# Human Security in the Eastern Himalayan Region: A Study with Special Reference to Sikkim

A Dissertation Submitted

To

# Sikkim University



In Partial Fulfilment of the Requirements for the

**Degree of Master of Philosophy**

By

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February 2017

Gangtok 737102 INDIA

Date:6/2/2017

# DECLARATION

I hereby declare that the dissertation entitled **"Human Security in the Eastern Himalayan Region: A study with Special Reference to Sikkim"** submitted to **Sikkim University** in partial fulfillment of the requirements for the degree **of Master of Philosophy** is my original work. This dissertation has not been submitted for any other degree of this university or any other university.

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# CERTIFICATE

This is to certify that the dissertation entitled **"Human Security in the Eastern Himalayan Region: A Study with Special Reference to Sikkim"** submitted to **Sikkim University** for the award of the degree of **Master of Philosophy** in International Relations**,** embodies the result of bona fide research work carried out by Karishma subba under my guidance and supervision. No part of the dissertation is submitted for any other degrees, diploma, associate- ship and fellowship. All the assistance and help received during the course of investigation have been deeply acknowledged by her.

**Dr. Sebastian N.**
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# PLAGIARISM CHECK CERTIFICATE

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**"Human Security in the Eastern Himalayan Region: A Study with Special Reference to Sikkim"**

Submitted by Karishma Subba under the supervision of Dr. Sebastian N. of the Department of International Relations, School of Social Sciences, Sikkim University, Gangtok 737102, INDIA

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# Acknowledgments

*A note of gratitude to a number of people, whose genuine support and encouragements made this dissertation a successful work. The dissertation began and ended with the dedicated guidance and enormous help of my supervisor Dr. Sebastian N. Sir, without whom it would be almost impossible for the completion of the same. I would like to express my heartiest thankfulness and acknowledge him for the guidance and enduring support he bestowed upon me throughout. I also express my sincere thanks to the faculty members of my Department (International Relations/Politics), Dr. Manish and Ph Newton Singh for their valuable suggestions.*

*One of the major resources throughout the dissertation writing has been the Central Library of Sikkim, Forest and Tourist Department of Sikkim and Eco-tourism & conservation Society of Sikkim. Therefore, I am thankful to all the concerned authorities of these libraries, ECO-Tourism & Conservation Society of Sikkim and Forest and Tourist Department of Sikkim as they have provided me access to the library and procured relevant materials during the course of my research.*

*I am very thankful to my friends Arun, Sanayaima and Jahdiel for helping me during my period of research. In the end, I extend my thanks to the entire family members. It was indeed their constant support, encouragement and patience which contributed at large in the process of this research.*

*karishma subba*

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# CHAPTER I

# Introduction

## 1.1 Introduction

This study examines the various issues of Human Security in the Eastern Himalayan Region-with a special focus on Sikkim. The main aim of this study is to identify the major Human Security issues in the Eastern Himalayan Region in general and Sikkim in particular. This study also tries to identify and analyse different initiatives taken by Sikkim government to address such issues.

## 1.2 The Concept Human Security

Human security discourse was the product of a convergence of factors at the end of the Cold War. These challenged the dominance of the neorealist paradigm's focus on states, mutually assured destruction and military security and briefly enabled a much broader concept of security to emerge. The increasingly rapid pace of globalisation, the failure of liberal state building through the instruments of the Washington Consensus, the reduced threat of nuclear war between the superpowers, the exponential rise in the spread and consolidation of democratisation and international human rights norms opened a space in which both 'development' and concepts of 'security' could be reconsidered.

The principal possible indicators of movement toward an individualized conception of security lie in the first place in the evolution of international society's consideration of rights of individuals in the face of potential threats from states. Increasing number of internal violent conflicts in Africa, Asia and Europe (Balkans) resulted in concepts of national and international security failing to reflect the challenges of the post Cold War security environment whilst the failure of neoliberal development models to generate growth, particularly in Africa, or to deal with the consequences of complex new threats (such as HIV and climate change) reinforced the sense that international institutions and states were not organised to address such problems in an integrated way[1].

Human security is an emerging paradigm for understanding global vulnerabilities whose proponents challenge the traditional notion of national

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[1]www.humansecurityinitiative.org/definition-human-securityaccessed on 02/04/2016

security by arguing that the proper referent for security should be the individual rather than the state. Human security holds that a people-centred, multi-disciplinary understanding of security involving a number of research fields. The concept emerged from a post cold war multi-disciplinary understanding of security involving a number of research fields, including developmental studies, international relations, strategic studies, and human rights. The United Nations Development Programme's 1994 Human Development Report is considered a milestone publication in the field of human security, with its argument that insuring 'Freedom from Want' and 'Freedom from Fear' for all persons is the best path to tackle the problem of global insecurity.

As argued by the Commission on Human Security (CHS), the need for a new paradigm of security is associated with two sets of dynamics: Firstly, human security is needed in response to the complexity and the interrelatedness of both old and new security threats from chronic and persistent poverty to ethnic violence, human trafficking, climate change, health pandemics, international terrorism, and sudden economic and financial downturns. Such threats tend to acquire transnational dimensions and move beyond traditional notions of security that focus on external military aggressions alone. Secondly, human security is required as a comprehensive approach that utilizes the wide range of new opportunities to tackle such threats in an integrated manner. Human security threats cannot be tackled through conventional mechanisms alone. Instead, they require a new consensus that acknowledges the linkages and the interdependencies between development, human rights and national security[2].

## 1.3 Human Security: Meaning and Definitions

The Commission on Human Security defines human security as "to protect the vital core of all human lives in ways that enhance human freedoms and human fulfilment. Human security means protecting fundamental freedoms – freedoms that are the essence of life. It means protecting people from critical (severe) and pervasive (widespread) threats and situations. It means using processes that build on people's strengths and aspirations. It means creating political, social, environmental, economic,

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[2]https://en.wikipedia.org/wiki/Human_security  accessed on 02/04/2016

military and cultural systems that together give people the building blocks of survival, livelihood and dignity"[3].

Kanti Bajpai defines Human Security as "Human security relates to the protection of the individual's personal safety and freedom from direct and indirect threats of violence. The promotion of human development and good governance, and, when necessary, the collective use of sanctions and force are central to managing human security. States, international organizations, nongovernmental organizations, and other groups in civil society in combination are vital to the prospects of human security"[4].

Kofi Annan describes Human Security as "Human security, in its broadest sense, embraces far more than the absence of violent conflict. It encompasses human rights, good governance, access to education and health care and ensuring that each individual has opportunities and choices to fulfil his or her potential. Every step in this direction is also a steep towards reducing poverty, achieving economic growth and preventing conflict. Freedom from want, freedom from fear, and the freedom of future generations to inherit a healthy natural environment these are the interrelated building blocks of human and therefore national security (Bajpai 2000)"[5].

Dr. Mahbub Ul Haqfirst drew global attention to the concept of human security in the United Nations Development Programme's 1994 Human Development Report and sought to influence the UN's 1995 World Summit on social Development in Copenhagen(McSweeney 1998).The 1994 Human Development Report highlighted two major components of human security 'freedom from fear' and 'freedom from want'. These freedoms, from the preamble to the Universal Declaration of Human Rights, are part of the four human freedoms that President Franklin D Rossevelt famously referred to in a speech in 1941(McSweeney 1998). He was advocating a world founded on freedom of speech and expression, freedom of worship, freedom from want and freedom from fear. "Freedom from fear" and "freedom from want" are

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[3]United Nations Trust Fund for Human Security: *Human Security In Theory And PracticeAn Overview of the Human Security Concept*. www.un.org/humansecurity/...humansecurity/.../human security_ in_theory_and_practiceccessed on 14.04.2016
[4]United Nations Secretary-General Kofi Annan. Millenium Report, Chapter 3, p.43-44. <http://www.un.org/millennium/sg/report/full.htm> 05/04/2016
[5]KantiBajpai. The Idea of a Human Security Audit. Joan B. Kroc Institute Report, No. 19. Fall 2000, p. 1-4. <http://www.nd.edu/~krocinst/ocpapers/op_19_1.PDF> 05/04/2016

the most commonly referred to categories of human security practice (McSweeney 1998)

The UNDP's 1994 Human Development Report definition of human security argues that the scope of global security should be expanded to include threats in seven areas (Mc Sweeney 1998):

1. Economic Security: Economic security requires an assured basic income for individuals, usually from productive and remunerative work. It is seen only about a quarter of the world's people are presently economically secure. While the economic security problem may be more serious in developing countries, concern also arises in developed countries as well. Unemployment problems constitute an important factor underlying political tensions and ethnic violence.

2. Food Security: Food security requires that all people at all times have both physical and economic access to basic food. According to the United Nations the overall availability of food is not a problem, rather the problem often is the poor distribution of food and a lack of purchasing power. In the past, food security problems have been dealt with at both national and global levels. However, their impacts are limited. According to UN, the key is to tackle the problems relating to access to assets, work and assured income.

3. Health Security: Health Security aims to guarantee a minimum protection from diseases and unhealthy lifestyles. In developing countries, the major causes of death traditionally were infectious and parasitic diseases whereas in industrialized countries, the major killers were diseases of the circulatory system. Today, lifestyle-related chronic diseases are leading killers worldwide, with 80 percent of deaths from chronic diseases occurring in low- and middle-income countries. According to the United Nations, in both developing and industrial countries, threats to health security are usually greater for poor people in rural areas, particularly children. This is due to malnutrition and insufficient access to health services, clean water and other basic necessities.

4. Environmental Security: Environmental security aims to protect people from the short- and long-term ravages of nature, manmade threats in nature, and deterioration of natural environment. In developing countries, lack of access to clean water resources is one of the greatest environmental threats. In industrial

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countries, one of the major threats is air pollution. Global warming caused by the emission of green house gaseous is another environmental security issue.

5. Personal Security: Personal security aims to protect people from physical violence whether from the state or external states, from violent individuals and sub-state actors, from domestic abuse or from predatory adults.

6. Community Security: Community security aims to protect people from the loss of traditional relationships and values and from sectarian and ethnic violence. Traditional communities, particularly minority ethnic groups are often threatened. About half of the world's states have experienced some inter-ethnic strife. The United Nations declared 1993 the Year of Indigenous People to highlight the continuing vulnerability of the 300 million aboriginal people in 70 countries as they face a widening spiral of violence

7. Political security: Political security is concerned with whether people live in a society that honors their basic human rights.

Canada has identified the following five foreign policy priorities for advancing human security:

1. Protection of civilians, concerned with building international will and strengthening norms and capacity to reduce the human costs of armed conflict.

2. Peace support operations, concerned with building UN capacities and addressing the demanding and increasingly complex requirements for deployment of skilled personnel, including Canadians, to these missions.

3. Conflict prevention, with strengthening the capacity of the international community to prevent or resolve conflict, and building local indigenous capacity to manage conflict without violence.

4. Governance and accountability, concerned with fostering improved accountability of public and private sector institutions in terms of established norms of democracy and human rights.

5. Public safety, concerned with building international expertise, capacities and instruments to counter the growing threats posed by the rise of transnational organized crime" (George, 2010).

## 1.4 Human Security in the Eastern Himalayan region

Mountains form one of the most important bio-geographical resource zones of the world. Over half the global population depends on mountain environments for a wide range of goods and services including for water, food, hydro-electricity, timber, biodiversity maintenance and mineral resources besides availing opportunities for recreation and spiritual renewal. Up to 80 per cent of the planet's fresh surface water comes from mountains. Hence, mountains are very significant to human in a variety of ways.

The Eastern Himalayas (EH) lie between 82.70°E and 100.31°E longitude and 21.95°N to 29.45°N latitude, covering a total area of 524,190 sq.km. The region extends from the Kaligandaki Valley in central Nepal to northwest Yunnan in China, and includes Bhutan, parts of India (North East Indian states, and the Darjeeling hills of West Bengal), southeast Tibet and parts of Yunnan in China, and northern Myanmar. These five countries have different geo-political and socioeconomic systems, as well as diverse cultures and ethnic groups.

The Eastern Himalayan Region being the second largest hydrologic region in the world is very rich in water resources, fertile lands and energy potentials, but scores very low in terms of socioeconomic indicators. Excluding China (India, Bangladesh, Nepal and Bhutan) within the EHR has a population of over 600 million, more than 70% which lives in rural areas are dependent on agriculture. Poverty is the common denominator the EHR. Nearly 45% of the land is cultivable, yet per capita availability of arable land is very small (Shrestha 2010).

**Climate Changeand Eastern Himalayas**: Mountain ecosystems are clearly affected by climate change, it is considered to have been a moderate but increasing driver of ecosystem change in mountain areas over the last century. Many studies indicate that the temperature is rising in the Himalayas at a rate greater than the global average. On average, air temperature in the Himalayas has risen by 0.06 centigrade per year since the 1970s compared to a global average of 0.74% over the last 100 years(Shrestha 2010). Increased temperatures, changes in rainfall and snowfall, extended periods of drought, increased risks, and occurrence of floods and flash floods are the effect of climate changes observed in the Eastern Himalayas. Climate change is affecting the

availability of water resources, and biodiversity and ecosystems, hence challenging people's livelihoods, health, security, and wellbeing (Shrestha 2010).

Not all people are equally equipped to face these challenges. Rural populations, notably the ones highly dependent on land-based resources for their livelihoods, are likely to be the most negatively affected by changes in ecosystems caused by climate change. The rapid population growth in some countries of the Eastern Himalayas places additional stress on the scarce natural resources and fragile ecosystems of the mountain environment. Industrialisation is generally underdeveloped in the Eastern Himalayan region. This not only affects economic development but also the development of infrastructure such as roads and communication facilities.

Food security is affected greatly by variations in climate and environmental changes. This is particularly the case in the eastern Himalayan region where the population is dependent on agriculture and livestock. Food security is a chronic problem, particularly among hill and mountain populations and indigenous groups. Most of the areas in the region are classified as food-deficit as they are not producing enough food for its population. In Bhutan, only around 16% of the land is cultivable and this severely constrains agricultural production and also exposes the nation to the risk of food insecurity(Shrestha 2010). Vulnerability to food shortages is a more pressing contemporary issue for Bhutan than the other dimensions of food security such as access, availability, and use.

Human health is an essential component of human wellbeing and is highly susceptible to climate change. It is agreed that climate change will affect the incidence and distribution of vector-borne diseases, water-borne diseases, and health problems caused by extreme weather events(ibid). Climate change can also affect human health indirectly through a number of pathways for example, its impact on food production and supply will exacerbate the existing, pervasive malnutrition in this region. Climate-induced disasters such as droughts, floods, and landslides are frequent in this region. They have significant negative impacts on human wellbeing through loss of life and property, injury, disease epidemics, and so forth.

**Water Security in the Eastern Himalayan Regions:** It has been widely recognized that water could be the most pragmatic entry to development in the EHR. The three mighty rivers of EHR (Ganga, Brahmaputra and Meghna) have an average annual

rainfall of more than 1350 billion cubic metres, and along with their numerous tributaries, they can cover an area of 1.75 million sq km. Bangladesh has a share only 7% of the total catchment, while 63% of the catchment lies within India (Rasheed,Undated). This demonstrates the challenge Bangladesh faces in ensuring water security for its population.

Governance in the water security is crucially important since the overarching goal of water security is to ensure the mitigation of global water crisis. Water security would depend on such decisions as to who makes the allocation of water and who uses if for what purpose. The special emphasis of water security is to extend services to the unserved population, and find the right balance between meeting social needs of water and using for economic development.

**Forest Degradation and Loss of Biodiversity:** Himalayan forests, the major storehouse of biodiversity in South-Asia are now, allegedly, under threat. Biodiversity is the sum total of species richness (i.e. number of species of plants, animals and micro-organisms) living in a community or an ecosystem. Today, forests have reduced drastically or completely vanished from many parts of the Himalaya. As back as in the early eighties an average of 1432 persons were relying on each sq km of cultivated land in the Indian Himalaya, the same figure for the plains was 483(ibid) Such a situation has over the years manifested itself through encroachments on virgin forestlands and degradation of community lands. The concept of Common Property Resources (CPRs) that was traditionally so relevant in the context of the Himalaya has been increasingly fading away with time (ibid). Their destruction is often the result of the limited development options available to the people who are dependent on them.

**Environmental Security in the Eastern Himalayan Region:** Every year during the monsoon Himalayan region appears in the headlines with stories of large scale flooding in the plains of Ganges and Brahmaputra and resultant human-monetary environment tragedy therein. As usual, there has been the yearly practice of accusing farmers of the Himalaya, particularly the Nepal Himalaya, for sending down the floods in ever-higher volumes. Floods occur on the Gangetic plain and Bangladesh every year largely due to their geo-environmental locations.

Some groups argue that the Himalayan environmental degradation as a pertinent factor resulting in the monsoon tragedy on the Gangetic plain and Bangladesh. The

Himalayan degradation theory proposes that increased devastating flooding on the Ganges and Brahmaputra low lands is a direct response to extensive deforestation in the Himalaya. The deforestation is presumed as a result of a rapid growth in the mountain subsistence farming populations dependent on the forests for fodder and fuel and for conversion to terraced agriculture. As steep mountain slopes are denuded of forest cover, it is assumed that the heavy monsoon rains cause accelerated soil erosion, numerous landslides, and increased runoff and sediment transfer onto the plains inducing a progressive increase in 118 flooding of Gangetic India and Bangladesh and hence putting at risk the lives of several hundred million people (Rasheed undated)[6].

## 1.5 Human Security in Sikkim

Sikkim forms a part of both Lesser and Great Himalayan ranges and geographically it shares an important portion of the Eastern Himalaya. Covering just 0.2 percent of the country the Sikkim Himalaya is characterized with formidable physical features. Sikkim is primarily a rural and agricultural economy where over 60 per cent of its population are directly engaged in agriculture and allied activities while 85 per cent of the population is in one way or the other linked with agriculture and allied activities including livestock (Subba, 2012). The state has limited industrial potential due to its geologic and geomorphic constraints. More recently small and medium scale industrial units like fruit processing, pickle making, jewels, distillery etc are, however, gradually penetrating in the region. Sikkim is also a well-known producer of alcoholic beverages. Notably, the contribution of agriculture and allied activities on the GDP of Sikkim has drastically reduced over the years while that of secondary and tertiary sector has increased. Conversely, however, the proportion of Sikkimese dependant on agriculture and allied activities has remained constant or decreased negligibly during the same period.

Sikkim was the third state in the Indian union to come up with its own Human Development Report in the year 2001, which centered on people's development (Subba 2012). The report overall highlighted sustainable development in Sikkim focusing upon issues like improvement in gender equality, women empowerment,

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[6]Rasheed Sajjadur K.B *Water Security in the Eastern Himalayan Region*. www.environmentportal. in/.../Water%20security%20in%20Eastern%20Himalayan%2Accessed on 12/04/2016

organic farming, strengthening of various small scale industries and so on. Sikkim despite being geographically landlocked is rich in biodiversity. It is amongst the 34 biodiversity hotspot of the world. Though it occupies only 0.2% of the total geographical area of India and limited to 7096km of area, it accounts for over 25% of the biodiversity of the country (Subba, 2012).

