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Volume 1

February 2022 (फाल्गुण, २०७८)

GEOINNOVATION

Bulletin of Nepal Geological Students' Society

NEPAL GEOLOGICAL STUDENTS' SOCIETY (NGSS)

KATHMANDU, NEPAL

(EST. 1990)

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Foreword

It is an uttermost pleasure of the 23rd Executive Committee to bring out first Volume of Bulletin of Nepal Geological Students' Society (NGSS). This volume highlights the activities that Nepal Geological Students' Society had performed within the last one year and some glimpse of 1st to 3rd Geo-Science Exhibitions and continuing, fourth Geo-Science Exhibitions could not be possible due to the pandemic of Covid-19. It covers the news and information related to Nepal Geological Students' Society, election of 24th Executive Committee, list of Executive Committee till date, webinars with different intellects, biography, thesis topic of students studying in Central Department of Geology, Tribhuvan University and Tri-Chandra Multiple Campus, Tribhuvan University, online entrance mock test, old photos of NGSS and upcoming events. It also includes achievements by the member's aswellas former members of Nepal Geological Students' Society. Bulletin also contains General articles and Review articles reviewed by different senior members of NGSS. In addition, the Bulletin contains a number of popular articles in the field of geology which are of public interest. We believe these information and articles will be of great interest to geo-scientist and general public.

The Executive Members would like to thank to all the authors for their papers to this volume. Similarly, we all thank all valued member of NGSS for their continuous cooperation and participation of various activities organized by NGSS. Executive Members, on behalf of NGSS, sincerely acknowledges the consulting firms, personal donations through former members, agencies, governmental/non-governmental organizations and industries for their financial and technical support.

We hope that the readers will find the volume useful and informative. We always appreciate the valuable comments and suggestions from the members of the society and well-wishers for further augmenting the quality of Bulletin and hope to get continuous support and cooperation in its publication in future.

Thank you

23rd Executive Committee

We want to thank all the contributor for bulltin of NGSS and for the Nepal Geolgical Students' Society

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Central Department of Geology
Kirtipur

फोन नं.: ४-३३२४४९
४-३३३०८५
४-३३०४०५

कीर्तिपुर, काठमाडौं
नेपाल

पत्र संख्या:
चलानी नं.:

शुभकामना

नेपाल भौगर्भिक विद्यार्थी समाजले आफ्नो इतिहासमा पहिलो पटक "Geo-innovation: Bulletin of Nepal Geological Students' Society Vol. 1" नामक वार्षिक पत्रिका प्रकाशन गर्न लागेको हुँदा मलाई असाध्यै खुशी लागेको छ । यस समाजका सम्पादक समिति, कार्यकारिणी समिति, सदस्यहरू एवम् सहयोगी हातहरूलाई बधाई ज्ञापन गर्न चाहन्छु ।

भूगर्भशास्त्र केन्द्रीय विभागले यस समाजको स्थापनाकालदेखि नै सहयोग गर्दै आएको कुरा स्मरण गर्दै यसपटक यस बुलेटिनको प्रकाशनको लागि आफ्नो कदम बढाएको देख्दा हर्षित भएको छु ।

यस बुलेटिनमा समावेश गरिएको विद्यार्थीहरू, भूगर्भविद्हरू एवम् प्राध्यापकहरूको लेखले अध्ययन गर्दै गरेका विद्यार्थीहरूलाई व्यवसायिक क्षेत्रमा प्रवेश गर्नु पूर्व ज्ञान प्रदान गर्न ठूलो भूमिका खेल्ने विश्वास व्यक्त गर्न चाहन्छु । बुलेटिनको प्रथम खण्डमा राखिने समाजको गतिविधिहरूले समाजको बारेमा जनमानसलाई सूचित गर्नेछ ।

यस समाजलाई आगामि दिनहरूमा पनि यस्तै खाले शैक्षिक गतिविधिहरूलाई निरन्तरता दिनको लागि प्रोत्साहन गर्न चाहन्छु साथै यस बुलेटिनलाई सम्बन्धित धेरै स्थानहरूमा वितरण गरि भौगर्भिक ज्ञानको ज्योति छर्नको लागि पनि अनुरोध गर्दछु ।

प्रा.डा. खुमनारायण पौडेल
विभागीय प्रमुख: भूगर्भशास्त्र केन्द्रीय विभाग
अध्यक्ष: भूगर्भशास्त्र विषय समिति
अध्यक्ष: इन्जिनीयरिङ्ग भूगर्भशास्त्र विषय समिति

GOODWILL MESSAGE

It gives me immense pleasure to express my goodwill message to the Nepal Geological Students' Society for initiating the publication of "GeoInnovation: Bulletin of the Nepal Geological Students' Society Vol. 1".

