Mountain Trail

Issue 7 Mountain Spirit's Quarterly E-newsletter April 2016

INSIDE THIS ISSUE

About This E-newsletter

Dear members, partners and well wishers,
Greetings from Mountain Spirit!

It is our great pleasure to share the 7th issue of Mountain Trail, Mountain Spirits' quarterly e-newsletter. This issue includes updates about Mountain Spirit's recent activities and articles from the members and non-members. We would like to thank Ms. Pema Chhutin Sherpa, Ms. Priyanka Shakya, Bhikkhu Dharma Lakpa, Mr. Ten Dawa and Ms. Sonam Choekyi for their contribution to this issue. We will be publishing the next e-newsletter in the first week of July 2016 and we request all the members to contribute your composition through research findings, essays, stories, poem etc.

We wish all our members, partners and Well-wishers a Very Happy New Year 2073. May the coming year bring peace, prosperity and happiness in your family and society.

Mingma Norbu Sherpa, PhD
President

Mountain Spirit's Activities

Health Camp

Mountain Spirit Nepal successfully conducted one and half days' Health Camp on 24-25 November 2016 in Majkharka of Nametar VDC, Udayapur District, Nepal. The primary purpose of the program was to provide basic health checkup facility to the local people and to find out major diseases and health problems in Nametar VDC. During the two days program, a total of 153 patients were benefited out of which 92 were female. It was found that Tuberculosis and Gynecological problems were the major health problems in the area.

The health camp program was supported by Mountain Spirit Deutschland and the field team was led by Dr. Pasang Hyolmo, Ms. Pema Sherpa (Staff Nurse), Rabi Shah and Durga Devi Dahal (Health Worker of Dahar Health Post).

Agreement Between Mountain Spirit and Namaste Nepal

Mountain Spirit and Namaste Nepal, two NGOs, which share common objectives, have entered in to an agreement for sharing MS office space. The two organizations signed an agreement on 21 March 2016 to share office facilities to promote close cooperation to achieve common objectives. Namaste Nepal is a non-government organization registered under the law of Nepal in Kathmandu. The organization aims to promote and support educational and development activities. On behalf of MS, the agreement was signed by MS president Dr. Mingman Norbu Sherpa and on behalf of Namaste Nepal, it was signed by Namaste Neal General Secretary Mr. Vishow Raj Gyawali.

MOU between Mountain Spirit and Snow Leopard Conservancy

Mountain Spirit Nepal (MSN) and Snow Leopard Conservancy (SLC) recently agreed to closely collaborate in applying and practicing APPA concepts as an effective planning and development tool for engaging local communities in nature conservation, human wildlife conflict mitigation and livelihood improvement in Nepal. SLC is primarily interested in promoting use of APPA concept and practice for advancing community-based snow leopard conservation, research and education. Whereas, MSN intends to provide professional service on application of APPA tools, preparation of community-based snow leopard conservation plans, assist local community groups in implementation of plans, build capacity, facilitates and engage local communities in income generation, enterprise development activities and build strong linkages between protected area management authorities and snow leopard conservation group. The term of this MOU is three years, effective from May 1, 2016 through May 31, 2019.

Health Education and Eco-tourism Project Activities in Nametar VDC, Udayapur District

Mountain Spirit has been running 5 years long Health Education and Eco-tourism project in Nametar VDC, Udayapur district with financial support from Mountain Spirit Deutschland. It successfully completed 2nd year project activities. The updates on activities that were recently accomplished under this project are as following:

Scholarship Distribution Program

In November 2016, scholarship was distributed to Forty poor and needy students of seven different schools around Nametar VDC, Udayapur for the school level education. The schools are Ramete Primary School, Mahendra Secondary School, Bojpani Lower Secondary School, Majkharka Secondary School, Shree Panchawati Primary School, Balkanya Lower Secondary School and Shree Mahendra Lower Secondary School.

Similarly scholarship was given to six students of Majkharkha Secondary School and four students of Mahendra Secondary School for their higher-level education.

First aid training

To build the first aid capacity of people in Nametar VDC, first aid training was given on November 25, 2016. They were taught on how patient can be treated if they are unconscious. The contents of the first aid training were Shock, Hypothermia, Bleeding, Fracture/ Sprain, Burn, Electric Shock, Dog bite, Snake bite, Poisoning and ORS.

Medical Support to Ghatlang Health Post

Mountain Spirit has been supporting medicines to Ghatlang Health Post, Rasuwa with financial support from Dr. Rainer and his team in Mountain Spirit Deutschland to meet the medicine demands in the health post after the devastating earthquake of April 25, 2015 and consequent aftershocks. MS has been sending medicines in package as requested by the health post.