The important physical challenges that often threaten Human security in Sikkim are:

**Natural Environmental Challenges**

The entire Sikkim Himalaya is a part of the youngest and loftiest mountain system of the world 'the Himalaya' and hence is characterized with highly folded and faulted rock strata at many places. Being a part of the larger Himalayan Region, Sikkim is seismically sensitive and threatened by a number of geo-environmental challenges. The rock type in the region mainly consists of phyllites and schists and therefore the slopes are highly susceptible to weathering, erosion, landslides and other forms of mass wasting. The high intensity of rain falling during monsoon in the state often causes extensive soil erosion and heavy losses of nutrients from the land by leaching. Important physical challenges that often threaten human security in Sikkim Himalaya are:

**Climate Change**: Climate Change is a long term phenomenon in the earth's climate especially due to melting of glaciers that leads to an increase in the average atmospheric temperature. Sikkim is dotted with glaciers most prominently in northern and north-western regions. These glaciers are the sources of hydrological flows in the state. Due to climate change there is being a delicate relationship of flora and fauna and human inhabitation as well.

In the context of changes brought about by the increase in temperature over the surface of the earth and its impact can be seen in Sikkim with regard to flora and fauna. Especially the floral world has begun to behave in a strange way in Sikkim for last few years. There are visible changes in the pattern of leaf shedding or in the appearance of new flush. There is a significant shift in the timing of the flowering of plants as well. It is generally observed that Rhododendrons have begun to flower earlier than their schedule season.

**Earthquake**: While Sikkim has not witnessed any major earthquake events within its geographical boundary in the recent history but the possibility of such disaster cannot be ignored given the history of earthquake happenings in the Himalayan Region. The climate change has an enormous effect in the Himalayan region especially in Sikkim i.e. evident from the fact that when the Nepal earthquake happened in 2015 it had a considerable impact in Sikkim.

**Deforestation:** Sikkim Himalaya as a major subsystem of Eastern Himalaya has not been free from the deforestation hazard. One of the most pertinent challenges of Sikkim today is rendered by the destruction of natural vegetation in the high altitude areas. Any destruction of natural vegetation will be a major problem in Sikkim.

**Landslides**: Sikkim Himalaya is seismically active and featured by frequent mass wasting inc1uding landslides and land subsidence. The steep hill slopes in the area are very sensitive to any geo-environmental changes. The fragile geological structure of the terrain due to faulty rock formation is certainly one of the main causes of landslides in Sikkim.

**Food security**

Food security is considered as an important aspect of human security. In terms of food security Sikkim state is not self-sufficient in food production in two ways first of all due to limited land availability for agricultural practices and secondly due its terrain which makes it to be poor in agriculture sphere. Thus all such limitations has made Sikkim to be declared as a ' Food Deficit State' one of the major concerns which make the state rely heavily on the import of PDS. PDS in Sikkim is one of the important scheme for people to get ration at minimum prices at a subsidized rate. Like India, the state of Sikkim also has an agrarian economy, where a majority of its population (64%) is engaged in agricultural activities (Government of Sikkim, 2001). The overall contribution of food grain production by Sikkim when compared to other states is negligible. Though in terms of food security Sikkim does not contribute to national food stockpile, but rather is dependent on the central government for a major stock of food grains.

**Health security**

Health security is also one of the important concern of human security in Sikkim. Not many initiatives have taken to provide health security to the people in Sikkim. This is very much true from the fact that Sikkim holds the highest rate of suicides in the country. Even tuberculosis is also prevalent among many people in this state. Though Sikkim have taken some necessary steps to curb drug addiction but still usage of drugs among the young people is still very much prevalent in Sikkim which is a major concern.

**1.6 Survey of Literature**

The book *Human Security concept and implication* (2007) written by Shahrbanou Tadjbaksh and Anuradha Chenoy traces the key evolutions on the development of the concept of human security, the various definitions and critiques, how it relates to other concepts and what it implies for politics. The book *Rethinking Human Security* (2009) by Moufida Goucha, John Crowley addresses major issues such as the human resource and human security nexus, gender aspect of human security, ethical and environmental challenges, human security as a basic element for a policy framework.

Mathew Richard et al in their book *Global Environment Change and Human Security* (2009) examines the complex social, health and economic consequences of environment across the globe. Kanti Bajpai (2000) in "Human Securtiy- concept and measurement" talks about the different aspects of security. He compares the traditional notion of security with a new one i.e. human security, and see's what was lacking in the traditional aspect of security.

 The book *Problems and Strategies of Development in the Eastern Himalaya Region* by Ranju Rani Dhamal (1993) identifies the specific problems and adopting means to formulate correct strategies for development in the eastern Himalayan Region

Kuldip Singh Gulia (2007)in his book "Ecology and Environment in the Himalayas" writes that denudation of forests also has been causing landslides and endangering the wildlife. Now the efforts are being made to advert manmade disaster. This book comes to grips with the problem in the entire Himalayan region.

The article titled "environmental challenges and human security in the Himalaya" by Vimal Khawas (2005) where he has discussed some of the important natural and human made environmental insecurities and their bearing on the overall human security in the Himalaya.

The article "climate change, human security and violent conflict" by Jon Barnett (2007) W. Neil Adger in this paper they have discussed about three disparate but well founded bodies of research on the vulnerability of local places and social groups to climate change, on livelihoods and violent conflict and the role of the state in development and peacemaking to offer new insights into the relationship between climate change, human security and violent conflict.

J.R. Subba in the book *History, Culture and Customs of Sikkim* (2008) provides insight into the history of its existence as a Himalayan kingdom and its disintegration in various phases, ethnicity, culture and customs of the people of Sikkim. Mahendra P. Lama in his book *Sikkim Society, Polity, Economy, Environment*(1994) addresses issues like integration process, development interventions, social change, strategic volatility and environmental agenda.

The handbook '*Forest and Environment Mission Sikkim 2015'* which is an initiative taken by the forest department of Sikkim where they have talked about the better Sikkim focusing on initiatives like the state green mission, ten minutes to earth, creation and management of propagation nursery, wildlife management, strengthening in-situ, ex-situ conservation, forest management and biodiversity conservation etc.

The handbook '*Sikkim biodiversity conservation and forest management project 2001'*where the chief minister of Sikkim talks about mission which should be implemented by his government which includes making Sikkim a land of opportunities with zero unemployment zone. He also focuses on the strategy for biodiversity conservation.

The report on the '*plastic and the environment –assessing the impact of the complete ban on plastic ban*' In this report a chapter is there on Sikkim as what role has it been playing for such a ban as it is seen that Sikkim was one of the first states in India to issue a plastic bag ban order. This ban in Sikkim was a significant development during the time when there was a spate of landslides in and around Gangtok.

**1.7 Rationale and Scope**

The rationale of this study is that, in change of time the term 'Security' itself has taken different connotations from traditional security to new security issues. The main focus of security after the cold war has been mainly associated with 'Human security'. This has been reflected in different programmes and policies of governmental and non- governmental organisation over a decade. Therefore the objective of this study is also to identify, quantify and offer a general discussion on some of the major forces that have been largely debated as human made environmental insecurities which often challenge Human Security in eastern Himalayan region as well as in Sikkim. Geographically the Eastern Himalayan region are more prone towards natural disasters such as earthquakes, landslides etc, yet not emphasis and importance given to this region. Moreover there is not much extensive work done on this area. This region holds the key for the future of South-Asia. As Sikkim lies in the Eastern Himalayan Region it is also prone to more natural disasters, though Sikkim have taken initiatives to protect the environmental hazard's but they fail to address the other factors of Human security.

**1.8 Objectives of the study**

1. To analyse major issues of Human Security in the Eastern Himalayan Region.
2. To critically examine the issues of Human Security in Sikkim

**1.9 Research Questions**

1. What are the major issues of Human security which is significant in the Eastern Himalayan Region in general and Sikkim in particular?
2. How does Sikkim State address such issues of Human security in the state?

**1.10 Research Methodology**

This study follows both qualitative and quantitative methods. It examines/ re-examines the existing literature, documents, agreements, bulletins, reports, treaties for the refinement and extension of the existing knowledge.

**1.11 Tentative Chapterization**

**Chapter I: Introduction**

**Chapter II: Human Security: The Concept and Measurement**

This chapter will discuss the concept of Human security in detail and also elaborates the various concepts, notions of Human Security. It also looks into the various approaches and models of Human Security especially UNDP and Canadian. It also deals with how the term Human Security took the centre stage in every government policies and also how it changed over the period of time.

**Chapter III: Human Security in the Eastern Himalayan Region**

This chapter looks into the various aspects of human security in the Eastern Himalayan Region at a macro level. It deals with climate change, water security problems, forest degradation and loss of bio diversity, earthquake and other environment related issues and problems.

**Chapter IV: Human Security in Sikkim: Issues and Responses**

This chapter deals with Human Security issues in Sikkim and the effort to address them in a much more detailed way. It looks primarily into Human security issues such as environmental, food and health security and also environmental issues such as landslides, deforestation. Climate change, earthquake etc.

**Chapter V: Conclusion**

# CHAPTER II

## Human Security: The Concept and Measurement

### 2.1 Introduction

The word' Security' has come from a Latin word 'Securitas' means lack of care. Security is a condition of being protected from or not exposed to danger and safety. Security is a state of being free from danger or injury and freedom from anxiety or fear (George and Frerks, 2007).

However, the term security as such has a variety of meanings and connotations, is constantly expanding and changing. In an interstate context, international security stands for the defence capabilities and military powers of state against threat from other states and non-state actors. The notion of internal security is concerned with violence that threatens the state from within through domestic strife, insurgencies, civil war and coups. (James, 2002).

Traditionally, security meant the preservation and defence of a status quo the political independence and territorial integrity of states against external military threats. War occurred when there was a forceful deviation from the status quo, and peace existed when territorial boundaries of states were recognized and stable and no attempt was made to revise state borders through the use of force.

Global or transnational security issue cover the protection of people from a variety of common concern that transcend state boundaries, such as famines and droughts, the spread of diseases, environmental degradation, human rights violation and large scale migrations (ibid, 2002).

The scope of security was thus defined essentially in negative terms as the absence of a military threat (to the state) or the protection of the nation from external military attack, and its domain was restricted to the state or nation (that is, national security). The focus, then, was on the politico diplomatic military relationships among states. (ibid, 2002).

## 2.2 Changing Meanings of Security

In international law, security was traditionally been understood as national or state security that is, the security of states as the primary subjects of international law, based on territorial integrity and sovereignty, as formulated in the UN Charter. The maintenance of international peace and security, as laid down in Article 1 of the charter, presupposes the territorial integrity and political independence of states (Oberleitner 2005).

A new form of security was introduced in 1945 which was known as collective security, where security was inter nationalized allowing states under Chapter VII of the UN Charter to act collectively and, if necessary, with the use of force to uphold or restore international peace and security(Oberleitner 2005).Collective security, have continued to dominate the international legal order. The concept has then been broadened by including non military threats and by reluctantly including internal violence in collective security and peacekeeping activities (ibid).

As the principal concerns of security strategists have changed, however, there has also been a more fundamental rethinking of the very agenda of state security. If many of the newly created states of the formerly colonized world are still quite weak, perhaps the security of the state apparatus which may, after all, be the oppressive tool of elite ought not to be as significant a concern. A new concept, at times given the name of "human security," has been suggested to express the need of individuals for safety in other arenas of basic need access to clean food and water, environmental and energy security, freedom from economic exploitation, protection from arbitrary violence by the police, gangs, or domestic partners, etc. (Sachs, 2003).

Human security challenges our approach to security in at least two ways, it shifts the focus toward the individual, and it bases security strongly on common values. Rather than providing security for abstract entities the state, the nation human security focuses on the security the well being, safety, and dignity of individual human beings. In core it means that there is no secure state with insecure people living in it (Oberleitner 2005).

It seems obvious that in today's world of rising non traditional, nonconventional, and transnational threats, the protection of borders and the preservation of territorial

integrity cannot be the ultimate goal of security. The driving factors of the human security debate, "the constraints on state sovereignty, the mobilization of international civil society in defence of international norms, and the sharing of power between state and non-state actors in a globalizing world leave a clear message, the state is no longer able to monopolize the concept and practice of security" (Oberleitner 2005; p.190).

## 2.3 Emergence of the Concept of Human Security

There have been many paradigm changes in the social science after the end of the cold war. Many new ideas emerged, amongst which "Human Security" gained larger importance. It has been embraced by the United Nations (UN) and countries such as Canada and Japan.

During the Cold War period, the notion of security was in general understood in terms of the security of the state and the preservation of its territorial integrity and political sovereignty against military threats (Shinoda, 2004). In the 1980s, the notion of security was broadened to include not only the military and territorial security of a state but also economic and environmental aspects. This concept became known as "comprehensive security".

However, the central objective of security was still the State, and although the concept had been "broadened", the taboo to "deepen" it to include the notion of security of the human was only broken during the 1990s. With this development the security of the individual became the centre of security strategies, and the concept of human security finally gained recognition.

Acceptance of the notion of human security permitted first a reorientation of the discussion on security towards the individual and away from the previous focus on the state and, second, a broadening of the analysis beyond the military dimension to reach non-military threats to the individual.

The idea to extend the concept of security from state frontiers to individual human beings was first indicated in the *Commission's Report on Common Security* in 1982 (Shinoda 2004). Thus this report can be seen as the pioneer to the human security paradigm, by stressing that the notion of security has to move away from traditional geopolitical concepts, this document proposes a less military security model.

The exclusive focus on the security of the state (military and strategic approach) is criticized and the importance of the well-being of the people living in a society is stressed. But it was only in the early 1990s that the human security paradigm was first expressly articulated in the context of the United Nations Development Program (UNDP) activities (ibid).

The concept of human security was often mentioned before 1994,as the end of the Cold War ushered in the moment for re-examining the "traditional" concept of security. However, it was UNDP's Human Development Report 1994that really made human security a common currency among scholars and practitioners of international affairs. (ibid) Advancing the discussion on "capability" introduced by Amartya Sen and *Human Development Report 1993*which first mentioned the concept of human security (ibid).

The UNDP Human Development Report 1993 clearly indicates that the individual must be placed at the centre of international affairs. In this document, UNDP stresses that "the concept of security must change  from an exclusive stress on national security to a much greater stress on people's security, from security through armaments to security through human development, from territorial security to food, employment and environmental security" (Zambelli, 2002).

The notion human security has been developed in connection with the new development agenda of the post cold war period. The UNDP Human Development Report begins with a strong critique of the classic notion of security: The concept of security has far too long been interpreted narrowly as security of territory from external aggression, or as protection of national interests in foreign policy or as global security from the threat of nuclear holocaust (ibid).

A more clear definition of human security is provided by two main aspects, by defining human security, first, as "safety from such chronic threats as hunger, disease and repression" and, second, as "protection from sudden and hurtful disruptions in the patterns of daily life" the scope of this definition is vast. It refers to seven aspects of human security, economic security, food security, health security, environmental security, personal security, community security, political security (Zambelli 2002).

The drafters declare that they are not interested in defining the exact boundaries of the concept of human security, which should remain "all encompassing" and "integrative" (Zambelli, 2002). In addition, in drawing attention to the difference between human security and human development, the report indicates that the latter is a "broad concept" referring to "a process of widening the range of people's choice", while the former implies that "people can exercise these choices safely and freely and that they can be relatively confident that the opportunities they have today are not totally lost tomorrow". This formulation of the concept of human security remains still today the most authoritative and quoted formulation of this term (Zambelli 2002).

## 2.4 Defining Human Security

The objective of human security is to safeguard the vital core of all human lives from critical pervasive threats, in a way that is consistent with long-term human fulfilment. Human security is people centred and it focuses the attention of institutions on human individuals and their communities worldwide. This emphasis on human beings distinguishes human security from the objective of protecting state territories that dominated security policies in the nineteenth and twentieth century's. Human security shifts that focus to persons, regardless of gender, race, religion, ethnicity, citizenship, or other distinguishing characteristics (Sabina, 2003).

In 1994, the United Nations Development Program's (UNDP) Human Development Report (HDR) presented a new way of thinking about the integration of security issues and globalization. This report defined human security according to seven dimensions: (1) economic security (e.g., freedom from poverty)  (2) food security (e.g., access to food)  (3) health security (e.g., access to health care and protection from diseases) (4) environmental security (e.g., protection from such dangers as environmental pollution and depletion)  (5) personal security (e.g., physical safety from such things as torture, war, criminal attacks, domestic violence, drug use, suicide, and even traffic accidents) (6) community security (e.g., survival of traditional cultures and ethnic groups as well as the physical security of these groups) and (7) political security (e.g., enjoyment of civil and political rights, and freedom from political oppression) (UNDP, 1994:3).

Moreover, the report adopted a "people-centric" security concept as its focus instead of the traditional state centred concept. This new emphasis on human security supplements the traditional concept of security and represents the emergence of a new paradigm in the field. Human security emphasizes the individual's rights and interests, which are often ignored by the international community.

Real security entails the protection of individuals from such threats as disease, hunger, unemployment, political oppression and environmental degradation. As a multi level, wide ranging security concept, it includes both the traditional and non traditional elements of security. It not only serves as a blueprint for solving human problems, but also offers solutions which middle powers can put into practice (Oberleitner, 2005).

The notion of human security as freedom from want has been promoted by Japan and has been promoted as freedom from fear by Canada (Oberleitner, 2005). Norway and members of the Human Security Network. Thus Kofi Annan has pointed out the three pillars of this wider conception of human security, freedom from want, freedom from fear, and freedom to live in dignity(Yu-tai Tsai 2009).In the mid 1990s, the concept of human security has begun to visibly influence and challenge global politics, institutions, and governance. However, over a decade after its emergence, the definition of human security remains contested in its scope and utility (Oberleitner 2005).

## 2.5 Human Security from a Social Constructivist view

Constructivists view has been significant in human security as in contrast to conventional approaches to security studies which focus on security community or security culture, the constructivist perspective offers insight into a number of additional dimensions, including human consciousness, national identity and interest formation. Hence, the concept of human security is more meaningful when viewed through the theoretical lens of constructivism (Wendt 1992).

With reference to the concept of human security, the theory of constructivism has gained greater prominence within the field of international relations since the 1990s. Although there are a number of different schools of constructivism, they all share some common characteristics and basic assumptions. The main differences between

the constructivist and the mainstream approaches to international relations are as follows

(A) Constructivism points out that social facts are human creations, and that the social structure is manifested by not only the material structure, but also by the international community. The social structure has three components shared knowledge, material resources and practices. Without denying the material basis of society, constructivism stresses the function of ideas, for ideas are the building blocks of the material world, and can change the behaviour of human beings. Human activities are conducted through the sharing of knowledge, with the material culture being a manifestation of such activity(Adler and Barnett, 1998: 8).

(B) Constructivism believes that norms, customs, culture and learning can change the behaviours and interests of a country's citizenry. Unlike rationalism, which sees anarchy as the inevitable result of self-help, constructivism sees anarchy as created by the state and as susceptible to change by state intervention (Wendt, 1992).

By using the concept of constructivism to reinterpret human security, six observations can be made (Yu-tai Tsai 2007:22).