I would like to congratulate the Editorial Board, Executive Committee, members, and helping hand on the publication of the bulletin in both soft and hard copy versions.

The students' society has been carrying out various academic activities since its birth. Adding in its significant activities via the publication of a bulletin of the students' society, having reviewed academic articles by students as well as senior concerned professionals, would have certainly played a noteworthy role in uplift for shaping its new dimension within the circle of students, professors, and exports. I am sure that the content of the bulletin will be a source of knowledge for those hungry to quench their scientific curiosities.

With my heartfelt congratulations to the energetic and dynamic members of the students' society, I also encourage them to continue such innovative academic works in the future, where the Nepal Geological Society is always willing to support them in their innovative academic endeavors.

Ananta Prasad GAJUREL, PhD

President, Nepal Geological Society and

Head, Department of Geology

Tri-Chandra Multiple Campus

Tribhuvan University

Kathmandu, Nepal

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NGSS NEWS

NEPAL GEOLOGICAL STUDENTS' SOCIETY

Nepal Geological Students' Society is a non-profitable organization of geology students of Nepal established in 1990A.D., in the Central Department of Geology, Tribhuvan University, Kirtipur, Kathmandu, Nepal. It was formally registered in September, 2014 A.D., in District Administration Office, Kathmandu. The students studying geology in M.Sc. level and final year of B.Sc. levels are associated with the Society. The executive committee are formed from the members studying M.Sc. level in geology and engineering geology and has the provision of selecting the invited members from bachelor's final years geology students.

This society has been established with the objective of uniting the students studying geology from all over Nepal and their active participation on working for the overall rights and interests of the geology students. This society will always be with the students studying geology without any political, ethnic, class, gender and social discriminations. The Society has been frequently working for the development of geoscience professions solely or with coordination of professional geoscientific organizations of Nepal. The Society is performing its activities with the aim to enhance the knowledge of geology students when entering into professional field. The main activities of the Society area.

- Organization of exhibition program related to geoscience
- Organization of expert training program.
- Organization of Scientific talk programs/Webinars.
- Collaboration with different national and international professional geoscientific organization in organizing different scientific activites.
- Organization of Interraction Programs.
- Organization of the mock test for students preparing entrance of M.Sc. Geology and Engineering Geology.
- Volunteering the national and international conferences organized in Nepal.
- Organization of welcome and farewell program
- Organization of sports tournament
- Organizing several programs like laboratory maintenance, library management, afforestation and so on.

ANNUAL GENERAL MEETING HELD

Annual General Meeting (AGM) of the Nepal Geological Students' Society (NGSS) was held in virtual platform through ZOOM. The executive were present in the Central Department of Geology, Tribhuvan University, Kirtipur Kathmandu from where the virtual meeting was organized. Mr. Anil Regmi, handover the documents to the newly elected president of the Society, Mr. Pawan Kumar Acharya.

INAUGURATION OF OFFICE ROOM OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

Nepal Geological Students' Society for the first time established the office room for the Society in the Central Department of Geology (CDG), Tribhuvan University, Kirtipur. It has requested Prof. Dr. Khum Narayan Paudayal, Head of Department of CDG and Advisors of the Society by submitting application. The request was approved by HOD and the separate compartment was constructed on the department. Department in addition has provided computer, printer, table and

chairs, cupboard to the Society. The office room was inaugurated by Prof. Dr. Khum Narayan Paudayal on Baisakh 10, 2078 (April 23, 2021).