ARTICLE

Diabetes and its Prevention

Pema Chhutin Sherpa

Diabetes is metabolic disorder in which a person has high blood sugar, either because the body does not produce enough insulin or because cells do not respond to the insulin that is produced. This high blood sugar produces the classical symptoms of:

- Polyuria (frequent urination)
- Polydipsia (increased thirst)
- Polyphagia (increased hunger)

Classification:

The three main types of diabetes mellitus (DM) are:

Type I: It results from the body's failure to produce insulin and presently requires the person to inject insulin. It is also called "Insulin-dependent diabetes mellitus" or Child- onset diabetes. It is uncommon type of diabetes.

Type II: It results from insulin resistance, a condition in which human cells fail to use insulin properly. It is also known as "Non insulin- dependent diabetes mellitus" or "Adult onset" diabetes. It appears in people over the age of forty and is common type of diabetes.

Type III: Pregnancy induced (Gestational) diabetes: It is condition when pregnant women, who have never had diabetes before, have a high glucose level during pregnancy.

Symptom of Diabetes:

- Constantly tired
- Unexplained weight loss
- Excessive thirst
- Excessive urination
- Increased hunger
- Poor wound healing
- Blurry vision
- Altered mental status such as irritability, congestion

If the above symptoms appear, immediately need to seek for medical help, because it is medical emergency condition. If diabetes is not treated on time, it can affect eyes, kidney, nerves, and blood vessel.

Prevention of Diabetes:

The following simple changes in lifestyle can avoid diabetes and its complication.

- Control weight to normal by regular physical activity, which can help to lower blood sugar.
- Intake of high fiber diet such as fruits, vegetables, beans, whole grains, which helps to reduce

- diabetes and heart disease.
- Keep alcohol consumption low and quit smoking to reduce risk of diabetes.
- If a person has high blood fat level, high cholesterol, or high blood pressure, take all medications as recommended by physician.
- Drink adequate water (at least 2-3 liter per day) and avoid consuming too much salt.
- Dietary changes can have a great impact on the risk of diabetes:
  - Limit the sugar (carbohydrates) containing food such as rice.
  - Choose whole grains and fibrous diet such as maize, wheat flour, millet etc.
  - Skip sugary drinks and choose water.
  - Choose good fats (vegetable oil, nut, seeds)
  - Limit red meat (beef, pork) and choose low fat diary product, poultry or fish.
  - Maintain balanced diet (Carbohydrates- 50 % to 60%, Fat- 20% to 30%, Protein- 10%-20%, Vegetable as preferred) in regular amount and interval.
- Reduce mental stress by different means such as meditation and relaxation, positive thinking, socialization.
- Regular blood sugar level check up by elder people aged greater than 40 years. Normal value of random blood sugar is 70- 140 mg/dl.

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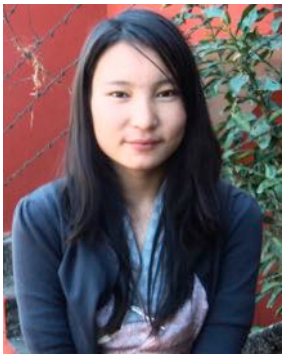
(The author is MS associate member and staff nurse at Teaching hospital Maharajgunj)

ARTICLE

The Song of a Mountain Girl

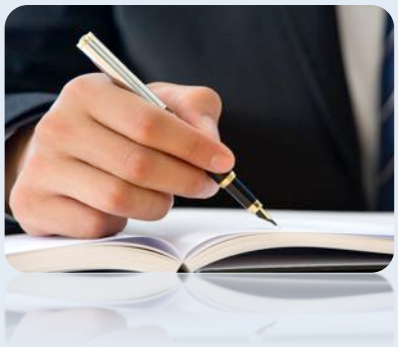


Sonam Choekyi

When the cries of the evening dawn befalls
The tranquility of the sacred mountains
The silence of the last snow leopard
The hazy smokes from distance village bellows that
Somewhere in the realm of distance calls
She knows she needs to head back home

When the whining cattle fills the sheer darkness
Eons of laughter echoed from home to wilderness
Stories of mysteries land, crossing of the crevasses, the plains of Tibetan Plateau
Engulfed in the eternity, Caravan brothers shares journeys of the days
Somewhere in the verdant of Himalayas
She promised to become like him one day

And when the hymns of the animals bells bellows
The sleepy mountains reincarnate
The chants of the monks radiate
The butter tea refills the day
And somewhere in the foothills of mountains
She takes the animals to graze



When standing high, high on that grueling cliff
The soaring vultures embrace the futile of creek
Bragging in the heart of solitude, the Snow Mountains
Little do realize the verdant of Alpine Fountains
Somewhere in the heart of solitude
She dreams on conquering the hopes of mountains

And when the silver mountains masquerade in gray
The anguish clouds pertains the winter to pray
She harnesses the animals back to the chambers
While ragged feels of the lost and hungry she remembers
And somewhere in the farther father land
She sings the song of the mountain Girl.