(A) All knowledge is composed of social structures which guide the nature of knowledge and social significance. Both of these rely on human perception, which plays a decisive role in all human actions. The concept of human security has gradually developed through a series of initiatives and academic reports by multi-national, independent commissions of experts, academics and intellectuals. For example, non-governmental organizations (NGO) and civil society in general play a major role in the study and advocacy of human security concerns, and are involved in practically all human security issues. Over the years, the collective efforts of various ad hoc campaigns have led to the signing of the 1997 Ottawa Convention which banned anti-personal landmines, and the creation of the International Criminal Court in 1998 (Tadjbakhsh, 2007).

(B) The emergence of the concept of human security reflects the influence of values and norms on security studies, as opposed to the influence of national security. This also demonstrates a change in international relations, identities and

interests, and is best explained with reference to constructivist thought considers that human security can thus be read as an attempt to reconstruct the interpretation of the roots of insecurity, underdevelopment, and poverty. These same themes have also been examined by constructivists.

(C) Human security is a new language and a new symbol. Because language constitutes social facts, any fact entails the element of language. Language constitutes the consensus, which generates the collective image, and further forms institutions and norms. The concept of human security derives from the use of language, images and symbols. For instance, the International Commission on Intervention and State Sovereignty (ICISS) reflecting Kofi Annan's remark that the language of intervention needs to be changed from the right or duty to intervene, to the responsibility to protect shifted the focus to those in need of support(Yu-tai Tsai 2007: 23) It also asked the UN Security Council to face up to the consequences of inaction, increasing inappropriate intervention by states or ad hoc coalitions which would threaten the legitimacy and credibility of the UN.

(D) As an idea shaping of the concept of human security, constructivism believes that national interests are forged in the process of mutual interaction. The process determines the interests and identity, and the identity constitutes the interests. During the process, the value of human security is established when states transfer their attention to common interests. A case in point is the way in which human security is being promoted by the Canadian and Norwegian governments as a new guideline in foreign policy following a bilateral meeting in Norway of foreign ministers Lloyd Axworthy and Knut Vollebaek in May 1998. Both governments have used the term as an umbrella concept to cover a humanitarian agenda that includes support for the establishment of the International Criminal Court (ICC), the ban on landmines, and a prohibition on child soldiers and small arms (Krause, 2008).

(E) Since they are constructed out of concepts, identity and interests are neither unchanging nor endless, and vary with the emergence of new issues and concepts. This can be seen as a revision of human security, raising questions concerning political economy, sovereign states, and political community. When people start to think of common interests, the definition of security will become "people

centred." On the one hand, there is the conviction that states are responsible for regulating the actions of its individual citizens, and on the other hand, individuals are responsible for violating international human rights and humanitarian law. The ICC demonstrates that the international community has long aspired to create a permanent international court, and in the 20th century it reached consensus on definitions of genocide, crimes against humanity and war crimes (Newman, 2001).

(F) In the 1990s, realism and liberalism were criticized for their overemphasis on material concerns and for failing to take into account subjective, psychological, and human elements. Constructivism attempts to challenge established world views which have been set in place by material concerns (Wendt, 1992).

Constructivism and human security have much in common, and human security can be seen as an application of the tenets of constructivism. Constructivism reinterprets traditional material, state centric society similarly human security reinterprets traditional theories of military force and national security (Tsai, 2009).

## 2.6 Significance Human Security

There are two broad phenomena that prompted the rise of concept of human security: the end of the Cold War and the acceleration of globalization. State collapses initiated by the end of the Cold War led to increasing incidences of civil war. Traditional realist (state centric) security frameworks inadequately capture either sub- or failed state dynamics (MacArthur, 2008).

The concept of human security also arose out of the recognition of state centric failure to deal with non-military threats to countries and their populations. Many deadly issues fall outside the realm of conventional security analyses. For example mass migrations, transnational crime, environmental disasters, debt and commodity price crises, and diseases. Roughly 20 percent of the world's population lives on less than a dollar a day, and more than 45 percent on less than two dollars a day. Because of these conditions, approximately 18 million people a year die of preventable causes, many of them children (Pogge, 2002).

Political and criminal violence on average killed about 800,000 people in 2000 according to the World Health Organization (WHO), compared to 17 million for communicable diseases (Owen, 2005).The nexus of these two phenomena provides the basis for human security, essentially a response to the failures of traditional state centric and militaristic security frameworks (ibid).

At this point some characterize the difference between the two conceptions of human security as "freedom from want" versus "freedom from fear." The UNDP Report 1994 posed a direct challenge to the traditional paradigm, and many analysts welcomed the new alternative (MacArthur, 2008).

For Mahbub Ul Haq (MacArthur, 2008), security of a people is now becoming the dominant concern. Security is increasingly interpreted as security of people, not just territory, security of individuals, not just of nations, security through development, not through arms, security of all people everywhere in their homes, in their jobs, in their streets, in their communities, and in their environment (ibid).

The development of non traditional security studies aided the development of the human security concept. Though critical of human security, Barry Buzan's work on securitization and non traditional threats to the state overlaps to a large degree with the original broad conception that security is no longer solely a military matter (Hampson, 2002). He argues that "as scholars and practitioners developed a better appreciation of how relations of economic interdependence affect the fundamental health and welfare of states, the purview of national security studies and with it, the concept of security expanded" (Hampson, 2002).

There are two key issues of interdependence which human security has introduced. The first is a lateral linkage between different non traditional aspects of security, such as health to education, economic to political, physical to environmental. A second issue of interdependence is the introduction of vertical linkages, positing that security for the state rests (and should rest) on that of its people. This can also be expanded to include the individual states within a global system to the system itself (Bain, 2008).

## 2.7 Human Security in the 21st century

As a counterpoint to R2P[1], the commission on human security (CHS) published "Human security now" in 2003 (MacArthur, 2008). While acknowledging the need to protect humans from violent conflict, "HS now" builds on the original UNDP broad definition of human security (Commission on Human Security 2003).

Whereas R2P does not discuss the connection between development and large-scale abuses of people, "Human security now" does. It stresses the centrality of development to the prevention of conflict and the importance of addressing the root causes in addressing conflict in the global system. According to "HS now", The Commission on Human Security proposes that a global initiative be mobilized to place human security at the top of local, national, regional and global agendas(MacArthur, 2008). The goals to prevent conflict and advance human rights and development, to protect and empower people and their communities, and to deepen democratic principles and practices. All to promote a human security culture and framework.

In contrast to the R2P report, "HS in the 21st century" concentrates its focus on making it clear that there are a variety of interconnected causes of human insecurity. It also stresses that a focus on only one cause will mean the failure to provide adequate capacity-building measures that contribute to sustainable human development.

According to CHS, Not only are peace and development both important, they are also interconnected. The chain from poverty and deprivation to violent conflict and back has to be followed carefully. Deprivation persists in countries that do not flare up in conflict, and conflicts flare up in relatively well off countries. Deprivation and unequal treatment may not generate an immediate revolt, but they can remain in people's memory and influence the course of events much later. And while the leaders of conflicts often come from the more prosperous parts of society, poverty can provide rich recruiting grounds for the 'foot soldiers' of violent engagements. The

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[1]R2P "Responsibility to Protect" was a report submitted by ICISS in 2001 with the goal of facilitating the development of human security policy.

report does not focus on the political feasibility of implementing a broad approach, it simply charts a new normative course for discussions of security (MacArthur, 2008).

"HS now" addresses thorny problems intentionally left off the R2P agenda, such as Security Council reform like the broad concept itself, the report is a "way forward" based not in the political realities of power politics but rather based on the prevention and alleviation of the suffering of people around the world. It is for this reason that the focus is so strongly on root causes and it makes what critics charge as idealistic prescriptions for wealth redistribution, UN reform, and international trade reform (MacArthur 2008).

"HS now" outlines what has been called the "sustainable human development" concept of human security (Ogata and Cels 2003).The challenge then becomes operational zing these goals. Plans to do so include, coordination of a single UN development authority, implementation of a Tobin tax[2] to finance human security projects and the bringing together of dispersed agencies (MacArthur 2008). This plan has been strongly supported by the Japanese government and various UN organizations (such as the UNDP), but in recent years is proving less "sellable" at the international level than R2P. Both at the 2005 world summit and in the 2006 UNSC resolution, R2P was the focus of debate in cases of large-scale threats to physical security, and no mention was made of economic, environmental, or health factors in the situation or other areas outlined either by "HS now" or the original UNDP 1994 formulation (ibid).

## 2.8 UNDP's Notion of Human Security

The post Cold War era has been a period of uncertainty, but also an era of operational expansion, institutional change and conceptual innovation inside the United Nations. In the 1990s a range of interstate and intrastate conflicts and civil wars broke out, and the UN, struggling for effective reaction and successful conflict resolution, has been changing its operating principle.

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[2]TOBIAN TAX is a fee levied on transactions which 'externalize' costs to the global commons. Some suggestions have been for fossil fuels, currency trading and capital movements, and arms shipments.

The UN had to react to new security challenges like refugee flows, conflicts based on resource scarcity, environmental degradation, underdevelopment etc. (the so-called complex humanitarian emergencies). In the last decade, the security agenda within the UN has been redefined to include not only the security of states and communities, but also all aspects of the security of human beings.

The idea of protection of the individual and the struggle to prevent refugee flows from violent conflicts and wars led in the 1990s to a series of international humanitarian operations (Somalia, Rwanda, Zaire/Congo). The idea of human security is today employed extensively by the UN and occupies a central place in UNDP (United Nations Development Program) and UNHCR (United Nations High Commissioner for Refugees) security discourse (Waisova, 2003).

Within the UN the agenda of human security is mostly incorporated into the work UNDP and UNHCR. UNHCR takes its definition of human security from UNDP's Human Development Report (ibid). It understands security first and foremost as the prerogative of the individual, and links the concept of security inseparably to ideas of human rights and dignity to the relief of human suffering.

The main distinguishing feature of human security is that it addresses the issue of war, violence and physical or psychological aggression from a human perspective, centred on the individual, unlike the traditional perspectives, which adopt the state centrist approach. UNHCR ties this humanizing effort with the struggle to ensure the sovereignty and stability of the state. The best articulation of the UNDP's views on human security is the Human Development Report 1994, which defines the basic structure of the UNDP human security concept. According to the Human Development Report there have always been two major components of human security, freedom from fear and freedom from want (Waisova, 2003).

The UNDP's 1994 Human development report definition of human security argues that the scope of global security should be expanded to include threat in seven areas (Waisova, 2003).

a) **Economic security**: Economic security requires an assured basic income for individuals, usually from productive and remunerative work or, as a last resort, from a publicly financed safety net. In this sense, only about a quarter

of the world's people are presently economically secure. While the economic security problem may be more serious in developing countries concern also arises in developed countries as well. Unemployment problems constitute an important factor underlying political tensions and ethnic violence.

b) **Food security** Food security requires that all people at all times have both physical and economic access to basic food. According to the United Nations, the overall availability of food is not a problem, rather the problem often is the poor distribution of food and a lack of purchasing power. In the past, food security problems have been dealt with at both national and global levels. However, their impacts are limited. According to UN, the key is to tackle the problems relating to access to assets, work and assured income (related to economic security).

c) **Health security** Health Security aims to guarantee a minimum protection from diseases and unhealthy lifestyles. In developing countries, the major causes of death traditionally were infectious and parasitic diseases, whereas in industrialized countries, the major killers were diseases of the circulatory system. Today, lifestyle-related chronic diseases are leading killers worldwide, with 80 percent of deaths from chronic diseases occurring in low- and middle-income countries. According to the United Nations, in both developing and industrial countries, threats to health security are usually greater for poor people in rural areas, particularly children. This is due to malnutrition and insufficient access to health services, clean water and other basic necessities.

d) **Environmental security** Environmental security aims to protect people from the short- and long-term ravages of nature, man-made threats in nature, and deterioration of the natural environment. In developing countries, lack of access to clean water resources is one of the greatest environmental threats. In industrial countries, one of the major threats is air pollution. Global warming, caused by the emission of greenhouse gaseous, is another environmental security issue.

e) **Personal security** Personal security aims to protect people from physical violence, whether from the state or external states, from violent individuals and sub-state actors, from domestic abuse, or from predatory adults. For many people, the greatest source of anxiety is crime, particularly violent crime.

f)  **Community security** Community security aims to protect people from the loss of traditional relationships and values and from sectarian and ethnic violence. Traditional communities, particularly minority ethnic groups are often threatened. About half of the world's states have experienced some inter-ethnic strife. The United Nations declared 1993 the Year of Indigenous People to highlight the continuing vulnerability of the 300 million aboriginal people in 70 countries as they face a widening spiral of violence.

g)  **Political security** Political security is concerned with whether people live in a society that honors their basic human rights. According to a survey conducted by Amnesty international, political repression, systematic torture, ill treatment or disappearance was still practised in 110 countries. Human rights violations are most frequent during periods of political unrest. Along with repressing individuals and groups, governments may try to exercise control over ideas and information (Waisova 2003).

Since then, human security has been receiving more attention from the key global development institutions, such as the World Bank. Tadjbakhsh, among others, traces the evolution of human security in international organizations, concluding that the concept has been manipulated and transformed considerably since 1994 to fit organizational interests (ibid).

There is important aspect of the UN human security concept; various United Nations documents and statements connect human insecurity with under developed countries, namely they connect the level or stage of human security with the level of development in defining security, it is important that human security not be equated with human development (ibid). Human development is a broader concept defined as a process of widening the range of people's choices whereas Human security means that people can exercise these choices safely and freely and that they can be relatively confident that the opportunities they have today are not totally lost tomorrow. The more developed the country, the more protected can be its population human security appears here as part of the vision for people oriented economic development.

## 2.9 Freedom from Fear vs. Freedom from Want

In an ideal world, each of the UNDP's seven categories of threats (and perhaps others as a broader discussion might prioritize) would receive adequate global attention and

resources. Yet attempts to implement this human security agenda have led to the emergence of two major schools of thought on how to best practice human security "Freedom from Fear" and "Freedom from Want". While the UNDP 1994 report originally argued that human security requires attention to both *freedom from fear* and *freedom from want,* divisions have gradually emerged over the proper scope of that protection (e.g. over what threat individuals should be protected from) and over the appropriate mechanisms for responding to these threats (Waisova 2003).

**Freedom from Fear** This school seeks to limit the practice of Human Security to protecting individuals from violent conflicts while recognizing that these violent threats are strongly associated with poverty, lack of state capacity and other forms of inequities. This approach argues that limiting the focus to violence is a realistic and manageable approach towards Human Security. Emergency assistance, conflict prevention and resolution, peace-building are the main concerns of this approach. Canada, for example, was a critical player in the efforts to ban landmines and has incorporated the "Freedom from Fear" agenda as a primary component in its own foreign policy. However, whether such "narrow" approach can truly serve its purpose in guaranteeing more fruitful results remains to be an issue. For instance, the conflicts in Darfur are often used in questioning the effectiveness of the "Responsibility to Protect", a key component of the Freedom from Fear agenda (Waisova 2003).

**Freedom from Want** The school advocates a holistic approach in achieving human security and argues that the threat agenda should be broadened to include hunger, disease and natural disasters because they are inseparable concepts in addressing the root of human insecurity and they kill far more people than war, genocide and terrorism combined. Different from "Freedom from Fear", it expands the focus beyond violence with emphasis on development and security goal (ibid).

## 2.10 Canadian Perspective of Human Security

The Canadian government established in the mid 1990s a human security programme, its basic ideas of which are contained in various documents and speeches of Canadian officials. In cooperation with Norway there was established in May 1998 a human security network of states and nongovernmental organizations (Waisova 2003).

The Canadian Norwegian concept of human security reflects the evolution of the international stage in the 1990s when human rights, international humanitarian law and socio economic equity became increasingly popular within the international community (ibid) Both governments have used the concept as an umbrella to cover the humanitarian agenda, including support for the International Criminal Court, the ban on landmines, prohibition of child soldiers etc.

The Canadian definition of human security focuses on the security of people (their physical safety, economic and social well being, the protection of their human rights and fundamental freedoms), complementing the traditional emphasis on the security of states. Human security encompasses a spectrum of approaches to prevent and resolve violent conflicts, to protect civilians where conflicts do exist, and to increase the capacity of states to ensure security for their population. Putting people at the centre of security policy enhances national and international security, and promotes human development and well-being (ibid). The security of individual states and the broader international system ultimately requires the prevention and resolution of conflicts within states. At the same time, human security reinforces the state by strengthening its legitimacy and stability.

The Canadian conception is based on the importance of the role of the state for the maintenance of human security; if we need to maintain human security we need to support the principle of territorial integrity and good domestic governance. The Canadian conception pledged openly for humanitarian intervention, intervention for human protection purposes is supportable when major harm to civilians is occurring or imminently apprehended, and the state in question is unable or unwilling to end the harm, or is itself the perpetrator but at the same time it overpasses the pure 'right to intervene' and develops 'the responsibility to protect' (ibid). The responsibility to protect means not just to 'react by' but to 'react before', also to prevent and to 'react after' and to rebuild (ibid) The Canadian approach is based on the idea of the broader responsibility of an international community which shares humanitarian norms and values. The goal of Canadian human security policy is to support the internalisation (embedding) of those norms and values (ibid).

Since its inception in the 1990s, human security has become a significant, perhaps defining, aspect of Canadian foreign policy. Canada is credited with propagating a unique approach to human security by exercising international leadership on multiple high-profile policy initiatives. Many observers have noted that human security provides the most consistent unifying framework for Canadian foreign and security policy in the post Cold War era. Some have gone further, suggesting it is the "central pillar," "political leitmotif," or "ethical guide" of Canada's global engagement over the past two decades (Greaves, 2016).

Unlike holistic human security frameworks employed by other actors, the Canadian approach is characterized by a focus on the prevention of violent harms to foreign human subjects. By marginalizing the socioeconomic and inter subjective dimensions of human wellbeing that are central to holistic human security, the Canadian approach ignores the radical re-conceptualization of security that forms the core of human security studies (ibid).

By emphasizing the definitive role of violence, the Canadian conceptualization privileges the state and its institutions because of the former's monopoly on the legitimate use of violence within modern politics. A definitional emphasis on violence results in a practical emphasis on states, displacing people from the analytical centre of human security (Greaves 2016). In practice, therefore, the Canadian approach retains a state centrism and conceptual narrowness that undermine employing people as the referent objects of security analysis.

Canadian approach supports elitist and state-centric security discourse and practice while minimizing the emancipatory potential inherent in holistic human security. It does this by viewing human security as a central plank of foreign, not domestic, policy, and by employing a violence-centric definition that excludes from the scope of its analysis the most pressing insecurities in the Canadian north. The result is the marginalization of hazards that most affect the people who actually inhabit the region in favour of statist, militarized representations of insecurity generated by southern Canadian policymakers. In the context of the Canadian Arctic, narrow human security also reproduces structural relations of dominance and subordination between the federal and territorial orders of government, while failing to mitigate indeed, contributing to conditions of insecurity for northern peoples and communities (ibid).

Arctic policy thus exemplifies a preference for militarism and legalism similar to that found in the Canadian approach to human security. The priority activities identified in Canadian human security documents from 1996-2006 demonstrate a clear preference for preventing violent threats to civilians by strengthening international legal instruments and, if necessary, the judicious use of military force (Greaves 2016) Concrete manifestations of human security within Canadian foreign policy are underpinned by the pillars of legalism and militarism, as evidenced by the conventional list of human security.