COMMITTEE OF NGSS (2047-2077)

The data of executive committee of Nepal Geological Students' Society of all the year were not documented and are not preserved in NGSS data base. The present executive committee found the book entitled "Pangea" published by NGSS in 2056 B.S. The rest of the document are retrieved from the personal and telephone communication with the senior geologists and past members of the Society. The present working committee finally knew this committee belongs to the 23rd executive committee of the Society.

FORMATION OF SUB-COMMITTEE

Nepal Geological Students' Society for the first time in its history formed the different sub-committee to make active participants of the members of the Society in different activities.

WELCOME PROGRAM ORGANIZED.

Nepal Geological Students' Society has organized welcome program targeted to newcomer students admitted in Central Department of Geology, Tribhuvan University. The program was organized in collaboration with Central Department of Geology on 2077 Poush 29 in CDG from 1:00 pm onward.

SCIENTIFIC TALK PROGRAM/WEBINAR SERIES ORGANIZED

Nepal Geological Students' Society has organized webinar series through online platform like ZOOM. Due to Covid pandemics, the talk program could not be organized in physical appearance. About 13 webinar were organized including joint collaboration with National and International Organization..The Society has attempted to collect the short bio and abstract of the presentation and programs were recorded which were placed in the YouTube channel.

ORGANIZATION OF NEPAL GEOGRAPHY OLYMPIAD AND AGREEMENT WITH STEM FOUNDATION NEPAL

An agreement for two years was made between Nepal Geological Students' Society (NGSS) and STEM Foundation Nepal for hosting Nepal Geography Olympiad (NGeO) to represent in International Geography Olympiad. The STEM Foundation Nepal is the main organizer of the program and the NGSS is the organizing partner. Mr. Surgeon B.C., Founder Chairperson of the STEM Foundation Nepal Nepal and Mr. Pawan Kumar Acharya, President of the Society signed the Memorandum of Understanding (MoU). Nepal Geography Olympiad is the national competition on geography subject targeted to school level students (up to +2). NGSS takes the responsibility to prepare syllabus, question and publish the result from the examinee.

CONSTITUTION AMENDMENT OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

23rd Executive Committee of Nepal Geological Students' Society has carried out the first amendment of constitution through special AGM of the Society. This committee includes the student from all the campus according to earlier consideration and make several phases of discussion to its member, former members, and the advisor of the Society.. The election was also conducted for the selection of 24^{th} executive committee based on the amended constitution.

COLLABORATION WITH NEPAL GEOLOGICAL SOCIETY IN ORGANIZING THE INTERACTION PROGRAM.

Nepal Geological Students' Society as a co-organizer organized an interaction program in collaboration with Nepal Geological Society. Two interaction programs on application of geological knowledge on hydropower and mining sector and the opportunities and knowledge gap in these sectors were organized separately in two different programs.

INTERACTION PROGRAM ON STATUS OF GEOSCIENCE EDUCATION IN SCHOOL LEVEL OF NEPAL

Nepal Geological Student's Society organized an interaction program in collaboration with Science Teacher's Association of Nepal, STEAM Foundation and International Geoscience Educational Organization on 2078/09/24 at Uniglobe SS/Collage, Kamaladi entitled "**Interaction Program on Status of Geoscience Education in School Level of Nepal"**

ONLINE ENTRANCE MOCK TEST

23rd Executive Committee of Nepal geological students society(NGSS) had organized and conducted six mock tests in total for the students who are preparing for the M. Sc. entrance examination of both general and engineering geology. All of the examinations were conducted by the Nepal Geological Students Society in collaboration of Society of Exploration Geophysicists(SEG).

WEBSITE DESIGN UPDATED

Nepal Geological Students' Society has updated the design of its website (www.ngssgeology.org). The classical design of website is updated by dynamic and interactive design and the information on the website is also added. The menu of Webinar, Mock Test, Exihibition, Biography, and Contributor to bulletin is added. The google map has been created and placed in the bottom part of website, which helps in finding the location through digital navigation system.

PREPARATION OF IDENTITY CARD FOR ITS MEMBER

Nepal Geological Students' Society has prepared the Identity Card for the member of Nepal Geological Students' Society. The identity card for the geology students studying in 2075, 2076 and 2077 batch received the Identity card. The details of the members are included in the identity card. The card was self-designed by Mr. Mohan Raj Shrestha, Joint Secretary of the Society.

