990	2,196,010 people.
8.	Currently	6 million people.

Source : News from China : 'Tibet Backgrounder : Tibet's Population Today and Yesterday' New Delhi, 1971, P.15.
Environment and Development Issue 1992, Dharamsala, P.43.

The reports of the Fourth National Population Census conducted in 1990 revealed that the Tibetan population was over 2,196,000, of which about 2,096,300 or 95.46 percent of the total were Tibetan.[4] In today's condition Tibetans themselves account for 6 million apart from Chinese majority population of about 7.6 million. However, the highest rate of

[4] News from China (New Delhi), April 3, 1991, Vol. III, No.14, P.15.

influx has put a strain or pressure on the Tibetan eco system. B ut the State Nationalities Affairs Commission claims that the government dispatches people to the interior parts of Tibet in rotation, and the purpose is to assist in construction works.[5] In fact the truth is concealed on the part of China. The transfer of population by colonial power into occupied region is a blatant violation of International law, the fourth Geneva Conference held in 1949 states that any colonial power commits to transfer of it's citizens into the occupied territory assumes henceforth the clear violation of international law. However, it has become a practice on the part of occupying powers, colonial administrations and totalitarian rulers to have a sway over a particular territory through these inept practices, and still these power do not hesitate to resist to their rule and consolidate their powers. Hitler, during his regime developed the large-scale population transfer on to the occupied territory as also Stalin carried out the same plans and the consequences of such plans we are witnessing today in the large occupied territory of Russia.[6]

Today, in this modern world, China is implementing this policy towards Tibet. China committed to this plan as early as in 1949, when it occupied the whole of Tibet. This policy has

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5 Ibid., P.14.

6 "Population Transfer and Control," Tibet : Proving Truth from Facts (Dharamsala, India), 1993, P.71.

posed a greatest threat to the survival and identity of Tibetan people. More so, apart from large scale transfer of Hans population into Tibet, it has undertaken lots of measures, like forced abortion, forced family planning etc. to stem the growth of Tibetan population

The principal reason behind such measures is to bring about the demographic change of greatest extent in Tibet. This measure has already led to a significant reduction of the Tibetan population. In addition, they are in a minority in their own country and however there is no longer resistance to Chinese authority. Chinese skillfully planned out to transform Tibetan population into ineffectives, and therefore, their rule is unquestionable.

Population transfer as an explicit official policy

China's White Paper claims that a large number of Hans have migrated to Tibet, turning local population into minority. However, the ample evidence in support of Tibetan stand on the large scale transfer of Hans population into Tibet seems to be true on the contrary. The first indication of transfer of people to Tibet cam in the year 1952, in the "Directive on the Central Committee of CPC on the policies for work in Tibet", issued by Mao Zedang himself, proposing five-fold increase in the "TAR" population, he said " "Tibet

cover a large area but is thickly populated. Its population should be increased from the present two or three million to five or six million, and then to over ten million".[7]

The Dalai Lama on 29 August 1959, said in a statement to the legal Inquiry Committee of International Commission of Jurists :

> "In 1955 just before returning to Lhasa, we had been to see Liushao-chi. He mentioned to the Panchen Lama that Tibet was a big country and unoccupied and that China had a big population which can be settled there".[8]

In the aftermath of the Chinese invasion of Tibet, Premier Zhou-Enlai said : "The Chinese are greater in number and more developed in economy and culture but in the regions they inhabit there is not much arable land left and underground resources are not as abundant as in the regions inhabited by fraternal nationalities".[9]

The Chinese Embassy in New Delhi announced it's government's intention in February, 1985, to "~~Chinese~~ change both the ecological imbalance and the population lack" not just in

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7 Tibet : Proving Truth from Facts, op. cit, P.72.

8 Ibid.,

9 Ibid.,

Tibet but also in other outlying regions with sparsely population. Chinese "Migration should be welcomed by the local population, and should result in a population increase of 60 million over the next 30 years in those regions". Another significant announcement added : "This is a very conservative estimate. As a matter of fact, the increase might swell to 100 million in less than 50 years".[10]

Since the occupation of Tibet, the Chinese government sought to alleviate population pressures elsewhere, to provide Chinese workers for the factories and projects in Tibet. With the aim of Sinocization of Tibet, Chinese authority took to innumerable incentives to attract the Chinese population to Tibet. Salaries for Chinese workers in Tibet are paid at higher rate than the workers are paid in China, particularly, in the U-Tsang region and TAR the paid salaries are just double the salary amount paid elsewhere. Bureaucratic restrictions on daily life are unknown to the settlers, and they have qualified for paid vacation for three months after every one and half years. This policy has successfully worked out in Tibet, especially, in terms of demographic change. Consequent to that Chinese settlers have outnumbered the local population by being over 7.6 million but Tibetans are still only 6 million. This demographic imbalance is much prevalent in Amdo and Kham regions. In U-Tsang as a whole the

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[10] Ibid.,

Tibetans are still out numbering the Chinese settlers., By contrast, in the Tibetan capital city of Lhasa, where Chinese civilians and militia are estimated to be outnumbered Tibetans almost two to one.[11]

The influx of Chinese has led to the doubling of population in Tibet. Prior to 1959, the best estimate and most widely used figure for the total population in the three Provinces of Tibet was approximately six million Tibetans. Some Chinese lived in Tibet as well, but their numbers were roughly 1/4th of what they are today. The fact of the matter is that -- the Tibetans are now outnumbered in their own home land due to deliberate government policies and however, this policy posses the planned onslaught on the cultural survival of Tibetans.[12]

China does not force its citizens to move on to Tibet, instead the authority creates conditions through incentives so as to attract them in large numbers to Tibet. To encourage this sort of impersonal tendency, Chinese government offers an

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[11] This is an excerpt of the Paper submitted to The United Nations Sub-Commission on Prevention of Discrimination and Protection of Minorities of the Commission on Human Rights by Mrs. Fatima Zohra Kesentini on 2 Aug 1991. "International Committee of Lawyers for Tibet." `The Relationship between Environmental Management and Human Rights Protection', Impacts of Population Transfer to Tibet, Geneva, P.11.

[12] Ibid., P.11.

array of benefits to the personnel and civilian population. Housing, health-care, cultural and educational facilities are all part of an enormously extensive undertaking to provide for the Chinese in Tibet,. Other subsidies like, high-altitude allowance, and transporting wheat and rice by trucks to Tibet. The wages paid to Chinese settlers in Tibet, amounts to 87 percent which is much higher than elsewhere in China. In case of vacations too the similar benefits are provided. For every 18 months of their stay in Tibet, they receive three months paid vacation which is comparatively far longer and most luxurious the Chinese settlers in Tibet can enjoy . The Chinese entrepreneurs are provided with such a facility by which they are exempted of special tax and all time loan at a low rate interest in Tibet. For Tibetans getting loan and start entrepreneurs is far away from expectation.[13]

Construction boom for Chinese migrants are still on at a rate untold. Outside Lhasa city the military construction is a part of a wave of civilian and military buildings continue to stretch throughout central Tibet, But the main purpose behind this object is to attract thousands of Chinese migrants into this region. Government units on the streets in towns across Tibet have been asked to raise thousands of shops and residences, permits are exchanging hands for 5,000 a time. Within this, the Chinese government is reported to have

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13 Tibet : Proving Truth from Facets, op. cit, P. 74.

undertaken a task for preparing this to be a new economic zone where migrants can settle seeking new opportunities. Despite subjecting the major cities under this planned-project it had recently harped upon towns and even far flung rural areas with residential construction projects. The land snatched from Tibetan farmers for this purpose is said to be much more fertile but the extracted land is prepared for settlements by thousands of migrants.[14]

To make it feasible Chinese government has issued a notification to Chinese authorities in Tibet for replacement of Tibetan officials with Chinese officials earlier this year in order to encounter the possible opposition by local Tibetans. To push through this Plan-Project for building developments the Beijing government ordered the clearing of camps inhabited by some 2,000 Tibetan nomads and pilgrims temporarily in Lhasa. To effect the construction work, the locals were asked to vacate the place for original homes in countryside and some of them by sheer force in order to acquire land for housing new migrants from China. The present economic reforms policy is nothing but a means to enhance tghe increasing influx of Chinese migrants in several forms.[15]

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14 "Construction boom for Chinese migrants" Tibetan Review, (New Delhi), January 1993, Vol. XXVIII. No. 1, P.4.

15 Ibid., pp. 4-5.

To travel across Tibet, Chinese settlers do not need any permits. In fact, they do not have permits at all. Whereas the local Tibetans have to furnish permits when and where it is required. They (Tibetans) cannot move within Tibet itself. The same is applicable for Vysurs in East Turkistan. These two sections are denied of housing and job facilities, if they manage to move without permits, they would be refused ration cards. as a result, they will not be able to buy food and other commodities. The recent decision of removing all check points on the highways would certainly encourage the influx of Chinese people.[16]

The economic reforms in other areas too were aimed at making Chinese feel more comfortable in Tibet. The economic reforms such as, providing interest free loans, administrative reforms, and new market systems were all targeted for Chinese welfare in Tibet. By 1980, two major economic components in Tibetan economy appeared on the scene : The agricultural sector remained neglected as 90 percent of Tibetan population depended on it with hand-crafted goods and agricultural production under natural conditions. As for State owned enterprises involving 90 percent Chinese
population came up almost in all urban areas just on subsidised basis. In the aftermath of the first work meeting

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16 "Population Transfer", Tibet Today (New Delhi), May, 1993, pp. 7-8.

most taxes imposed or levied were removed, land was distributed to individual households and let free to raise any crop or plant they like on their land and free hand to sell or exchange their produce at the market. As a result, there appeared a marked rise in the standard of living, and was due to the elimination of taxes but the actual output in 1984 as compared to 1950 declined considerably. At the same time some agrarian reforms were dropped after the implementation of reforms. Therefore, the rise in the standard of living was limited and byu 1987 the annual income was only 361 yuan. However, the return to agrarian method or traditional method from communes took a new turn with subsistence level of living.[17]

With regard to State-owned enterprise sector, fully dependent on subsidies could not continue in a positive direction. State with no regard for their efficiency, quality and their potential continued to keep subsidies flowing to them. As a result, the net result was that they fully became dependents with no progress whatsoever. The State-owned-enterprises were fully inefficient, wasteful, and losing money and showed no profit since 1967 despite huge subsidies. From 1980 onwards private entrepreneurial, a much more celebrated activity has been widespread but the profit it earns for State

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17 Tseten Wangchuk Sharlho, "China's reforms in Tibet : Issues and dilemmas," Tibetan Review, (New Delhi), March 1993, Vol. XXVIII, No.3, P.18.

is still in question.[18] However, despite their failure the State's continued subsidies would mean nothing but to keep Chinese migrants in Tibet permanently.

Most of the budget for Tibet goes for the maintenance of administrative apparatus in Tibet. Since 1951, the Peking government has allocated increased subsidies for the bureaucratic system without any regard for Tibetan requirements. From 1952 to 1984, the cost the Beijing government bared for administration in Tibet is far more than 15 percent of the total subsidies expended. Even today, the costs has risen at rate untold sometimes beyond subsidies themselves.[19] The following table witnesses that.

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18 Ibid., pp. 19-19.

19 Ibid., pp. 12-13.

Comparison of Direct Administrative Costs in Tibet to total subsidies from Beijing.

Table - 1

	Administrative cost		Beijing's Subsidies	
Year	Total RMB (/ 10,000	Annual % Increase	Total RMB (/ 10,000	Annual % Increase
1970	2494.4	N/a	18344.1	N/A
1975	3873.1	9.2	27291.1	8.3
1980	7598.8	14.4	60104.0	17.1
1984	13749.5	16.0	77704.2	5.3

Source :: Tibetan Review April 1993.

Whatever reforms in agricultural and industrial sector the Beijing government has undertaken have failed to make Tibet self-reliant. The reforms failed to stimulate economic growth. Nonetheless, it indicates that it spent money on non-productive things like administration in Tibet. This expended money has encouraged Chinese migrants and their economic condition reducing Tibetans to impoverishment and their marginalisation in almost all spheres.

In the year 1984, the Second Working Committee held a meeting on various reforms policy towards Tibet. This meeting was considered as a paramount importance.

Comparison of Percentages of Productive to Non-Productive Capital Construction Investment in Tibet in Tibet and China.

Table - 2

	% Productive		% Non-productive	
Year	China	Tibet	China	Tibet
1982	54.5	54.5	45.5	45.5
1983	58.3	49.6	41.7	50.4
1984	59.7	31.5	40.3	68.5

Source : Tibetan Review April 1993.

The first meeting of Working Committee took place to look into the Tibetan crisis. From 1980 to 1984 all economic indicators had dropped and the second Working Committee's task was to focus on economics. On the question of Tibetan alienation from developmental process, a major undertaking of

43 projects were announced. Many of the projects were aimed at promoting tourism and construct large scale projects to benefit the people. As a result, massive transformation of the masses from China to Tibet was set in motion. Within three months of 1985 alone over 60,000 Chinese officials and workers entered into Tibet besides entrepreneurs. Large number of workers remained there to benefit from the higher wages and to work on a host of other projects. The second Working Committee's decision to open the doors for Chinese migrants paved the way for the occupation of the business cenrtres/activities and other works as well. With the result, the number of entrepreneurs, 5,746 in 1984 from China shot upto 11,884 in 1988 in Tibet. The tourist industry which the Tibetans hoped to benefit from was snatched away by Chinese migrants.[20]

With this it seems the Beijing government used to expend nearly equal amount on non-productive things in Tibet would mean that they wanted to perpetuate the continuity of Permanent Settlement of Chinese migrants through higher wages, subsidies, and extending other benefits to them. The strength of `inducement' has been successfully worked out in assimilating Tibet and Tibetans in China.

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[20] Ibid., P.14.

The Chinese government claims that there are `only' 4 to 5 million Chinese in the whole of Tibet and only 90,000 in the `Tibet Autonomous Region'. These figures do not include the large sections of Chinese administrators, military personnel, and so-called `temporary' workers taken to Tibet to work in development projects. A large number of Chinese stay and work in Tibet without being registered themselves as residents in their new domicile. Only those who have registered and given up their rights in their home Province are counted in the censuses. In this connection only fewer population can be seen being registered. However, what is more important apart from figures, is the marginalisation of Tibetans. Most of the industrial cities and otherwise also are being dominated by Chinese settlers, and even so, the domination is quite rampant in the fields of social, economic and political. The Chinese population in Lhasa alone accounts for 120,000, and some estimates put it at 170,000. The Tibetan population is around 40,000. The current survey shows that the cities like, Shigatse, Tsethang, Chamdo, Nyhingtri and Powo Tramo, Ngapa, Lhabrang, Rekong, Bhartedho, and Zilling are virtually Chinese cities. All the upcoming cities are becoming Chinese cities in Tibet.[21]

Of the 12,827 shops and restaurants in Lhasa only 300 are owned by Tibetans. Of 133 in Twawa Pasho only 15 are owned by

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21 Tibet Today, May 1993, op.cit., pp. 8-9.

Tibetans. Similarly, Chamdo has 784, of which only 92 are in possession of Tibetans. Thus, the situation still goes for worst in Tibetan cities of north-eastern Tibet but unfortunately figures are not available in this connection.[22]

So far as Lhasa is concerned, there are nearly 12,500 shops of all sizes being owned by Chinese settlers except for about 300 shops run in the name of local Tibetans. The following table gives the details of shops situated across Lhasa.

Area	Chinese	Tibetan
Gonkhar to Norbulinka	1849	31
Cement factory complex	24	1
Sera to Nyara St.	1930	15
Norling St to Kuru Bridge	1960	25
Peking St to Gutsa Prison	982	31
Norling to Changzod	694	11
Ramoche to Mentsikhang	676	35
Zhol to Lhasa	679	40
Dote St to Taring House	976	20
Arouns Banakshol	795	35
Lhasa alleys	1962	56
Total :	12,527	300

Source : Tibetan Review March, 1993.

