



## ANTHROPOGENIC HAZARDS IN NAINITAL CITY (With Special Reference to Sukha Tal and Ward NO 7.)

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### *Abstract*

*In the given research paper due to population explosion and due to increasing number of visitors. The population pressure on Nainital city has been increasing which result into soil erosion, deforestation which leads to landslides and ecological imbalance. All those mentioned problems have been observed particularly in Suka Tal Lake and Ward No.7 in Nainital city. Illegal construction and improper drainage system in Ward No.7 have further complicated the problem. With the help of research paper anthropogenic hazards created in Sukha Tal and Ward.No.7. Which disturb the beautifulness as well as ecological balance of Naintial city. In this research paper the stern actions needed to restore the ecological balance and beautifulness of city are specially mentioned? Hoping that Uttarkhand government, Municipal Corporation and Nainital High Court will take possible needful action.*

**Keynote:** Anthropogenic hazards, loss of soil, deforestation, loss in Biological, Ecological Environment, Planning and implementation.

### **A) Introduction:-**

Nainital is one of the most important tourist hill stations of Uttarkhand state in India. Nainital is located in the Kumaun division of Uttarakhand state which lies between 29° 0' North to 29° 05' North latitude and 78° 14' East to 78° 80' East longitudes. The Nainital is surrounding area is covered by a number of lake like Bhimtal, Ram, Laximan, Sita and Hnuman tal and Nokhuchia tal. In 1840 the Naini Lake was discovered by British person. The Naini Lake is surrounded by small seven hills popularly known as Sapta Shringi. The lakes of the area are tectonic origin. The population of city is about 87000 (2011 Census). Nainital lake has an age of 37000 years as per carbon dating method. The depth of lake is about 19 meters.

### **B) Review of literature:-**

Several geologists Gansser (1964), Auden (1935, 1937) took traverses in the Garhwal Himalaya. Valdiya (1997) analyzed the high dams in the Himalaya (Tehri and Pancheshwar in Kumaun) in the context of active faults seismically and made aware of the problems related to the natural hazards. G.S.I geologist Nawani, P.C, Tripali, S.K, Khanduri, H.C. and Dangwal D.P. worked on engineering investigation of Tehri dam (1998). Geomorphologic study of the Bhagirathi valley have been made by Prasad and Rawat (1982), Naithani (1991), Jagnathan and chauniyal (2000) studied the landslide hazard connotation from geo-environmental characterization in Kelani area of Garhwal and Kumaon. Shah and Bartarya (2002) made observation on the impact of earthquake on discharge of springs and slope stability in Chamoli and Rudraprayag districts. Attempts were made by Bagri and Naithani (2000) on geo-environmental study of Bhagirathi valley in the form of natural hazards after the Uttarkashi earthquake of 1991. Geo-environmental study around Tehri dam reservoir was made by Chauniyal Tal. (1993). Pandey worked on geo-environmental hazards in upper Byas basin of Himalaya. Naithani and Bhatt (2011) also made attempted on geo-environmental hazards around Bhatwari area District Uttarkashi. Nainital is highly sensitive to natural disaster (Pandey .B.2002), K.S.Valdiya, (1983) Worked on the Geology of Kumaun lesser Himalaya.

### **C) Geological Set-up:-**

Nainital is located in lesser Himalayan block of Himalaya. It is bounded by the main boundary thrust in South and main central thrust in North. Main boundary thrust passes near Bajin (ie 9

Dr. Dayanand Ujalambe.

Km.from Nainital) along kaladhungi road and separates the rock of Siwalik group from lesser Himalayan formation. Lime stone, dolomitic limestone and calcareous black slate are exposed around Nainital, which are of Krol and Tal formations at many places. The slates are highly jointed at many places. The rocks are dipping towards Naini Lake with the angle 300 to 450. According to geologist there is a fault which runs parallel to Naini Lake.

**D) Geo-Hazards:-**

Hazards are events that seriously disrupt the function of community or causes human, earth materials losses. Hazards cause due to the geo-factors of environment like landslide, cloudburst, earthquake and flash flood etc., and geo factor of human like construction of dam tunnels, road, bridge and settlement.

Hazards may occur due to geo factors of environment called as naturals hazards while that are due to the man are called anthropogenic hazard. In Nainital city combined factors of hazards are responsible for hazards like I-Earthquake, II- Landslide, III-Cloudburst, IV-Anthropogenic hazards.

**E) Objective:-**

- 1- To study the anthropogenic hazards in ward no 7 and Sukha tal area and their impact on society.
- 2- Remedies and planning in both areas to minimize the impact.

**F) Methodology:-**

In order to fulfill the objective of the present study, the field study was carried out which include the field observations, the knowledge of past events, collection of relevant information from people of that area. The information about the work done in the past by Municipality and construction pattern and wastage management in the area has been taken from the people. A photo of areas has been taken by using Samsung camera model NO.GT-19082.

**G) Anthropological Hazards:-**

**I- Sukha Tal:-**

Sukha tal is located in the Western part of Nainital city surrounded by hills. Geographically it lies in latitude of 29039' North and Longitude 700 44' East. With the local people information previously it was the part of Naini Lake, but after landslide in 1880 and neo-tectonic activities in this part this lake was separated from Naini Lake. Sukha Tal still is a source of water of Naini Lake.