BIOGRAPHY OF SENIOR GEOLOGIST

Nepal Geological Students' Society has prepared and published the biography of three well-renowned senior geologists, founder member and former presidents of Nepal Geological Society (NGS), This biography will also provide the information of senior geologists, their contribution, publications to motivate and encourage the students and early career professional geologists in the related field. The biography of these senior geologists are also placed in website of NGSS (www.ngssgeology.org).

GEO-SCIENCE EXHIBITION PROGRAMS OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

Nepal Geological Students' Society (NGSS) has been conducting geo-science exhibition for the betterment of young students and to divert the mind as well to create interest towards the importance & benefit of Geology and Geoscience education. NGSS had collected the information of Geoscience Exihibition organized till the date.

UPCOMINT EVENT: NEPAL GEOGRAPHY OLYMPIAD, 2022 TO REPRESENT INTERNATIONAL GEOGRAPHY OLYMPIAD, 2022

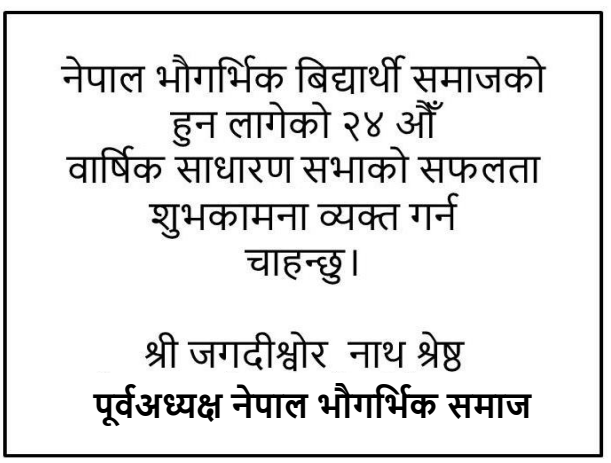
Nepal Geological Students' Society (NGSS) and STEM Foundation Nepal after successfully organizing the Nepal Geography Olympiad (NGeO) to represent in International Geography Olympiad in 2021. It is goint to organize the second Nepal Geography Olympiad from April 02, 2022 to April 08, 2022. The STEM Foundation Nepal is the main organizer of the program and the NGSS is the organizing partner. Nepal Geography Olympiad is the national competition on geography subject targeted to school level students (up to +2). NGSS takes the responsibility to prepare syllabus, question and publish the result from the examinee

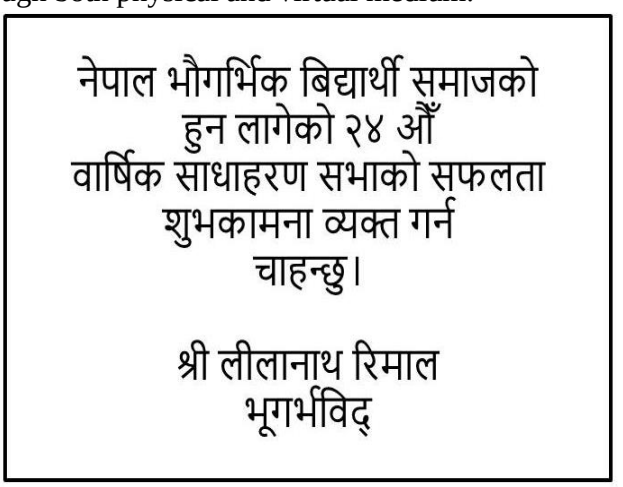
ANNUAL GENERAL MEETING (AGM)

Nepal Geological Students' Society (NGSS)

Poush 9, 2077 (December 20, 2020)