## 2.11 Narrowing of Canada's Human Security

Conventional explanations of the narrowing of Canada's human security agenda identify two key sets of variables. First are domestic factors during the 1990s, principally the imperative to reduce the federal budget deficit and the resonance between protecting civilians from violence and Canada's Pearsonian peacekeeping Mythology[3].

 Second are international factors, including the clear limitations on soft power approaches to human security protection in the wake of humanitarian catastrophes in the Balkans and Great Lakes region of Africa compared to the relative success of international military interventions in Kosovo, Sierra Leone, and Timor Leste. This provides an accurate, but incomplete, account of the factors behind Canada's approach to human security (Greaves 2016).

Two other factors contributed to the narrowing of Canada's human security agenda, both largely overlooked in the scholarly literature. First is the tightly integrated relationship between Canada and the United States, and the strong preference within post September 11 American security and defence policy for, at most, a circumscribed approach to human security compatible with US strategic priorities in the "global war on terror." Second is the contradiction, and potential incompatibility, between a holistic approach to human security and a range of existent policies and practices of the federal government (Greaves 2016).

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[3] Peacekeeping is a term applied to united Nations military intervention operations. As a result of Lester Pearson's leadership in the 1956 Suez Crisis and Canada's role in the UN Emergency Force he helped create, Canadians have sometimes considered peacekeeping part of the country's identity.

A holistic approach would entail recognizing human insecurity within Canada, or at least the potential for such insecurity to exist. Moreover, it would require acknowledging the historical and contemporary role of the Canadian state in the production and reproduction of that insecurity. By articulating a holistic human security framework against which the outcomes of a wide variety of government actions and policies could be evaluated, the government would undermine the defensibility of the status quo in a number of policy areas, and provide a powerful critical tool to be turned against it.

The radical potential of holistic human security provides government an understandable, though unfortunate, motivation for avoiding it. An understanding of human security consistent with the original conceptualization by UNDP implicates multiple policy areas for the government of Canada (Waisova 2003).

The contrast between narrow and holistic approaches to human security is evident in the areas of, inter alia, Canadian trade; climate, and aboriginal policy. Narrow human security has little to say on these subjects; constrained to analysis of violent threats, the Canadian approach is silent on nonviolent matters such as these no matter how integral to human wellbeing (Greaves 2016). Not so for holistic approaches considerate of the broader constellation of variables relevant to human wellbeing, and the crucial role of government in conditioning these variables.

The Canadian approach is predicated on an inside/outside distinction that dissociates domestic conditions within developed states from insecurities experienced in the developing world where human security interventions are seen to take place. It thus fails to consider global neo liberalism as constitutive of certain forms of human insecurity, particularly as experienced by the most marginal within western societies, including Canada.

The failure is compounded when neoliberal structures are considered in light of their role in gendering labour and financial markets, institutions, and priorities. Accepting feminist insights rejecting the bifurcation of public and private spheres, arguably "both andrarchy (global masculine rule) and neo liberalism accept and are coterminous with violence Human insecurity can be described as the collateral damage of the man-made binary structures of anarchy and neo liberalism (Greaves 2016).

Post-Cold War Canadian foreign policy has sought to liberalize global trade and incorporate rules-based economic multilateralism throughout the architecture of global governance, the tendency to ascribe security to states in the global north and insecurity to so called fragile, failing, and failed states in the global south obscures the role of the former in the conditions of insecurity for the latter. It denies complicity between the economic decisions of the Canadian state and the constitution of insecurity abroad and at home (Greaves 2011:12).

## 2.12 Debates to Human Security Study

Human security is normatively attractive, but analytically weak. Through a broad human security lens, anything that presents a critical threat to life and livelihood is a security threat, whatever the source. If individual security is the dependent variable, then it is possible to identify and codify every physiological threat. But this would be of little use, as it would generate an unmanageable array of variables.

At the same time, arbitrarily drawing lines to include and exclude certain types of threats is problematic. The academic treatment of human security has foundered upon this fundamental conceptual point. If there is disagreement on what should be included as a human security threat or if this is an arbitrary judgement then how can human security or variations in human security be reliably measured? How, therefore, can human security be analytically useful? The broad approach to human security which includes social and economic afflictions has attracted the greatest degree of criticism in this regard (Newman, 2010).

Critics have argued that the broad approach is so inclusive in considering potentially any threat to human safety that as a concept it becomes meaningless. It does not allow scholars or policy makers to prioritise different types of threats, it confuses sources and consequences of insecurity, and it is too amorphous to allow analysis with any degree of precision.

Keith Krause (2010) argues, the broad vision of human security is ultimately nothing more than a shopping list, it involves slapping the label of human security on a wide range of issues that have no necessary link, and at a certain point, human security becomes a loose synonym for 'bad things that can happen'. At this point, it loses all

utility to policymakers and incidentally to analysts since it does not allow us to see what is distinctive about the idea of 'security'.

Mack agrees that 'Conflating a very broad range of disparate harms under the rubric of "insecurity" is an exercise in relabeling that serves no apparent analytic purpose'. MacFarlane and Khong argue that the 'conceptual overstretch' of the broad definition of human security makes it 'meaningless and analytically useless'. Buzan has echoed these observations. MacFarlane and Khong also deny that rebranding development, the environment or health as security challenges has produced a greater flow of resources to addressing them such a relabeling may therefore, in addition to the conceptual confusion, also produce false hopes. In the meantime, more 'important' security challenges may lose the priority they deserve. Followers of human security have engaged in unresolved debates about the broad versus narrow definitions and the consequences of securitisation.

There have been attempts to overcome the definitional debate. King and Murray, for example, proposed a quantitative model of human security based upon the 'number of years of future life spent outside a state of generalized poverty'.

Robertshas suggested a quantitative measure of human insecurity in terms of 'avoidable civilian deaths.' Tadjbakhsh and Chenoy (cited in Newman 2010), have argued that human security must necessarily embrace a broad range of threats because threats are intrinsically linked. Others have suggested that the definition of human security should not be preoccupied with broad and narrow models instead, the definition should be based upon a threshold.

Threats are regarded as security challenges when they reach a certain threshold of human impact, whatever the source. An attempt to articulate a threshold-based definition of human security is the following: Human security is concerned with the protection of people from critical and life-threatening dangers, regardless of whether the threats are rooted in anthropogenic activities or natural events, whether they lie within or outside states, and whether they are direct or structural. It is 'human centred' in that its principal focus is on people both as individuals and as communal groups. It is 'security oriented' in that the focus is on freedom from fear, danger.

For a large number of people interested in promoting human security as a normative movement, the definition debate is incidental. They have a simple objective, to improve the lives of those who are perilously insecure. Conceptual or analytical coherence is not essential for this task. But in the world of scholarship the differences between a broad and narrow approach have undermined the unity of human security (Newman 2010).

Attempts to overcome this for example through a threshold approach have not as yet resolved this debate. But the debate itself is an interesting space for considering competing visions of security and international politics, and the study of these. As such, what is sometimes dismissed as a fruitless and interminable debate about the definition of human security is actually a creative process.

## 2.13 Critical Approaches to Security

Non-traditional and critical security studies (broadly defined, and distinct from human security scholarship) also challenges the neorealist orthodoxy as a starting point, although generally from a more sophisticated theoretical standpoint than found in the human security literature.

Critical approaches challenge most, or all, of the key features of neo realism its emphasis upon parsimony and coherence its privileging of a rational, state centric worldview based upon the primacy of military power in an anarchic environment, its emphasis upon order and predictability as positive values, and its structural view of international politics as a historical, recurrent, and non contextual. Critical approaches to security studies also tend to challenge the ontology and epistemology of realism, the foundational starting point and assumptions of what the key features of the world are, what we should be studying, and how to generate reliable, legitimate knowledge (Newman 2010).

Critical approaches thus generally reject positivist, universalising knowledge claims and value free 'truth', some critical approaches go further, arguing that knowledge is always socially contingent. According to this, security is not an objective or a political condition, it is a subjectively constructed concept (ibid).

Smith (cited in Newman 2010). suggests that 'the concept of security is essentially contested.' There is 'no neutral place to stand to pronounce on the meaning of the

concept of security, all definitions are theory dependent, and all definitions reflect normative commitments'. Therefore, the orthodox idea of security belonging to the state and the military is a biased construction, which can and should be challenged. Critical approaches also challenge the material preoccupation of realism, which confines its analysis to the measurement of physical variables and ignores ideational factors.

Some branches of critical security studies do not necessarily see analytical coherence as the primary objective (ibid). It goes without saying that critical approaches also challenge the 'problem solving' of realist approaches, the assumption and acceptance of existing parameters and norms in addressing security challenges. There have been two processes or strands to non-traditional security studies.

Broadening security approaches argue that threats to security should not be confined to statist, military challenges (ibid). They should be extended to include, for example, economic and environmental security challenges. Deepening approaches challenge the state as the referent object, and explore ontological and epistemological debates which seek to deepen understanding of security (ibid).

Deepening entails understanding the values within which ideas of security are embedded. Some critical approaches such as the collection produced by Krause and Williams v, Critical Security Studies are basically deconstructionist, in a tentative sense of unpacking and problematising prevailing understandings of security. They identify the limitations and contradictions of orthodox security studies and international relations theory and point the way to a better understanding of what security means. Others propose a more coherent and consciously alternative agenda.

However, beyond a common opposition to neo realism, the non traditional and critical approaches to security often fundamentally diverge. In particular, they differ on what the referent object of security should be, whether the objective should be to securitise or de securitise (and the implications of this), and whether the emphasis should be on normative or explanatory theory.

Some non traditional approaches retain the state as the referent object of study, and broaden their analysis of the threats to the state, to include for example economic, societal, environmental, and political security challenges. Barry Buzan's landmark

book, *People, States and Fear(2008)*suggested that the individual is the 'irreducible base unit' for explorations of security but the referent of security must remain the state as it is the central actor in international politics and the principal agent for addressing insecurity.

Other critical approaches challenge the state centricity of security analysis fundamentally, and argue that individuals or humans collectively should be the referent object of security. For Booth (cited in Newman 2010), A critical theory of security seeks to denaturalize and historicize all human made political referents, recognizing only the primordial entity of the socially embedded individual.' He continues: The only Trans historical and permanent fixture in human society is the individual physical being, and so this must naturally be the ultimate referent in the security problematique (Newman 2010).

A further distinction concerns the consequences of treating an issue as a security threat, which raises the question of negative and positive securitisation. Some scholars inspired by what became known as the 'Copenhagen School' challenge the securitisation process because this process moves issues from 'normal' (accountable/democratic) politics to 'emergency' politics (ibid). Securitisation thus mobilises exceptional resources and political powers which are not necessarily positive or proportionate to the security challenges, and are sometimes manipulated for political purposes in order to create fear or curtail freedoms (ibid).

Securitisation studies 'aims to gain an increasingly precise understanding of who securitizes, on what issues (threats), for whom (referent objects), why, with what results, and, not least, under what conditions (that is, what explains when securitization is successful'. According to such an approach, securitising an issue for example refugees does not necessarily result in positive outcomes for the human rights of such people. This approach has been successfully applied to a number of political challenges such as conflict resolution in order to demonstrate how securitisation has exacerbated fears and anxieties and entrenched conflict, and how desecuritisation can provide incentives for accommodation and cooperation (Newman 2010).

## 2.14 Realism National security and the Copenhagen School

The Copenhagen school rejected the traditionalist restricted approach to political military security, arguing that security is a particular type of politics applicable to a wide range of issues. They examine the distinctive character and dynamics of security in five sectors (military, political, economic, environmental, and societal), categorised according to different sources of threats. Barry Buzan also opened up the debate about referent objects of security. He discussed the relationship between individual (security) and state (national security) emerging from the 'Hobbesian paradox'.

For Buzan, the state has two faces, it is a major source of both threats to and security for individuals. Most threats to individuals arise from human embeddedness in their environment, which in turn generates unavoidable social, economic and political pressures (or threats). The state can threaten the individual in various ways: by domestic law-making and its enforcement, by administrative or political action, by its external security policies. There even exist different aspects of individual security, which are frequently contradictory and plagued by the problem of the subjectivity of evaluation (who can say whether threats are real or imagined/socially constructed?). For Buzan, there exists a reciprocal relationship between the state and individuals the state can threaten individuals and individuals (citizens) can threaten the coherence of the state.

What characterized mainstream IR, especially during the era of the almost unchallenged dominance of realism, was the focus on the state as a sovereign, territorially based unit where state elites enjoyed substantial autonomy in both domestic and foreign affairs. The state was understood as the main referent object of security, and its existence was threatened mainly by military means.

The realist vision of security for the individual makes it synonymous with citizenship security comes from being a citizen, and insecurity from being a citizen of another state. People without a state (citizenship) live in the most insecure conditions. According to realists, security is derived from the state. The state must be able to provide a sufficient level of protection for its population, from external as well as internal threats.

This problem was already analysed by Hobbes without the state there is no protection for people and property; people make a contract to create the basis for their own safe and good life. States are valuable because they produce political goods, such as security, order, justice, and welfare. The state constitutes from the realist point of view the primary nexus when it comes to security for individuals (citizens) and groups (of citizens).

A redefinition of the security concept started in the 1970s when due to the oil shocks economic issues entered the national security debate. This debate initiated a much broader and wider redefinition of the security concept than ever before. Robert Keohane and Joseph Nye focused on IR and security via economics to tell us that the agenda of interstate relationships consists of multiple issues that are not arranged in a clear or consistent hierarchy.

The absence of hierarchy among issues means, among other things, that military security does not consistently dominate the agenda, a state that may be able to protect its borders militarily may not at the sometime be able to protect its national or international markets, just as it may not be able to protect supplies of essential resources. The traditional view that states with strong military power controlled world affairs becomes irrelevant the use of military force as an instrument for solving disagreements is getting less and less effective. The new broadening of the security concept produced, at the very end of the 1980s, the work of the Copenhagen school[4].

## 2.15 Conclusion

Over the last decade, the debate about broadening the conceptualization of security has been ongoing at the United Nation and among many governments, prominent individuals, international commissions, scholars, and nongovernmental organizations (NGOs). In 2000, some 180 states endorsed the Millennium Declaration's goal of attaining "freedom from fear" and "freedom from want" for all people, capturing the normative shift in the security discourses (Ogata and Seals 2003).

This has focused on six broad interrelated areas of conflict and poverty the protection of people in violent conflict, on the move, and in post conflict situations and measures

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[4] scholars from Copenhagen Peace Research Institute, such as B.Buzan, O.Waever, J.de Wilde, P. Lemaitre, M. Kelstrup

to overcome economic insecurity, improves health and health services, and imparts knowledge and skills. To facilitate its work, the commission organized regional consultations and hearings to solicit the views of concerned individuals and grass root organizations. Acceptance of human security in world politics is still very low though there is quite broad acceptance by aid oriented international organisations, but many states are resistant to the idea.

Human security has two aspects, firstly an economic aspect and secondly a political one. Many states is Africa, Asia and Eastern Europe do not have enough resources to ensure the basic needs of their population; to this one must add the persistent problem of non-democratic regimes around the world.

The debate among scholars in recent years shows that there are various traps within human security, like the character of sovereignty, the acceptance of humanitarian law, humanitarian intervention, all of which influence the usefulness of the concept and which need to be discussed. It is possible that the redefinition of state sovereignty, the building of a global system of accepted humanitarian law and the idea of the responsibility of the international community for security will lead to the weakening of the state as an independent actor and to the strengthening of direct ties between the individual and the international community (states as well as international organisations). This makes the concept more significant in the days to come.

As we see in the chapter, the concept Human security has been discussed for the last decade or two and scholars as well as politicians have been unable to find a successful and satisfactory solution as regards definition. The human security concept is to day incorporated into the agenda of various international organisations but the conception used is very different, leading to different instruments used by those organisations for ensuring and promoting the security of the individual.

**CHAPTER III**

**Human Security in the Eastern Himalayan Region**

## 3.1 Introduction

Mountains form one of the most important bio-geographical resource zones of the world. Over half the global population depends on mountain environments for a wide range of goods and services including for water, food, hydro-electricity, timber, biodiversity maintenance and mineral resources besides availing opportunities for recreation and spiritual renewal. Up to 80 per cent of the planet's fresh surface water comes from mountains. Hence, mountains are very significant to human in a variety of ways.

The Himalayas[1] constitute the single highest mountain range in the world. The Himalaya is a complex of sub parallel structural units produced by the northward thrust of the Indian tectonic plate beneath the Central Asian plate. A unique geo feature of the planet, Himalaya is considered to be the youngest mountain system on the planet (Rao and Sexena, 1994).

According to the modern theory of plate tectonics, its formation is a result of a continental collision or orogeny along the convergent boundary between the Indo-Australian Plate and the Eurasian Plate. The collision began in the Upper Cretaceous period about 70 million years ago, when the north-moving Indo Australian Plate, moving at about 15 cm/year, collided with the Eurasian Plate. By about 50 million years ago this fast moving Indo-Australian plate had completely closed the Tethys Ocean, whose existence has been determined by sedimentary rocks settled on the ocean floor and the volcanoes that fringed its edges.

The Indo-Australian plate is still moving at 67 mm/year, and over the next 10 million years it will travel about 1,500 km into Asia. Further, it is also argued that its movement is not simply due north but it is turning slightly in an anti-clockwise direction (Ives, 2004). About 2 cm/year of the India-Asia convergence is absorbed by

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[1]The Hindu rishis of India coined the word 'Himalaya' from 'him', snow and alaya, the abode for this great mountain system and this name has rightly persisted in glossary in human imagery (Singh, 2001).

thrusting along the Himalaya southern front. This leads to the Himalaya rising by about 5 mm/year, making them geologically active.

The movement of the Indian plate into the Asian plate also makes this region seismically active, leading to earthquakes from time to time. Seismological studies delineate the Himalayan zone including Assam as highly sensitive. Additionally, Himalayan belt is prone to various types of natural disaster due to its inherent geo environment and geomorphic processes operating therein. Further, several studies and field experiences.

The eastern Himalayan region has been blessed by rich natural resources. The Eastern Himalayas (EH) lie between 82.70°E and 100.31°E longitude and 21.95°N to 29.45°N latitude, covering a total area of 524,190 sq.km (CEPF, 2005; 2007). The region extends from the Kaligandaki Valley in central Nepal to northwest Yunnan in China, and includes Bhutan, parts of India (North East Indian states, and the Darjeeling hills of West Bengal), southeast Tibet and parts of Yunnan in China, and northern Myanmar. These five countries have different geo-political and socioeconomic systems, as well as diverse cultures and ethnic groups.

The Eastern Himalayan Region being the second largest hydrologic region in the world is very rich in water resources, fertile lands and energy potentials, but scores very low in terms of socioeconomic indicators. Excluding China (India, Bangladesh, Nepal and Bhutan) within the EHR has a population of over 600 million, more than 70% which lives in rural areas are dependent on agriculture. Poverty is the common denominator the EHR. Nearly 45% of the land is cultivable, yet per capita availability of arable land is very small (CEPF, 2005; 2007).

Eastern Himalaya has a more complex geographical history than the Central Himalaya and also a more varied relief. The Eastern Himalaya is considered as 'biodiversity hotspots' (Brooks *et al*, 2006). The region is also a meeting ground for the Indo Malayan, Palaearctic and Sino Japanese bio geographical realms with diverse ecological, altitudinal gradients and an associated diversity of flora and fauna (CEPF, 2005; 2007).