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ARTICLE

Morphological Evolution of Lirung Glacier Langtang Valley, Rasuwa, Nepal

Priyanka Shakya

Abstract:
Glacier around the world is retreating at an alarming rate of 10m to 60m per year and Nepal Himalaya is no exception. This study which is carried out on Lirung is a debris-covered glacier, located in Langtang Valley near Kyangjing Gompa of Rasuwa district. This study is carried out to measure length of retreat, rock types and vegetation in and around the ablation area. The length of retreat between 1980 and 2014 (34 years) is 1.40 km. Metamorphic rock Gneiss, is the dominant rock along with small bushes and turfs found in the ablation area however, no trees are observed. There are total of 17 south-east and north-west facing ice cliffs covered by debris. The south-east facing ice cliffs were smaller in area than that of north-west facing ice cliffs whereas north-west facing ice cliffs were steeper than the south-east facing ice cliffs. The temperature rise is considered to be the primary factor responsible for the glacier retreat. Hence, using high-resolution satellite images for small and medium-sized glaciers could be mapped and monitored regularly.

1. Introduction

Glacier are large masses of snow, re-crystallized ice and rock debris that accumulate in great quantities and begin to flow downward and outward under the pressure of their own weight creating crevasses, seracs, and other distinguishing features. In general, a glacier is a thick mass of ice that covers a large area of land. It responds quickly to changes in climate because they generally lose more mass on an annual basis compared to their total mass.

In Nepal Himalayas, Glaciers are categorized into two types which are debris-covered glaciers and debris-free glaciers (Moriyabashi, 1974). Debris-covered glaciers are a prominent feature of many high relief mountain ranges such as the Himalaya. The surface topography of the debris-covered glacier is very complicated and there are many ponds and ice-cliffs on the debris covered glacier. During summer monsoon season distribution of ponds, ice-cliffs and debris thickness continuously change.

An accelerated retreat of glaciers in recent time has led to an enlargement of several glacier lakes. As glacier retreat they leave a large void behind. The ponds occupy the depression earlier occupied by the glacier ice. These dams are structurally unstable and undergo constant changes due to slope failures, slumping, etc. and run the risk of causing Glacier Lake Outburst Flood (GLOF). Principally, a moraine dam may break by the action of some external trigger or self-destruction. A huge displacement wave generated by rockslide or a snow/ice avalanche from glacier terminus into the lake may cause the water to top the moraine and create a huge breach that eventually causes dam failure (Ives, 1986).

2. Objectives of the study:

The general objective of the study is to study the morphological evolution of the Lirung Glacier.
More specifically, the main objectives of the study are:

- To know the retreat rate of the Lirung Glacier by comparing the

current terminus position with those collected in previous and subsequent years.

- To know the types of rock and vegetation in and around the Lirung Glacier.

3. MATERIALS AND METHODS

Site Selection

As a part of our third year project, Langtang had been selected. Hence, having already been there this site was appropriate. The route leading to the study site was also easily accessible and topographically convenient.

Furthermore, the site was climatologically favorable. Therefore, Langtang was selected as the study site with the help of Google Earth.

General Description of Lirung Glacier

The field visit was conducted in Lirung Glacier, which is located in Langtang valley (86E, 28N) as shown in Figure 3.1. Langtang Valley is situated in the north of Kathmandu and bordering Tibet.

Lirung Glacier (28.215° N, 86.665°E) is located 60 km north of Kathmandu in the Langtang Valley and is the headwater area of the Langtang-Narayani River system. Its parent mountain is Xixapagma. The altitude of Lirung Glacier is 7324 m and the lowest point of the basin is 4000 m a.s.l.