23rd Annual General Meeting (AGM) of the Nepal Geological Students' Society (NGSS) was held in virtual platform through ZOOM. The executive were present in the Central Department of Geology, Tribhuvan University, Kirtipur Kathmandu from where the virtual meeting was organized. President of Executive Committee 2076/2077, Mr. Anil Regmi, chaired the General Body Meeting and meeting was conducted by Mr. Basanta Poudel, Secretary of the Nepal Geological Students' Society. Prof. Dr. Khum Naryan Paudayal, Advisor of the Society and the Head of Department, Central Department of Geology, Tribhuvan University was the chief guest of the program. Mr. Anil Regmi presented the Annual Report with highlighting various activities and events of the society that were carried out by Executive Committee during last one year. Ms. Sunita Magar, Treasurer of NGSS presented the Financial Report including the Audit Report of Fiscal Year 2076/077. Mr. Asim Ojha, member of the election committee of NGSS announced the result of the election of NGSS executive committee 2077/78. The newly elected president and secretary of the Society delivered their speech. Mr. Anil Regmi, handover the documents to the newly elected president of the Society, Mr. Pawan Kumar Acharya. The program was attended by 50 members of the society through both physical and virtual medium.





नेपाल भौगर्भिक विद्यार्थी समाजको २२ औँ कार्यकारिणी समिति (२०७६/२०७७) का अध्यक्ष श्री अनिल रेग्मीज्यूको २३ औँ साधारण सभामा व्यक्त मन्तव्य

यस कार्यक्रमका प्रमुख अतिथि हाम्रा गुरु तथा त्रीवि भूगर्भशास्त्र केन्द्रीय बिभाग प्रमुख आदरणीय खुम नारायण पौडेल सर, अन्य अथिति गण तथा यस संस्थालाई (नेपाल भौगर्भिक बिद्यार्थी समाजलाइ) माया गरेर अनलाइन मार्फत जोडीनुहुने सम्पूर्ण शुभेक्षुकहरुमा मेरो तथा यस समाजको तर्फबाट नमस्कारको न्यानो अभिवादन टक्रयाउदछुँ ।

बिषेशत यस कार्यक्रमको मूल उद्देश्य नेतृत्व हस्तान्तरण रहेको भएतापनि हाम्रो कार्यकालको अन्तिम कार्यक्रम रहेको हुँदा हामीले अर्थात हाम्रो कमिटीले गरेका पछिल्ला गतिबिधिहरुलाई समिक्षा गर्नु अर्को उद्देश्य रहन जान्छ, त्यसै गरि हाम्रो कोषाध्यक्षले आर्थिक बिवरण पनि पेश गरि सक्नुभएको छ ।

हामीले यस बितेको कार्यकालमा गरेका कामहरुलाई फर्केर हेर्ने हो भने सोचेंको जस्तो उपलब्धि हाँशिल भने गरेका छैनौं तथापि गरेका कामहरुमा भने आफ्नो सत प्रतिशत दिएका छौं ।

हामीले धेरै पछी विभागमै गरेको स्वागत तथा बिदाइ कार्यक्रम जुन हामीले विभागको आर्थिक तथा अन्य सहयोग साथै केहि रकम २०७४ सालको साथीहरु बाट उठाएर सम्पन्न गरेका थियौं, हुनलाई यो कार्यक्रम नायाँ भने हैन, यो त हामीले पुराना कामहरुको निरन्तरताको रुपमा नयाँ ढंगले आफ्नै विभागको प्रांगढ़मा गरेका थियौँ । हाम्रै बिभाग बाटै भूगर्भशास्त्रीहरु पनि आफैमा नृत्य, बाध्यबाधन, कबिता, गजल तथा अन्य विभिन्न मनोरन्जनात्मक कार्यहरुमा पोख्त छन् र हुनुपर्छ भन्ने कुरा सबैमाझ प्रस्ट्याएका थियौं ।

२०७४ पौषमा एउटा अनुशासनको नमुना स्वरूप सरसफाई तथा व्यवस्थापनको कार्यक्रम गरेका थियौं। अतिरिक्त क्रियाकलापमा बिध्यार्थीहरुलाइ समाबेश गर्ने हेतुले पौष २२ देखि २४ सम्म खेलकुद सप्ताहको पनि आयोजना गरेका थियौं जसमा फूट्सल, भलिबल, व्याडमिन्टन, चेस जस्ता खेल हरु आयोजना गरिएको थियो जसमा केन्द्रीय क्याम्पस र त्रिचन्द्र क्याम्पस सबै बिध्यार्थीहरुको राम्रो उपस्थिति रहेको थियो ।