[22] Ibid., P.9.

According to reliable sources, it has been reported that these days rampant corruption has taken roots all over the Lhasa region. Today the government officials have involved in extracting extra money from traders by making them buy all sorts of things from them. Most officials are from revenue, health and police departments. In case the buyer refuses to purchase he would be threatened with inspection which is often considered most expensive. However, it is yet to be traced as to whether only the Tibetans have become victims or both. But it is confirmed that Chinese traders are not so much plagued with this problem.[23] The presence of military personnel and Chinese settlers in Tibet is increasingly becoming a huge burden on the Tibet's production system and ecosystem as well. The mountainous regions and border areas consisting lesser density of population (Particularly, national minorities) with traditional economic system (which is in line - with the sustainable ecosystem) attracting the large number of Hans population from densely populated areas. This increasing and growing population has been putting the economic and

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[23] "Owned by Chinese" Tibetan Review, March 1993, Vol. XXVIII, No. 3, P.4.

ecological system under heavy strain by converting large tracts of pastures and forests lands into agricultural fields.[24]

As there is an increase on the scale of higher influx of Chinese Hans - population into Tibet the plane land in Tibet is getting to a great extent narrower. There are many indications for the degradation of land and pasture around and they are attributable to unsustainable attempts to grow more food for the Chinese within and outside Tibet. Chinese settlers in large number are accountable for taking away the land from Tibetans and extending the land under cultivation programme to new farm land. The extension has become so common and irrational even the forest land and pasture grounds are not spared. Due to extensive programme in terms of land occupation the pasture grounds and new areas under the scheme are degraded to the greatest extent causing substantial amount of pauperization among the Tibetans. To grow more in order to feed their majority settlers, Chinese authority took to the use of fertilizers and other chemicals on this land further added to the degradation process, thus interfering with pastures, forests and the traditional method of land use in Tibet. Chinese industrial infrastructure is held responsible for the large scale exploitation of its natural resources such

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24 Gopa Joshi : "China's Environment in the Nineties" China Report : A Journal of East Asian Studies (New Delhi), January-March 1993, Vol.29, No.1, P.16.

as its minerals and forests. Domination of Chinese settlers in every field of life turned the local inhabitants virtually into begging. Particularly, in the field of tourism, the entire business activities are controlled by Chinese.[25]

The implications of the highest Chinese influx has caused a desperate competition for scarce resources. The principal reason behind the `development' activities at a substantial level in Tibet is to make more suitable for Chinese settlers and inhabit the land permanently so that it could be easily transformed into an internal part of China. However, Chinese practices in agriculture, forestry or pasture management are touted as`modernizing' but the consequences are irreversible as the Tibetans have great concern for it because they are going to take the life-support system, nor does it conform to the delicate balanced Tibetan ecosystem. The net result of this is to put Tibetans at the margin of both economic system and natural resources on which they have survived for centuries. Thus, the policy of transfer of population to Tibet is a major issue with serious political, social and environmental implications for the people of Tibet.[26]

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25 Tibet : Environment and Development Issues, op. cit., P.50.

26 Ibid., P.50.

As China opens up the `Tibetan Autonomous Region 'for foreign investments and such investments are supposed to come from Singapore, Taiwan or Hong Kong Chinese. At that point of time the Chinese themselves will undertake large scale projects like, Yamdrok Lake Hydro-electric Plant, and as a result many more Chinese will come and settle with business motives, take over farms, open up new logging or mining ventures and start small scale industries in Tibet. They (Chinese) will thus push Tibetans further at the margin of socio-economic development process.[27]

As a result of Chinese population transfer, the Tibetans themselves are finding into the periphery of multifaceted developmental activities. In the year 1980, the Tibetan government in exile estimated the Chinese population at 7.6 million. From 1980 to till date the number might have swelled to a larger extent.

In Kham and Amdo, most of the fertile land is provided to Chinese settlers, pushing Tibetans far inside the barren lands. All key posts in the administration are occupied by Chinese. In the forest and mineral production system a token Tibetan staff has been engaged.[28]

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27 Tibet Today, Op.cit., May 1993, P.9

28 Tibet : Proving Truth from Facts, op. cit., P.77.

Birth-Control , Forced Abortion and Sterilization

Coercive birth-control policy still continues to be biased and discriminatory in Tibet. Local Chinese authorities in Tibet have adequate powers to implement even sometime beyond governments' policy of birth-control for Tibetans. The local authorities have never faced censure threat either from Tibetan Autonomous Region authorities or from Peking even after lodging complaints against them. Many of them in their enthusiasm and to show results in order to be appreciated by Chinese government for their task violate the policy itself, thereby subjecting the people to untold hardships. The Chinese government has laid down certain conditions for those Tibetans working with Chinese government in Tibet. Instead of being similar to all people it stands different for different people. Accordingly, those who are living in towns and cities have been licensed to have two children whereas farmers can have three children.[29]

According to an underground organisation in Tibet the policy of this sort is being followed strictly and tghe failures would be subjected to the denial of rights as a registered resident, including food-ration cards and steep fines. In 1989 this policy was carried out among Tibetan

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[29] "Coercive birth-control Policy Continues" Tibetan Review, March 1993, Vol. XXVIII, No.3, P.4.

nomads and farmers. But in 1991 in Lhasa city the names of those who had more than three children were collected and subjected to forced sterilization. Already pregnant women were subjected to the termination of their pregnancy through injection and abortion.. In 1991, out of 6,700 women (all Tibetans) all above twenty-four years of age in Nyemo, a little more than 100 had been sterilized without any concern for whether they were married or not. However, the total number of victims stood then at 3,000.[33]

From 1984 onwards China made implicit about family planning causing Tibetan couples to have only two children. Subsequent to that it was announced only 12 percent of the `TAR' population fell within the ambit of this policy. In the country-side and pastoral areas, Tibetans were exempted from such restrictions. But the matter of the fact is that the Chinese authority subsequently started issuing orders for fines ranging from 1,500 to 3,000 yuan or US $ 400 to 800 for the birth of third child. In addition extra child was denied of ration card and worker who had violated tghe rule had his pay cut to the extent of 50 percent, or had to be withheld for

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[33] Ibid., pp. 4-5.

three to six months. This practice is not a history for Tibetans but such rules have become more strident for Tibetans now.[31]

According to the Civil Affairs Department of Shigatse, there were at least 387 women found subjected to sterilization in the poor and remote areas of Bhuchung district. Thus, the Shigatse team visited 10 districts to propagate family planning and made a progress in the sterilization of 1,092 women out of 2,419. Similarly, in Gyatsa district of Lhokha, a doctor of a child and maternity clinic, named Tsering Youdon, stated that in her district there were more than 4,000 women of child-bearing age of whom over 1,000 took birth-control measures and 700 were sterilized. In the districts of Kham and Amdo, even more repressive measures are being enforced. In "Gansu Paris Tibetan Autonomous District" 2,415 women were sterilized in 1983 of whom 82 percent were Tibetans. In 1987 in the Zachu district in "Kanze Tibetan Autonomous Prefecture" out of the 764 women of child-bearing age who were sterilized, 660 were Tibetans. Mobile birth control teams roam around country-side and pastoral areas to implicate them for abortion and sterilization. Even the women who reached almost the delivery stage were not spared.[32] The enforcement of the birth control measures differ from place to

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31 Tibet : Proving Truth from Facts, op. cit., P.75.

32 Ibid., pp. 75-76.

place and time to time. The enforcement depends upon the zeal of individual officials who are given full powers to implement this policy.

The "modernization" process in Tibet introduced schools and jobs, and benefit almost exclusively the Chinese. Most of the money that has been invested in developmental activities is being usurped by the occupation forces and the 300,000 to 500,000 soldiers of the Peoples' Liberation Army. Most projects include token Tibetan staff with the result, today the unemployment among Tibetans is very high.[33]

Tibetan's right to protest against the religious and political stronghold of the Chinese has become quite limited. The absorption of Tibet into the People's Republic of China continues to be unabated. As late as 1950 there were a mere handful of Chinese in Tibet, when the China altered the Tibet borders, everything became difficult to trace the exact numbers, by best estimates there are atleast 7 million Han Chinese in Greater Tibet today. In Lhasa, the sacred city and house of Dalai Lama, Tibetans are now in the minority of the population.[34]

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[33] Ludmilla Tuting, "The Ecological Destruction of Tibet." Tibet Review (New Delhi), November 1988, Vol. XXIII, No. 11, P.9.

[34] Tibet Report Update - The Year of Tibet, Bureau of His Holiness the Dalai Lama, New Delhi, 1991, Issue No. 1, P.935.

Since the day the Chinese occupied, monasteries have been destroyed and blown up. Despite the occupation of Tibet, the wealth of Tibet including gold and silver objects has been sent to China, and transfer of population process begun at an unimaginable rate into the colonized Tibet. There have been forced marriages and sterilization of women, Pot Plants and flowers have been destroyed, dogs and their pets have been killed ruthlessly. Women's hair were cut and marched naked in the open streets. Beatings, tortures and killings, and more so the use of sacred papers as lavatory papers were attributable to the occupational forces.[35] However, it was a planned and deliberate move on the part of China in order to destroy the culture pattern of Tibetan society. As a matter of fact, Tibet has seen a rapid increase of its population and positive improvement in the general quality of life. Thanks to the improvement of people's living standards and medical and health conditions, the average life span of Tibetans has increased from 35.5 years in 1950 to the present 65 years.[36] Looking into the following statement, it seems Chinese explanation stands no fact but the contrary is the truth.

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35 Ibid., P.957.

36 "Resettlement Plan in Tibet" Beijing Review, (Beijing), June 28-July 4, 1993, Vol. 36, No,. 26, P.5.

> **For some years, after the colonisation process was over, only PLA personnel and bureaucrats were posted in Tibet. Subsequently, with the change in China's policy, organised transfer of population to Tibet took altogether a different turn. Occupying the lowest jobs which in return left no scope for local Tibetans to do except to beg.**

The prevailing situation has turned local Tibetans into innumerable beggars. The beggars number is just proportional to the Chinese personnel and whatever development is to benefit the PLA and Chinese colons.

The Overall Impact of Transfer of Population to Tibet

As a result of the population transfer, Tibetans are marginalised in economic, political and social spheres. There is adequate evidence that these (Tibetans) people have been discriminated in housing, education, health care among a host of other things. Tibetans are being reduced to mere labourers. Han language is an official language even signs on toilets are in Han. Jobs are being monopolized by Han. However, Tibetans are unable to gain any economic benefit. Huge demographic influx coupled with unsustainable economic development introduced by Chinese resulted in an environmental damage on the Tibetan Plateau.

The problems have become phenomenal which include rampant deforestation, loss of species, habitat, reduction in biodiversity, desertification, and the fall out of mis-management of developmental schemes. Northern Tibetan Plateau can be a witness to this. In political, economic, social, commercial and administrative spheres, Tibetans are just careless creatures for Chinese. With no space to vent, most of the Tibetans took to begging. Having lost everything of theirs, they are just like that surviving in the height of frustration looking skywards.

At the outset, the increasing population (Chinese Hans) pressure on the traditional Tibetan economic system based on subsistence and sustainable level reduced Tibet's natural environment carrying capacity. The predominant Chinese Hans population invariably caused a devastating competitive attitude towards the minimum natural resources. Thus, the paucity of natural resources which involved the migrated people turned into a more catastrophic exploitation of local natural resources causing manifold consequences.

Reducing local Tibetans into a tiny minority, it's predominance in various walks of life left local population below the poverty line. Tibetans religious and cultural attachment with it's rich `natural ecosystem' came to be severed drastically. Chinese constant surge for `Cinosiation

policy' is an additional commitment to violation of human rights at various levels in Tibet. This transformation policy invited huge Chinese Hans population and profligate and unmindful exploitation of natural resources to perpetuate the permanent settlements of these people.

The whole of Himalayan range is delicate and it's pacificities do not allow the technology oriented development programme. It's vast geographical topography with thousands of animal and plant species is considered a significant source of experiment in the field of animal and plant species, notwithstanding, its hydrological and atmospheric importance for the entire South Asian sub-continent. It's age old forest growth, animal and plant resources, and water and land resources were inaccessible and untouched until 1950.

The traditional customs and conventions derived through tghe practice of Buddhism helped the rich natural environments survive. Further, the exploitation for subsistence and at sustainable level by the Tibetans themselves and their traditional agricultural system and yet often failure were attributable to be mode conducive for the sustenance of `ecological balance' and reclaimant of land fertility. Tibet's vast forest growth has been cut by simple method of clear felling by Chinese armed forces and Tibetan prisoners for use in China and construction of houses for it's people in

Tibet, which acted as soil container and source of rain and home for various animal species. Ever since it's inception, Tibet was regarded as a `botanic and animal zoo'. With the rise in meat consumption rate the stock has been reduced to low point. Besides, arrangements for hunting ~~for~~ and military access as an additional burden in the drastic reduction of animal number. The prevailing meat shop trend is a witness to this.

The sudden upsurge of Hans population replaced the local inhabitants with no job viability. Tibetans farming land area has been dragged away by Chinese people and as a result the local inhabitants are consistently moving on to the interior parts of forest areas. To grow more food grains in order to feed it's own people, China introduced the use of fertilisers and chemicals, with the result the land lost it's fertility leading to land degradation through soil erosion, and steep destabilisation.

To provide extensive job opportunities to the Chinese people China took to create employment avenue in the field of forestry and mining processing system and development of hydrological resource/ These areas, despite providing jobs to Chinese with token Tibetan staff resulted in immeasurable consequences on the Tibetan ecosystem.

Thus, this predominant population of more than 7.6 million turned Tibetans into minority which still accounts for not more than 6 million has mushroomed the scarce resources crunch of Tibet by more dominance of number. Today, the job ranges from shoe maker to the highest governing body and the entire business activities. farming lands and what else? The entire Tibetan economic, political and social arenas are being dominated by this outnumbered Hans population leading that microscopic minority (Tibetans) to mere begging.

> By now, the number of Tibetan beggars is equivalent to the number of Chinese settlers. This trend seems to be a clear violation of human rights in Tibet, according to the international law.

The population transfer into ?Tibet has a clear indication for violation of human rights in Tibet. Higher the influx the more competition will be for scare resources. Thus the Chinese practice in agriculture. industry, pasture ground, forestry and most importantly their domination in the jobs in military and civil personnel, and jobs created by forestry and minerals[3] indicate clear violation of their rights to life, property and self-determination. Nevertheless, Chinese determined planned way of destruction of socio-cultural and religious fabrication of Tibetans adds more to that.

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[3] Tibet : Proving Truth from Facts, op. cit., P.77.

CHAPTER 5

Militarisation and nuclearisation of Tibet and their impact on the Environment

The Impact of Military and Nuclear Presence on Tibetan Ecosystem

Chinese nuclear programme in Tibet has been confirmed through the 64-page report, entitled `Nuclear Tibet'. This unbiased and comprehensive research work has exemplified Chinese earlier efforts towards the placement of nuclear weapons production, nuclear missile deployment, radio-active waste dumping and their adverse impact on environmental conditions around nuclear facilities. Thus, the nuclearisation effort is fully being attributed to the `Ninth Academy', and yet held responsible for building nuclear city on Tibetan plateau and China's early nuclear bombs.[1]

The report recommends that it is important at this juncture to monitor and adequately manage the waste already produced by Ninth Academy. The immediate task before all of us is to appoint an independent body as in case of Chernobyl, to look in to the impacts on the entire ecosystem including human kind produced by Ninth Academy. It also recommends that the autonomous regions and prefectures should have the right

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1. "Chinese nuclear Programme in Tibet confirmed" Tibetan Review, May 1993, Vol XXVIII, No.5, p.4.

to refuse the nuclear waste from China and overseas, but what is true today is just the reverse. Lastly and most important recommendation it offers is on the international level, accordingly, the removal of nuclear deployments across Tibet would lead to ease the tensions so much mounted earlier between China and it's suspected hostile-countries. In the turn of events the break-up of Soviet Union, end of cold war and ensuing improvement on diplomatic relations between India and China needed no security cover for China.[2]

The depletion of China's natural resources versus poor man-and-natural resources ratio is not the result of developments of last forty years or of last 100-200 years but the result of man's gradual and intensive exploitation of nature for over 2000 years. In case of Tibet it is the presence of huge military base which has assisted in large scale exploitation of natural resources. The army of Chinese bureaucracy and the policy of nuclearisation of Tibet has thus resulted in a considerable loss of flora, fauna and other natural ecosystem.