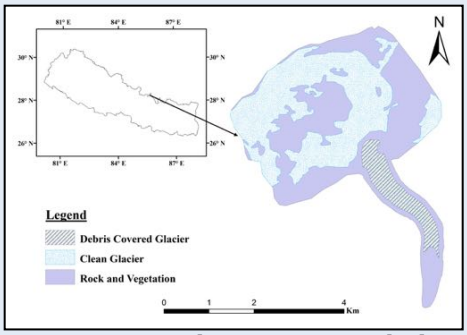

Figure 3: Study area map including location of Lirung glacier

4. RESULTS AND DISCUSSION

4.1 Field observation for retreat

Glacier area in the different decades was analyzed from the outlines of Landsat images from 1980, 1990, 2000 and 2014. The year 1980 was used as the base year for the comparison of the decadal variation in glacier length. To observe the retreat of Lirung Glacier field observation was done from tongue of the glacier to the base of the Lirung Glacier. So, key indicators were observed in the field. The ablation area of Lirung Glacier is heterogeneous surrounded by loose rocks, boulders and soil. The rocks and boulders do not have a fix hold and are wobbly. There is a continuous sliding of mixture of pebbles, soil and water from the top of the ice cliffs indicating the effect of climate change. Outlet of the lake water is near the end moraine and water flows through down steep slope. Flowing water through the outlet deposited larger boulder at the bank of the river. The retreat rate of Lirung Glacier between 1980 and 1990 is observed to be the highest whereas retreat between 1990 and 2000 is significantly the lowest. The length of retreat between 1980 and 1990 is 0.67 km. Similarly the length of retreat between 1990 and 2000 is 0.27 km and the length of retreat between 2000 and 2014 is 0.45 km. This is because warming was greater between 1998 and 2013 than between 1988 and 1997. Hence, the temperature rise is considered to be the primary factor responsible for the enhanced retreat from 1998 to 2013.

The subsequent decadal retreat rate of Lirung Glacier from 1980 to 2014 is given in the table below while the retreat from 1980 to 2014 is shown in (figure 4.1)

Year	Retreat (m)
1980-1990	670.14
1990-2000	273.69
2000-2014	454.22
Total retreat	**1398.05**

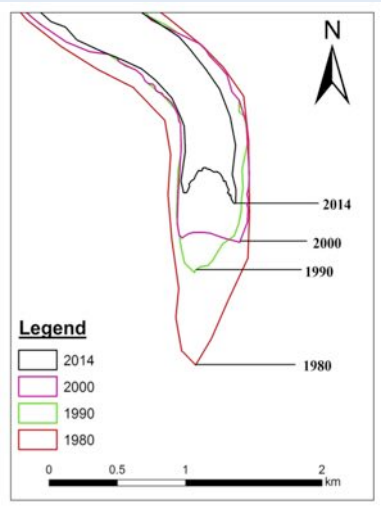

Figure 4.1: Decadal retreat rate of Lirung Glacier from 1980 to 2014

The GPS points of glacier tongue and end moraine are recorded in the field. Arc view 9.3 is used to overlay the decadal satellite imageries from 1980 to 2014 to measure the length of retreat of the Lirung Glacier. Hence, the total length of retreat from 1980 to 2014 was calculated to be 1398.05 m/1.40 km. Interpretation of overlaid satellite images (fig. 4.2) of 1980 to 2014 shows a significant retreat of Lirung Glacier. The total length of retreat is 1.40 km in 34 years (1980-2014)

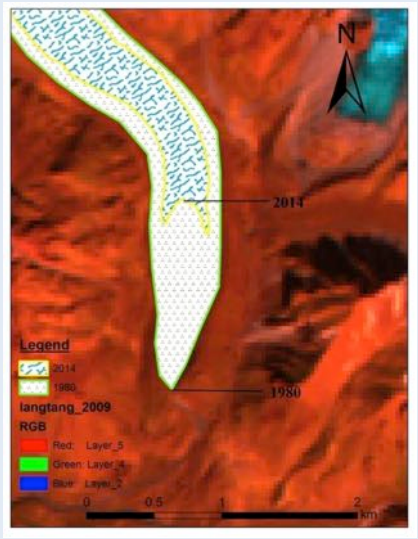

Figure 4.2: Overlaid satellite images of the year 1980 and 2014

4.2 Distribution of ice cliff in relation to their orientation

The distribution of ice cliff in relation to their orientation was also observed in the debris- covered area of Lirung Glacier. Being a debris covered area the surface topography is heterogeneous with mounds, hollow, ridges and valleys. There were many ice cliffs exposed at the surface. Total of 17 ice cliffs were located on the ablation area having the height of 3-20 m which were south and north facing cliffs as shown in figure 4.3. Ice cliff is surrounded by high mountains and adjacent debris surfaces of the glacier. Also, there are many supra glacial lakes surrounded by steep ice cliffs and large boulders as shown in Figure 4.4. There is continuous melting and debris sliding from the top most part of the ice cliff as shown in Figure 4.5. The upper part of ice cliffs were covered with debris of varying thickness (0.3-2m) as shown in Figure 4.6(a) and (b). The south-east facing ice cliffs were relatively small in area than that of north-west facing with gentle slope (5°-20°) whereas the north -west facing ice cliffs were large with

steep slope (>80°) which is shown in Figure 4.7 and 4.8. This is because the south-east facing ice cliff receives more incoming solar radiation which directs to the east, whereas the north-west facing ice cliff receives relatively small solar radiation.