The Himalayas provide water which is a vital ingredient in life support systems for all species and a primary resource for development. Nineteen major rivers and innumerable wetlands originate from the Himalaya of these the Indus, the Ganga and the Brahmaputra are the largest (Singh, 2001).

## 3.2 Environmental insecurity in the Himalayas

Mountains are, fragile resource zones and are highly susceptible to both natural forces and anthropogenic factors. Mountain people face an environment in which everyday physical demands are great, natural hazards are significant and agricultural production is constrained. Only about 3 per cent of land ranked as highly suitable for rain fed agriculture is within mountains, highlighting the restricted livelihood opportunities available to many mountain people (UNEP-WCMC, 2002).

Himalayas are the highest mountain range in the world and Eastern Himalaya (in northeast India) is a biodiversity hotspot. But today this region is facing number of issues which is threatening human survival, environment and biodiversity. The studies which have been done on the Himalayas just focuses on the history, politics and strategic situation of the Himalayas, but the people who live in this spectacular region have been largely overlooked. So Human Security is at stake in this region (Berremen, 1963). Deforestation in the Eastern Himalayas has led to severe loss of habitat due to fragmentation, environmental degradation and increase in soil erosion and landslides. Plantation of exotic variety of trees in this region has had a considerable impact on the natural ecosys. Illegal development activities and structures such as dams in eco sensitive areas specially around the many pilgrimage sites in the region has led to significant instability in this fragile region. Bio piracy using bio resources of the local communities has denied them fair share of their traditional knowledge.

Socio economic and political marginalisation in the Himalayas is also a major problem to be looked upon. In recent times, many anthropogenic activities have been aggravating the natural setup of mountains. Studies across the globe have found that the health of the world's mountains is in dire need of relief from modern anthropogenic activities that are causing lasting environmental damage and human insecurities (Eckholm 1982, Ives and Pitt 1988, Ives 1989, Agenda 21 1992, Jodha

1995, 2005, UNEP-WCMC 2002, UNU 2002). According to the analysis by the United Nations University, pressure from tourism, development, pollution, deforestation, climate change, and other forces is permanently eroding the landscape of many mountain ranges, with serious implications for society (Khawas, 2007).

**Natural Environmental Insecurities**

Some of the major natural and human made environmental insecurities that often challenge human security in the Eastern Himalaya and its geographic milieu are;

**Extreme Climate**

Eastern Himalaya exhibits one of the most complex climatic patterns and it is virtually far from possible to come to a clear pattern of climatic set up in the region. Owing to its extreme diversity in its various sub-ecological locations, elevation, and topography the region is featured by extreme variants of climate. The two main climatic characteristics of the region are the seasonal rhythm of weather and the vertical zoning. (Khawas, 2008) The climatic conditions vary from hot sub-humid tropical in the southern low tracts to temperate, cold alpine and glacial in the northern high mountains. The temperature of the region varies spatially both vertically and horizontally.

The Eastern Himalayan region is characterised by extreme cold and arid winter conditions in the West to warm and humid summer in the east with alterations of dry and moist conditions in wide range of altitudes having different microclimates. (Singh 1961).Further, due to poor accessibility, lack of proper recordings and quantification of these events, it is impossible to predict these events with any confidence. Cloudbursts, cause heavy damage and slope failures while hailstorms or droughts inflict great losses to agriculture.

Cloud burst is one of the major natural hazards in the Himalaya. It refers to sudden and violent rainfall, followed by flash floods and is generally reported in the monsoon period. Such events are related to extreme hydro meteorological conditions leading to debris flow, landslide and eventually the blockade of river channels, consequently wreaking havoc downstream.

The Alaknanda flood of 1970, considered as the worst disaster of its kind in northwest India of the last century was triggered by a cloudburst followed by flash flood in the downstream. The flash floods of Bhagirathi in 1978, Sutlej in 1993 and 2000 and Teesta in 1968 are other examples of similar events inflicting far reaching human insecurities along the Indian Himalayan belt (Khawas, 2007).

**Mass Wasting**

Mass wasting describes a variety of processes through which large masses of earth material move downhill under gravity, either in slow creeping mode or as rapid landsides. Mass wasting is a wide spread constraints faced across the Himalaya. It is the most frequent and widely dispersed manifestation of the fragility of the Himalayan terrain and is basically a natural process. However, human activities can substantially aggravate its impact and scale (Bahadur, 2004).

Two major processes of mass wasting that have been the major causes of human insecurity in the Himalaya include avalanches and landslides. Avalanches are river like flow of snow or ice descending from mountaintops and are common in the high ranges of the Himalaya. According to the scientists, on an average 30 persons are killed every year due to this disaster in the Himalaya (HPDR, 2005). Besides claiming lives, avalanches also damage roads and other properties falling in their ways. The villages at higher altitudes and army camps are frequently hit by this natural disaster.

Landslides are the most common disaster that occur across the Himalaya causing great human, economic and environmental losses. Large catastrophic landslides also occur specially on the slopes of the main glacially over-steepened valleys and the major river gorges. These hazards are relatively rare but when they occur they present a great risk to the population.

The occurrence of landslides in mountains cannot be prevented in all cases but taking effective control and preparedness measures for disaster management can reduce the damage. Land hazard zoning characteristics, e.g, proximity of fault, slope angle, dip slope retention, relative relief, height, nearness to ridge tops, lithology and land cover is helpful in making decisions for development projects (Bahadur, 2004).

**Soil Erosion**

Rivers, streams and other forms of surface runoff are the primary agents of soil erosion and subsequent degradation of land resource in the Himalaya. Soil erosion causes extensive loss to soil fertility and damage to the land basin. The monsoon is very intense in the Himalaya leading to erosion of much of the Siwaliks in the East from Kosi to Manas in Bhutan (Khoshoo, 1993).

There are a number of natural factors that result in large quantities of sediment to be delivered to the rivers of the region for transport (Alford, 1992). Though the process of soil erosion is natural and has been continuing in the Himalaya since its origin, recently, due to various human induced activities, its rate has accelerated to dangerous proportions (HPDR, 2005). Along with other development activities, deforestation, road construction, forest fires and such other forces are regarded as pertinent reasons for the high soil erosion rate in the Himalaya.

**Human made Environmental Insecurity**

a) Climate change/Global warming

Global warming and consequent changes in the climatic pattern across the geographies of the planet has been a hot topic in recent times across disciplines- natural and social sciences- supported by undue hype of popular media. Many scientists firmly believe global warming is hurting our environment. Even politicians and diplomats have become an integral part of the debate (Khawas, 2007) Hence, global warming has acquired global significance and has found its place in the regional and global geo-politics.

Secretary General of the United Nations, Kofi Annan emphasised at the "Climate Change Conference in Nairobi" in November 2006 that climate change is not just an environmental problem, but also a health problem, a security problem and an economic problem for all nations[2]. Since the mid-1970s the average air temperature measured at 49 stations of the Himalayan region rose by 1degreeCelcius with high elevation sites warming the most (Hasnain 2000, WWF, 2005).

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[2] United Nations Climate Change Conference was held at Nairobi from 6 to 17 November 2006. The Conference was attended by six thousand participants from one hundred eighty countries including the Nations Secretary-General, Kofi Annan.

One of the worst damages of global warming as revealed by various scientific studies has been the glacier retreat in the mountains and Glacial Lake outburst floods (Khawas, 2007) While such phenomena have occurred due to geologic and geomorphic reasons in the past, scholars argue the rate and frequency of their occurrence have amplified severely in the last couple of decades, and sadly is increasing with time.

Geoscientists have revealed a general shrinkage of mountain glaciers on a global scale and the trend was found to be more pronounced during the first half of the 20th century. After that, about 1950 mountain glaciers again started to grow. However, they again started to retreat with accelerating pace since the 1980s. (khawas 2007) Based on the scientific investigations, there have been forecasts that up to a quarter of the global mountain glacier mass could disappear by 2050 and up to half could be lost by 2100. In the Himalayan region also glaciers have been found to be in a state of general retreat since 1850 (Mayewski and Jeschke 1979, WWF, 2005).

Glacial Lake Outburst Flood (GLOF) is primarily an outcome of glacial melting. They are catastrophic discharges of water resulting primarily from melting glaciers. According to WWF (2005), many of the big glaciers have melted and retreated rapidly and have given birth to the origin of a large number of glacier lakes. Due to the faster rate of ice and snow melting, caused by the global warming, the accumulation of water in these lakes has been increasing rapidly and resulting sudden discharge of large volumes of water and debris and 15 causing flooding in the downstream (Khawas, 2007).

An accelerated retreat of the glaciers in recent times has led to an enlargement of several glacial lakes. As the glaciers retreat they leave a large void behind. The ponds occupy the depression earlier occupied by glacier ice. These dams are structurally weak and unstable and undergo constant changes due to slope failures, slumping, etc. and run the risk of causing GLOFs[3].

A serious lack of reliable and consistent data severely hampers scientific knowledge about the state of Himalayan glaciers. As a result, the contribution of glacial melt to the Himalayan river basins remains uncertain. This is of grave importance because

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[3] GLOF-glacial lake outburst flood

declining water availability could threaten the food security of more than 70 million people. There is thus an urgent need to improve cross-boundary scientific collaboration and monitoring of glaciers to bridge the knowledge gap and allow policy options to be based on appropriate scientific evidence.

Seasonal melt water from the Himalayan glaciers is one of the main sources of freshwater reserves that directly sustain people living in the region, especially in arid and semi-arid areas. At varying degrees and times, about 1.3 billion people living in the Himalayan river basins rely on both melt water and monsoon waters to sustain their livelihoods, mainly for irrigation, drinking, sanitation and industrial uses. Net irrigation-water demand is high in this region, but per capita water availability is very low. It is thought that declining water availability will eventually threaten some 70 million people with food insecurity (UNEP SEP, 2012).

**Population Growth**

Rapid growth of population in the Himalaya highlights an increasing pressure on resource bases and human security therein and in the adjacent lowlands. There has been an alarming rise in the size of Himalayan population in the last one-century. At the onset of 20th century the total population was a little less than 12 million (Khawas 2007) The figure went rising up. The growth of population in Himalaya comes to around 449 per cent between 1901 and 2006 while the growth was 93 per cent between 1981 and mid-2006(ibid). The decadal growth of Himalayan population between 1991 and 2001 was about 25 per cent while since 2001 till mid-2006 the growth has been 20 per cent. This, roughly, means Himalayan population is growing at the rate of 4 per cent per annum in the last five years (ibid).

Population and poverty are closely linked. Human and livestock populations are increasing rapidly in the entire Eastern Himalayas. Natural resources, on which whole populations depend, are limited and the life-supporting capacity of the mountain lands and the productivity of lowlands are under extreme pressure. Population increases have now exceeded the carrying capacity of the available habitable land. It has led to overstocking of grazing land and an increasing need for new agricultural and pastoral land. Consequently, forested upper slopes, which hitherto protected the lower slopes

from excessive erosion, are being cleared for cultivation, fodder, firewood, grazing and timber.

Low agricultural productivity, low incomes, low standards of living, lack of proper infrastructural facilities and serious environmental problems in the Himalayas has resulted in population migration (Khawas, 2007). Out migration is one of the main characteristics of the Eastern Himalayas which has played a major role in environmental degradation, especially increasing the areas of derelict land. Out-migration of the hill people includes, temporary seasonal migration, juvenile migration, periodic migration, and permanent emigration (Khawas, 20007). This out-migration of hill people to urban areas, due to a decline in agricultural production, has exacerbated the problems of environmental imbalances in the region.

**Forest Fires**

Himalayan forests, the major storehouse of biodiversity in South-Asia, are now, allegedly, under threat. Today, forests have reduced drastically or completely vanished from many parts of the Himalaya. The Eastern Himalaya is one of the most vulnerable geographical units of the world susceptible to forest fires. Every year wildfires destroy considerable forest resources in the region. Forest fires occur due to a variety of reasons and may be both natural and human made. Many forest fires start from natural causes such as lightning which set trees on fire.

Almost the entire energy needs of mountain people are met from fuel wood obtained from the felling of trees growing in the forests and near the agricultural field. Unscientific management of land resources further exasperates the situation (Khawas 2007).Unplanned urbanisation, commercial timber extraction, capitalistic development projects, mining & quarrying and such other forces of modern development are among the most pertinent factors that have led to deforestation with serious environmental, social, economic and biological consequences. This is essentially the result of the unscientific and lopsided development policies of the respective governments encompassing the Himalaya (Khawas, 2007).

Another common practise in the area is burning of wild grass or undergrowth to search for wild animals. Un-extinguished campfires of trekkers, shepherd camps or roadside charcoal planners may also spread and cause forest fires. Un-extinguished

cigarette butts and matchsticks are other important causes of accidental forest fires, especially in areas of dry forests. Besides, lightning or sparks from electric poles in dry areas also causes fires. Up to 90 per cent of the forest fire in the region is caused by reckless anthropogenic activities (Chetri, 1994: HPDR, 2005).

**Unplanned Urbanisation**

Urbanisation across the Eastern Himalaya has a long history that started before the advent of the British. The earliest urban characters were mainly the capital towns built by different rulers (Khawas 2007). They were essentially rural in character made up mainly of the palaces, high walls, temples, pavilions etc. With the advent of the British and subsequent colonization of the Indian soil, centers for collection and other related activities started along with the development of administrative activities. Partition of India affected the towns by changing the population size and area of the towns.

Today the Eastern Himalaya accommodates over 500 towns, mainly the small and medium towns. If we dissect the hill towns it is found that small chunk of large towns accommodate considerable urban souls. For instance, out of the total urban settlements class one towns comprise only about 4 percent but shelter over 28 per cent of the total urban population of the region. Over 70 percent of the hill towns are small in character but accommodate less than 40 per cent of the urban population (Khawas 2007). Such scenario does indicate that the distribution of urban population in the Himalaya is also top heavy as in mainland.

**3.3 Food insecurity in the Eastern Himalayas**

Mountain people endure the highest levels of food and nutrition insecurity in the region. Not only is it challenging to farm in the mountains, but farmers depend heavily on a few highly selective crops, agro-biodiversity is declining, and climate change is contributing to the depletion of natural resources. Those factors combine with socioeconomic pressures to make mountain people particularly vulnerable to poverty and food insecurity.

Food security is emerging as a concern in the Eastern Himalayas, with changes in weather patterns, the water cycle, and water availability, due to climate change. There are many plant species grown in the region with significant food and nutritional or

industrial potential, such as millet, sorghum, buckwheat, sea-buckthorn, and wild fruits. Most people living in the Eastern Himalaya depend on agriculture and agro forestry for their livelihoods. Based on the agro climatic zones and farming practices, the Eastern Himalaya can be categorised broadly into five major systems (Rasul 2001). Each farming system supports a wide range of agro biodiversity. The Eastern Himalayan region is known as the 'centre of origin of cultivated plants' as original locations of over 50 important tropical and sub-tropical fruits, cereals, and rice are in this region (Vavilov, 1926; Chakravorty, 1951; Dhawan, 1964; Hore, 2005), out of an estimated 800 species used for food in India, about 300 species occur in North East India alone (Rao and Murti, 1990).But they remain under-utilized, without a clear strategy for their evaluation and development. With institutional support to intensify production and diversify farming systems, the region has considerable potential for agricultural production, from agro-forestry to fruit, vegetable and nut farming to the raising of fish, poultry and livestock. Remote sensing provides an effective way of monitoring agricultural fields and providing a synoptic view of the result of field practices which can then be processed to help agricultural scientists who make appropriate decisions (ICIMOD, 2008).

Although South Asian countries made impressive progress in food production during 1960s, 1970s and 1980s, the dynamism in the agricultural sector has, however, lost recently. Therefore, food security has remained a major concern in South Asian countries. The linkage between food production in the region and the Himalayan mountains is poorly understood though the Eastern Himalayan mountains are the major source of dry season water in Pakistan, Nepal, Bangladesh and Bhutan for irrigated rice and wheat, which are the staple food in South Asia(Rasul, 2001).

From their origin in the Himalayas until they reach the Bay of Bengal, the Ganges, the Brahmaputra, also known as Yarlung Tsangpo in China and Jamuna in Bangladesh, and the Meghna (GBM) river systems connect China, India, Nepal, Bhutan and Bangladesh hydrological, economical, and environmental and provide water, energy, food, and livelihoods to millions of people. These river systems have enormous potential in terms of water, energy, irrigation, navigation, and transportation.

The countries of the Eastern Himalayas depend heavily on water from the GBM river system to produce enough food for their growing populations, provide access to energy for the rural poor, ensure human health, and support environmental protection (Rasul, 2013). The GBM is the third largest river system in the world in terms of freshwater flow volume after the Amazon and the Congo. Its huge potential, however, has remained largely underutilized. As a result, the region, one of the poorest in the world, is facing increasing water stress, severe floods and droughts, energy crises, food insecurity, persistent poverty and vulnerability. About 20% of the population in the Eastern Himalayan region lacks access to safe drinking water, and per capita energy consumption in this region is among the lowest in the world (Rasul, 2001). Moreover, recurrent floods and droughts have devastated economies and threatened food security across the region.

Agricultural biodiversity is crucial to the food security of the Eastern Himalayan Mountain region. The Himalayan range is a diverse region in terms of plant, animal, and human life. Rising rates of rural migration and changing rain and temperature patterns threaten this valuable array of diversity.

Ecosystem services are defined as the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life. A rapid population growth in recent times has increased the pressure on the natural resources such as the available land for sustaining the livelihoods, and with over exploitation and extraction of the natural resources the ecosystems are becoming unsustainable and fragile (Sundriyal& Sharma 1996).

Land degradation is among the major challenges confronting sustainable development. As a result, millions of people depending on forests and tree resources for their subsistence have become more vulnerable. The multi-functionality of the agroforestry systems has been realized over the last four decades. Thus, agroforestry system research and development has evolved dramatically with much emphasis on how they function, diversity from local, landscape to regional level, local knowledge systems, economic valuation and environmental services they provide (Beer et al. 2005).

Agroforestry has the potential to improve livelihood as it offers multiple alternatives and opportunities to farmers to improve farm production and incomes and also

provides productive and protective (biological diversity, healthy ecosystems, protection of soil and water resources, terrestrial carbon storage) forest functions to the ecosystems while protecting the natural environment.

The Eastern Himalayan region also comprises diversity of agroforestry system as an important land use practice. Agroforestry is accepted as one of the sustainable management systems for provisioning functions adopted by the mountain communities in the region. Such systems conserve soil by improving the fertility levels and erosion, provide quality water for local consumption, fodder for livestock, fuel and timber for use as energy and construction materials, and traditional crops for food security (UNEP, 2012).

Glacial retreat is being accelerated by global warming. Moreover, black carbon (BC) emissions that enter the atmosphere drop back to earth after a few months, and when that BC lands on glaciers, it darkens them, attracting sunlight and further exacerbating melting (UNEP, 2012). If that were to happen, the water and food security of up to two-thirds of the world's population would be imperilled.

