

Introduction

Twenty first century is facing global issues including environmental manipulation, climate change and global warming. Despite the age we are in, the magnitude, intensity and frequency of natural disasters have increased dramatically. Disasters claim thousands of lives, immense loss of man, material and resources throughout the world. Increasing population and subsequent developments in urbanization, use of degraded lands and manipulation within the environment has disturbed the natural process of nature.

Natural and human caused calamities are common globally. Disasters are one of them which come without prior warning with increased, magnitude, complexity, frequency and economic impact. A hazard through Disaster poses threats to people, community and nations. More than 200 times the earth had faced natural disasters, recording loss of around millions of people and property. Damage as % of GDP was greater in developing countries. India because of its geographical structure is considered worst disaster prone country. Poor topographical features, dense population, pollution give access to manmade and natural disasters. (Srivastava, 1997)

No one expects Disasters, but when they happen, they create havoc around the world. Every year, millions of people faces and experience the bitter and terrifying consequences of disaster. As a result it affects the community and finally the country faces loss of its habitants, communities and most of all the emotional hurt of bruised nation, leaving survivors to suffer its post affects by living in constant fear, depression and stress. (Clark, 1997)

During the time span of last thirty years, India had been hit by 431 major disasters. The wrath of disasters in last three decades, costing almost forty eight hundred crores loss of property and other valuables. (Srivastava, 1997)

Man has given access to natural disasters by creating hazardous environment causing escalated frequency and severity of natural Disasters. Deforestation, concrete jungle, and playing with natural resources to satisfy the hunger of becoming rich has made a man to forget the value of earth and its benefits. (Rao, 1997)

Disaster creates an imbalance between social, health, economic, and environmental condition. Floods are traumatic events that are experienced by many people and may result in a wide range of mental and physical ailments.(Norris et al., 2002).

Cloud bursts are particularly devastating disasters and have huge physical and psycho-social impacts on human life. Cloud burst in hilly areas are very common during rainy seasons, costing damage of human life and property specially the agricultural land.

Background of the Study

“Droughts, floods, earthquakes and cyclones devastate the country with grim regularity”. “They are spiralling out of control, increasing in frequency causing more injury, disability, mental illness, disease and death, adding to the Health and economic burden of an already improvised nation”. (Menon & Kara, 2006)

Talking about northern region of Uttarakhand, it's covered with mountains, extended in 53,483 square kilometer, composing landmass of 63 percentages of Indian sole. (Sing, 2008)

Climatic conditions are evidently different in Uttarakhand region. Alternation in temperature can be seen in different altitude. The wide range of area could be very hot during summer season and at the same time in other part of the region one can enjoy the snow fall. According to national wetland Atlas January is considered the coldest month. (National Wetland Atlas,2012)

Uttarakhand the “Dev Bhumi” a “Land of the Gods” has its own spiritual identity in many ways. The Ganges, the culture and tradition, the pilgrimage of Hindus and shrine of many believers makes this region very rich and important in many aspects. Economy of state primarily was dependent on tourism and agriculture, after the parting from U.P it has emphasized on mining, industrialization and rapid infrastructural developments. Although, the development is proved harmful to environment of state.

“Uttarakhand is an Indian Himalayan state known for its rich spiritual and religious tourism, ecological richness and diversity and cultural ethos rooted in traditions, but it is also known for growing frequency and intensity of natural

disasters, and for its fragility of ecological and geological systems; consisting most of the uplifted sedimentary and metamorphic rocks and tectonically very active, the region is vulnerable to natural disasters; due to its geo-climatic, ecological and socio economic settings, Uttarakhand is one of the most disaster prone state of the country”. (Satendra et al., 2014)

As the state of river and mountains all around, the state has always been living under climatic threat of cloud burst, floods, landslides and flash floods etc. The frequency has increased with growing deforestations. Flood of 2013 is one of the natural disasters but the loss was more because of illegal constructions at upper regions. It was multiday cloudburst causes two states affected by massive flash floods. The history will remember the days of 14th June to 17th June. (Das, 2013)

“A massive landslide (in the north-east region of the Kedar valley) and heavy rainfall (in the north-west of the Kedar valley) occurred at the same time and formed a small lake”. (Kumar, 2013)

“About 14 km pedestrian route between Gaurikund and Kedarnath was completely washed away. Maximum damage occurred in Kedarnath, Guiaya, Lenchuri, Ghindurpani, Rambara, Gaurikund and downstream area up to Rudrapryag; the numerous side effects of the rainfall destroyed the state’s economic lifelines over 9000 km of roads and 225 bridges were damaged and 61 hydroelectric power plants 465 km distribution lines and 377 transformers were destroyed”. (Nanda et al, 2013)



Figure No: 1 Rudraprayag District in Uttarakhand



Figure No: 2 Satellite Image of North India in May, 2013 (pre- flood)