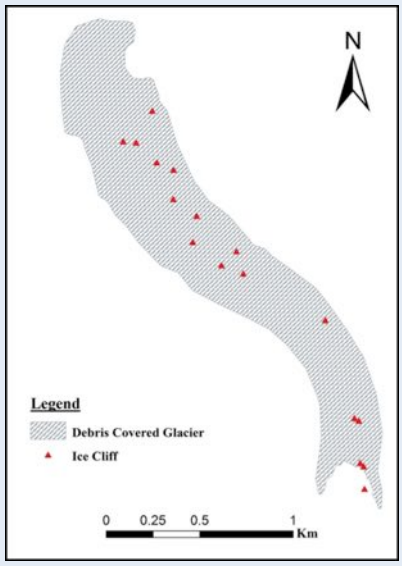

Figure 4.3: Ice cliffs in ablation area of Lirung Glacier

Figure 4.4: Supraglacial ponds with steep ice cliffs in debris surface of the ablation area

Figure 4.5: Debris sliding from topmost part of ice cliff

Figure 4.6(a): Debris cover on the upper part of ice cliff

Figure 4.6(b): Debris cover on the upper part of ice cliff

Figure 4.7: South facing ice cliff

Figure 4.8: North facing ice cliff

4.3 Annual Temperature and Precipitation

The temperature change in the two decades 1988-1997 and 1998-2013 is shown in the Figure 4.9. As shown in Kyangjing Hydro-meteorological station at Langtang Valley the annual mean air temperature was greater between 1998 and 2013 than between 1988 and 1997 which explains the higher retreat from 2000 to 2014. The temperature rise is considered to be the primary factor responsible for glacier retreat. From figure 4.9 it is a clear indication that annual temperature rise at this region is at the rate of 0.108C/yr.

Precipitation plays an important role in glacier dynamics, both in terms of the total precipitation available for accumulation and in changes in the form of precipitation from snow to rain. In Figure 4.10, precipitation graph also shows an increasing trend. The precipitation increases at the rate 7.403 mm/yr. The increase in temperature pattern increases the phenomenon such as evaporation and water cycle thereby, increasing the precipitation amount. The precipitation changes from snowfall to rainfall due to the increase in temperature. Then, the water previously stored in the form of snow and ice slowly melts and releases. After a period of time it will flow directly into the rivers in the rainy season and less in dry season. If this trend of temperature increase continues for longer period of time, Lirung Glacier may reach new equilibrium line (shifting upward) with a smaller overall mass, melt and reduced melt water runoff.

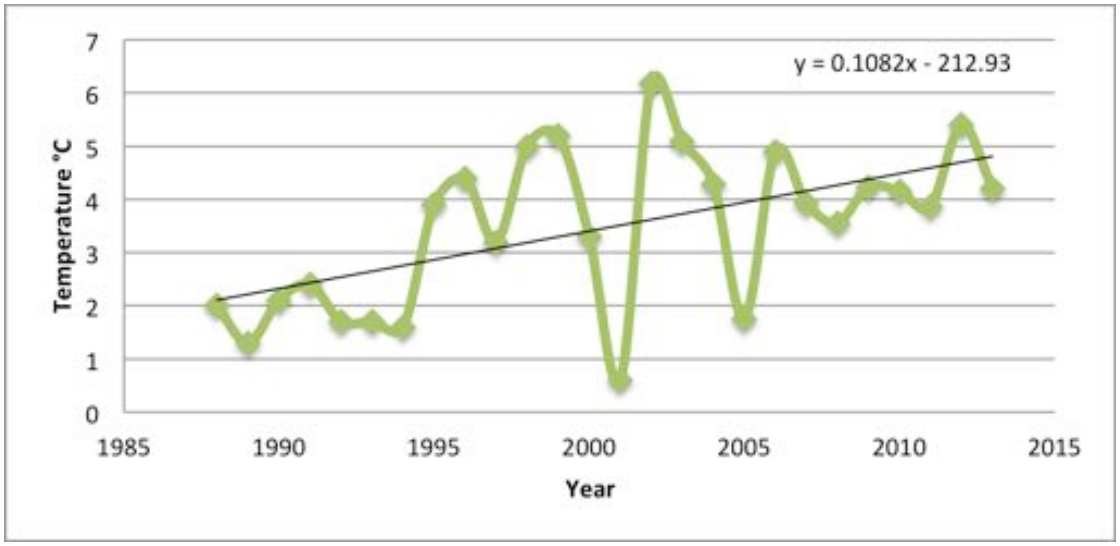

Figure 4.9: Temperature variation from 1985 to 2013 A.D at Kyangjing Hydro-meteorological Station