बिभागको ल्याबको सहि व्यवस्थापन नभएको हुनाले सो कुरा जानकारी गराउदै कमिटि सहित गठन गरेर समाजको तर्फा बाट Lab Inventory गरि सो सुचीमा ल्याबमा नपुग स्तरोन्नती गर्नुपर्ने तथा अनावस्यक मसिन तथा अन्य ल्याबका सामाग्रीहरुको बारेमा विभागीय प्रमुखलाई यथासिघ्र समाधान गर्न माग गरेका थियौं ।

नेपाल भौगर्भिक समाजसंग समन्वय गरि नेपाल भौगर्भिक समाजले प्रकाशन गर्ने सम्पूर्ण व्यगचलबा सहयोग मागी त्रीबी भूगर्भशास्त्र केन्द्रीय विभागको पुस्तकालयलाइ हस्तान्तरण गरेका थियौं जसका लागि समाजका आदरणीय अध्यक्ष राम प्रसाद घिमिरे तथा महासचिब कुमार खड्काप्रति आभारी छु ।

बिद्यार्थीहरुको संस्था भएको नाताले विभागको प्रवेश परिक्षामा सहयोग होस् भनि माघ ४ र माघ १६ गते मोक (यअप) परिक्षाको आयोजना गरेका थियौंभने माघ १६का दिन सरस्वति पुजा पनि गरेका थियौं ।

हाम्रो संस्था त्रीबी र त्रिचन्द्रको मात्र नभएर नेपालभरी रहेका सम्पूर्ण भूगर्भशास्त्र अध्ययनरत बिद्यार्थीहरुको भएकोले हामीले हाम्रा कार्यक्रमलाइ अब अलि फराकिलो बनौनुपर्छ भन्ने हेतुले भूगर्भ अध्ययन हुने पोखराको पिएन क्याम्पसमा रहेको भुगर्बशास्त्र अध्ययनरत बिध्यार्थीहरुको संस्था Geo–circle ले आयोजना गरेको "Research Paper Presentation" कार्यक्रममा हाम्रो संस्थाको तर्फ बाट सहयोग तथा उपस्थिति जनाएका थियौं जसमा म स्वयं उपस्थित भएको थिएँ। सो कार्यक्रममा न्भय ऋष्चअभि र हाम्रो समाजलाइ जोड्न पिएन क्याम्पसका भाइ अशोक ढकालले राम्रो भूमिका खेलेका थिए। यस्ता कार्यक्रम हामीले चितवन र धरान पनि लाने सोच बनाएर अगाडी बढीसकेका भएतापनि विश्वभर फैलिएको महामारीका कारण अगाडी बढाउन सकिएन ।

केहि समय त हामि के गर्ने के गर्ने भएका थियौं। हामीले कमिटिको मिटिंग ३-४ पटक गरेपछि बल्ल धभदष्लबच गरौं भन्ने निस्कर्षमा पुगेका थियौं। महामारीमा जुधिरहेका सम्पूर्ण बिद्यार्थी माझ निराशा नफैलियोस भनि अनलाइन मार्फत हामीले विभिन्न webinar आयोजना गर्यौं जसमध्य विभिन्न समयमा हाम्रा आदरणीय गुरुहरु प्रा.डा. मेघराज धिताल, डा. कृष्ण प्रसाद काफ्ले, प्रा. डा प्रताप सिंहतातेर, डा. कृष्ण देवकोटा, त्यस्तै नेपाल बाहिर विभिन्न देशहरुबाट प्रा. डा हेरल थोमस, डा. प्रेम कुमार एलन्गोभन, डा. भगवान सिंह सरहरुले विभिन्न विषयमा आफ्ना अनुभव र प्रश्तुतिहरु हामीमाझ