As far as military's role is concerned, it alone catered largely to the destruction of animal, forest, pastures and grass lands and human rights at large. The nuclearisation programme has not only threatened the Tibetans themselves but

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[2] Ibid.,

its impact will be far more on the South Asia Sub-continent. It will imbalance the natural environment leading to destabilisation of land and mountain terrain.

The man's increasing access to the vast mountain range (the gift of nature) may result in an irreparable damage to this natural wealth.

The policy at world level of having at least 60 percent of forest, as it provides life support to many sentient beings, is very essential for it is the only source of water, oxygen, and soil, and an ideal home for all kinds of wild life. The forest growth is basically old stock, clear felling and afforestation sounds irrational and nevertheless, these policies are impracticable to the Himalayan range. However, forest is directly or indirectly linked with the ecological balance and so it is quite sensitive to nuclearisation of this belt.

Although the military in Tibet has proved in clear felling of forest in Tibet and it's implications are already being established. Even so, the nuclearisation process on the part of Chinese in Tibet also showed the results to some extent, though the exact figures are not available. But the degradation of land and soil and slope destabilisation, loss of human life. birth of deformed baby, and the worst

implications on animal and plant life are attributable to the presence of military and pushing ahead with nuclear programme in Tibet. The occupation of Tibet followed by large sections of Hans population transfer put the heaviest pressure on the Tibetans' sustainable natural resources base. The disposal of nuclear and other toxic wastes at the surface level and Tibetan plateau, an extensive and highest land mass on the earth, started contaminating the other parts of Tibet at a rapid rate, causing widespread ill health among humans, animals and plant species. More than 40 percent of forest growth has been cut and the simple method is clear ~~following~~ felling by Chinese PLA and Tibetan prisoners. By 1985 the number of trees were reduced to 2,442 million cubic metres of timber valued over $54 billion. Substantial amount of forest produce through mechanical process went to China and other parts of the world. The source was mainly old growth. These are so to speak the world's most dense coniferous forest with average stock density of 2,300 cubic metres per hectare. Regeneration and afforestation at many levels can be seen on papers, but actual implementation is at zero level, although such programs did not bring out any output or become success since the pacificities of mountain and land nature are different and sensitive to this kind of unusual military involvement[3].

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[3] Tibet: Environment and Development Issues, 1992 (Dharamsala, India), pp. 1-2.

The question arises as to who has exploited the large scale forest growth and rich mineral resources in Tibet? Therefore, it is the military which owns the responsibility for the extraction of all kinds of Tibetan wealth. In 1987, the road net-work comprised approximately 21,600 KM in Tibet which mirror exactly the location of forest and mineral/s. More so, how the Chinese have constructed four large highways which have direct connection to China. The principal reason behind this is to transport the tree trunks and it is via these roads the Tibet is supplied with all goods from China.As per 1987 estimate goes, China's military base accounts for over 50,000 (The People's Liberation Army) primarily to control Tibetans and exploit forest growth. ,Today China spends most of the money on military and administrative machinery[4].

One major result of all this has been the disruption of the normal rainfall pattern in the region after region. The over-pumping of underground aquifers together with relentless cutting down of trees which tap and store water have upset the hydrological balance, turning the Sub-continent into a place of floods and draught, falling water tables and salinisation[5],

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[4] Lud Milla Tuting, "The ecological destruction of Tibet", Tibetan Review,(New Delhi), Nov. 1988, Vol. XXIII, No. 11, pp. 8=9.

[5] B.S. Shetty, "Environmental degradation and Farming", World Focus (New Delhi) Jan. 1991,133, P.8.

a typical role of military involvement leading to all these consequences.

Another consequence might be the depletion of millions of micro-organism and other life forms such as earthworms which play an important role in retaining moisture and thus to the fertility of the land. But the presence of military elsewhere in Tibet and it's involvement in clear felling of forest might deplete the essentials (Micro-organisms) at surface level, leading to desertification of Tibetan plateau and planes as well[6].

As for disappearing forests and military involvement in this respect, the estimate shows that a total of nearly 3,000 million of timber, in other words 46% of the total forest stock has been felled from 1950 to 1985, with the major share taken from Kham[7]. As the new roads penetrate far inside the area of Tibet the rate of deforestation increases. All roads are being constructed with the help of PLA and the cost incurred for this being accounted as expenditure for the development of Tibet. Deforestation is the order of the day in Tibet. In Kongpo area of "TAR" alone, more than 20,000 Chinese soldiers and Tibetan prisoners were employed in clear

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6 Ibid.,

7 Tibet: Environment and Development Issues, 1992, Op.cit., P.49.

felling and transportation of timber to China. In 1949, NgaPa in Amdo, had 220[million hectares of land under forest cover. It's timber stock then estimated was 340 million cubic metres. With increasing felling it was reduced to 1.17 million hectares in 1980s, with a timber reserve of only 180 million cubic metres. Similarly, till 1985 China destructed forest wealth of about 6.44 million cubic metres of timber from "Kanlho Tibetan Autonomous Prefecture". However, the estimated forest cover in 1949 was 221,800 square kilometres, the clear felling method adopted by China through PLA reduces this cover at an alarming rate. In 1955, the total forest cover after unheeding and profligate extraction stood at 134,000 square kilometres.[8]

The forest area declined from an estimated 30% in 1950 to 18% in 1985 for Kham, for Tibet a whole forest cover was down from an estimated 9% in 1950 to 5%. In 1985, only 15% of U-Tsang, but 50% to 70% of Kham, forests were accessible by roads. The concentration of over 20,000 Chinese army personnel and Tibetan prisoners are reported to be involved in felling dense, old growth forests of spruce, fir, cedar, and broad-level species. Net-works of ancillary roads are also under construction in this restricted area. Their destruction for commercial purposes is the damning condemnation of Chinese PLA

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[8] "State of Tibet's Environment", Tibet : Proving Truth from Facts (Dharamsala, India), 1993, P.80.

policies in Tibet[9]

Chinese PLA's devastative measures have extinguished the whole of Tibetan forest. This indiscriminate destruction of forest reduced the forest cover to 13.57 million hectares in 1980, down from 25.2 million hectares in 1985. From nearly 10,000 species of higher plants, 118 of mammals, 505 of birds, 49 of reptiles, 44 of amphibians and 61 of fish are near total extinction.[10]

After the colonization of Tibet by Chinese communist government, the traditional system of environmental protection went into oblivion. The impact of colonization can be found in the grass lands, crop land area, the forests, water resources and wild life; seventy percent of arass land being a life supportive system for 70 million animal population and one million herdsmen. For the last four decades, there has been a wide spread desertification of vital pastures. The conversion of marginal lands into agricultural land and use of fertilisers and chemicals in order to grow more to feed military, civil personnel and settlers have resulted into the extreme desertification of land. Diseases have become regular phenomenon, the best example in this connection is the 1979

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9 Tibet : Environment and Development Issues, 1992, Op.cit., p.49.

10 Ibid, P.51 & P. 26.

incident when the wheat crop has been destroyed[11]. Thousands of animals and birds have disappeared with the destruction of their natural habitat, and have been slaughtered by indiscriminate hunting for sport and China's trade in wildlife. There are innumerable records of Chinese soldiers using their automatic weapons to wipe out herds of wild yaks and wild asses for sport[12]

China has undertaken the construction of a large number of hydro power projects to benefit the Chinese settlers in Tibet. Tibetans have opposed such projects at times as they do not benefit the local Tibetans and such lakes have cultural significance for Tibetans. Since the Tibetans have no right to voice over such projects and their voice has been suppressed at many occasions by PLA troops. For example, Yamdrok Yutso hydro-power project, which Tibetans opposed several times, the Chinese nevertheless, went ahead with the construction and today over 1,5000 strong PLA troops are guarding the construction area and no civilians are allowed around it[13]. Galen Rowell, an eminent and adventure photographer from United States commented upon the present status of wild life. Mr. Galen Rowell who visited Tibet several times and writes

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11 Prof. S. Rinpoche, "Militaristic Destruction of Tibet's Environment", South Asian Vision (New Delhi), October 1993, P.6.

12 Tibet : Proving Truth from Facts, Op.cit., P.82.

13 Ibid, pp. 81-82.

his experience thus, "For an exorbitant fee of 50,000 to guide several naturalists for three weeks in the Amnye Machin mountains of North East Tibet, our Chinese hosts promised a wealth of rare birds and animals ... for three weeks, we walked over 100 miles in all. We saw virtually nothing. The wildlife has disappeared"[14]. Thanks to Chinese military presence in Tibet.

Tibet's fragile pasture grounds and agricultural lands have been degraded at an alarming rate by putting military based on this delicate lands, and equally responsible the Chinese policies. The continuing and growing degradation on the extensive and vast plateau on the earth, has the capacity to influence atmospheric circulation and jet stream wind patterns over Asia. As most scientists have proved, it's influence spreads even over the Northern hemisphere.[15]

The fragile and sacred ecological balance has been threatened by military bases. Widespread exploitation of forest and minerals, and animal habitat have resulted in various implications for the local Tibetans. As a result of extensive forest destruction, land slides, erosion and

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14 "Environmental Destruction of Tibet", Tibet Today (New Delhi), May 1993, P.17.

15 Ibid., pp. 17-18.

environmental degradation in Tibet have caused the highest rate of siltation across major rivers. It has been presumed that the highest siltation rate in all big four rivers and in the entire Sub-continent as well is caused by the un-heeding exploitation of forest growth in Tibet.

However, the countless armed forces and Tibetan prisoners' involvement in clear forest felling and wiping out the wildlife accentuated the growing environmental degradation in Tibet. Tibetans were strangers to the military until 1949. It was the first time Tibetans came to know about military when Chinese occupied Tibet which by its distinct socio-cultural background was treated to be an independent State according to international law. By occupying this State, it violated the international norms. Even so, in the aftermath of it's occupation the military (PLA) alone destroyed the whole of Tibetan ecosystem.

Till 1949, the understanding of Buddhism and what is more important was, the virtual practice in day to day life. And that enhanced the increasing protection to wildlife got a sudden cell shock at the discredited attitude of PLA towards Tibetan ecosystem. Seeking the true meaning of peace in the context of China's Peoples' Liberation Army in Tibet H.H. the Dalai Lama spoke on 26th June, 1989 to Sanjose, Costa Rica "My country, Tibet lived in peace and harmony. Our people never having seen a modern army or police force until the Chinese

invasion. Today, it is my hope and dream that the entire Tibetan plateau will someday be transformed into a true peace sanctuary, an entirely demilitarised area and the world's largest natural park or biosphere -- a place where human beings and nature can live in peaceful harmony and where resources are devoted to the pursuit and Promotion of Peace. If we succeed, we will be a little closer to achieving world peace. We, Tibetans, are committed to create such an Oasis in the very heart of Asia, if indeed we are permitted to do so. The Tibetan Peace Sanctuary would not only benefit the Tibetan people and future generations of Tibetans, it would be our gift to the world, our contribution to world peace"[16].

Militarisation in Tibet

The first vanguard of PLA entered Tibet in 1949. In the spring of 1950, China's "18th Army" entered Tibet through Dartsedo in the east, and in the north-east through Amdo. The "14th Division" entered through Dechen in the South-east of Tibet. After occupying Kham and Amdo, the advance party of the 8th Army" entered Lhasa on 9 September 1951, and the Unit's main force on 26th October, 1951. This was the beginning for the build-up in Tibet. Until 1986, the areas were divided into 11 military regions under Chinese Communist

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16 Tibet Today, May, 1993, Op.cit P.18.

rule, and Tibet was put under the control of three regions. In 1986, the total number of military regions were reduced to seven, the entire Tibetan region was put under the control of military force : South Military Region's headquarters were situated in Chengdu and the Lanzhou Military Region with it's headquarters at Lanzhou. The "TAR" Kanze Tibetan Autonomous Prefecture", Ngapa Tibetan Autonomous Prefecture", "Dechen Tibetan Autonomous Prefecture" and the "Mili : Tibetan Autonomous District" fall under the South West Military Region as also, "Qinghai Province" "Kanlho Tibetan Autonomous Prefecture" and "Tianzhu Tibetan Autonomous District" comes under Lanzhou Military Region.[17]

The total of Chinese military force is approximately numbered around 500,000 uniformed personnel. The Chinese estimation of military presence in "TAR" region is misleading. According to the information with Tibetan exile government with reference to "TAR" region accounts for 250,000. This does not include the local militia which was established in 1963. There are about six military districts in "TAR" region, with two independent infantry divisions, six border defence regiments, five independent border defence battalions, three artillery regiments, three engineers' regiments, one main Signal Station and two Signal Regiments, three Transport

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[17] Tibet :: Proving Truth From Facts, Op.cit., 1993, pp. 85-86.

Regiments and three Independent Transport Battalions, four Air Force bases, two radar regiments, two divisions and a regiment of Para-military forces.[18] One independent division and six independent regiments of People's Armed Police. In addition to that, there are 12 units of "Second Artillery Division". At present only four air bases are active out of many air bases. The People's Armed Police is the part of regular PLA troops and is the recent designation as such.[19]

The front-line PLA troop concentrations in the "TAR" are stationed in Ruthok, Gyamuk, DrongPa, Saga. Drangso, Gampa-la, Dromo, Tsona, Lhuntse Ozong, Zayul, etc. The second-line of defence stations are concentrated at Shigatse, Lhasa, Nagchukha, Tsethang, Nangartse district, Gamdha, Nyingtri, Miling, Powo Tramo, Tsawa Pomdha, Chamdo, etc. In addition, China regularly deploys the Sichuan-based 149 Airborne Division in the "TAR", as it did in the wake of the Tibetan demonstrations in Lhasa in 1987 and thereafter.[20]

China is planning to shift the military headquarters based in Tibet, i.e., from Chengdu to the place close to the South West of Lhasa, along the road to Gongkao airport. Lhasa headquarters stretching for more than a kilometre in length,

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18 Ibid, P.86.

19 Ibid,

20 Ibid.,

may also see a "a part of China's South-Western Command headquarters -- the Chengdu Military region -- ... moving to Lhasa". The new complex under construction may accommodate around 15,000 men, as reports say. The largest military base in Amdo are at Silling, Chabcha, and Karmu.

All the places are attached with Air Force bases. The deserted waste land of Karmu has been converted to a military base. Located strategically to cover both Tibet and Eastern Turkestan. The military build up in Kham and Ngapa regions are concentrated in Lithang, Kanze, Tawu, Dartsedo, etc. in Kham, and Karkham in Ngapa. In addition, there are radar stations and dormant air strips in Kham at many places.[21]

The military headquarters for South-Western China is planned to be shifted to Tibet. The major project under construction is now just on completed near Dongkar Bridge, about 10 kilomertres to the South-West of Lhasa, is to become the new headquarters for the Tibet Military District, currently situated near Chengdu, 1,300 kilometres to the east. The new headquarters seems to be a larger one covering more than a kilometre, indicate that the China's South-West based military headquarters might move towards Lhasa. The site is believed to have at least 40-three storey buildings, each

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[21] Ibid., p.87.

building contains at least 40 rooms. On the basis of the site, it is hoped that the building would house about 15,000 operatives when completed. The new site would be devoted not only to barracks and weaponry facilities but also to the command and administrative structure.[22]

Deployment of combat troops in "TAR" region has gone upto between 40,000 and 50,000 men as a result of China's development of a rapid response system which could move soldiers from inland provinces into this areas with a considerable speed. In March 1989, the 149th Airborne division was able to move from its base in Sichuan to Lhasa in Tibet in 36 hours. This is first of its kind in the history of China's military, involving the transfer of over 14,000 troops to Tibet in more than 100 flights, both civil and military aircraft. The historic change due to rapid response system led the Chinese to neglect rail service to Lhasa and take on to improve air traffic facilities in the region.As a result massive airports are coming up, Gongkar airport is one such being under consideration for expansion with 4,000 metre long runway has already consumed 268 million yuan at the initial stage.