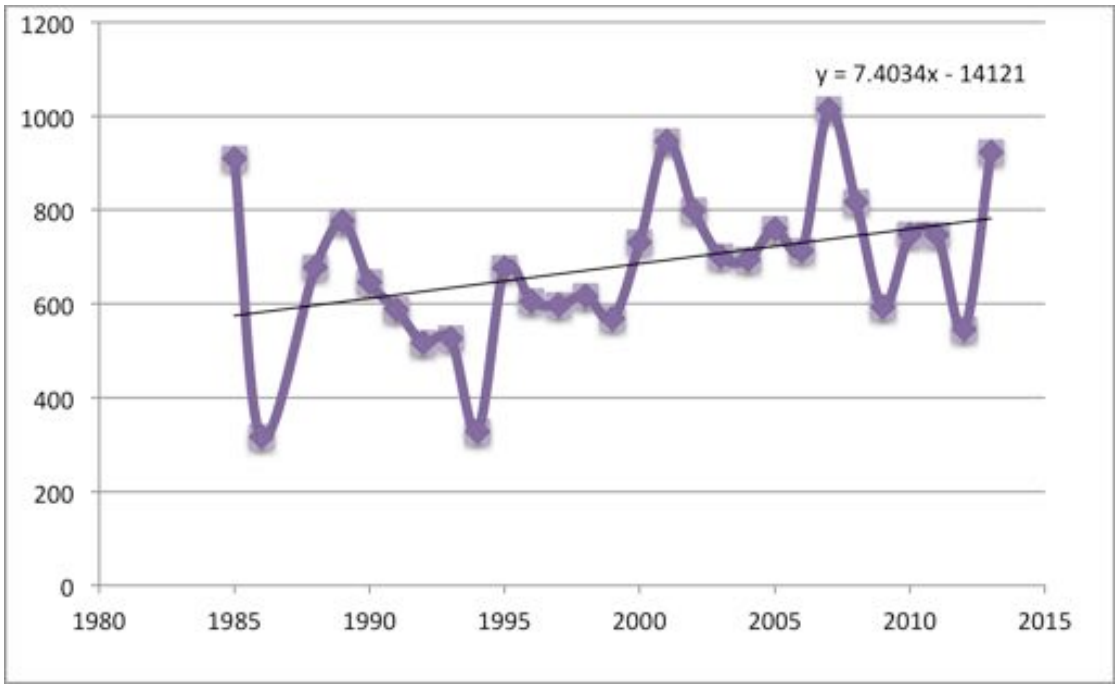

Figure 4.10: Precipitation variation from 1985 to 2013 at Kyangjing Hydro-meteorological Station

4.4 Rock Types and Vegetation

The ablation area of Lirung Glacier is covered with small vegetation, loose rocks and boulders of different types shown in figure 4.11. Supraglacial ponds are also observed in the field as shown in the figure 4.12. The rocks are unstable on the glacier. The rock debris present on the upper part of the ice cliffs plays a critical role in advancing glacier retreat. The debris absorbs incoming solar radiation and traps the heat, further accelerating the melt rate of ice cliffs. The soil found here is very thin and fragile. Since the texture of the soil is very coarse with high gravel content, they are prone to displacement due to slides and avalanches. Gneiss which is a coarse grained metamorphic rock is the dominant rock as compared to the other as shown in Figure 4.13. Biotitic gneiss, quartzitic gneiss, gneiss with feldspar was the type of gneiss found. Other than that quartzite, schist, feldspar, mica, biotite and migmatite were also present. Gneiss is a high grade metamorphic rock whereas mica and schist are low grade metamorphic rock. Present vegetation found in Lirung ablation area is small bushes and turfs as shown in Figure 4.14. No trees were observed in the area.