A serious lack of reliable and consistent data severely hampers scientific knowledge about the state of Himalayan glaciers. As a result, the contribution of glacial melt to the Himalayan river basins remains uncertain. This is of grave importance because declining water availability could threaten the food security of more than 70 million people (UNEP, 2012). There is thus an urgent need to improve cross-boundary scientific collaboration and monitoring of glaciers to bridge the knowledge gap and allow policy options to be based on appropriate scientific evidence.

Seasonal melt water from the Himalayan glaciers is one of the main sources of freshwater reserves that directly sustain people living in the region, especially in arid and semi-arid areas. At varying degrees and times, about 1.3 billion people living in the Himalayan river basins rely on both melt water and monsoon waters to sustain their livelihoods, mainly for irrigation, drinking, sanitation and industrial uses (UNEP, 2012).

In the Himalayan region, people's livelihoods are directly tied to the food, fodder, and fuel, provided by their environment. The local economy is characterized by persistent poverty, peculiar biophysical characteristics, remoteness, limited accessibility to

economic & employment opportunities. With earning opportunities declining and the traditional crafts and skills dying a slow death, migration to the cities is high.

The changing climate and its effects on glaciers and forests and resulting water will affect the soil's moisture and the availability of water, which is likely to have a strong impact on food production. This will increase food insecurity, particularly amongst the poor and marginalized families. The loss of bio-diversity and agro-diversity also renders these populations vulnerable and less able to cope with the rapid, expected changes.

With the changes in the Eastern Himalayan region, the river plains will be impacted most. Unseasonal and undistributed rainfall (change in rainfall patterns), floods and prolonged droughts, will bring down the food production in these regions (Sharma et al., 2009). With scarce water and groundwater tables falling, and temperature rising, the soil conditions will becomes drier. Loss of working days and its impact on annual earnings, migration and urbanization will further push the populations into insecure conditions.

**Climate Change and Human Security in the Eastern Himalayas**

Atmospheric warming affects other aspects of the climate system: pressure and composition of the atmosphere; temperature of surface air, land, water, and ice; water content of air, clouds, snow, and ice; wind and ocean currents; ocean temperature, density, and salinity; and physical processes such as precipitation and evaporation(Sharma et.al, 2009).

Climate affects humans directly through the weather experienced (physically and psychologically) day to day and the impacts of weather on daily living conditions, and indirectly through its impacts on economic, social, and natural environments. Climate change, including variability and extremes, continues to impact on mountain ecosystems like Eastern Himalayas, sometimes beneficially, but frequently with adverse effects on the structure and functioning of ecosystems (Sharma et.al, 2009).

There is now widespread agreement that the changes now underway in the earth's climate system have no precedent in the history of human civilization (IPCC, 2007;

Stern, 2007). As a macro-driver of many kinds of environmental changes such as coastal erosion, declining precipitation and soil moisture, increased storm intensity, and species migration, climate change poses risks to human security (McCarthy, Canziani, Leary, Dokken, & White, 2001). In most parts of the world, the impacts of climate change on social ecological systems will be experienced through both changes in mean conditions (such as temperature, sea-level, and annual precipitation) over long-time scales, but also through increases in the intensity and in some cases frequency of floods, droughts, storms and cyclones, fires, heat waves, and epidemics.

Outside of these short- and long-term changes, which are projected to occur with high levels of certainty, there also exist somewhat more unquantifiable risks of high-impact events. These include melting of glaciers and permafrost which may add several meters to global sea-levels, collapse of the thermohaline circulation which may cause significant regional climate changes in the northern hemisphere, and large scale shifts in the Asian monsoon and the El Nino Southern Oscillation phenomenon (Oppenheimer & Alley, 2004; Vellinga& Wood, 2007; Schneider, Semenov, & Patwardhan, 2007).

The vulnerability (potential for loss) of people to climate change depends on the extent to which they are dependent on natural resources and ecosystem services, the extent to which the resources and services they rely on are sensitive to climate change, and their capacity to adapt to changes in these resources and services. In other words, the more people are dependent on climate sensitive forms of natural capital, and the less they rely on economic or social forms of capital, the more at risk they are from climate change.

## 3.4 Impact of Climate Change in the Eastern Himalayas

Climate change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time (i.e., decades to millions of years). Climate change may refer to a change in average weather conditions, or in the time variation of weather around longer-term average conditions (i.e., more or fewer extreme weather events). Climate change is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Certain human activities have also been identified as

significant causes of recent climate change, often referred to as global warming. (National Research council 2010).

Climate change undermines human security in the present day, and will increasingly do so in the future. It does this by reducing people's access to natural resources that are important to sustain their livelihoods. Climate change is also likely to undermine the capacity of states to provide the opportunities and services that help people to sustain their livelihoods, and which help to maintain and build peace. In certain circumstances, these direct and indirect impacts of climate change on human security and the state may in turn increase the risk of violent conflict.

It seems evident that climate change poses risk to human insecurity principally through its potentially negative effects on people's well-being. This is the a priori reason why climate change is of great concern to many people. Yet there is need for considerably more research on the ways it may undermine human security, not least because the level of understanding of people's vulnerability is still sufficiently uncertain for the purposes of designing effective adaptation strategies. Yet, because the actual or perceived insecurity of people due to a wide range of processes e including livelihood contraction e is a factor in many violent conflicts, human insecurity caused in part by climate change may in turn lead to more conventional security problems.

The region experiences various types of geo-environmental/geomorphic processes and thereby, is prone to a number of natural hazards. Often these hazards assume the form of disaster due to the region· s inherent nature, climatic conditions and Jack of adequate disaster preparedness mechanisms consequently inflicting widespread catastrophe and human insecurities in the region. However, more recently, many of the natural processes have been accelerated by the unscientific and unsustainable anthropogenic activities.

Earthquakes ranging m severity, floods or flash flood, and glacial lake outbursts are common among other major natural hazards. Monsoon is the time when water-induced disasters take place in some form or another in various places across the

Himalaya. Cloudbursts[4] are generally reported during every monsoon period wreaking tremendous environmental and human devastation downstream.

Most of the rivers in the Eastern Himalayan terrain flow through narrow gorges abutting moderate tosteep slopes with sharp bands and meet tributaries on steeper slopes. As the rivers flow downstream, the valley becomes comparatively wider and less steep. The occurrence of flash floods, particularly in the narrow river valleys, is one of the most-feared consequences of major cloudbursts, landslides or glacial lake outburst. Rolling of debris by cloudburst or landslide along the constricted course of the rivers lead to a short-term damming of the river flow, resulting in the creation of temporary lakes, which can last anywhere from a few days to a few decades. When the backwater pressure of the lake exceeds the retention capacity of the barrier, the accumulated water gushes downstream with powerful force inundating otherwise safe settlements. Such flooding has an immense impact on the economy of the region and the safety of the local population.

Yet environmental change does not undermine human security in isolation from a broader range of social factors. These include, among other things, poverty, the degree of support (or conversely discrimination) communities receive from the state, their access to economic opportunities, the effectiveness of decision making processes, and the extent of social cohesion within and surrounding vulnerable groups. These factors determine people and communities' entitlements to economic and social capital that in turn determine their capacity to adapt to climate change so that the things that they value are not adversely affected.

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[4] A cloudburst is an extreme amount of precipitation in a short period of time, sometimes accompanied by hail and thunder, that is capable of creating flood conditions.

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The way climate change can and does undermine human security varies across the world because entitlements to natural resources and services vary across space, and the social determinants of adaptive capacity are similarly varied. While the focus of human security is the individual, the processes that undermine or strengthen human security are often external to the locality of communities where individuals reside. In terms of environmental change, for example, upstream users of water, distant atmospheric polluters, multinational logging and mining companies, regional-scale climatic processes, and a host of other distant actors and larger scale processes influence the security of individuals' entitlements to natural resources and services (Barnett et.al 2007).

Similarly, in terms of the social determinants of vulnerability, warfare, corruption, trade dependency, macroeconomic policies, and a host of other larger scale processes associated with 'globalisation' shape the social and economic entitlements that are necessary to reduce an individual's vulnerability (or increase their ability to adapt) to environmental changes. Therefore, human security is a function of multiple processes operating across space, over time, and at multiple scales. This makes researching the ways in which climate change may affect human security a daunting task, which is not helped by the difficulty of ascertaining whether there are indeed any existing environmental changes that can be attributed to climate change (Allen & Lord, 2004).

Nevertheless, there have been some investigations of the relationship between climate change and human security. These have focussed on the local dynamics that limit individuals' and group's access to environmental, financial, and social resources necessary to respond to climate variability and change (Barnett et.al 2007).

## 3.5 Economic insecurity in the Eastern Himalayas

Economic self-sufficiency and alternative livelihood options are severely lacking in the hills due to the lack of resources and the absence of alternative job opportunities. Villagers located in the mountainous terrain at an altitude of between 1,800 and 3,600 meters have to purchase basic necessities including staple foods such as rice and dal (pulses) from the nearest urban centres(Prasad 2015).Price fluctuations of these staples, along with transportation costs, encourage villagers to sell fuel wood for income generation.

The Eastern Himalayan region is repository of abundance of natural resources such as water, land and forest. Varied landscapes the valleys, mid-altitudes and the highlands comprise this region. Water potential, in the forms of glaciers, glacier-fed perennial rivers, highland lakes, springs and ground water is enormous and the whole Himalayan region is known as water tower. Economically viable forests from subtropical to temperate with high biodiversity characterise this region. These abundant natural resources are largely unused and as a result, economic status of the inhabitants is significantly low. Economy is mainly dependent on traditionally grown subsistence cereal crops with low output. Average Human Development Index is 0.561, people living below poverty line are 12.59 per cent, environmental sustainability index is 60-80 per cent (Prasad 2015).

## 3.6 Health insecurity in the Eastern Himalayas

Human health is an essential component of human wellbeing and is highly susceptible to climate change. It is agreed that climate change will affect the incidence and distribution of vector-borne diseases, water-borne diseases, and health problems caused by extreme weather events. Climate change can also affect human health indirectly through a number of pathways; for example, its impact on food production

and supply will exacerbate the existing, pervasive malnutrition in this region (Sharma et al., 2009).

The changing climate and the warming up of the Himalayas, the receding of the glaciers and the forest lines, will mean that diseases, pests, and vectors more suited to warmer climates can move up north. Combined with food insecurity, malnutrition, and rapid depletion of forests, the health of the populations will take a setback (Sharma et al. 2009).

Diarrhea and infectious diseases, particularly the insect vector-borne diseases such as malaria, dengue fever and Japanese encephalitis are sensitive to the impact of climate change (Sharma et al. 2009). Rising temperatures shorten the time needed by insect vectors to grow. This also changes the geographic distribution of vectors and they usually spread to high-altitude areas that previously had no such disease vectors, thereby increasing the probability of their spreading the disease to new populations. Frequent disaster and its impacts of loss of property, livelihoods, infrastructure etc. will make women, children, the old and the disabled very vulnerable to diseases.

The International Centre for Integrated Mountain Development (ICIMOD, Kathmandu), with funding from the MacArthur Foundation, has recently performed a detailed analysis of the impacts of climate change on the Eastern Himalayas (Sharma et al. 2009). Their report focuses primarily on biodiversity and ecosystem services. As expected, the predictions are dire while the uncertainties remain large, given the paucity of serious attention to this region compared, for instance, to the Alps or even to the Andes. While the report notes the implications of climate change for human well-being, including health, infectious disease gets only passing mention. This is unfortunate because there is ample reason to expect that climate change in the Himalayas will lead to a significant increase in the regional infectious disease burden due, in particular, to vector-borne tropical diseases that have historically been absent from the Himalayas (Sarkar, 2010).

The reasons are simple. First, climate change is likely to lead to a deterioration of water quality, partly because the increased initial meltdown and excess in water availability will be followed by a very significant reduction in supply. Resulting shortages of good quality water will increase the burden of diarrheal disease. Even

cholera may emerge as a significant problem because of its known association with climate (Colwell, 1996), and given its current incidence in some parts of the Indian Himalayas and Nepal.

Second, there will also be a likely decrease in air quality, with a higher concentration of pollutants such as nitrogen dioxide and airborne-particles (the latter primarily in urban areas), and an increase in lower tropospheric and ground-level ozone levels, all leading to an increased frequency of cardio-respiratory disease (Sarkar, 2010).

Third, and perhaps most important, systematic temperature increases (0.01–0.04ºC per year, according to the ICIMOD scenarios) will allow tropical diseases to expand their range to higher elevations at which they did not occur before. These include a large spectrum of vector-borne (and, often, reservoir-dependent) diseases that have already begun to become problems in the region, including (visceral) leishmaniasis (locally known as kalaazar), dengue, and malaria[5].

It is critical that concerted action be taken to prepare for these problems and to investigate if other diseases are also likely to expand their range due to climate change. Unfortunately, except for malaria (the spread of which has been investigated for all of India), there has as yet been no systematic analysis of the emergence of previously absent diseases for any region of the Eastern Himalayas. Partly, this reflects the general problem that these other tropical diseases associated with poverty have largely been ignored by recent medical research (Hotez et al., 2007). But it also reflects a lack of quantitative epidemiological and ecological attention to the Himalayas (Sarkar, 2010).

## 3.7 Conclusion

With the change of time there has been change in the traditional concept of security, where before the focus of the security was the state now emerged a new concept of security which has been known as the human security. The focus now shifted on the individuals. Thus in the above chapter I have discussed about the various aspects of

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[5]The ICIMOD report also mentions schistosomiasis but it is unlikely that this disease will emerge as a major problem in the Himalayas given its very low frequency in neighbouring regions 2009

human security which is there in the Eastern Himalayan Region. As pointed out by the UNDP there are seven factors of human security which has to be secured among the seven factors I have specifically looked into the four factors of security which is Environmental, Health, Food and Economic security which are important for the region.

Traditionally mountains were identified as backward, inaccessible, and remote geographical locations inhabited by semi-civilized tribal people. Mountains were physically isolated from the mainstream society and economy and consequently from overall development paradigm. Hence, mountain regions and the people living therein were physically, socially, economically, and politically isolated and excluded. As a result they were marginalised from the mainstream development processes. Although such features are still true in many mountain regions of the world, there are, nevertheless, plenty of instances where processes of development have gradually penetrated into these marginal locations in recent times exposing them to variety of modern forces which intensify environmental degradation.

Climate change impact has an overwhelming and overreaching impact in the Himalayas ecologically and economically. Among many others issues arising from a changing climate that the mountains are threatened with, water is at the centre, and building resilience to this issue becomes a priority. As floods, drought and other impacts of climate change on water become more frequent or intense, economies and livelihood security will weaken. Adaptation to these impacts using the simplest of technology at the community level could have a far reaching effect. These have to be looked upon seriously and different measures have to be taken to address the issues of environmental, health, food and economic security in the Eastern Himalayas.

## CHAPTER IV

## Human Security in Sikkim: Issues and Responses

### 4.1 Introduction

Sikkim, wedged between Nepal and Bhutan, is a small state of India well known for its scenic beauty, immensely rich biological diversity, very diverse eco climatic conditions, and wide altitudinal variation. Mount Khangchendzonga (8598 m), the third highest peak in the world, strongly governs the relief features of the state, which has a total geographical area of 7096 km2. It is not only the highest but also the steepest landscape in the country, as the width of the Himalaya across its entire length is narrowest here (Schaller, 1977).

The state is separated by the Singalila range from Nepal in the west, Chola range from Tibet in the northeast and Bhutan in the southeast. Rangit and Rangpo rivers form the borders with the Darjeeling district of West Bengal in the south. Sikkim Himalaya measures a total geographical area of 7,096 sq.km with 349.3 km of international border China border: 220km, Bhutan border 32. 8km, Nepal border: 96.5 km. It has a national border of 30.3 km with West Bengal. This also means 92 percent of Sikkim's border is with neighbouring countries. The nature of the International Border is natural in character. About 100 kms from the border town Rangpo in South Sikkim lies the Bangladesh. The state of Sikkim has four districts - North, South, East and West with the capital city of Gangtok located in the East district. The North district is largely a tribal district inhabited by about 56 percent tribal population. Sikkim merged with Indian Union in 1975 and became the 22nd constituent state (Khawas 2011).

Sikkim Himalaya is strategically located. It is wedged between Nepal in the west and Bhutan in the east and China in the north and northeast. Measuring just 65 Km east to west and 115Km from north to south, it ranges from sweltering deep valleys, with a mere 300 meters above sea level to lofty snow peaks such as Kangchendzonga. The state being a part of inner ranges of the Himalaya has no open valley and plains but varied geographical elevations ranging from 300 to 8598 meter above mean sea level consisting of lower hill, middle and higher hills, alpine zones and snow bound land; the highest elevation 8598 meter being the top of the Mt.

Kangchendzonga itself. On the north-western side of the Sikkim Himalaya lies the massive 31 Km long Zemu glacier. Sikkim's botanical and zoological affluence is truly impressive and profusely fascinating (Khawas 2011).

Sikkim is a land of rich and varied scenic beauty, magnificent mountains, eternal snow, dark forest, green fertile valleys, raging torrents and placid lakes. Her magnificent variety of flora and fauna are the naturist's dream. The steep variations in elevation and rainfall give rise to a glorious multitude of species within a comparatively limited area of the Sikkim Himalaya. As one moves northwards, valley floors and mountain peaks increase in altitude, the terrain becomes more rugged, the climate become drier and more temperate, the vegetation changes from Sal forest to rhododendrons and conifers and finally to grass above timber line. The composition ranges from dry deciduous forest with Sal and its associates in the valleys of Teesta and Rangit to the alpine scrubs and grasslands in high altitudes. Such a transition can sometimes be seen on a single mountain side in any of the ecological zones (Khawas, 2011).

## 4.2 Environmental Insecurity in Sikkim

The Sikkim Himalaya is a small geo-ecological entity located in the eastern part of the Himalaya. The region represents vertically all the geological sections of the Himalaya thereby exhibiting rich and diverse natural resource bases. Due to its unique geographical location over 81 percent of the region's geographical area is under the administrative control of the State Forest Department. However, only a little over 45 per cent of the total geographical area of the Sikkim Himalaya is actually under the forestcoverswhileabout34 per cent is set aside as Protected Area Network in the form of National Park and Wildlife Sanctuary (Lama, 2007: 99).

The entire Sikkim Himalaya is a part of the youngest and loftiest mountain system of the world 'the Himalaya' and hence is characterized with highly folded and faulted rock strata at many places. Being a part of the larger Himalayan Region, Sikkim is seismically sensitive and threatened by a number of geo-environmental challenges. The rock type in the region mainly consists of phyllites and schists and therefore the slopes are highly susceptible to weathering, erosion, landslides and other forms of mass wasting. The high intensity of rain falling during monsoon in the state often causes extensive soil erosion and heavy losses of nutrients from the land by leaching.

The important physical challenges that often threaten human security in Sikkim Himalaya are Earthquakes.

The 2011 Sikkim earthquake (also known as the 2011 Himalayan earthquake) occurred with a moment magnitude of 6.9 and was centered within the Kanchenjunga Conservation Area, near the border of Nepal and the Indian state of Sikkim, at 18:10 IST on Sunday, 18 September. The earthquake was felt across north eastern India, Nepal, Bhutan, Bangladesh and southern Tibet.