Source: NASA's Earth Observatory

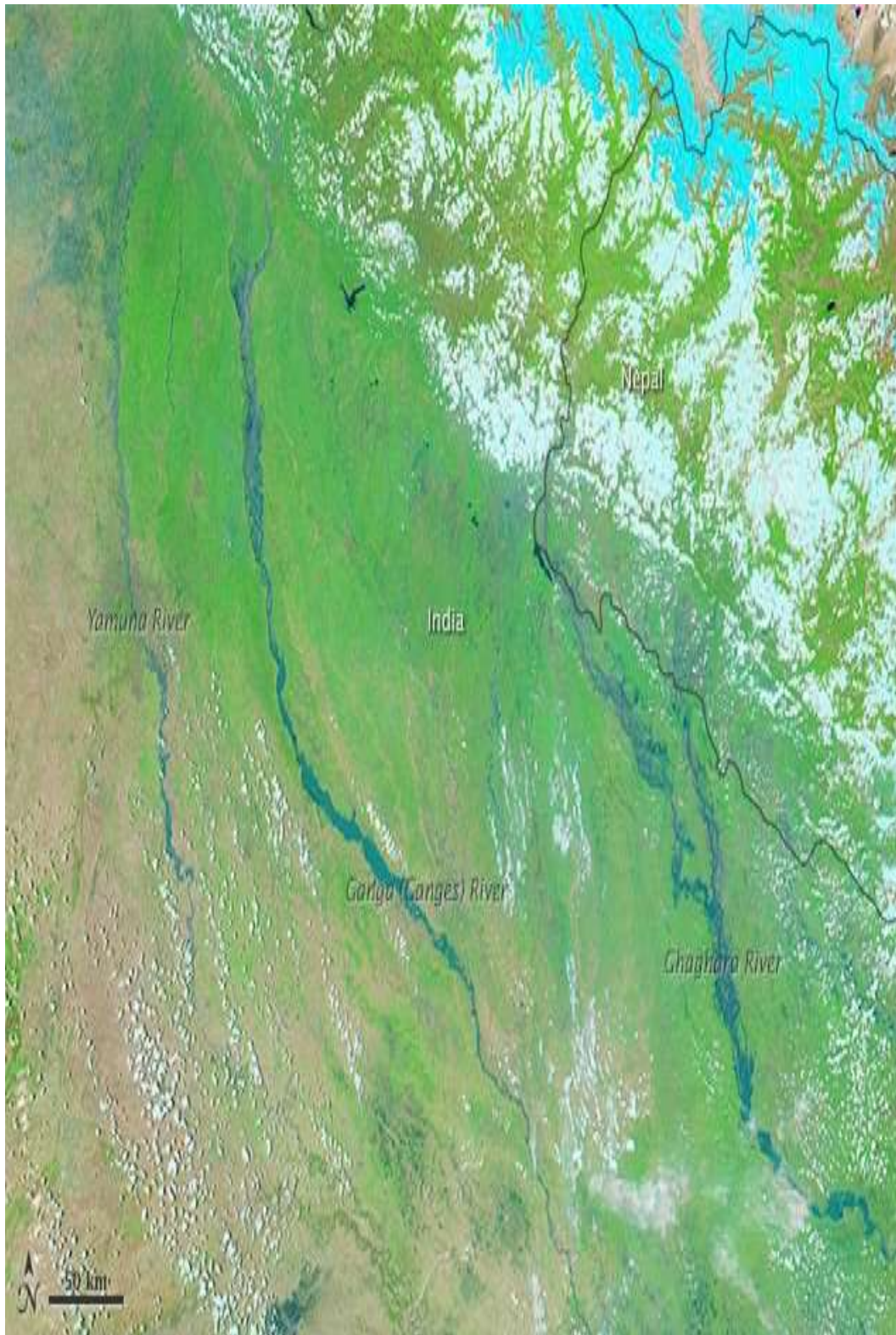


Figure No: 3 Satellite Image of North India in last week of June, 2013 (post flood)

Source: NASA's Earth Observatory



Figure No: 4 NASA satellite imagery of Northern India on 17th June (Cloud concentration)

Source: Wikipedia

Pre and post satellite image of Kedarnath valley



Image courtesy: USAC

Figure No: 5 NASA satellite imagery of Northern India on 17 June (Kadernath pre and post flood comparison)

Source: Geospatial Applications

People died because of rainfall, chilling nights, scarce resources for medical help, food water and shelters. Approximately 4200 villages lost its road connectivity. (Sharma et al., 2014)

Natural disasters are thought to be associated with the mildest mental health consequences, although this assertion is not uniformly accepted. (Baum et al, 1983) (Robins et al., 1986).

“PTSD is characterized by intrusive thoughts, nightmares and flashbacks of past traumatic events, avoidance of reminders of the trauma, hyper vigilance and sleep disturbance” (Ahmadizadeh, 2010)

Natural Disasters have a negative impact on individual’s mental health. Not only do disaster survivors have an increased risk of developing PTSD and other mental ailments but their Health related Quality of Life (QOL) may also be curtailed. (Heo et al., 2008)

Quality of life according to WHO is as “individuals perception of their position in life in the context of the culture and value systems in which they live and relation to their goals, expectations, standards and concerns” (WHO, 1995) Post – disaster assessments could be helpful to plan the interventions for the individual suffering physically and mentally. It is also helpful to aid the community as a whole, by assessing the perception and depth of injury. (Chou et al., 2004) (Wang et al., 2000)

“The efforts of rehabilitation had started in Uttarakhand in full earnest. Under normal circumstances, people who have gone missing are declared dead only if they have not been heard of for seven years” (Kumar, 2013)

Rationale of the Study

In view of “the recent catastrophic flash flood in Uttarakhand with unprecedented death & destruction” and ample scope for further research into evident adverse outcomes from such calamities in disaster prone and vulnerable areas, the present study has been designed to measure the occurrence PTSD & H-QOL among the flash flood victims; also, evaluate the ongoing disaster preparedness and mitigation measures in the area of coverage. The current reviewing of literature, the knowledge of methodology and applications of comprehensive well researched indicators will help to address the recent issues. (Mahalingam V & Roy D, 2017)