5. Conclusion and recommendation

5.1 Conclusion

Glaciers are renewable resources of freshwater. They are sensitive to temperature and they demonstrate how climate change is affecting the world. The most significant impact of warming can be seen in the glacier ecosystem of the Himalayan region and mountain livelihood. The increase in temperature and decrease in precipitation affects the glacier retreat rate in a tremendous extent. The temperature and precipitation rate shows increasing trend of Kyangjing which is near to Lirung. This project is based on primary field data of GPS location of ice cliffs, survey of rocks and vegetation found in the ablation area of Lirung Glacier.

The total length if retreat between 1980 and 2014 (34 years) is found to be 1.40 km. The rate of loss of glacial length between 1980 and 1990 is almost twice that in the subsequent decades (1990-2000 and 2000-2014) whereas the length of retreat from 2000 to 2014 is 454 m. Total of 17 ice cliffs were located in the ablation area facing south-east and north-west. The south-east facing ice cliffs were smaller in area than the ice cliffs facing north-west whereas the slope was gentle in south-east facing ice cliff and steep in north-west facing ice cliffs.

The most dominant rock type found on Lirung Glacier is Gneiss. Some other rocks found are Biotitic gneiss, quartzitic gneiss, gneiss with feldspar. Other than that quartzite, schist, feldspar, mica, biotite and migmatite are also present.

5.2 Recommendation

Mountain areas are particularly vulnerable to climate change and Nepal Himalayas are no exception. The rise in temperature and decline in precipitation rate has negatively enhanced the rate at which the glacier is retreating. Because of the visibility of glacier retreat and its impact on landforms and vegetation have helped to contribute to global awareness of climate change. The following are recommended for assessments:

- Using high-resolution satellite images for small and medium-sized glaciers could be mapped and monitored regularly.
- To capture the on-going

changes in glaciers of Nepal, a repeat inventory is recommended at intervals of five years.

- The existing high-altitude stations is recommended be made fully functional to ensure the availability of good quality of data. Furthermore, high-altitude hydro-meteorological stations could be established.

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ARTICLE

Childhood Obesity

Tenzing Dawa Sherpa

1. What is the problem that philanthropist are trying to solve? Why is that a problem?

The philanthropists are trying to solve childhood obesity. Childhood obesity has become very common in the modern society and the rate is increasing every day. This is caused due to unhealthy eating habits and lack of movement and exercise. Childhood obesity can lead to:

- Health related problems

Being overweight shows a sign of an unhealthy life style. Due to eating a lot of products, which are high in sugar and cholesterol and low in nutrients, several health consequences takes place. And lack of exercise makes it even worse.

- Social anxiety disorder

Obese children are bullied for their weight in school and other places. That can lead to depression and anxiety. They are called though names that they don't like. Such activities sabotage the social life of the child. As this happens continuously they lack confidence when they become adults.

2. Why is that problem important to you?

It's important for me to eliminate childhood obesity because it leads to several serious problems.

- Health problems

Every day thousands of people die of diseases related to obesity. Eating lots of junk food containing saturated sugar and meat leads to an unhealthy life. More people are suffering with

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2. Why is that problem important to you?

It's important for me to eliminate childhood obesity because it leads to several serious problems.

- Health problems

Every day thousands of people die of diseases related to obesity. Eating lots of junk food containing saturated sugar and meat leads to an unhealthy life. More people are suffering with

heart diseases than ever, more people are obese then ever. People love to live a luxurious life, which consists of lack of movement and ease of work. In other words people are becoming lazy. This leads to increase in number of preventable deaths.

- Climate change

Unhealthy food choices not only affect our health but also the environment. Agriculture research organization CGIAR in its research, "Climate Change and Food Systems" found food production was responsible for between 19 and 29 percent of humankind's total greenhouse emissions. Meat industries are one of the most dominant forces in climate change in this modern era.

- More use of animal products

Meat has become a part of recipe that most people cannot ignore. Most of the children who suffer from childhood obesity are the ones who are fed with a lot of animal products, which contains unhealthy cholesterol and unhealthy fats. Eating lots of animal products an inadequate exercise from a young age can lead to life's most threatening moments in adulthood.

3. What stakeholders are affected?

The stakeholders who are affected are:

a) The Child

They are the ones suffering form the problem. Children have to deal with the consequences that being an obese person has to face on a daily basis, from being bullied to health problems.

b) Government

The government is directly related to any events happening in the country. Childhood obesity is an emerging problem and the government is affected a lot. A nation cannot succeed with unhealthy citizens. Healthy citizens are always the priority of the government.

c) Non-governmental Organizations (NGO's)

Organizations like WHO, UNICEF, are always concerned with the well being of people and especially children. Problems like childhood obesity are always a huge challenge for such organizations and philanthropists.

d) Food industry

The food industry is the dominant factor for childhood obesity. We become what we eat. The junk food chain has dominated the food market, which leads more people to eat junk food rich in cholesterol and unhealthy fats.

e) Health and medical institutes

Nearly one-third of world's population is obese and many of them end up in hospitals. The medical institutes are the dominant force in dealing with the consequences of childhood obesity.