Sukha tal becomes dry in Winter and Summer seasons. Drainage is mainly centripetal type because all the streams (1st and 2nd order) come in the basin from around hill side. This lake was formed by the neo-tectonic activities. In the Sukha tal side there is illegal construction of houses, the dumping of wastage, the water tank and parking in area. The electric pole and according to local people there is a 6.5 acre land of karbal sharif waqf. Drainage of Balampur Sherwani nala, Handimat nala comes in the sukha tal area.

There is a big bolder of limestone on which a small Devi and Mahadev temples are also constructed at the middle part of Sukha tal lake. At right bank of Sukha tal a three stories park was constructed by Garhwal Mandal Vikas Nigam. Except this there is colony constructed over loose soil and boulders. Salty and sandy material with small rock fragments are there in Sukha tal.

In Sukha tal as well as in surrounding area local people are dumping their wastage, due to which the dangerous pollution in surroundings. When water is filled in the tal during rainy season it may give invitation to a number of disease. There is no sanitation and cleanliness and arrangement for drainage made by Municipality. Automatically this water will go to Naini Lake and people use this water for drinking purpose.

So mainly there are two problems in Sukha tal.

I. Land and Water pollution.

II. Illegal construction of houses.

II) Anthropological Hazards in Ward no.7:-

Dr. Dayanand Ujalambe.

Nainital city is divided in many numbers of wards. For our study we have selected ward no.7, this area is very sensitive to landslide number of landslides have taken place in past especially in 1880.

Geographically, it is located within 29° 39' North latitude, and 79° 44' East longitudes. The altitude of area is 2100 meters from mean sea level. It was found that this ward is constructed over loose debris soils which may give landslide in future. There is overcrowding of constructions over this loose soil. Houses are very close to each other. Due to the lack of proper drainage canal system the water is percolated beneath the earth surface. There may be problems of biological, ecological and eco-system in Naini Lake because of improper drainage system. All the people are unknown about landslide in this area. Population and settlement pressure is increasing in the surrounding area. Some people using plastic materials and blocks the various nala, even after the ban of plastic materials or there is a huge dumped plastic materials at one or several places.

#### **H) Conclusion**

- 1-People living in ward no.7 of Nainital city as well as people living nearby Sukha Tal Lake don't have awareness about the possible natural hazards.
- 2-There is lack of drainage system in ward no.7.
- 3-In ward no.7 as well as near Sukha Tal region there is a huge illegal construction which have caused the present environmental problems.
- 4-In ward no.7 the population as well as settlement density is very high.
- 5- The wastage material like plastic bags and other material related to land pollution are present in large quantity in Sukha Tal as well as in ward no.7.
- 6-Ecological balance in ward no.7 as well as Sukha Tal area is totally disturbed.
- 7- The storage water in Sukha Tal is highly polluted.

#### **I) Suggestion:-**

1. All illegal houses should be removed in Sukha Tal & ward no.7.
2. There should be ecological conservation for which plantation is essential.
3. Nainital High court and municipality should ban the illegal construction work in Nainital city.
4. New construction in ward no.7 and Sukha Tal area should not be allowed.
5. All damageable wastage material should be immediately shifted to other places.
5. The government should provide funds to development of Sukha Tal lake which will attract the tourist. This will decrease the tourist pressure to Naini Lake.
6. Uttarakhand government should provide the fund for the maintenance of Ecological balance of Sukha Tal & ward no.7
7. There should be proper drainage system in ward no.7
8. People should be aware about landslide and anthropological hazards.
9. We should do more plantations in this area.
10. Government of Uttarakhand, High court, Nainital Municipality and people should take care to maintain the cleanliness of Nainital city.

#### **J) Bibliography:-**

- I) Auden J.B. (1935): Transverses in the Himalaya publication in recent geological survey of India
- II) Auden J.B. (1937): Structures of Himalaya publication in Recent Geological survey of India 1971, pp123-167.
- III) B.L.S ah, Research Methodology: UGC-Academic Staff College, Kumaun University, Nainital.
- IV) Carter W. Nick, Disaster Management: Disaster Managers Handbook, Asian Development Bank, Manila Philippines, 1991.

Dr. Dayanand Ujalambe.

- V) India: Physical Environment, NCERT Publication, New Delhi.
- VI) Institution Safety plan, Government of India, Ministry of home Affairs, National Disaster Management Authority, 2010.
- VII) Naithani N. P. & Bhatt Mala (2010): Paleocurrent analysis in a part of Bhagirathi Valley between Maneri and Gangani Area district Uttarakashi, Garhwal Himalaya Uttarakhand. J. Mountain research, vol. 5, pp 43-50, December 2010.
- VIII) Naithani N. P. & Bhatt Mala (2011): Geo environmental hazards around Bhatwari area District Uttarkashi Garhwal Himalaya Uttarakhand. International journal of current research, Vol. 3 issue 4 pp 200-205, April 2011.
- IX) Pandey B: Geo Hazards in Himalaya.  
Valdiya, K. S. (1997): High Dan sub Central Himalaya in context of active faults seismicity and social problems. Geological society of India, vol. 49, pp 479-494.

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