The military bases in Tibet since 1949, have played an

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22 "Army headquarters to; be shifted to; Tibet". Tibetan Review, (New Delhi) January 1993, Vol. XXVIII, No. 1, P.4.

important role in Sinocisation process and destruction of natural system in Tibet. In addition, Tibet has been governed under the suppressive measures of armed forces, as a result, from 1950 onwards up till now military and police's access to local Tibetans have caused the violation of human rights in manifold respects.

The fact of the matter is that, with the help of armed forces and police personnel, the present Tibet is being governed. In an effort to exploit Tibetan natural resources and to minimise the growth of Tibetan population military has adopted strident measures, and further no Tibetan can voice their grievances and oppose the military and police access so that their (Chinese) aims and objectives are fulfilled.

Nuclearization of Tibet

There are persistent indications and countless reports with regard to Chinese policy to dump nuclear and toxic waste in Tibet. The Chinese authorities offered nuclear waste disposal facilities at times to many European and Western countries such as Switzerland, Taiwan, Germany and the America for financial considerations. There are indications that China itself has stored it's nuclear waste at many places in Amdo and Nagchuka in U-Tsang region.

Since there are many reports in support of large number of uranium deposits in Tibet, China is planning to shift the Uranium Processing System to Tibet. The existence of such systems dates back to 1976. Chinese have developed the techniques of how to mine uranium and become nuclear power, but at the same time Chinese lack in the skill of how to manage, therefore, to say, in Tibet itself most of the nuclear plants are said to be suffering from safety measures.

Most of the Western and European countries are rich enough in terms of finance, they can go to any extent to pay for nuclear wasste disposal outside their countries, the third world countries like, China can offer the nuclear waste disposal facilities for financial consideration. However, the countries like, China have colonies, so the China to keep itself out of danger supposed to happen due to fall out of nuclear plants points out to Tibet in return for finance.

The consequences of nuclear disposal facilities are manifold in today's Tibet, with most of the disposal facilities being at the surface level with minimal safety measures, Tibetan people from Amdo have reports for the extensive pollution of land and water and widespread deaths from mysterious diseases like, fever, vomiting and dysentery. And in addition there are reports also in relation to deformed

human and animal births.[23]

This act on the part of Chinese authority for sheer financial consideration is condemnable as it has led to the violation of human rights in Tibet. And yet allowing the western countries to dispose the nuclear waste in Tibet, and thereby endanger the existence of Tibetan entire ecosystem goes against the international norm. The Chinese have confirmed that Tibet contains very rich mineral resources. Chinese are pushing ahead with the programme of exploitation of Tibets' natural resources with no concern of any amount for the consequences the Tibetans have felt, and it shows the grass violation of their right to self-determined development. The Chinese mining operations are extensive in Amdo and U-Tsang mining and mineral extraction in these two districts account for the largest economic activity in the industrial sectors based in Amdo and U-Tsang. These mineral deposits had a cultural significance for Tibetans, with large scale exploitation of minerals in the village of Riwoche, in Kham, the Chinese have destroyed the religious attachment of Tibetans to minerals. In 1988 hundreds of Tibetans were taken away for interrogation on account of their opposition to mineral exploitation by Chinese, and they did not return at all. 80% of mines in China have been declared environmentally

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[23] Tibet : Environment and Development Issues, 1992, Op.cit., P.61.

unsound and it seems fair to suppose that the management of tailings and contaminated runoff is likely to be at least as poor in Tibet. Poorly managed mines are deemed to pollute watersheds for decades and Uranium mining can poison nearby residents with radio activity. Further more, since Tibet as a source of many Asia's rivers, mine pollution may significantly affect nations down stream in future.[24]

The exploitation of minerals at the present rate sounds unhealthy for Tibetans and assumed that the exploitation at this rate would exhaust Tibet with minerals by the year 2000.

In 1984, the China's Nuclear Energy Industry Corporation (CNEIC) offered Western countries the nuclear waste disposal facilities at $ 1,500 a kg. This was reported in many western countries' papers and became a controversial issue to the use of third world countries for the storage of western nuclear waste. The reports mentioned that nearly 4,000 tons of such waste was expected to reach China for $ 5.45 billion by the end of the 20th century. Many sources believed that this was to be disposed in Tibet. Tibet and Eastern Turkestan still being under the control of China can offer the places for

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[24] This is an extraction of a paper submitted to; the `Sub-commission' United Nations Title "The Relationship between Environmental Management and Human Rights in Tibet", International Committee of Lawyers for Tibet, Geneva Mrs. Fatima Zohra Ksentini, on 2 August 1991, pp. 9-10.

nuclear waste disposal. Dumping in either place would badly affect the fragile, unpolluted ecology of the Tibetan plateau.[25]

In 1987 negotiations were on in connection with store spent fuel from West Germany in Tibet in return for German assistance in China's nuclear programme. Due to increasing pressure from the Green Party in German Parliament and press reports as well caused a speedy transaction as merely a possibility.[26]

Other than imports of nuclear waste from foreign countries for handsome financial assistance, China itself is also dumping its nuclear waste in Tibet. The suspected sites are found mostly in the Northern Chang Thang where wide range of area is being guarded by Chinese armed forces, and China has set up a nuclear test facility nearby Najakchuka. The method of nuclear storage is unknown and it is confirmed that China has no underground storage system, hence storage at the surface level is suspected. Reports from Amdo describe a widespread pollution of land, water and human and animal deaths. In JamPakok and Kharkok more than 50 Tibetans have

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25 Tibet: Environment and Development Issues, 1992, Op.cit., P.60.

26 Ibid.,

died since 1987 due to severe fever, vomiting and dysentery. Besides, large number of deformed births are also reported from Tso NgonPo in Amdo and Nyakchuka in U-Tsang. The effect of such disposals at international level, the reports state that the pollution may be carried for considerable distances downstream by major rivers. And further the impact of Chinese chemical warfare experiments in Tibet, on vegetation, wildlife and humans cannot be easily ruled out.[27]

Dumping of nuclear waste on Tibetan Plateau is a hard fact and evidences in support of dumping sites in other places is yet to be confirmed as Chinese goes to any extent to keep secrets unveiled.

Nuclear and other toxic wastes

China is said to have established around 90 nuclear warheads in Tibet. The Ninth Academy, China's North-West Nuclear Weapons Research and Design Academy in Tibet's North-Eastern area of Amdo, is deemed to have dumped a large quantity of radio-active waste on the Tibetan Plateau.

By a report released by International Campaign for Tibet, an organisation based in Washington, D.C. :

"Waste disposal methods were reported to be casual in the extreme. Initially, waste was put in shallow, unlined

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27 Ibid., P.61.

landfills ... The nature and quantity of radio-active waste generated by the Ninth Academy is still unknown ... During the 1960s, nuclear waste from the facility was disposed of in a roughshod and haphazard manner. Nuclear waste from the Academy would have taken a variety of forms -- liquid slurry, as well as solid and gaseous waste. Liquid or solid waste would have been in adjacent land or water sites."[28]

Chinese have confirmed the availability of largest amount of uranium in Tibet. Reports also make a mention in the strongest words that Chinese have shifted Uranium Processing System to Tibet, as a result of this, the report continues to underline the deaths of human beings and animals after drinking contaminated water around Uranium mine in Ngapa and Amdo districts of Tibet. The local Tibetans have also reported the birth of deformed humans and animals. The underground water supplies in the regions of Amdo and other places have been persistently diminishing at the highest rate while the underground water is limited (underground water being estimated at 340 to 4.0 billion cub.2 feet, the report adds), contamination of ground water for radio-active is of great concern. The mining and processing system particularly, in Thewo and Zorge regions of Kham in Tibet dates back to as early as 1976.[29]

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28 Tibet : Proving Truth from Facts, Op.cit., P.83.

29 Ibid.,

The United States of America confirmed the documents in 1991 with reference to ship one and a half million tons of Sewage Sludge from the city of Baltimore, Maryland to Tibet for use as "fertilizer". The amount to the tune of US $ 1,440,000 was offered for the first shipment of 20,000 tons. This transaction involved a San Francisco based firm, California Enterprises, and the Hainan Sunlift Group as brokers on the Chinese side. The deal has been delayed for sometime because of confusion whether the central Chinese government has approved the Sludge imports. Responding to this, the Chinese government agency stated that shipments did not require government's approval as per Chinese imports rules are concerned and assured that once such shipment reached China it would not be shipped back to the U.S. by any means. As the scheme stopped, Baltimore and Maryland officials expressed their satisfaction to complete the deal, and concern about its political implications. On 13 November, the Baltimore Port administration urged Maryland's Secretary of the environment to speed up the approval process for the plan because "if such a cargo can be exported, it would not only create ... employment opportunities but would also help to solve a very real environmental problem. Other areas of the country are competing with us for this product. So time is of the essence." A Maryland environment department official said in November "to ensure that the project will not generate an international incident". The U.S. Embassy official in

Beijing, noted that "the current sensitivities on the export of waste to developing countries and the potential embarrassment to the U.S. over this proposal.[30]

Apart from all this confusion and controversy, Chinese and the US officials determine to put an end to all this and thus they successfully accomplished this task in 1991 itself. Subsequently, the Green Peace came to know the shipment described as "heni" in Chinese import documents, the Chinese, word for river silt, and explained to Chinese counter-part that "Urban Sewage Sludge is not river silt, nor it is useful fertilizer" when it is contaminated by house-hold and industrial wastes. Sludge from urban sewage treatment plants are chronically laced with toxic pollutants, in the United States of America. The toxic chemicals in Public Sewer Systems come from two major sources : Industries that flush chemical waste down the sewer and house-holds that flush chemical containing consumer products such as cleansers, solvents and plants down the sewer. The results have been disastrous whenever Americans used Sewage Sludge as "fertilizer". Like this, once it happened in Milwaukee, where the processed Sewage Sludge is sold as garden fertilizer. In Milwaukee, where processed sewage is sold as garden fertilizer, the product of such is linked to the outbreaks of

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30 "US city plans to ship toxic Sewage Sludge to Tibet" Tibetan Bulletin, May-June, 1991 (Dharamsala, India), P.21.

amyotrophic lateral sclerosis.[31]

The consequences are many fold if it is used in Tibet. Although it's impact in Tibet has not been noticed but we have witnessed many times the farmers protests against the Chinese advertisement for the use of `fertilizer' they introduced in Tibet. This added something more to the misuse of farm land. In case it is used in Tibet further it would cause irrevocable loss to the farm land.

Despite these dangers, there are no federal U.S. restrictions on the export of Sewage Sludge, hence once shipped such sewage will only remain in Tibet. Hainan Sunlitt Group has assured California Enterprise that "We will take the responsibility for all losses caused by our failing in finishing the customer procedures after arrival of the goods in China Ports, and we guarantee that we will not ship the goods back to the U.S.A."[32]

Nuclear Bases

China is reported to have nuclear manufacturing centre at Dhashu which is in the "Haibei Tibetan Autonomous Prefecture"

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31 "US city plans to ship toxic Sewage Sludge to Tibet". Tibetan Review (New Delhi), June 1991. Vol. XXVI, No. 6, pp.5-6.

32 Ibid., p.6.

and Tongkher in Amdo district of Tibet. China's Primary Weapon Research and Design facility in Dhashu was constructed in the 1960. A report on nuclear weapons and waste on the Tibetan Plateau, brought out by the international campaign for Tibet in Washington DC, USA, the facility is located near Lake Kokonor. It is popularly known as the North-West Nuclear Weapons Research and Design Academy, or the "Ninth Academy" since it was in the jurisdiction of the Ninth Bureau. This facility as the most clandestine organisation in China's entire nuclear programme and continues even today as an important and high Security Military Weapons Plant. It was held responsible for designs of all China's nuclear bombs throughout the mid-seventies. It also served as a research centre for detonation development, radio-chemistry and many other nuclear weapons related activities. In addition, it assembled components of nuclear weapons. Generally, the missile bases are situated to the South of Lake Kokonor in Amdo, and to the North-West of Nagchukha.[33]

The first nuclear weapon was brought on to the Tibetan plateau in 1971 and stationed in the Quidam basin, in northern Amdo. China has approximately 300-400 nuclear warheads, of which several dozen are believed to be on the Tibetan plateau, today it is called Qinghai Province. However, China's ground-based nuclear missiles can be transported and fired from

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[33] Tibet : Proving Truth from Facts, 1993,Op.cit., p.87.

trailers, rendering efforts to locate and count missiles in certain areas difficult.[34]

To the west of Haiyen, China has established a site for a nuclear missile deployment and launching of DF-4 missiles in the Quidam basin in the early 1970s. The larger Tsaidam site has two missiles stored horizontally in tunnels near the launch pad. Fuel and oxidizer is stored in separate tunnels with lines to the launch pad.[35]

Similar to such missile site, another missile site in Tibet is situated near Delingha. It shelters DF-4s and has become the missile regimental headquarters for Amdo, and in addition four missile launch sites are located under its jurisdiction. Another nuclear division has been established in Amdo with several missiles having a range of 8000 miles. With this capacity China can strike at United States, Europe and all of Asia.[36]

China carried out in Tibet the 'JiefangjunBao' of 16 September 1988 called "Chemical defence manoeuvre in the high altitude zone to test newly-developed equipment". According to a TASS report of 3 July 1982, "China has been conducting

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34 Nuclear Tibet, Op.cit., P.47.

35 Ibid.,

36 Nuclear Tibet, Op.cit., pp. 48-50.

nuclear tests in several areas of Tibet in order to determine the radiation levels among people living in these parts.[37]

Air-Based Nuclear Weapons

Between 1968 and 1973, China brought it's neighbors to the South within nuclear range by expanding existing Tibetan airfields and building new air bases in the Tibetan region.

China has developed three types of aircraft for nuclear bombing missions : the Hong-6 bomber, the Hong-5 bomber and the Qian-5 attack jet. The Hong-6 and the Hong-5 have combat radius of over 3,000 kilometres and 1,200 kilometers respectively. All the aircraft could land and take off from airfields on the Tibetan Plateau. The main military air bases in Tibet during 1960s and 1970s were the Lhasa airfield. The Chabcha and Golmud airfields were used as relay points for planes to refuel on their way to destination in the TAR and the Indian border in the 1960s. The Lhasa airfield was superseded by Gonggar airfield.[38]

Gonggar airfield is situated at the height of 11,682 feet, is one of the highest airfields in the world for a fighter base. In 1987, it was confirmed that China had

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37 Tibet : Proving Truth from Facts : Op.cit., p.88.