At least 111 people were killed in the earthquake. Most of the deaths occurred in Sikkim, with reports of fatalities in and near Singtam in the East Sikkim district. Several buildings collapsed in Gangtok. Eleven are reported dead in Nepal, including three killed when a wall collapsed in the British Embassy in Kathmandu (The Hindu).

**Heavy and Spontaneous Monsoon Rainfall**

Monsoon rainfall is greater in the Eastern Indian Himalaya than in its western counter part. Within Eastern Himalaya again the rainfall is intense in Sikkim, Darjeeling Himalaya. The reason being with the Rajmahal hills situated to the west and the Shillong plateau to the east there is no mountain range to protect the Teesta Valley from the sweeping monsoon winds rising from the Bay of Bengal. As a result the summer monsoon directly hits the foothills and the lesser Himalayan ranges of Darjeeling and Sikkim and gives the Teesta Valley exceedingly high burst of rainfall ranging between 3000 mm to 6000 mm every year (CSE 1991).

**Soil Erosion**

Landslides and Floods in Sikkim Himalaya is seismically active and featured by frequent mass wasting including landslides and land subsidence. The steep hill slopes in the area are very sensitive to any geo environmental changes. The fragile geological structure of the terrain due to faulty rock formation is certainly one of the main causes of landslides in Sikkim (Khawas, 2011). The strata consist of sandstone, shale, mica, schist and quartzite, which are in disintegrated condition in many places and folded and thrusted with a number of fault planes.

Incidence of landslides are lower where the rocks are in anticline faults where the direction of layers embedded in the slopes is away from the direction of the slope (Lama, 2001). Further, the topography is such that it leads to enormous erosion,

landslides and toe cutting. The steep slopes when saturated with rainwater and added by gravitational force sometimes naturally give ways to various forms of mass wasting. For instance, even sudden and spontaneous rainfalls destabilize the soil rock balance and encourage various forms of mass destruction like landslides and floods and inflict large scale environmental and human insecurities every year (Lama, 2007).

The excess run off causes the formation of gullies and scouring of the banks of the streams and jhoras thereby resulting in floods and landslides[1]. Contrary to the popular belief that forests conservation has a positive correlation with the no occurrence of landslides, there are instances in Sikkim to show that even very dense forests have faced one of the worst landslides in the past (Lama, 2007).

Landslides, triggered by heavy and spontaneous monsoon rain of 2007 killed and injured several people and damaged houses and property across the state. NH31A, the main road linking Sikkim to the rest of the country, was also cut off in many places for many days. According to an inter-ministerial centnil team that assessed the damage caused by rains in Sikkim Himalaya in 2007, the total damage in the state because of rain in 2007 was Rs 94.41 crore (The Telegraph, 2007).

Several places along the National Highway 31A that runs across the Indo-Chinese boarder (Nathula La) and Siliguri are chocked and become insecure to humans due to heavy rains and subsequent landslides/mudslides between mid June and September. This is a regular phenomenon during monsoon period every year.

The 1968 flood remains the biggest incident in recent years of Darjeeling-Sikkim Himalaya. In October 1968, rainfall between 600 mm and 1200 mm fell a three day period at the end of the monsoon when the ground was already saturated (Khawas, 2007). It is estimated that some 2000 landslides took place in the region. The impact of the rains was such that the Darjeeling Sikkim road was breached at 92 places and the road transport was totally disrupted. It is estimated that some 20000 people were killed, injured or displaced. The landslides played a major role in exacerbating the floods of 1968. Numerous bridges were washed away, and rail traffic was closed for

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[1]The places threatened by river erosion in Sikkim are : In the north district Mangan, Lachung, Chungthang, Dikchu and in east district Ranipool, Singtam, Sirwani, Rangpo, Rorathang, Rongli, Saramsa and in west Legship, Dentam, Reshi, Rimbi whereas in south district Me11i, Jorthang, Majhitar.

32 days (ibid). Rangpo's lower market, which was we11 above the river before 1968, came under two meter of sand after the flood and is now almost at the same level as the river's flood plain. Parts of it have been since abandoned. Further downstream, enormous silt came down the Tar Khola and the road leading up to the bridge across it was badly damaged

In the month of June 2008 , landslides at 9 Mile, 32 Mile, Bardang, 20 Mile, Rangpo, Fatak Lane severely affected normal flow of traffic along the NH 31A in Sikkim side. In the West Bengal side, massive landslides occurred in stretches of Kimey, Chitrey, 27th Mile, 29th Mile and Kali Jhora. During such period of monsoons, passengers that ply from Gangtok (Sikkim) to Siliguri take no less than seven hours to reach Siliguri as compared to four hours taken during other months (Khawas, 2007).

**Human Interference on Environment and Human Security Challenges**

 The natural environmental challenges are often exacerbated by human induced forces further aggravating the situation. Anthropogenic activities like the development intervention have had adverse impact on Sikkim Himalaya. The disturbing natural processes when coupled with unplanned development interventions overload the carrying capacity of the soil and bring about mayhem in the region. Some of the anthropogenic forces that have aggravated the fragile physical situation of Sikkim are:

**Population**

The population of Sikkim according to the Census of 2011 is 6.11 lakhs. There is an increase of population every year. The density of population has also witness similar kind of increase in the last one century. It rose from 4 persons per square kilometer in 1901 to 76 in 2001 registering about 19 fold climb in its population density during the period (*Census of India,* 2011). Such unprecedented rise in the population of Sikkim and resultant population density is not only because of natural addition. The other important factor in this regard is the continuous migration process from the surrounding geographical milieu. The geometrical increase in the population of Sikkim Himalaya in the last 100 years has put forth tremendous pressure on its natural resource bases and its fragile geo environment often inflicting human insecurities at many instances.

**Deforestation**

The state of Sikkim has 81.24 percent of the total geographical area (7096 sq kms) under the forestlands and in the custody of the forest department. Out of the total land of 5765 sq kms under the forest lands over 93 percent is classified as reserved forest, and 7 percent as protected forests {about 5 percent as Khasma] and 2 percent Gorucharan). However, the actual forest cover of the state was only 45 percent of the total geographical area (Khawas, 2007).

Across the districts of Sikkim the highest percentage of forest is noted in the East district (70.23) followed by South (68), West (61) and North (30.79) (ibid). Although the north district has the largest geographical area in the state and that it has also largest area under the forest it has only over 30 per land under the actual forest cover. This is because of the fact that a large part of the north district is perpetually snow covered and above the normal tree line.

All the large mountain ranges of the state lie in the north district and there are very few human habitations in the area. The south and west also have relatively less forest covers as compared to the east district as these two districts have relatively large portions of land under agricultural utilization and human habitation. Although the east district is the district with the large number of population in the state the population in the district is mainly concentrated in the Gangtok Town and thus east district has the largest percentage of forest cover in the state.

Sikkim Himalaya as a major subsystem of Eastern Himalaya has not been free from the deforestation hazard. One of the most pertinent challenges of Sikkim today is rendered by the destruction of natural vegetation in the high altitude areas. This, however, does not mean that the less elevated areas including lower and middle hills are free from deforestation hazards. The point here, however, is that in higher elevations, i.e. alpine zone, particular ecological equilibrium is maintained with reference to organisms, grasses, snow, temperature etc. (i.e. to say among biotic and a biotic factors).

Any of the slightest interference in this equilibrium may bring about enormous environmental hazards. Thus, snow melts from the perennial glaciers at a natural rate if the natural ecological features in and around them are maintained. Consequently,

hydrological and geo-hydrological balance in a particular geomorphic region is maintained.

However, if such delicate ecological linkages are disturbed through human interference or sometimes even naturally, host of environmental hazards may crop in bringing about immense sufferings to the mankind in the long run. Abnormal rate of snow melting and glacial retreat, snow avalanches, disbalance in hydrological cycle, mass wasting (landslides, subsidence etc), drying up of the perennial streams, extinction of the rare species, climate change, desertification and floods are some of the consequences that human may witness as a result (Lama, 2001). As a result of the habitat destruction a number of species are already in the endangered lists, some of the natural aspects of Sikkim are disappearing (Lama, 2001).

**Energy Needs**

Forest has been the major source of energy in the hills and mountains even in the recent times. Across the Indian mountain system, people are still largely dependant on the forest and the related biomass for their energy need. This is particularly pertinent across the rural Himalaya and is also true in case of many urban settlements. Firewood, animal dung, and crop residues has been the traditional sources of energy in Sikkim. They are still the only major energy sources for the majority of the people, particularly in the rural areas. Biomass has also been a vital part of the state energy scenario.

The degradation of the environment because of the continuous over dependence on the forest and the associated biomass has now reached alarming levels. Since most of the biomass fuel is used for domestic cooking, particularly in the confined spaces, its adverse health effects are becoming evident strongly among the women. Further, the highly inefficient traditional cooking methods make the energy wastage from biomass combustion very high and also pollute the environment.

Firewood still continues to be the main source of energy in rural Sikkim sharing more than 85 per cent of the total energy consumption (Khawas, 2007). Forest wood continues to be the predominant source of fuel for cooking across the rural villages of all the districts. Even in the urban areas the West and North districts are still majorly dependant on fuel-wood for cooking. Besides fuel wood, urban areas are also using

kerosene and LPG of late although their use is relatively low compared to other mainstream urban settlements. Even across the districts of Sikkim the more rural North and West districts use lower amount of LPG indicating the high degree of dependence on forest wood.

Unlike the popular belief that electricity is increasingly replacing conventional sources of energy, it is found that not even 1 per cent of both urban and rural population use it for cooking. There has been burgeoning domestic demand for power in Sikkim. The power driven industrialization of the neo-liberalized economic regime is likely to compound this demand. The issues of energy security and energy conservation are therefore critical and need to be addressed at the policy level.

**Commercial Felling of Trees**

It is often argued that the dense and often inaccessible forests of the India Himalaya became the victim of commercial deforestation majorly under the British rule. Commercial deforestations that took place in British India were dictated by strategic imperial needs. Besides, the increasing demand for timber from shipbuilding industry and rapid development of railway network in the later part of nineteenth century highlighted the fact that the hitherto dense forests of Indian Himalaya were not inexhaustible. Although Sikkim as an independent kingdom was not directly impacted by the above onslaughts of British India, the neighbouring Darjeeling Himalaya, which was once a part of the kingdom of Sikkim, could not escape.

In Sikkim commercial deforestation was initiated under the scheme of Floatation of Timber in 1951 (Khawas, 2007). Water body in the form of rivers used to be the major mode of transportation in this respect where the timber was floated both in log and sown forms. Over the years such system did not prove to be sustainable. There were massive losses of forest resources mainly because of floods in the riverine and riparian belts and wrong timing of the launching of timber.

**Forest Fire**

Among other important sources of environmental challenges in Sikkim Himalaya, forest fire acquires a prominent position and poses a direct challenge to the planners and administrators.

The forest department has resorted to all possible measures to prevent forest fires in the state. It has identified the forestlands that are prone to fire across the districts and have cautioned the general mass, tourists, travellers with signboards, special signals and other measures. Besides, the department has also been rehabilitating the fire damaged forest areas in the south and west districts where the problem is severe. In this regard 240 hectares have already been rehabilitated between 1997-02 (Lama, 2001). One possible way to prevent forest fire would be to create fire lines before the fire season, construction of fire watchtowers, improvement in wireless communications and deployment of special fire fighting squads with tools during the fire season. However, all these measures are expensive strategies, which cannot be easily undertaken with present resources, which are scarce (Lama, 2001).

## 4.3 Climate Change in the Sikkim Himalaya

Sikkim is dotted with glaciers[2]. Some of the prominent glaciers and the associated features of the Eastern Indian Himalayan System flank the region that makes it one of the unique regions across the Himalaya. Geographically, they are located in Northern and North western part of the Sikkim Himalaya. These glaciers are the sources of hydrological flows in the State. It has been found that Glaciers in Sikkim Himalaya are not behaving normally in recent years. For instance, the Jemu Glacier retreated around 20 meters per year during 1975-1990 (Bahadur, 2004).

With the impacts of global warming becoming more apparent, Sikkim Himalaya is perhaps most in tune to the signs of change brought about by climate warming. The people across the towns and villages of Sikkim narrate revealing insights on how global warming is affecting their lives and livelihood. This is further complemented by the scientific data available. Meteorogical Department records reveal that between 1958 - 2005, there had been a slight change in the climate of Gangtok. According to Dr K Seetharam, Director of the Meteorology Centre, Gangtok maximum temperature has been rising by 0.2 degree C per decade and minimum temperature has been falling by 0.3degree C per decade. The annual rainfall has been increasing by 49.6mm per decade.

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[2] Eight important glaciers of the Sikkim Himalaya are Zemu Glacier Rathong Glacier Lonak Glacier Hidden Glacier Talung Glacier North Lonak Glacier South Lonak Glacier Tista Khangse Glacier

Further, officials at the Gangtok Meteorological (Frontline 2008) office inform that for the past three years the temperature in the state capital - located at an altitude of 5,480 ft - have always been on a higher side with the nights becoming warmer with each passing winter. The impact of global warming on the hill town is, further, evident from the temperature recordings of 30 years -from 1957 - 97. The average minimum temperature for January was 4 degrees Celsius for this period while the maximum temperature was 12 degrees Celsius. From 1997 onwards, the maximum temperature for January has been up by three degrees and the minimum by four (Telegraph 2008).

The state has also been witnessing prolonged periods of dry spell during winters often triggering rampant bush fires. In 2006-2007, forest fires were witnessed all over the state from January to March, resulting in an extensive loss of flora and fauna (Telegraph, 2008).

Even the higher altitudes of Lachung and Lachen (both above 8,000 ft) in North Sikkim were not spared by the bush fires and the army had to be called in. In short, less moisture is entering Sikkim during winter but there has been a lot of evaporation. Sikkim experienced its longest ever recorded, seven month long, dry and warm winter during 2008-09. The physical effects of it included record breaking forest fires incidents, failure of winter crops and forced changes in the timing of subsequent crops (Rai and Kaur, 2009).

Higher temperatures have brought new crops to the mountains. Most of the seasonal flowers which were supposed to bloom between March end and early April are alreadyblooming before February end. There are marked evidences of various birds, a nimals and insectschanging their habitation. Amazingly, they are adapting to their new habitations and becoming habitual in the high altitude regions. Moreover, not only are the animals, birds and insects are changing their habits and habitats, the tree line is also displaying signs of global warming by shifting upward.

There are copious evidences of the low altitude tree species that are gradually shifting towards high altitude zone as the climate there are becoming salubrious enough for them to survive. *Uttis,* a hot climate species, is now abundantly found in places above Gangtok. If the low altitude species are replacing the high altitude species, naturally

the latter will reach the state of extinction. Further, the low altitude trees are being replaced by shrubs like banmara and others kinds of weeds known to destroy the forests. (Khawas, 2007).

It has also been found that Glaciers in Sikkim Himalaya are not behaving normally in recent years. For instance, the Jemu Glacier [located in North Sikkim] retreated by around 20meters per year during 1975-1990 (Bahadur, 2004: 53). Small streams that feed the large rivers are drying up more recently in and around the major watersheds of the region. This has not only affected the volume of the major rivers but also impacted the delicate relationship of flora& fauna and human habitation, particularly the livelihood of the poor rural hill folks.

## Government of Sikkim's Response to Climate Change

### Creation of Climate Change wing

The State Government re-designated the Department of Science and Technology as "Department of Science and Technology and Climate Change" and also approved for creation of full-fledged climate change wing by strengthening the facilities and manpower in a phased manner under this department with following mandate:

a) Undertake detailed research and survey regarding impact of climate change.
b) Co-ordination with all other departments for dissemination of appropriate technologies with respect to climate change adaptations.
c) Initiate pilot projects and programmes on climate change adaptation in coordination with various departments.
d) Cooperation with national and international agencies.
e) Generating awareness about Clean Development Mechanism (CDM) and carbon credits.

### Glacial Study

Glacial melt may impact their long-term lean-season flows, with adverse impacts on the economy in terms of water availability and ecological security of the State. Sikkim Government has on its own initiative, constituted a Commission to study the state of Glaciers and its impact on water system in Sikkim under the Chairmanship of Prof.

S.I. Hasnain, former Senior Fellow, The Energy and Resources Institute (TERI) New Delhi with the following terms of reference:

a) Compilation; collation of information from primary and secondary sources on glaciology;

b) Review the current status of Glacier and Snowmelt and their impact upon hydrological reserves.

c) Assess the potential impacts of climate change on mountain eco- system and livelihood in Sikkim, and suggest inter-disciplinary steps and remedial measures for dealing with these impacts.

d) Identifying the scope and issues of collaborative research on glacier systems and related dynamics.

e) Identifying the regional, national and international institutes with which the studies and management parameters of glaciology could be carried out as collaborative ventures (Khawas, 2011).

**Urbanisation**

Although Sikkim is still primarily an agrarian state, its urban areas have begun to experience the pressures of urbanisation. This is partly because of the growing migration in the region. Unplanned urbanisation followed by poor service delivery further exasperates the situation leading to unsustainable pressure on the environment and human security. In Gangtok, vehicular congestion, unauthorized construction and disregard for urban aesthetics are fast making their growth. More importantly the explosion of vehicular traffic in a hill town like Gangtok calls for an immediate reduction in taxi licenses and government vehicles.

**Infrastructure Development**

Sikkim at present is at the summit of infrastructure development ventures. Up to March 2003 an estimated 834 hectares of forestland was diverted for development related activities (Khawas, 2007). The share of hydroelectric projects, construction of roads, buildings, complexes and playgrounds, transmission line etc has been prominent in this regard.

The Sikkim government's plans to construct around 42, allegedly, large hydroelectric projects in the Teesta river basin is meeting with stiff resistance in recent times.

Protestors have joined together in an organisation called the Affected Citizens of Teesta (ACT) and have been on satyagraha against these plans since June 20 2007 (Khawas, 2007). The ongoing protests are focused on projects proposed in North Sikkim, particularly in · Dzongu, the holy land and exc1usive reserve of the Lepcha tribe. The protesters want the seven proposed projects in Dzongu scrapped and others in Sikkim reviewed. The ACT protest has received commendable support from the activists and environmentalists from across the Country and outside.

The arguments put forward to justify hydel projects in Sikkim are: exploitation of the state's perennial water system to produce power for the nation; economic benefits to the state through power export; employment generation and low displacement of local communities. However, critics lament several unique feah1res of the state including its ecological and geological fragility, its indigenous communities, their cultural and spiritual association with the river system and the landscape pose a challenge to these ambitious plans (Vagholikar, 2007).

While Sikkim has seen dam-related protests before, there have never been any on this scale. The 1990s saw the construction of the 60MW Rangit project, clearances for the 510MW Teesta V project (currently under construction) and the scrapping of the Rathong Chu project following protests about its impact on a sacred landscape. Further, in May 2008 the Chief Minister of Sikkim decided to cancel the Teesta IV Hydropower project, the Lingza Hydropower project, the Ringpi Hydropower project, the Rangyong Hydropower project and the Rukel Hydropower project, all expected to affect the Lepchas of the Dzongu region in North Sikkim in view of the persistent protests (Khawas, 2007).

The six-member Independent Committee on Big Hydro Projects that visited the Dzongu region in May 2008 stressed that the development of small and micro hydro power projects would economically benefit the people of Dzongu and in addition help Sikkim generate additional electricity (Khawas, 2007). The Committee headed by Himanshu Thakkar suggested the State Government to develop small and micro hydropower projects in the Dzongu region. Consequently, the Government of Sikkim has recently cancelled 11 hydro-electric projects in and around Dzongu region.