4. Who are your intended beneficiaries?

- The Child

Healthy childhood can contribute to experiences that can be beneficial in adulthood. When children get educated on health and adapt an active life style from a young age they get better during their adulthood. They get confident when they are healthy and fit. They become more productive and positive.

- The Society

The obese people have contributed one-third of world's population and is rising day in day out. Being obese has become common and the society is adapting lifestyle leading to obesity. From a very young age people are taught to live a luxurious life, which is misunderstood for consuming unhealthy foods and inactive lifestyle. Eliminating childhood obesity can lead to healthy and fit adults in the future. It can help to establish a society that is more concerned with the wellbeing of its children.

- Private sectors

Private sectors like Food industry, Fitness industry, and Medical institutes are more related to childhood obesity than any other sector. The increase or decrease of the problem is directly linked with these sectors. They are the

prominent beneficiaries in the field.

- Government

The government will benefit by the wellbeing of its citizens. Huge amount of its revenue is spent on health related problems, which should not even exist. The healthy children ensure a better future for the country.

5. What are the beneficiaries' needs?

The beneficiaries' needs are:

a) Healthy food choices

The children should have access to fresh and healthy food. And the food industry and their parents have the huge role in it. The food industry should be encouraged to produce healthy products. The parents should teach the children to adapt a plant based whole food diet. Entrepreneurs in the food industry should prioritize health ahead of taste. More plant-based products should be encouraged containing less fat and cholesterol.

b) Parks and places for children to be active

More parks should me made in localities where children can play and become active. The children should be encouraged to participate in sports and exercise. They should be aware of the fact that "Health is wealth, and movement is medicine".

c) Rules and regulations

Making changes in law can boost a huge improvement in the childhood obesity. The government can control this by increasing tax rates in unhealthy food as well as subsidize plant based whole food. They can also make policy for affordable health services and education.

d) Health education

The government should also ensure that the citizens get health education. The medical institutes evince the facts and figures relating to obesity. Researches are done to find the most cost effective and available solution for the problem. The parents should be well educated about childhood obesity so they can give proper care to their children.

e) Non-governmental Organizations (NGO's)

NGO's and private sectors play a vital role in controlling childhood obesity. Organizations like WHO, UNICEF, have huge roles in promoting healthy diets for children and creating awareness on adverse effects of childhood obesity. We all are aware that "prevention is better than cure". These organizations have great role in preventing childhood obesity.

f) Fitness industry

More people are engaged in fitness than ever and the fitness industries deserve credits for that. The fitness industry has a huge role in promoting a healthy lifestyle. They promote aesthetics as it involves in having low fat and more muscles. People become aware of what they eat in order to look better. It has now become popular to become a vegan bodybuilder as lack of protein has become the most misunderstood concept for vegans adopting plant-based diet.

6. What would be the ideal world with the absence of this problem?

In the absence of this problem the world will be a much better place, when children are aware of their health, they are more aware during their adulthood. Children will less likely be depressed.

People will adapt an active life style. People become more confident, productive and social.

Meat industry are involved in 14.5 % of

green house gas emission, reducing or eliminating meat from the diet can aid to fight against climate change. Adapting a whole food based diet will provide more food. In the process more land would be available for productive operations.

Billions of dollars are spent on improving people's health, which they should never have been spent. In the absence of this problem we can invest our revenue for productive outcomes. Schools would have more whole foods than snack foods. Much life threatening disease will be prevented and people will live longer.

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About Mountain Spirit

Mountain Spirit is a non-government and non-profit organization that was registered in 1996 under the laws of Nepal. The organization consists of a group of like-minded people from different mountain communities. The organization aims to improve livelihoods, protect the environments and conserve mountain cultures through capacity building, empowerment, awareness and sustainable development initiatives with participation of Local mountain communities.

This organization has focused its work on issues related to health, education, eco-tourism, gender sensitization, social mobilization, participatory planning, conflict resolution, social empowerment and institutional capacity strengthening in various mountain regions of Nepal. The strength of this organization lies in its members; in total, Mountain Spirit has more than hundred fifty members representing 19 different mountain districts of Nepal.

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MOUNTAIN SPIRIT

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