38 Nuclear Tibet, Op.cit., p.53.

manufactured a Squadron of J-7 fighters, the Chinese version of the Soviet Mikoyan Mig-21, the area. Since 1985, American built SIKORSKUY 570c Black Hawk helicopters have used the airfield to support military operations in the area. The Golmud airfield which has a 17,400 feet paved runway, one of the longest in the world. Apart from ten major airfields, there are some minor airfields around the town of Rudhok in far western TAR.[39]

Air Fields on the Tibetan Plateau

Name	Location	Altitude	Type
1. Choesdak	TAR, near Chamdo	14,465	Major
2. Lhasa	TAR, 100 km n. of Lhasa	14,091	Major
3. Jyekundo	Northeast TAR	12,831	Major
4. Shigatse	TAR, Central Valley	12,498	Major
5. Gonggar	TAR, 60 kms. of Lhasa	11,719	Major
6. Gangca	Qinghai, Lake Kokonor	11,601	Major
7. Kanze	NW Sichuan, Kanze Pref	11,070	Major
8. Chabcha	Qinghai, Lake Kokonor	10,006	abandoned
9. Golmud	Central Qinghai	9,275	Major
10.Xining	Eastern Qinghai	7,211	Major

Source : Nuclear Tibet, Washington D.C., 1993, P.55.

[39] Ibid, P.54.

The nuclearisation of Tibet by Chinese authority indicates that there lies a perennial threat to the continent, Chinese Nuclearisation Programme has created a strong concern at international level, of pollution of air, water, etc, apart from causing destructive atmosphere in the Tibetan region. China has already turned Tibet into a zone for military exercises and nuclear bases, and in addition, indicates threat for immediate neighbouring countries like, India, Nepal,etc.

Continuing and growing extensive military exercises and nuclear processing plants on the Tibet plateau, a vast and most extensive land mass on the earth, influence the atmospheric pattern over South Asia and even as scientists have proved, it's impact is believed to destabilise jet wind streams upto northern hemisphere. Nuclear weapons are the very antithesis of Tibetan cultural tradition and spirit. Free Tibet will have no place for such armaments of mass destruction. The Dalai Lama said in his Strasbourg Proposal of June 15, 1988 :

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"My country's unique history and profound spiritual heritage render it ideally suited for fulfilling the role of a sanctuary of peace at the heart of Asia. Its historic status as a neutral buffer State, contributing to the stability of the entire continent, can be restored. Peace and security for Asia as well as for the world at large can be enhanced. In the future, Tibet need no longer be an occupied land, oppressed by force, unproductive and scarred by suffering. It can become a free haven where humanity and nature live in harmonious balance' a creative model for the resolution of tensions afflicting many areas throughout the

world."[40]

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[40] Tibet : Proving Truth from Facts, 1993, Op.cit., P.88.

CHAPTER 6

Conclusion : Ecological Crisis in Tibet :

Implications For South Asia

Tibet, with an area of 2.47 million square kilometers and an altitude of 4,000 metres, lies at the centre of Asia. The earth's highest mountains, vast arid plateau and great rivers lined with age old forest covered Tibet to a homeland for 6.1 million Tibetans and further into a major water shed and thus a unique biogeographic zone.

Asia's greatest rivers like, Machu (Huangho), the Tsangpo (Brahmaputra), the Drichu (Yangtse), the Senge Khabab (Indus), the Phungchu (Arun), the Gralmo Ngulchu (Salween), and the Zachu (Mekong) rise in Tibet and flow through Tibet into many South Asian countries.

Nearly 10,000 higher plant species found so far are endemic. Vast and untouched forests over centuries have become a habitat for rich and varied wild life. Endemic species such as the Tibetan antelope, wild yak, wild ass, and argali sheep have adapted to the varying climatic conditions even at the height of 4,5000 metres, an average height above sea level.

Tibet is Asia's principal watershed and the source of major rivers of Tibet substantiate proportion of river waters slow are stable and coming from ground water and glacial sources. This makes a considerable difference between Tibetan rivers and rivers in the neighbouring countries which are marked by seasonal rainfall pattern. Ninety percent of river-run-off flows down across the borders beyond through neighbouring countries. The major rivers of Tibet are : the Machu (Huangho or Yellow River), the Tsangpo (Brahmaputra), the Drichu (Yangtze) and the Senge Khabab (Indus). They are popularly known for their service to the humankind and today for their highest siltation rate causing flood and other phenomenal consequences over the region they are flown in. The total area under the influence of these rivers cover at least 47% of the earth's human population. Besides, Tibet has at least 2,000 natural lakes and most of them are treated sacred and thus play a very significant role in the cultural life of Tibetan people with a combined area of more than 35,000 square kilometers.[1]

The highest mountains on the earth and the world's highest and most extensive Plateau, deep valleys were far away from human disturbances until 1949-50. With the advent of Chinese rule, the process of victimization in various forms

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1. Tibet: "State of Tibet's Environment; (Dharamsala, India), 1993, P.81.

begun since then. The protracted degradation and desertification of Tibetan plateau, a unique and most extensive land form on the earth, may cause different ramifications on the atmospheric circulation and jet stream wind patterns over Asia. It's impact still extends beyond that as far as northern hemisphere, as scientists have proved it. Escalation of forest destruction may cause an irrevocable loss to the endemic species and highest siltation rate and flood disasters in the neighbouring countries.

Tibet's environmental crisis attracts the attention from across the world. Tibet occupies a special status as far as its rich ecosystem or natural environment is concerned. By virtue of its location, altitude, and other geographic features and environmental conditions in Tibet have a major trans-boundary impacts. It's impacts are largely noted in `Hydrological' and atmospheric patterns.

So the preservation of natural environment in Tibet does not confine to Tibet itself but instead it would be a great boon to the large South Asian Sub-continent, which is also the immediate victim of the fall out of environmental degradation in Tibet.

"There is a deforestation in many parts of the world -- what makes the Tibetan deforestation of special interest is

that it is being carried out by colonial power. Some would say "genocide" of Tibetan Society".[2]

Tibet was an independent country before 1949/50 ~~means~~, according to international law. It's distinct history and culture shaped this country ~~as~~ distinct by itself. The fallout of Tibetan occupation by Chinese are the annihilation of Tibet culture, ruthless exploitation of Tibetan labour, and widespread destruction or extortion of the land's living and other natural resources, which had shaped this country to its distinct existence on this earth. Before its occupation by China, Tibetans subsisted off a rich natural resource base. People and nature tried to live in cooperation as much as possible. With the unique features like, its altitude, geographic features and location, environmental conditions in Tibet have a major transnational impacts. Its isolation and distinct cultural tradition, and its regard for a sustainable life style contributed to its making of the richest repositories of ecosystems and wildlife species in the world until recently. However, for the survival of Tibet with all this, the Buddhism had a significant role until 1949/50.

Buddhism penetrated into Tibet in seventh century, becoming subsequently the base for socio-cultural life of

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[2] Edward Lazar, "Collaboration behind an Environmental Mask". Tibetan Review : Commentary (New Delhi), Vol. XXVI, No. 6, June 1991, P.9.

Tibetans. It helped Tibet to remain as a distinct place where mankind and nature lived in cooperation with each other. According to the main tenets of Buddhism, it lays great stress on non-violent attitude and equal respect for all sentient beings, further it emphasises on the interdependence, coexistence, interrelation-ship, and balanced natural environment, which in return accentuates the survival as living beings in totality. `Universal unity' which Buddhistic philosophy underlines, whereby each component of natural environment tries its best to live a life in cooperation with other component, thus the `universal unity' according to Buddhism necessitate the sense of tolerance, respect and cooperation for the sustenance of all living beings.

Buddhism came into being with this noble cause of bringing all the components of natural environment together and find the meaning of life and existence in totality. It speaks volumes of ethical mode of life and so the significance of each element of environment. However, Buddhism is such a philosophy which respects all living beings. Even so, the domination of any component over the other would be contrary to its philosophy.

Buddhism was the only principal reason behind the sustainable life style of Buddhists until 1950, in Tibet. They embrased to Buddhism just after its penetration and evolved it

in their everyday life= so as to lead a life in cooperation with ecosystem and they did so till the Chinese invasion of Tibet. Gradually Buddhism became the base for State craft, other State administration was carried on under the Buddhistic knowledge. As far as the protection of ecosystem in Tibet, State enforced the law in line with Buddhist philosophy and to create awareness about the `importance of natural environment The decrees issued by Dalai Lamas were the part of such measures. State followed that philosophy strictly through administrative apparatus to ensure that no harm has been done to any being and in case any harm done by human beings to any other living being, such guilty people were punished irrespective of his/her position in private or public life. Besides State's routine job, farmers also had their own code of conduct based on Buddhism to protect the ecosystem and yet they would also come together at times to frame laws for themselves to the sustenance of plant and animal species. Even the agricultural system evolved the philosophy of Buddhism. In all, Buddhism had played a major role in shaping their socio-cultural life style and their relationship with the ecosystem. However, the untouched
wilderness and the world's richest repositories of ecosystems and wild life species that made Tibet a unique and distinct biogeographic region until 1950, is attributable to traditional Tibetans approach to environment.

The entire portion of Himalayas is sensitive to developmental activities, the continuing and growing such activities in the name of development would adversely affect the overall balance of land use and ecosystem. The Himalayan range consists of highest mountains in the world and they are still in the building up process. Basically the mountains are still quite young and building up through solubles like, limestones, where developmental activities are unwanted, otherwise, these activities would hinder the growth causing degradation and phenomenal earth quakes which it adopts to maintain the balance. The Himalayan forest cover is old growth and abode of different cultures and the richest repository of animal and plant species, and the highest source of botanical and biological experiment at international level. In this delicate and fragile ecological zone, the scientific and technology based developmental activities have no place there.

Tibet being the most part of Himalayan range, the Chinese developmental activities have much contributed to the dissertation of land there. Apart from traditional method of development the present model of development has no relevancy there, instead it causes the soil erosion and other problems. Chinese have undergone several experiments in the field of development to feed the Chinese settlers in Tibet.

Chinese, especially in agricultural field, undertook an

exercise to extend farm land on to the steep hill sides and similar areas under pasture and forest. The inherent quality of this land is it's unsuitability for agricultural development, these lands go out of production leading to rapid soil erosion and other similar problems. The exercise does not materialise and hence this exercise means conversion of productive land to a degraded, and unproductive state. Therefore, expansion of farming land to the under pasture or forest will be short term measure and affect land which is already the natural balanced of land use. However, the situation created under the method calls for immediate stop to the present practices.

Besides the practices of expansion of farming land, Chinese authority sought to use hybrid seeds, chemicals and fertilizers to grow more food grains. The use of these modern means to enhance intensive growth and accentuate the production capacity nonetheless lead to soil erosion, and the pollution of land and water. Such practices are contrary to the principles of diversity and heterogeneity necessary for conserving mountain environments and yet unsuitable for crop land area.

Another cause under these practices will be `biological genocide'. owing to these practices the earth's surface will lose millions of earthworms and bacteria which are must for

conserving moisture and fertility. The practice if continued further will barren the fertile land. Traditional agricultural system or practices such as mixed cropping patterns and periodic failures had been proved to be environmentally sound and economically efficient farming before 1950. As also Tibet's indigenous seed varieties were considered capable of high yields. Even today traditional agricultural practices and Tibet's indigenous seed varieties are held in high esteem as the only solution to increase the agricultural output. Chinese failure often and again in terms of agricultural produce needs to restore the traditional method of cultivation.

Tibet's crop lands represent a small portion of about 2% of the total land area of Tibet but, still hold a vital resource for the future. The entire land under crop lands should be identified and an attempt should be made to find out a reasonable solution through integrated management plan which is the need of hour and appears to be suitable for sustainability and productive potential. This does not in any way exclude the above recommendations.

Tibet's hydrology is also the richest in the world. There are hundreds of lakes besides four of the five world's largest rivers with perennial flow provide substantial hydro power facility to Tibet. China has already worked out various

hydro power projects across all the major rivers and lakes which are environmentally significant and sound enough to maintain fragile ecosystem in Tibet. Yamdrok Yumtso hydro power project is one among such. The largest lake in Tibet with substantial amount of cultural significance for Tibetans therefore, Chinese planned more in this connection is unsensitive. The constant turbulence would affect the fragile ecosystem of the lake. Water torpidity would increase affecting the survival of fish and other aquatic species and water quality as well. And more so the impact of pumping on the biological oxygen have not been taken into consideration. The consequences are : the Chinese settlements will come up in a big way, water and land will be polluted hurting even the other ecosystems around the lake. And traditional life style of Tibetan nomads will disappear subsequently.

Therefore, keeping this in view the donor countries should see to it that the continued assistance should be halted and project should be viewed in face of ecological degradation. The present day concept of economic development would mean ruthless exploitation of natural resources through modern means of science and technology. Therefore, capital and technology oriented development pattern in the absence of ecological orientation will have far reaching consequences for the natural ecosystem. Instead of development of subsistence

and sustainable level, the development pattern through profligate exploitation of natural resources just for luxurious life is of short term and utter nonsense.

At present in Tibet, the Chinese pattern of economic development in the name of present economic philosophy of exploitation of natural resources has led to multi-dimensional ecological crisis. The clear felling of forests has been causing wide spread soil erosion and steep de-stabilisation, and uneven rainfall pattern. The construction of massive hydrological projects across all the major rivers and lakes have not only put off the Tibetan's cultural attachment to them but also resulted in the highest siltation rate. Thus, the forest destruction and as a result, soil erosion and hydrological projects which enhance the siltation rate put together have affected the countries down stream.

Degradation and desertification of farm land and grass lands due to extension of farming land on to the steep mountains and farming practices through the use of fertilisers and chemicals so as to grow more food grains for Chinese settlers and rest to export to China, and finally the use of non-conforming seeds like wheat instead of barley are proved to be additional burdens on the Tibetan ecosystem.

Establishment of mining processing systems, cultivation

of land and grass lands, destruction of forests in the plane land and plateau may lead to the resultant consequences like, soil erosion, steep destabilisation, rise of siltation rate, pollution of air and water in Tibet and over South Asian region too.

However, the growing and increasing desertification of Tibetan ecosystem will have far more grave consequences for South Asia. Particularly, with respect to hydrology and climatology over South Asia and northern hemisphere. Tibet is sunk in various ecological crisis, the major among them are deforestation, mining and wildlife depopulation. The immediate problem before Tibet is its deforestation. Since the Chinese occupation of Tibet, it has lost much of its old growth forest. Due to profligate and unheeding exploitation of forest growth, it has been reduced to 1,34,000 square kilometers in 1985 from 2,21,900 square kilometers in 1949. Until 1985, Chinese have cut forests worth $ 54 billion or 40% of the total forest stock.

As Chinese claim the construction of roads is the part of development of transport and communication, such claims do not stand valid as all the roads in Tibet are connected to forests and mineral reserves. It seems the basic reason behind this monster's task is to transport forest produce and minerals. Chinese have destroyed near total forest growth on the scores.

First, for use in China and second to export overseas for financial assistance.

The common method being adopted is the clear felling. Chinese military personnel and Tibetan prisoners are involved in a large number to cut the forest. The timber extraction until 1985 was estimated at 2.442 million cubic metres. The extraction of forest by method of clear felling has led to the denudation of vast hill sides.

The afforestation programme in the region where forest has been felled is a mere claim by Chinese on records. Although, it is impossible to regenerate forests due to extreme degree of land slope, soil and moisture loss, high diurnal temperature variations and high soil surface temperatures. The growing degradation and desertification of Tibetan plateau, unique on earth and vast and most extensive land mass on the earth, influences atmospheric circulation and jet stream wind pattern over South Asia. According to scientists, its impact may be still related to the destabilisation of weather pattern upto northern hemisphere.

China has determined around 126 minerals in Tibet. Tibetans never tried to have an access to minerals because of their belief in it as an intrusion into the earth. Accordingly, Tibetans respected mineral deposits and

subsequently it came to have a spiritual significance for Tibetans. Chinese from 1950 onwards began intensive exploitation of Tibetan minerals without respecting Tibetan concern for it.

Today, the network of roads and communication mirror the location of mineral deposits and forests. Recently, Chinese have shifted their mining system from China to Tibet without taking into account the major implications on Tibetan ecosystem. According to reports, it has led to the pollution of water, and further, human deaths and birth of deformed humans and animals are also reported.