 Nonetheless, in the last three years, the state government has signed Memorandum of Understandings for no less than 42 large hydroelectric projects in the state (Khawas

2007). It is alleged, Sikkim government has continued itself to develop about 42 big hydropower projects, without much consultation with the Sikkimese people or without considering the implications of the projects for the local people, environment, culture, future generations and even return on investment for the state or the people.

**Implications on Human Security in Sikkim**

Sikkim Himalaya is a small geo ecological entity located in the eastern part of the Himalaya. The region represents vertically all the geological sections of the Himalaya thereby exhibiting rich and diverse natural resource bases. Due to its unique ecological location over 81 percent of the region's geographical area is under the administrative control of the State Forest Department. However, only a little over 45 per cent of the total geographical area of 163 the Sikkim Himalaya is actually under the forest covers while about 34 per cent is set aside as Protected Area Network in the form of National Park and Wildlife Sanctuary (Lama, 2007).

The fragile geo-ecology of the Sikkim Himalaya can be assessed from the fact that only about 11 per cent of its total geographical area is arable representing a very high human pressure on the natural resources in the region. Agriculture, horticulture and animal husbandry constitute a mainstay of the largest segment of Sikkim's population engaging large chunk of them in this sector. Agriculture is the primary driver of the economy. Over 85 per cent of the population is directly or indirectly dependent on agriculture and allied activities for its livelihood (Khawas, 2007). Food production in the Sikkim Himalaya has, however, not kept up with the population growth.

As an integral part of the Himalayan orogeny Sikkim is not free from the various geomorphic processes and consequent human security challenges. The most prominent natural challenges that threaten the human security of Sikkim Himalaya periodically include heavy monsoon rain, flash floods, landslides, soil erosion and other associated natural catastrophes. The natural environmental challenges are often exacerbated by human induced forces further aggravating the situation. The development intervention has at many instances had adverse impact on Sikkim Himalaya. The disturbing natural processes when coupled with unplanned development interventions overload the carrying capacity of the soil and bring about mayhem in the region.

One of the biggest environmental problems of Sikkim is the inadequate and fast dwindling forest cover. The state of Sikkim although has been regaining the forest cover more recently, it still has less amount of forest cover with reference to the desirable 60 per cent of forest cover to its geographical area (Khawas, 2007). Even this small percentage of forest cover is seriously threatened by the increasing demand for major and minor forest products. These products are badly needed for fuel, building and to feed a large number of forest based industries. Further, vast forests have been cleared for agriculture and other development purposes. Overgrazing had been a big problem in the past serious damaging the forests and land. Moreover, large tracts of forest cover are destroyed every year by forest fires. Forest fires in Sikkim are more destructive in dry season. Insufficiency of properly trained personnel is a big handicap in this respect.

Moreover, as a sensitive border state, Sikkim has been the most significant geographical entity in providing comprehensive security to the Indian nation state in terms of military security, environmental security and human security (Lama, 2007). The geo-strategic location of Sikkim means huge concentration of security and military forces in and around its vicinity. It further means huge physical burden of such forces on the natural settings and resources of the region. Further, the physiography and geomorphology of Sikkim Himalaya often forbids the state to go for many necessary development interventions making the development process extremely limited. At times the state is compelled to implement development projects in view of the changing interest and demand of the time inviting hosts of environmental challenges to the human security of the region.

## 4.4 Food Security in Sikkim

Food security can be defined as a situation where in all households have physical and economic access to adequate food for all members, and where households are not at risk of deprivation of this basic access. Explicitly, this access is inseparably linked to the larger question of the survival of humanity. Implicitly, there are three interlinked dimensions involved in this definition - availability, stability and access. The first dimension means that on average sufficient food supplies should be available to meet consumption needs adequately. The second dimension - stability, means minimising the probability that in difficult times, food consumption might fall below requirement.

The third dimension of ac- cess refers to the fact that everyone should have the resource to produce or purchase the food they need (Hussain, 2004).

Hunger is a familiar physical sensation, but can be hard to measure in a large population. Food insecurity offers an accepted method for measuring food deprivation. The USDA (United states Department of Agriculture government)defines food insecurity as a state in which "consistent access to adequate food is limited by a lack of money and other resources at times during the year." Good shorthand terms for food insecurity are struggling to avoid hunger, hungry, or at risk of hunger, and hungry, or faced by the threat of hunger.

The agricultural scenario in the hill state of Sikkim reveals that it has gradually turned out to be a food deficient State from a food surplus State. Its growth of population has outweighed the growth of food grain production. The State has failed to augment agrarian reforms. Public investment in agriculture is on the decline. Limited availability of cultivable land, the unsuitable terrain is making the situation further complicated. Since majority of the people of the State are still relying on agriculture immediate attention has become mandatory to reduce the rural poverty, to attain the food security and to generate income and employment in the agricultural sector (Government of Sikkim 2016).

**4.5 Health Insecurity in Sikkim**

Suicide is one of the major public health problems in Sikkim and the State has been facing the dramatic rise in suicide cases. According to the National Crime Records Bureau (NCRB) Report 2008 Sikkim had the highest suicide rate and in 2009, Sikkim (39.9) was recorded as second highest state in the country in terms of suicide (NCRB, 2008). The major cause of concern in Sikkim is the unusually high rate of suicide, substance abuse, and mental illness.

Alcohol use is traditionally prevalent among Sikkimese population. National Family Health Survey-2, Government of India, has also highlighted a significant prevalence of alcohol use in Sikkim-32% and 17% among above 15 years of age males and females, respectively (NCRB, 2008). From their observations prevalence of alcohol use is more common in rural areas than urban and negatively related to level of education and socioeconomic condition. These rough estimates make it obvious that

alcohol use has become an important public health issue in Sikkim. As a result, abuse of opioids including heroin and other synthetic opioids have been reported from treatment centers. Similarly injection drug use (IDU) behaviour has also been reported (NCRB, 2008). Therefore, this is an early attempt to address the problem of substance abuse and mental Health problem in Sikkim.

People's security is a prerequisite for a peaceable, constructive and collective existence in which individuals have the best chance to live in a state of complete physical, mental and social well-being. People's insecurity is a massive global health issue and, at the end of the day, comes down to armed violence and its effects, both direct and indirect. The health impact of insecurity can be documented and used to change security policies that in turn can have a powerful positive impact on health. The required security can be and has been achieved by interplay of international, national and personal security measures, many of which constitute national obligations under international law. The new thinking about people's security or human security must be promulgated in these terms by the international health community (Coupland, 2007)

Different Activities undertaken by the government of Sikkim to eradicate these are:

a) The Psychiatric hospital with 20 bedded Indoor services at STNM Hospital, Gangtok has been functioning with an average of 30-40 patients per day with 24 hours emergency services integrated with emergency department of the hospital.

b) Extensive Outreach Programme has been organized for identification of mentally disabled people.

c) Orientation Training Programme for the awareness of the mental health is being imparted to the Medical Officer, Nursing Staff, Community Health Officers, PHNS, MPHW (Male/ Female), Teachers in charge of Police Personnel, Panchayat Members and Secretary and NGOs regularly.

d) Health Education and IEC activities to bring awareness of Mental Health is being carried out to educate the general public through posters, booklets, pamphlets, audio visual publicity, dramas, radio talk etc.

e) Outreach clinic at District Hospital at Singtam has been started covering 5 PHCs and PHSCs under Singtam Hospital.

f) The Mental Health Booklets both in English and Nepali version to educate the general public about mental illness depicted in pictorial form, showing the easy way to recognize the signs and symptoms of mental illness has been prepared.

g) Emphasis has been given to the Media for promoting Awareness among general people regarding mental illness by delivering programme in local newspapers focusing mental illness, suicide and drug addiction.

h) Mental Health Programme has been started in all the three Districts and Sub-Division of the State.

i) Mental Health Awareness Programme regarding mental illness, Drug Addiction, Suicide and Adolescent Psychological problems has been started at different schools.

In convergence with The Comprehensive Annual and Total Health Check-up for Healthy Sikkim. (CATCH) attempt has been made to screen the population with depression, people with suicidal ideation and those who have attempted suicide and refer them to appropriate center for management. Attempt has been made to provide community base integrated Mental Health Care with support from appropriate Institute for management of mental illness and prevent suicide. Though till 2011-12 only East district was covered under District Mental Health Programme. However the programme has been extended to all 4 distrcts. Therefore, Sikkim is perhaps only state in India which has attempted to provide Mental Health issue throughout the State.

**HIV/AIDS**

In Sikkim 54% of women have heard of AIDS. Awareness of AIDS particularly low among illiterate women. 71% receive information from television, 57% from Radio, 21% from newspapers and magazines. The government efforts to promote AIDS awareness through the electronic mass media and print media have achieved some success. Among women who have heard of AIDS, 63% do not know of anyway to avoid infection (Sikkim Health Mission Report 2013)In Sikkim only 11% of women who know about AIDS received information about the disease from a health worker. For securing human security health security is also one of the important factor which has to be looked upon.

**Tuberculosis**

The overall prevalence of tuberculosis in Sikkim is 1002/100000 population. The prevalence is higher in urban areas than rural. The prevalence rate is higher for males 1180/100000 than females 811/100000 (Sikkim Health Mission Report 2013) Men are more likely to come in contact than women and men in Sikkim consume more alcohol and smoke more than women. It is higher among age 60 and above (Sikkim Health Mission Report 2013) 2381/100000 than among age 15-59 (1160 per 100000). The prevalence of medically treated tuberculosis is lower 662/100000 than the prevalence based on all reported cases 1002/100000. Only 66% of all the reported cases of tuberculosis are treated. Medically treated tuberculosis is much higher in rural areas than in urban areas (Sikkim Health Mission Report 2013).

**Jaundice**

In Sikkim 2382 persons per 100000 population were reported to have suffered from Jaundice during the past 12 months. People living in rural areas have suffered from Jaundice 2432/100000 than those living in urban area 2046/100000. Males suffered more than female. The prevalence of Jaundice was low in younger age group than the older group, age 60 and above (Sikkim Health Mission Report 2013).

**Malaria**

In Sikkim 1108 persons/100000 population were reported to have suffered from malaria during the 3 months before survey urban residents suffers are more. 1535 per 100000 population than rural 1044/100000. The reported prevalence of malaria is lower for females than for males. The prevalence of malaria increases with age from 904 per 100000 population age 0-14 to 2010 per 100000 in population age 60 and above (Sikkim Health Mission Report 2013).

Child Immunization: The vaccination of children against six serious but preventable diseases, Diphtheria, Tuberculosis, Polio, Pertussis, Tetanus and measles has been a corner stone of the child health care system in India. The universal immunization programme was introduced in 1985-86 with the objective to cover at least 85% of infants against the six vaccine preventable diseases and self sufficiency in vaccine production, cold chain equipment by 1990. This scheme has been introduced in every district of the country and the target now is to achieve 100% immunization coverage.

The standard immunization schedule developed for the programme, vaccination card being issued to the child.

Children who have received BCG, measles and three doses each of DPT, polio are considered to be fully vaccinated. 47% of children age 12-23 months are fully vaccinated and 18% have not received any vaccinations (Sikkim Health Mission Report 2013) Coverage for BCG, DPT and Polio is substantially higher than the percentage fully vaccinated. 59% of children 12-23 months have been vaccinated against measles (Sikkim Health Mission Report 2013) The data indicate that the goal of universal immunization coverage for children has yet to be met. According to the immunization schedule all primary vaccinations including measles should be completed by the time a child is 12 months old. The data in the table shows that 38% of all children were fully vaccinated by age 12 months (*Sikkim Health Mission Report*, 2013).

The vaccination coverage by sex suggests that there is still some degree of discrimination against girls in Sikkim with regards to immunization. Differences in coverage of the specific vaccinations are small and inconsistent by religion. Buddhist children 55% are more likely to be fully vaccinated than Hindu children 43% (*Sikkim Health Mission Report*, 2013).

## 4.6 Conclusion

This chapter focused on issue of Human security in Sikkim and analysed various issues related to that. The chapter reveals that very limited amount of knowledge is created on human security in Sikkim despite the fact that this region is part of the Eastern Himalaya, a global biodiversity hot spot.

The chapter also examined the problems of environment and development in Sikkim. Two features of Sikkim, the fragile mountain environment and the very rapidly growing population, are crucial in formulating future development plans. An integrated approach to development and environment conservation is essential to address the human security challenges in Sikkim.

As we have seen in the chapter, Sikkim became the third state in the Indian union to come up with its own Human Development Report in the year 2001, which centred on

people's development and human security. Thus the security of the people come to the mainstream of developmental and security debate in Sikkim. Consequently, lot of important measures are taken by the government in the fields of environmental security, food and health Security etc. Such measures have made a positive impact on the overall development of state and the focus of development is shifted to society, people and their survival along with the preservation of nature.

# CHAPTER V

# Conclusion

As discussed in the Chapters, global/transnational security cover the protection of people from a variety of common concerns that transcend state boundaries. Some of them are famines and droughts, the spread of diseases, environmental degradation, human rights violation and large scale migrations. In this regard, human security has been described as many different things: a rallying cry, a political campaign, a set of beliefs about the sources of violent conflict, a new conceptualization of security, and a guide for policymakers and academic re-searchers. As a rallying cry, the idea of human security has successfully united a diverse coalition of states, international agencies, and NGOs. As a political campaign, the human security coalition has accomplished a number of specific goals, such as the negotiation of the land mines convention. But as a new conceptualization of security, or a set of beliefs about the sources of conflict, human security is so vague that it verges on meaninglessness-and consequently offers little practical guidance to academics who might be interested in applying the concept, or to policymakers who must prioritize among competing policy goals.

As we have seen, human security challenges our approach to security in at least two ways, it shifts the focus toward the individual, and it bases security strongly on common values. Rather than providing security for abstract entities the state, the nation human security focuses on the security the well being, safety, and dignity of individual human beings. In core it means that there is no secure state with insecure people living in it. However, such efforts to sharpen the definition of human security are in the right direction, but they are likely to encounter resistance from actors who believe that the concept's strength lies in its holism and inclusiveness.

The region under study, Eastern Himalaya, is a region where very less number of studies have been done, despite the fact that it is one of the most geographically sensitive regions. The stability of the region is extremely significant as almost one third of the people on earth live in the region closer to Himalayas/Eastern Himalayas. Similarly, the studies in human security framework with regard to the region is also very limited.

Himalaya should not be treated as a physical entity only as it has vibrant living aspects. It can neither be independent of people living therein nor the inhabitants without their habitats. There are areas, which are quite rich in natural resources but are inhabited by poor people. The inhabitants have been suffering under harsh environmental conditions, carrying out subsistence economic activities, based primarily on animal rearing and rudimentary farming (Bahadur, 2004). Such a situation needs up-gradation and both physical and social infrastructure like promotion of education, health facilities, food security and roads and other facilities are to be improved without much damage to the natural environment.

Environmental insecurities across the Himalaya have been responsible in guiding and directing civilisations in the area over the millennia. The relationship between human and environment in the Himalaya had been very close since antiquity. There had been a symbiotic and intimate relationship between man and environment over the ages. However, more recently, things are changing for bad in this fragile resource zone. The setup of the region and hence environmental determinism was very strong. In recent times, however, we have been seeking to adjust the Himalayan environment according to our needs thereby making way for environmental possibilism in this otherwise susceptible region. It has resulted in imbalances in the environment and aggravated natural processes. This is a very serious issue having far reaching implications on the security of the Himalayan environment and human beings  therein in the days to come.

The foremost task would be to revisit all the development policies that are functional in the region and ratify them in order to make them region and people specific. Often, the Himalaya has been kept at the mercy of mainstream development policies that have little or no relevance in the region given its geo-environmental and socio-cultural dynamics. Development planners and policy makers should not regard Himalaya as an appendage to economic and political interest of the indo-Gangetic plains. It is high time to recognise the geo-political and geo-environmental significance of the region at local, regional and global levels.

The major issues which has been discussed in the chapters are the environmental security, health security, food security and economic security. These four aspects of

security is very much in the Eastern Himalayan region. The main security challenge in the eastern Himalayan region have been the environmental security.

Illegal development activities and structures such as dams in eco sensitive areas specially around the many pilgrimage sites in the region has led to significant instability in this fragile region. There are many natural environment insecurities which challenge Human Security in the Eastern Himalayan Region, such as extreme climate, Soil Erosion, Mass Wasting: The Eastern Himalayan region is characterised by extreme cold and arid winter conditions in the West to warm and humid summer in the east with alterations of dry and moist conditions in wide range of altitudes having different microclimates.

Not only these there are different man made environmental insecurities also such as population overgrowth, forests fire, unplanned urbanisation. All these issues are to be checked and major steps have to be taken in order to eradicate these insecurities.

The greatest challenges of human security in mountain regions is the chaos created by conflict and war. Physical isolation excludes the mountains and populations therein from development, resulting in political and economic marginality often resulting into socio cultural and ethnic conflicts in many cases.

Food security has also been one of the main concern in the Eastern Himalayan Region. Most people living in the Eastern Himalaya depend on agriculture and agro forestry for their livelihoods. Only agriculture has been a main source to their livelihood. The agriculture sectors have been neglected.

The Economy of the Eastern has not been to the level which is required, due to the lack of resources and the absence of alternative job opportunities. The health conditions of the people in the Himalayas are also overlooked.

Such insecurities are there in Sikkim also but there have been works done by the government to eradicate such problems, The Comprehensive Annual and Total Health Check-up for Healthy Sikkim (CATCH) is a flagship programme, which was launched by the Government of Sikkim to provide basic healthcare services at the doorstep of the state's rural population and push up Sikkim above all other Indian states in terms of health indicators by 2015. The programme focuses on community based comprehensive healthcare by conducting annual and periodic health check-ups

free of cost for all the citizens of Sikkim and providing referrals as required. Since its launch in 2010, CATCH has benefited 5, 52,767 people in the state, conducted 3,685health camps, and distributed 1, 30723 health cards to citizens.

The Government of Sikkim has taken a initiative on the issues of climate change, The State Government re-designated the Department of Science and Technology as "Department of Science and Technology and Climate Change" and also approved for creation of full-fledged climate change wing by strengthening the facilities and manpower in a phased manner under this department with the mandate of undertaking detailed research and survey regarding impact of climate change, co-ordinate with all other departments for dissemination of appropriate technologies with respect to climate change adaptations and initiate pilot projects and programmes on climate change adaptation in coordination with various departments and cooperation with national and international agencies. Generating awareness about Clean Development Mechanism (CDM) and carbon credits.

Human security issues are yet to be checked in the Eastern Himalayan Region. There still exists lot of security issues which can be a threat to human security in the Eastern Himalayan Region. Looking into the security issues which can very much hamper the individuals security are environmental insecurity, the region is facing number of issues which is threatening human survival, environment and biodiversity. Deforestation in the Eastern Himalayas has led to severe loss of habitat due to fragmentation, environmental degradation and increase in soil erosion and landslides. To conclude, despite major initiatives by the state of Sikkim, Human Security issues need to be given much more importance in the Eastern Himalayan Region given the significance of the region.

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