Due to indiscriminate exploitation of minerals by Chinese government, seven of China's fifteen minerals are due to run out within this decade. Environmental safeguards are virtually non-existent in Tibet's mines and even so, in fragile terrain, it is leading to stop destabilisation, land degradation, and hazards to human health.

Substantial amount of wild life has already disappeared from Tibet. With the expansion of farm land on to the steep hill sides, and to the land under pasture or forest, the wild life is finding refuge in far interiors of forest. Most of the western travellers, who visited Tibet in early 1940s, described Tibet as `botanical garden' and `animal zoo'. Today

the travellers from some countries maintain their account of not seeing a single animal even after a travel for hundreds of kilometers.

The large chunk of wild life and countless birds have vanished through the destruction of their habitat and have been slaughtered by indiscriminate hunting for sport, and also under Chinese illicit trade in animal products. Unrestricted hunting is still continued in Tibet wherever wildlife is seen. "Hunting tours" are often organised by Chinese government for wealthy foreign clients to earn currency. The cost varies from the animal to another animal, generally, the cost ranges from $ 3,500 to $ 35,000. There are reports of Chinese soldiers using automatic weapons to wipe out herds of wild yaks and wild asses for sport.

The present scenario indicates the loss of countless Tibetan species even before they have been discovered and studied. It also reveals the known threat to the survival of species treasured in Tibetan culture and of immeasurable value to the world.

This kind of discrimination against wildlife has to be immediately stopped as there is invariable relationship between mankind and wildlife. The solution to avoid this perennial threat to wildlife lies in the traditional

method of conservation of wildlife wealth, based on Buddhistic philosophy.

China initiates a scheme of protected area to conserve wild life accounts today for 310,000 sq. kms. but the effectiveness of protection cannot be measured by any means as China persistently tries to conceal the actual data.

Tibet. with enormous valleys and rivers lined with age old forest has become a home for 6 million Tibetans and rich wild life. The growing and increasing man-handling of Tibetan forests in various forms has reduced much of forest stock since 1950. The much venerated forest because of its significant role in soil containing and weather stabilisation, and more importantly as a source of rain is no more. The protracted access to this vulnerable forest resource has left behind the grave consequences of soil erosion, steep destabilisation, and formation of deserts through constant wind blow on the sandy region. The formation of siltation along the major river belts due to soil erosion in Tibet, the down stream nations (South Asian countries) would have to face phenomenal drought situations.

The exploitation of minerals of young mountain region and instalment of mining processing plants in the vicinity of water resource, which is the only source of drinking water

for all the people, is increasingly contaminating water and polluting air. The consistent exposure to these resources by people and other life forms because they are essential without which all life forms would extinguish themselves. But the contaminated water and polluted air combined with noxicious mining produce may cause perennial diseases on all life forms. And it's impact on human health and as a consequence human deaths have been reported from many places in Tibet. However, the contaminated water and polluted air may have equally dangerous impact on the health of the people of entire South Asia Sub-continent.

Once upon a time Tibet has been declared by many travellers, visitors, and environmentalists as the last land of `Botanical garden' and `Animal Zoo' to be seen. As such significance has been attached to this because of its richness in the different species and their studies point of view at international level. The study was not upto the mark to finish this non-exhaustible animal species. But before the discovery most of them have already disappeared. The continuous killing of animal by armed forces and civilians, and through hunting arrangement for foreigners have reduced this essential component of natural ecosystem to the extent of not seeing a single animal even after
hundred kms. travel. It is in fact a big loss to the study of animal and plant species at global level.

The impact of population transfer to Tibet is still worst on Tibetan ecosystem. It has put a heavy pressure on Tibetan ecosystem despite leading to a sharp competitive tendency for scarce natural resources. The population transfer at an alarming rate turned the local Tibetans in to a microscopic minority. As a result of heavy turn out of Chines Hans population, the total strength of Chinese settlers in Tibet has been elevated to 7.5 million, whereas, by contrast, local Tibetans are still estimated at 6.5 million.

Being in such a dominating majority, Chinese settlers have grabbed farming land from Tibetans and still they continue to expand farm land on to the steep hill sides and pastures or forest area, causing tremendous amount of degradation of land. In the field of business and bureaucracy, mill and mines and factories as well, it is the settlers who are much dominated and the real benefit goes to them leading Tibetans to utter pauperization.

To attract more number of Chinese to Tibet all possible facilities are provided to them. Housing facility, subsidised food grains, higher wages, and long term paid vacation are some of the privileges enjoyed by Chinese settlers in Tibet. In this mariginalisation process Tibetans have become beggars. One foreign visitor noticed the number of Tibetan beggars is equallant to the number of Chinese settlers in Tibet. This

tendency shows the clear violation of human rights and hence calls for the restoration of their property rights. Birth-control, forced absorption and sterlisation are the mechanisms that Chinese authority has adopted to ensure that there is hindrance in the growth of Tibetan population.

"The first vanguard of the PLA entered Tibet in 1949, China's "18th Army" entered Tibet through Dartsedo in the spring of 1950. The "14th Division" entered through Dechen in the Southeast of Tibet. The advance party of the "18th Army" entered Lhasa on Sept 9, 1951, followed by the Unit's main force on 26 October 1951"[3] This was the beginning of military settlements in Tibet. "Until 1986, areas under Communist Chinese rule were divided into 11 military regions, and Tibet was then placed under the control of three regions. The total number of military regions were
reduced to seven in 1986, the entire Tibet was being placed under two military regions :"[4]

"The `TAR', `Kanze Tibetan Autonomous Prefecture', `Ngapa Tibetan Autonomous Prefecture', `Dechen Tibetan Autonomous Prefecture', and the `Mili Tibetan Autonomous District' fall under the South West Military Region, while the `Qinghai

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[3] Tibet: Proving Truth from FACts: "Militarisation and regional peace'. (Dharamsala, India), 1993, P.85.

[4] Ibid., P.85.

Province', Kanthe Tibetan Autonomous Prefecture' and `Tianzhu Tibetan Autonomous District' fall under the Lanzhou Military region. The Chinese military presence in the entire belt today accounts for 500,000 personnel."[5]

"The front line PLA troop concentration in the "TAR" are stationed in Ruthok, Gyamuk. Drongpa, Saga, Drangso, Gampa-la, Dromo, Tsona, Lhuntse Dzong, Zayul, etc. The second-]lien of defence stations are concentrated at Shigatse, Lhasa, Nagchukha, Tsethang, Nangartse district, Gagamda, Nyingtri, Miling, Powo Tramo, Tsawa Pomdha, Chamdo, etc."[6]

China is regularly deploying the Sichuan-based 149 Airborne division in"TAR" region. China is also considering the move to shift military headquarters around `Lhasa' city, the capital city of Tibet. Similarly, many new complexes are coming up across Tibet to accommodate thousands of military personnel. The largest military bases in Tibet are located at Silling, Karmu with air force bases. The deserted land of Karmu has been converted to a large military base, the location strategically assumes more importance as it covers both Tibet and Eastern Turkestan.

In Kham and Ngapa, military bases are located at Lithang,

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5 Ibid, pp. 85-86.

6 Ibid, P.86.

Kanze, Tawu, Dartsedo, etc. Military build-up in Tibet assumes significance on two scores. First, concentration of large number of military bases in Tibet would help the Chinese government in fulfilling of its aims and objectives of transforming Tibet into an inseparable or integral part of China. Secondly, Tibet has been a strategically important place and still it continue to exist in that legacy. Therefore, to protect China itself military bases have been established. Tibet, a place where military exercises and nuclear proliferation can be achieved.

Nuclearization

It has been reported that there are innumerable nuclear bases and nuclear weapon manufacturing cenrtres in Tibet. Nuclear weapons manufacturing centres are believed to exist at Dhashu and Tongkhor in Huiyan and Amdo respectively.

Missile bases are situated in Lake Kokonor in Amdo and Nagchukhua. According to an estimation, China has around 300-400 nuclear warheads, of which several dozens are believed to be in Tibet. China has nuclear missile deployment and launch site for DF-4 missiles in the Tsaidam basin in the early seventies. Larger Tsaidam site has two missiles near launch pad.

Reports mention that another site is located in Delingha. It houses DF-4s, and is the headquarters of missile regiment. Another division has come up in Amdo with CSS-4 missiles which have an average range of 8000 miles and can easily reach the United States of America and Europe, and the whole of Asia.

The success of nuclear programme in Tibet so far is attributable to the "Ninth Academy", which commanded the whole process of nuclearization in Tibet. In addition, Chinese authority has agreed to the shipment of nuclear and toxic waste on the Tibetan plateau in return for billions of dollars. The countries which have come forward to ship their nuclear and toxic waste on Tibetan plateau in an agreement with China for exchange of dollars, are the United States of America, Germany and Switzerland. The consequences of this are the human deaths, deformed human body and threatened the survival of thousands of plant and animal species. Furthermore, land degradation, pollution of water and air, slop destabilisation, in all it has led to the worst impact on the Tibetan ecosystem. The present day world recognises the countries' strength perhaps on the basis of `Militaristic and Nuclear Capability' combined with less importance of economic programme. The experiments as far as militaristic and nuclearisation progress is concerned they should be tested in the deserts. In case of Tibet, the Chinese State sponsored militaristic and nuclear tests in the heart of fragile

ecosystem not only threaten the natural environment but at large the human rights to self-determination and their peaceful co-existence with the nature.

The unmindful exploitation of forest growth, construction of roads, highways, and bridges to the forest and mining locations, and irrational settlements of military cantonments in the grasslands and plain areas have resulted in the devastative consequences for the various components of natural ecosystem. Further, armed forces' access to peaceful and innocent local Tibetans blew up the cultural fabrication of Tibetan society.

The nuclearization process through dumping of nuclear wastes at the surface level in the plain lands and Tibetan plateau, and deployment of missiles and other nuclear armaments in the environmentally vulnerable areas may cause irreversible damage to the flora and fauna and other life forms.

The establishment of mining processing system close to the water sources can pollute the flowing water resource which is often used by people for drinking purpose may cause dangerous impacts on human health. Exposure to contaminated water and polluted air combined with radio-actives would endanger the entire natural ecosystem by causing various diseases.

However, militarization and nuclearization in Tibet, reposing heavy pressure on Tibetan economic and ecosystem can multiply devastative implications on the South Asian Sub-continent in terms of hydrology, climatology and even security wise, it is more harmful to the entire Sub-continent.

Implications to South Asia :

1. The hydrological impacts :

The major rivers that rise in Tibet flow through most of the South Asian countries. The rivers such as, Senge Khabab (Indus), Lang Chen Khabab (Sutlej), the Macha Khab (Karnali), the Phung Chu (Arun), the Subansiri, the Tsangpo (Brahmaputra), the Gyalmo Nguichu (Salween), the Zachu (Mekong), the Drichu (Yangtse) and the Machu (Huangho) flow in deep gorges lined with thick forests in eastern and southern Tibet. Of the total forest area of Tibet, a large part of it is concentrated in this region. But the profligate exploitation has caused the decline by 120,000 km or 40% in the period between 1950 and 1985, leading to soil erosion, decrease in ground water level and un-balanced ecosystem and more so the highest rate of siltation in all the four major rivers of Tibet. Therefore, the most and highly siltation bound rivers in the world are the Machu, the Ganges, the TsangPo, the Drichu and the Senge Khabab. The human

interventions are much attributable to the cause of soil erosion and landslides than what the geological factors do today. The man-made factors such as roads, bridges, deforestation and dams in the Himalayan basin are the most significant causes of floods in the South Asian region when compared to the national factors. The floods in the Brahmaputra peaked in 1987 and 1988, affecting an unprecedented 3.08 million ha of land and Rs. 4.22 million. The total damage caused was estimated at 506 million in 1987 and Rs. 7,080 million in 1988. The area affected so was measured to be 35% of the total flood affected in India during 1987 and much more in 1988.[7]

The major Tibetan rivers flow through the number of neighbour countries such as, India, Bangladesh, Nepal, Pakistan, China, Thailand, Burma and Vietnam. The profligate and unheeding destruction of forests in Tibet has led to the enormous siltation, soil erosion and loss of ground water regimes. Most of the major rivers in Tibet rise in eastern and southern parts of Tibet, lined with thick forest cover. The forests of this region has declined by 40% between 1950 and 1985. Reports mention that the destruction of forests has reached to such an extent that river waters would not be seen due to floating of large number of timbers across the major

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[7] Tibet : Environment and Development Issues "The role of Natural Resources in Economic Development. (Dharamsala, India), 1992, pp. 66-67.

Tibetan rivers.

All the major rivers are lined with fertile banks on both sides of the rivers. During the highest rate of soil erosion the siltation rate in these rivers has been increased to such an extent that 45% global population surviving on these rivers have suffered at times because of rampant flood situation. Deforestation, landslides in Tibet are believed to have contributed to the increasing siltation rate in the rivers of Huangho, Brahmaputra, Yangtse and Indus rivers. At the present situation they have been termed as the highest "siltation bound rivers" in the world. The basic cause of such increased sedimentation. Brahmaputra's sediment peaks during the monsoon when it carries over 2.12 million tons of sediment a day. The sediment load pattern originates much in the Himalayan catchments such as Pema Ko and KongPo in East Tibet when the annual rainfall gets beyond 1,000 mm. Tsangpo and Subansiri contribute 37% and 9.5% of sediment loan respectively to the Brahmaputra's total flow. The causes for sediment load pattern are countless, to mention a few such as geology, slope gradient, vegetation, soil texture and force of rainfall. The deforestation and the consequent sediment rate in the sections of Brahmaputra's catchment area increased over the 1950s. The forest cover in Assam declined by 3% of the State's total areas from 25% to 22%, over 1980-90. The

deforestation rate is much more in Kangpo and Pema Ko.[8]

Another important factor is the ming process and dumping of nuclear and toxic waste in Tibet. This nuclearization process has resulted in the pollution of water and air. As a result, the impact would be of no less significance on the countries of down stream water.

China's persistent attempt to involve personnel and Tibetan prisoners in clear felling of forests, caused the highest intensity of floods in China and the trend still seems to be upward even during 1980s. As a result, China faced worst floods of the century resulting in an unexpected fall of economic growth to 6% instead of expected 8% in 1991.[9]

2. Atmospheric Impacts :

The effects of the Tibetan plateau on the global atmosphere are considered as considerable and diverse. Such impacts are caused by physical effects on the Tibetan plateau, the most extensive and highest land mass on the earth. The American and Chinese scientists have even brought out the correlation in terms of atmosphere between the effects and atmospheric variations in the global climatology.

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8 Ibid, P. 67.

9 Ibid,

Since the Tibetan plateau being the originator of jet streams, has a big role to determine the global weather. By virtue of being the highest land mass on the earth of about 4,500 metres above sea level in the northern hemisphere, the principal natural features that shape the flow of jet streams are the Tibetan plateau and Rocky Mountains. The extent of temperature and snow cover on the Tibetan plateau also influence the jet streams. In the northern hemisphere warm, dry weather in a particular area is accompanied by anti-cyclone conditions in which jet stream winds flow clockwise around that area. As the Tibetan plateau heats up during summer builds-up clock wise winds around the plateau. This cycle helps to arrive the monsoon winds from the Indian Ocean into Sub-continental India and the Himalayas. This is called a "forcing mechanism" for Indian monsoon, implying the transfer of "latent heat" from the Indian Ocean to the Tibetan plateau. The extent of variation in the Indian monsoon depend on the extent of snow cover of Tibetan plateau.[10]

In winter, the whole of Asian region including Tibetan plateau cools down leading to cyclonic or anti-cyclonic winds. In some years the extent of snow cover increases as Tibetan plateau receives comparatively less precipitation. Moreover, this phenomenon is caused by the shift in jet

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[10] Tibet, Op.cit., pp. 67-68.

streams that brings winds form Siberia into Tibet. In an exceptional case, the exceptionally thick snow cover does not easily melt away even during spring season, waits till the fullest summer causing delay in the heating of the Tibetan plateau. This inept phenomenon retards the pattern of cyclonic jet stream winds over the plateau. The winds continue to flow in an anti-clock-wise direction i.e., from north to south along the western edge of the Tibetan plateau. However, the monsoon winds flowing at lower altitudes they are affected by the general wind patterns created by the opposing flow of jet streams, causing rampant delay of monsoon and thus reducing its' extent over the Indian Sub-continent.[11]

The heavy snow fall on the Tibetan plateau transforms this into a sheer white blanket. This high reflectivity is caused by the high reflation power of the heavy snow fall. Scientists in this connection measure the amount of snow reflection around 80% back into the atmosphere. This 80% of snow reflection leads to the ever absorbing of sun heat and melt away of snow stock quickly during summer by heating the Tibetan plateau, whereas the darker spot (in case Tibetan plateau does not have access to snow fall) may not have a role in this process. The grass covered ground has an albedo of between 15% to 25%, dry sand is 18% and green forest between 4% to 6%. As Reiter believes that the shrubs and bushes that

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11 Ibid. P. 68.

grow out of snow cover have enough capacity to absorb Sun's heat and thereby causing the snow to melt at increasing rate around them. He also notes the "correlations between variation in the pattern of jet streams over Tibet in high snow fall years and a number of global weather anomalies. These anomalies include high winter sea-surface temperatures over the North Atlantic which brings sunny summer weather in Europe, and typhoons in the Pacific, which often bring rain and floods to eastern China. Pacific typhoons, in return, result in the interruption of trade winds of the west coast of the Americas, which are responsible for the elnino phenomenon that kills Pankton and sea life and destroys the anchovy catch."[12]

Typhoons in the Pacific may yet add to the uncomfortable stratospheric wind patterns over North America and the Rocky mountains, since Rocky mountains and snow cover at the highest places as it happens in case of Tibetan plateau can lead to change in the jet stream wind, of highest order across the globe,. However, Rocky mountains and Tibetan plateau in the northern hemisphere have a big role to play in shaping the global weather pattern.

The progressing desertification in the fragile ecosystem due to deforestation at the highest point, Tibet is being

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12 Tibet, Op.cit., pp. 68-69.

faced with manifold ecological crisis. As the forests in the eastern and southern Tibet are depleted, the soil is washed away, leading to unprecedented reduction in evaporation., The moisture retained in the soil will not have time now to stay there until warm sunshine and vegetation send it back to the atmosphere. Therefore, it looks to the shortest way to creeks, streams and rivers, to be lost into the sea. Sometime the larger amount of this moisture will not re-evaporate and consequently gets missed in the air streaming farther into the dry heartland of Tibet, raising further concerns about desertification.[13] By cutting the vast forests in the deep gorges of Tibetan rivers and even the vaster ones in the Brazilian and African jungles, humanity is shooting itself into the foot. Seeing into the present scenario particularly, in terms of monsoons of Asia, much has been happening due to deforestation norm. The fact is obvious that the abnormal Sea-Surface temperature regimes in the tropical East Pacific are linked to rainfalls during the Indian summer monsoon, upon which millions stake their livelihood, and further the Indian and Tibetan monsoons are linked. There are many indications that both Tibetan snow-cover and the Indian summer monsoon, may ne linked to Ocean temperatures in the Pacific and

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13 Dr. Elmar R. Rieter, Tibetan Bulletin, (Dharamsala, India) May-June 1991. 'Tibetan Deforestation and Possible Climatic effects'.Office of Information and International Relations,Central Tibetan Secretariat, Dharamsala, Himachal Pradesh, P.24.

Atlantic.[14]

"Tibetan ice played an essential part in the coming about of the ice ages results on the one hand from the extreme altitude and great extent of the Tibetan plateau. To this is added its sub-tropical situation, which in connection with the high transparency to radiation of the atmosphere results in the fact that three to four times as much sunlight incures as in Scandinavia or Green Land. Only when global temperatures had fallen by at least 5 degrees through the glaciation of Tibet and it's marginal mountain ranges did the lower mountains at higher latitudes also begin to glaciate, to the extent that they then on their part further reinforced the climatic change that had been initiated".[15]

However, multifaceted ecological crisis and their impact on global climatic pattern are attributable to the Chinese phenomenas destruction of Tibetan old growth forest, physical effects of the Tibetan plateau thus accounts for a major influences on world's climatology. The increasing and growing degradation of Tibetan plateau by installing nuclear plants and other human interventions have created considerable amount of damage to the natural functioning system of Tibetan

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14 Ibid, P.24.

15 Prof. Matthias Khule, "The Glaciation of Tibet and its Global Climatic Effectss", Universitas, (Germany), 1990, vol. 32, No.3, 1990, P.237.

plateau.

Unusual monsoons, heating up of Tibetan plateau and further irregularities in the snow fall and its melting point are the devastative consequences generated by Chinese manyfold activities on the Tibetan plateau for the 45% of the global population.

BIBLIOGRAPHY

Primary Sources

Amnesty International. 1986. International Bill of Human Rights, 3rd edition. Colombo: Amnesty International Publications Service.

Amnesty nternational. 1991. People's Republic of China: Violation of Human Rights (Apr.) London: Amnesty International Secretariat. Mime.

Amnesty International. 1991. People's Republic of China: Recent Reports on Political Prisoners and Prisoners of Conscience in Tibet (Oct). London:Amnesty International Secretariat. Mimeo

Danlock, T. 1984. Tibet's Changing Ecology, News Tibet (Jan/Aug), Vol. 19, no. 1, pp.9-11. New York: The Office of Tibet.

DOS (Department of Security). 1992. Precious Minerals of Tibet(in Tibetan). Dharamsala: Research and Analysis Centre, Central Tibetan Administration.

Fink, Mariann. 1991. The Tibetan Environment Prior to the Chinese Invasion. Cho-Yang: The Voice of Tibetan Religion and Culture. Dharamsala: The Council of Religious and Cultural Affairs, Central Tibetan Secretariat.

IUCN (International Union for the Conservation of Nature and Natural Resources). 1980. World Conservation Strategy: Living Resource Conservation for Sustainable Development. Gland, Switzerland: IUCN/United Nations Environmental Programme/World Wide Fund for Nature.

Report by Mrs Fatima Zhora Ksentini on "The Relationship between Environmental Management and Human Rights in Tibet" On 2nd August 1991 Submitted to Sub commission (UN) International committe of lawyers, (Geneva), pp. 1-22.

SYC (Statistical Yearbook of China). 1984. Hong Kong: Economic and Information Agency, State Statistical Bureau of PRC.

Tibet Bulletin. 1991a. Poisoning the Plateau: The Fertilizer Scandal in Tibet(Nov/Dec), p.20 Dharmsala: Office of Information and International Relations, Central Tibetan Secretariat.

Tibetan Bulletin 1991b. Independence Key to Preservation of Tibet's Eco-system (Nov/Dec), p.22, 21 Dharamsala: Office

of Information and International Relations, Central Tibetan Secretariat.

Tibetan Bulletin 1991c. US Congress Declares Tibet an Occupied Country(Nov/Dec), p.22 Dharamsala: Office of Information and International Relations, Central Tibetan Secretariat.

Tibetan Bulletin. 1991d. Endangered Species of Tibet(Jul/Aug), p.5. Dharamsala: Office of Information and International Relations, Central Tibetan Secretariat.

Tibetan Bulletin. 1991e Construction of Power Station Restarted amidst Protests(Sept/Oct), p.13. Dharamsala: Office of information and International Relations, Central Tibetan Secretariat.

Tibetan Bulletin. 19992a, Illegal Wool Trade continues from Tibet(Jan/Feb), p., 17. Dharamsala: Office of Information and International Relations, Central Tibetan Secrateriat.

Tibetan Bulletin 1992b. The Degreening of Tibet's Grasslands (Jan/Feb), pp 18-20. Dharamsala: Office of Information and International Relations, Central Tibetan Secretariat.

Tsering, Tashi. 1988. A Brief History of Fourteen Centuries of Sino-Tibetan Relations. Dharamsala: Office of Information and International Relations, Central Tibtan Secretariat.

UNHCR (United Nations Commission on Human Rights). 1990 Human Rights and Scientific and Technological Developments: Proposals for a study of the Problem of the Environment and its Relation to Human Rights (E/CN.4/sub.2/1990/12). Paper prepared for the sub-commission on prevention of discrimination and protection of minorities, 42nd session, August 1990, Geneva.

UNHCR 1991. Human Rights and the Environment(E/CN.4/sub.2/1991/8). Paper prepared for the sub-commission on prevention of discrimination and protection of minorities, 43rd session, August 191, Geneva.

UNDP (United Nations Development Programme). 1986. Report on Tibet by Manfred Kulessa. Beijing: UNDP. Mimeo.

UNDP. 1991. Human Development Report 1991. New York: Oxford University Press.

UNEP (United Nations Environment Programme). 1972. Stockholm Declaration on the Human Environment. New York:

United Nations Environment Programme. Leaflet.

UNEP. 1982. Nairobi Declaration (adopted by 105 Governments at the Council Session of special Character, 18 May). New York: UNEP.

Van Walt, Michael C. 1986. Population Transfer and the Suvival of the Tibetan Identity. Paper presented at the 7th annual International Human Rights Symposium and Research Conference, 13the June, Columbia University, New York. U.S. Tibet committee Special Report Series.

Yeshi, Kim. 1991. The Tibetan Buddhist View of the Environment. Cho-Yang: The Voice of Tibetan Religion and Culture. Dharmsala: The council of Religious and Cultural Affairs, Central Tibetan Secretariat.

Secondry Sources

Alexander, Michael. 1989. Tibet: A Geo-Political Analysis. Langenfeld, Germany: Tibet Information Service Mimeo.

Allan, N.J.R; Knapp, G.W; and Stadel, C.(eds). 1988. Human Impacts on Mountains. New Jersey: Rowman and Littlefield.

AP(Associated Press). 1987. Official Denies Bonn Will ship Nuclear Waste to China(20th Jul).

APH(Agricultural Publishihg House). 1988. China Agricultural Yearbook, 1988. Beijing: Ministry of Agriculture of People's Republic of China.

"Army Headquarters to be shifted to Tibet" Tibetan Review, (New Delhi), Vol XXVIII, No. 1, pp. 4-5.

Asia Watch. 1988. Human Rights in Tibet. Washington, DC: Asia Watch.

Asia Watch. 1990. Merciless Repression-Human Rights in Tibet. New York: Human Rights Watch.

Atisha, Tenzin P.1987. Mineral Resources of Tibet of Tibet. Tibetan Bulletin(Jul/Aug). Dharamsala: Office of Information and International Relations, Central Tibetan Secretariat.

Atisha, Tenzin P.1990. The Tibetan Approach to Ecology. In ICT 1990c.

Atisha Tenzin P. "The Tibetan approach to Ecology" Tibetan Review; (New Delhi), Feb 1991, Vol-XXVI, No-II, pp.9-11.

Babasaki, Kenji "Idealism, Material Prosperity and Cultural heritage", Tibetan Review, (New Delhi), July 1991, Vol-XXVI, No-7, pp.18-19.

Bandyyopadhyay, Jayanta. 1990. Importance of the Mountains in te Global Debate on Development. ICMOD Newsletter (Dec), no.13, p.8-9. Kathmandu: ICIMOD.

Bandhyopadhyay, Jayanta "Towards sustainable Development in the Mountain Areas", safe energy and environment, (Calcutta), May 1992, Vol.2, No.2 pp.11-17.

Barnett, Bobbie. 1989a. Notes on Evironmental Crisis in Tibet. Reprinted in ICT 1990c, pp.35.

Barnett, Robbie. 1989b. Chinese Development Policy in Tibet: Notes and Comments (22Dec). Lonfon: Tibet Information Network.

Beijing Review: 1990c. Saving Wildlife: A Nation Mobilized(16-22a April,) pp.18-23. Beijing.

Beijing Review: 1990d. China's Nature Reseres Rapidly expand (29 Apr-5 May), pp.23-26. Beijing.

Beijing Review. 1990e. China: The World's Largest Coal Producer, pp.13-16; Tibet Promotes Agrotechniques, p.27 (14-20 May). Beijing.

Beijing Review. 1990g. Utilizing the Resources of the Yellow River (6-12Aug), pp.18-21. Beijing.

Bin, Ling, Q, "Special Economic Policies for Tibet", Beijing Review , (Beijing), June 3-9, 1991, Vol. 3-4, No. 22, p.4.

BPN (Buddhist Perception of Nature), 1987, "Tree of Life: Buddhism and Protection of Nature", ed. Shan Davies, Honkong: BPN.

Cannon, Terry, 1989, National Minorities and the Internal Frontier, in. China's Regional Development, ed. by David S.G. Goodman pp.164-178. London: Routledge.

Chakrabarty, P.B. 1989, The Yeti and other Wildlife, Himalaya Today, (December 89/ January 90), pp.32-33. Gangtok, Sikkim.

Chand Raghubir, "Changing Population Profile" Seminar, (New Delhi), 1991, No.378, pp. 19-23.

Chang David H., 1981, The Vegetation Zonation of the Tibetan

Plateau, Mountain Research and Development, Vol.1, No.1, pp 29-48 Boulder, Colarado.

Chang, David H., 1985, The Multivariate Analysis of Vegetation and Environental Factors in Nagri, Tibet, P.hd thesis to Cornell University, Ithaca, New York.

Chen Ke-Zao, et.al. 1980. The Saline Lakes on the Qinghai-Xizang Plateau. Mountain Research and Development, Vol, no.1, pp. 29-48. Boulder, Colorado.

Chen Wei-lie. 1980. The Main Types of Forest Vegetation and their Distribution in Xizng. In Symposium.

China Daily Daily. 1990a. Wild Beasts Found Killed in Quinghai (17 Mar). Beijing. Reprinted in ICT 1990c, p.42.

China Daily. 1990b. Lhasa Power to Stop Burning of Dung, Sod (26 Apr). Beijing . Reprinted in ICT 1990c, p.21.

"China Registers overall Increase in Agriculture", News From China, (New Delhi:), March 1991, Vol.-5, No.12, pp. 8-9.

"Chinese nuclear Programme in Tibet confirmed" Tibetan Review, (New Delhi), May 1993, Vol-XXVIII, No-5, p.4.

"Coercive birth-control policy continues" Tibetan Review, (New Delhi), March 1993, Vol.-XXVIII, No.3, p.4-5.

Contsruction boom for Chinese migrants, Tibetan Review, (New Delhi), Jan, 1993. Vol-XXVII, No-1, p-4.

Der Spiegel. 1987. Data on Chinese Militarization of Tibet (13Jul), no. 29. Germany.

Doboom Tuluk, Ven. "Green Buddhism", Tibet House Bulletin, (New Delhi), Vol-7, No-2, pp. 1-8.

"Economic Development and Population Transfer" Tibet TodayEPRC
, (N.Delhi), May 1993, pp.2-10.

EESI (Environmental and Energy Study Institute). 1991. Partnership for Sustainable Development: A New US Agenda for International Development and Environmental Security (Report of the Task Force). washington, DC: EESI.

"Environment and Development : A World Issue" Beijing Review, (Beijing), June 1992, Vol-35, No-23, pp.14-16.

Gandhi, Maneka "Environment in the Third World", World

Focus, (New Delhi), January 1991, Vol-12, No.1, pp. 3-5.

EPRC. 1991d. Key Economic Projects Well Underway in Tibet. News from China (11 Dec), Vol.3, no.50, p.8. New Delhi.

Fan Yun-Qui. 1980. Chemical Charactersistics fo Xizang Lakes. In Symposium 1980.

Ghosh, Sailendra Nath, "Highly Vulnrable" Seminar (New Delhi), 1991, No.378 pp 40-44.

Gupta, R.K. "A holistic approach Seminar, (New Delhi), 1991, No.378, p.28-31.

Ho, Andy. 1988. Gobi Sit for $400m Nuclear Waste plant. South China Morning Post (7 Dec). Hong Kong.

HT (Hindustan Times). 1992a. Forest Cover Depleting (15 Jan). New Delhi.

HT. 1992b. Dalai: China Dumping Nuclear Waste in Tibet (21 Jan). New Delhi.

HT. 1992c. China Mine Blast Kills 28 (23 Apr). New Delhi.

ICIMOD/CAS (International Centre for Integradel Mountain Development/Chinese Academy for Sciences). 1985. Watershed Management: Proceedings of the International Workshops on Watershed Management in the Hindu Kush and Himalaya, October 1985, Chengdu. Kathmandu: ICIMOD.

ICT (International Campaign for Tibet). 1990a. Essential Environmental Materials on Tibet, 1st edition (Jun). Washington, DC:ICT.

ICT. 1990c. Essential Environmental Materials on Tibet, 2nd edition (Oct). Washington, DC:ICT.

ICT. 1991d. Environmental Update (10 Dec). Washington, DC:ICT.

ICT. 1992. Environmental Update (Feb). Washington, DC:ICT

Jian, Song "China's Position on Environment and Development", Beijing Review, (Beijing), June 8, 1992, Vol 35, No. 24, pp. 8-11.

Jodha, N.S. "The Missing Perspective" Seminar, (New Delhi), 1991, No. 370. pp 14-18.

Joshi, Gopa, "China's Environment In The Nineties" China Report, (New Delhi), Vol-29. No-1, Jan-March 1993, pp. 15-

41.

Karan P. (Pradyumna P) and Jenkins, Himalayan Kingdoms: Bhutan, Sikkim and Nepal, (princeton: D Van Notrand, 1963).

Kerr, Blake. 1989. Tibetan Women under China's Birth Control Policy: Tibetan Refugee Accounts of Forced Abortion, Sterilisation and Infanticide. (2 Feb). Dharamsala. Mimeo.

Kuhle, Matthias, "The Glaciation of Tibet and its Global Climate Effects", Universitas (Germany), 1990, Vol-32, No.3, pp.229-239.

Lazar, Edward, "Collaboration Behind and Environmental Mask", Tibetan Review, (New Delhi), 1991, Vol XXVI, No.6, pp. 9-10.

Li Cui, "Protecting Natural Resources and Environment" Beijing Review (Beijing), September 14, 1987, Vol.30, No 37, pp.4-6.

Li Rongxia. 1990a. Utilizing the Resources of the Yellow River. Beijing Review (6-12 Aug), pp.18-21. Beijing.

Liang Ming. 1991. Tibet's Population: 1 Million More in 40 years. Beijing Review (22-28Apr),pp. 18-23. Beijing.

Liu Yanhua. 1988. Agriculture-Population Interaction in Lhasa District, Tibet(Preliminary Analysis). Kathmandu: ICIMOD.

Longrigg, Clair and Rowe, Bradley. 1990. Deforestation in Western China and Tibet. In ICT 1990c., pp. 14-19.

"Many Lhasa Cadres Object to new Power Station at Yamdok Lake" Tibet Review, (New Delhi:), Jan 1992, Vol XXVII, No 1, p.4.

"Militarisation and regional Peace" Tibet (Proving Truth From Facts) (Dharamsala, India) 1993, pp.85-88.

Miller, Daniel J. "Wild Yaks of Kunlun, Himal (Lalitpur), May-June 1992, pp.35-36.

Mohan, Madan "Ecology and Development", Third Concept, (New Delhi), Jan, 1992, Vol 4, No.59 pp 39-41.

Molnar, Peter. 1989. Wealthy Hong Kong Consurmers Boost Illegal wildlife Trade. Kyodo News Servicd (10 Jan). Hong Kong.

"Most Lhasa Shops Owned by Chinese" Tibetan Review, (New Delhi) March 1993, Vol XXVIII, No.3, p.4.

Nash, Nancy. 1987. The Buddhist Perception of Nature Project. In BPN 1987.

Nasr Seyyed Hossein Religion and the Environmental Crisis, (New Delhi, Indira Gandhi National Cetre for the Arts, 1993).

Nation, The. 1990. Forest Devastation Plagues Tibet. Report by APPEN (Asia-Pacific Network on Environment). Bangkok, Reprinted in ICT 1990c, pp. 14-19.

New China News Agency. 1965. U-Tsang Population Data 1953-59 (20 Aug) Lhasa.

Norberg-Hodge, Heiena. 1991. Ancient Futures: Learning from Ladakh. San Francisco: Sierra Club Books.

Norbu, Dawa. 1988. Changes in Tibetan Economy, 1959-76. China Report: A Journal of East Asian Studies (Jul/Sep), Vol. 24, no.3, pp.221-36. New Delhi.

Nuclear Tibet : Nuclear Weapons and Nuclear Waste on the Tibetan Plateau, (Washington) Report by International Campaign for Tibet.

NYT. (New York Times). 1987: Data on Tibet's Population (23 Jun).

NYT. (New York Times). Huge New Reserve for Tibet' Wildlife (4 Feb).

OIIR. 1992. Human Rights Update: Forced Birth Control in occupied Tibet (A Testimony from North-Eastern Tibet) (5 Feb). Dharamsala: Central Tibetan Administration. Mimeo.

Parks, Michael. 1984. China Offering Nuclear Storage, May Dispose of Europe's spent Fuel in Deserts. Los Angeles Times (11 Feb). Los Angeles.

"Patterns of Economic Growth" Tibet (Environment and Development Issues 1992) (Dharamsala, India), pp.31-43.

Peters, R.L. 1990. Effects of Global Warming on Forests Ecology and Management, no.35, pp.13-33. Amsterdam.

Planning Council. 1992. Integrated Development Plan of the Tibetan Community in Exile 1992-1997. Dharamsala: Central Tibet, 6-8 July 1990, London.

"Population Transfer and Control" Tibet (Proving Truth From Facts) (Dharamsala, India), 1993, pp. 71-77.

Prakash, Sanjeev. 1990. Tibet's Natural Environment: The Major Issues. Paper presented to the International Constitution on Tibet, 6-8 July 1990, London.

Prakash, Sanjeev. 1992. Do Tibetans have Environmental Rights? Tibetan Bulletin (May/Jun). Dharmsala: Office of Information and Interanational Relations, Central Tibetan Administration.

Protecting Natural Resources and Environment. Beijing Review (Beijing), Sep. 14, 1987, Vol 30, No 37, pp.4-6.

Ramakrishnan, P.S. "Land Use Problems" Seminar, (New Delhi), 1991, No. 376, pp. 32-35.

"Regional Autonomy and Special Policies", Beijing Review, (Beijing), Nov. 23-29, 1987, Vol 30, No 47. pp 21-22.

"Religion: Party document reveals more restrictions Planned" TIN, (London), Oct. 1990, pp 1-3.

"Resettlement Plan in Tibet" Beijing Review, (Beijing), June 28-July-4, 1993, Vol-36, No.26, p-5.

Richardson, S.D. 1988. The Forest Economy of Tibet. commomwealth Forestry Review, Vol.67, No.3,pp.253. 262. London.

Rieter Elmar R. Tibetan deforestation and Possible Climatic effects, Tibetan Bulletin, (Dharamsala), May-June 1991, pp.22-24.

Rinpoche. S. "Militaristic Destruction of Tibet's Environment", South Asia Vision (New Delhi), 1993, pp.6-7.

Rinpoche, Kyabgon Sakya Trizin "Ecology and Interdependent origination", A Turning of the Wheel, (New Delhi), 2 Oct. 1993, pp. 43-54.

Rinpoche Kyabgon Sakya Trizin, "The Crisis and Challenge of Our Time-The Buddhist Response of Right Understanding" A Turning Point of the Wheel., (New Delhi), Oct, 1993, pp. 43-47.

Rongxia, Li "Tibet: 40 Years Economic Development", Beijing Review, (Beijing), May 1991, Vol 34, No.20 pp 19-25.

"Round Up; Tibet Sees Stability and Development" News From

China, (New Delhi), Jan 2, 1991, Vol III, NO.1 , pp 10-11.

RP (Rajasthan patrika). 1988. China Planss to Bury Radioactive Waste (29 Sep). Jaipur/Jodhpur.

Sandell, Klas. 1987. Buddhist Philosophy as Inspiration to Ecodevelopment. In Buddhist Perspectives on the Ecocrisis ed. by klas sandell, pp.30-37. Kandy, Sri Lanka: Buddhist Publication Society.

Schaller, George. 1986. A Tibetan Tragedy. Animal Kingdom, Vol 89, no.4, pp.22-33. New York.

Schell, Orvile. 1991b. Chinese Attitudes Toward conservation and to Tibet. In the Anguish of Tibet, pp.199-206. Berkely: Parallax Press.

Sharlho Tseten Wangchuk "China's Reforms in Tibet: Issues and Dilemmas", Tibetan Review, (New Delhi) March 1993, vol. XXVIII, No.3, pp. 14-20.

Sharlho Tseten Wangchuk "China's Reforms in Tibet: Issues and Dilemmas - PartII", Tibetan Review, (New Delhi) April 1993, vol XXVIII, NO.4, pp.12-19.

Shetty, B.S. "Environmental Degradation and Farming" world Focus, (New Delhi), Jan 1991, Vol 12, No-1, pp. 0-9.

Singh, M.P. Mohan Memorandum of Parliamentarians to the P.M. of India", South Asia vision (New Delhi), Oct. 1993 pp. 8-10.

Shuiyu Liu "Fish Markets Brisk in Tibet" News From China, (New Delhi), April 1993, vol-5, No-16, p.13.

Sinha, Sureshwar D. "A Zone of Peace" Seminar, (New Delhi), 1991, NO. 378. p. 36-39.

Spanel, Ann 1989. Ravaging Tibet's Resources. Boston Globe (10 Mar). Boston. Reprinted in ICT 1990c.

"State of Tibet's environment" Tibet (Proving Truth From Facts) (Dharamsala, India) 1993, pp 78-84.

SWB. 1991b. Industrial Production, Gold Dredger in Operation in Qinghai (9 Sep). Xinhua News Agnecy. Beijing.

SWB. 1991c. Society and Environment: Changes in Banking System (9 Oct). Renmin Ribao (Overseas edition). Beijing.

SWB. 1991d. Industrial Production: Qinghai Industries Register Increased Ouput(12 Oct). Qighai Povincial Service. Xining.

SWB 1991E. Industrial Production: Development of Mineral Resources to be Speeded up (30 Nov). Xinhua News Agency. Beijing.

SYC. 1985. Hong Kong: Economic and Information Agency, State Statistical Bureau of PRC.

Ta Kung Pao. 1985. China Handbook Hong Kong: Ta Kung Pao.

"The Dalai Lama", Tibetan Report Update, (N.Delhi), 1991 No.1, pp 935-974.

"The Natural and Human Endowment" Tibet (Environment and Development issues 1992) (Dharamsala, India), pp 13-28.

"The Relationship Between Environment Management And Human Rights in Tibet" ,"Preliminary Report", (Geneva), 2 Aug. 1991, pp 1-22.

"The Role of Natural Resource in Economic Development" Tibet (Environment and Develoment Issues 1992) (Dharamsala, India) pp 47-67.

"The systematic challenges Facing UNCED" Development, (Roma), 1992, pp 3-4.

"Tibet Agricultural Production Facilities improved", New From China , Dec 12, 1990, Vol-II, No-49, pp 7-8.

"Tibet Backgrounder: Tibet's population Today and Yesterday", News From China, (New Delhi), April 13, 1991, Vol-3, No.14, p 15.

"Tibet Bluprints Economic Development" News From China, (New Delhi) March 1991, vol 3, No. 10 pp. 11-12.

"Tibet expects record Grain Out Put",New From China, Oct. 1990, Vol II, No. 42. pp 10-11.

"Tibetan Inprimal Forest Now Lives" News From China, (New Delhi), Aug 5, 1992, Vol. 12, No 37, P 13.

"Tibet Today" Tibet Today, Report by committee for solidarity with Tibet Liberation Movement, India, May 1993, pp 1-20.

Thoesam, Tenzin. 1991. Uranium Mining in Amdo. Washington, DC:ICT. Mimeo.

Tibetan Bulletin. 1992c. Widespread Opposition to Yarndrok Yso Power Station (Jan/Feb), p.17.

Tibetan Review. 1985. Tibetan and Thai Buddhists For conservation (Oct/Nov), p.9. Delhi.

Tibetan Review. 1989. The Mineral Resources of Tibet(Jan), pp. 19-20. Delhi.

Tibetan Review. 1992b. Tibetan Women For Healthy Planet(Jan), p.10. Delhi.

TIN(Tibet Information Network). 1990a. Uranium Deposits Chromite Mine(30May), p.6; Birth Control and Population (30 May), pp.6-8. London.

TIN. 1991e. Mineral Exhaustion within Ten Years. Quoting Xinhua News Agency (27 Apr.) New Delhi.

TIN 1991f. "Return Our Grasslands" Protest in Qinghai. TIN News Update (20Sep). London.

TOI (Times of India). 1987. Fugures for the Chinese Military Pressure in Tibet.

Tsering, Dukar, 1992 Statesman about Grasslands and Waste Dumping in Amdo. Dharamsala: Department of Security, Central Tibetan Administration (Compilation of refugee statements).

Tucci, Giuseppe, 1967. Tibet: Land of Snows, tr. by J.E. Stapleton Driver. London: Paul Elek Ltd.

Tuting Ludmilla "The Ecological destruction of Tibet" Tibetan Review, (New Delhi), Nov. 1988 Vol XXVIII, No 11, pp 7-10.

"United Nations Convention on Climatic Change" The Hindu (Madras), 1993, pp.177-191.

UNEP. 1990. Only One Earth. New York: UNEP.

UNESCAP. 1990. Universal Code of Environmental Conduct, Presented at Ministerial-Level Conference on Environment and Development in Asia and the Pacific, 10-26 October, Bangkok. Mimeo.

"US city plans to ship toxic sewage Sludge to Tibet" Tibetan Review, (New Delhi), June 1991, Vol XXVI, No 6, pp 5-10.

Vasudeva, Uma. 1992. Hazards of Nuclear Wastes. Indian Express (13 Feb)New Delhi.

Vergese, B.G. 1991. Water Management. Seminar: The Monthly Symposium 378(Feb), pp 14-18. Delhi.

Vergeshe, B.G. "Water Management" Seminar, (New Delhi), 1991, NO 378, pp. 24-27.

Wang, L. 1990. china's Minority Nationalities. Beijing Review (19-25Feb), p.29. Beijing.

Wangyal, Phuntsog. 1986. Ecology and Culture in Tibet Today. Tibetan Review (Jul), pp.11-12. New Delhi.

WCI (Wildlife Conservation International). 1991. Vast Reserve Established in Tibet. Tibet Press Watch(Dec). Vol.3 no.5, p.14, Washington,DC.

"WFP Funded Project goes smooth in Tibet" News From China, (New Delhi), Aug 14, 1991, Vol-III, No 33 P 11.

WMI. 1991. The Qomolangma Nature Preserve of the Tibet Autonomous Region of China: Annual Report. Franklin, West Virginia: WMI.

Xinhua New Agency. 1990. Construction of Five Key Projects in Tibet Viewed (27 Sep) Beijing. Reprinted in ICT 1990c, p.21.

Xinhua New Agency. 1992t. China To Invest one Billion Yuan in Tibetan Highways(14Jan). Beijing.

Yonzone, G.S "MOuntain Ecology" Himalaya (New Delhi), Sep-Nov 1991, Vol III, no. 2. pp 40-41.

NEWS PAPERS

1. Times of India (New Delhi)
2. Hindustan Times (New Delhi)
3. International Herald (Singapore)
4. The Hindu (Madras(