प्रस्तुत गर्नुभएको थियो। उहाँहरु प्रति मेरो हार्दिक नमन व्यक्त गर्दछु ।

हामीले गर्न चाहेर पनि कति गतिविधि गर्न भने सकेनौं, तर एउटा उपलब्धि मध्य नै गन्नुपर्नेमा हाम्रो संस्थाको वेबसाइट जसमा हामीले हाम्रा सम्पूर्ण गतिविधिहरुको बारेमा अपडेटहरु राख्यौं ।हाम्रा चाहनाहरु धेरै थिए, कमिटिका हरेक पधाधिकारी तथा सदस्यहरुको जोश र उमंगले म कुशी थिएँ। हाम्रो सोंच यहाँ मात्र थिएन, एउटा अन्तर्रास्ट्रीय सभा आयोजना गर्ने भनेर कमिटि बनायौं, संस्थाको बुलेटिन बनाउने भनेर पनि तयारी थाल्यौं तर दुख साथ भन्नुपर्छ हाम्रा यस्ता कार्यको भने सुरुवात राम्रो ढङ्गले गर्न सकेनौ ।

तर खेद जनाउनु भन्दा पनि हामीले गरेका क्रियाकलाप प्रति खुशी नै लाग्छ र आगामी दिनमा समय परिस्थिति सहज हुदै जानेछ र आउने कमिटीले यस्ता तथा यो भन्दा नयाँ कार्यहरुलाई अगाडी बढाउनेछ भन्ने बिश्वास मैले लिएको छु ।

यस्तो बेला पनि हामीलाई धेरै सहयोगी हातहरुले आशिर्वाद बर्साईराख्नुभयो, यस कार्यकालको सफलता चाहेर सहयोग गर्नुहुने सम्पूर्ण २०७४ व्याज भूगर्भशास्त्र तथा इन्जिनिएरिङ भुगर्बशास्त्रका साथीहरु, विभिन्न सल्लाहका लागि पूर्वअध्यक्षहरु तथा सिनिएरहरु, विभिन्न आर्थिक तथा भौतिक सहयोगका लागि विभागका आदरणीय प्रमुख, विभागका गुरुहरु, कर्मचारीहरु लगाएत सबै २०७५ व्याजका साथीहरु, देश विदेश बाट धभदष्लबचमा उचभकभलतबतष्यल दिनुहुने गुरुहरु, स्पोन्सरहरुमा जिओ हाउस साथै सम्पूर्ण सहयोगी हातहरुमा स-हृदय धन्यबाद टक्रयाउँदछु ।

यस साथै नयाँ आउदै गरेको कमिटीलाई हाम्रो साथ-सहयोगको खाँचो परेमा कुनै बखत पनि हामी साथ दिन पछी पर्ने छैनौं भन्दै सफल कार्यकालको शुभकामना व्यक्त गर्दछौं ।

धन्यबाद! नमस्कार !

नेपाल भौगर्भिक विद्यार्थी समाजको २२ औँ कार्यकारिणी समिति (२०७६/२०७७) का कोषाध्यक्ष श्री सुनिता मगरज्यूको २३ औँ साधारण सभामा व्यक्त मन्तव्य

धन्यवाद यस समाजका सचिवज्यू ,
यस सभाका सभाअध्यक्षज्यू ,
कार्यकारिणी समितिका साथीहरु ,
साथै समाजका उपस्थित साथीहरु

आज म यहाँ गत आर्थिक वर्ष २०७६ र ७७ को एक वर्षको कार्यकालमा गरेको आर्थिक आयव्ययको विवरणहरु पेश गर्न चाहन्छु ।
यस समाजले २०७५ भाद्र ६ गते आयोजना गरेको स्वागत र विदाई कार्यक्रममा भूगर्भशास्त्र केन्द्रीय विभाग, त्रिभुवन विश्वविद्यालय, कीर्तिपुरबाट रु ७३८६९ प्राप्त भएको थियो भने रु ३०,००० विद्यार्थीहरुबाट जम्म गरिएको थियो र यस कार्यक्रमको लागि कुल आम्दानी रु १,०३,८६९ (अक्षरुपी एक लाख तीन हजार आठसय उन्सत्तरी रुपैँया मात्र) भएको थियो र खर्च रु १,०५,१३१ (अक्षरुपी १ लाख पाँच हजार एक सय एकतीस रुपैँया मात्र) भएको छ ।

२०७६ पौष २२ देखि पौष २४ सम्म आयोजना भएको खेलकुद सप्ताहमा यस समाजको कुल आम्दानी रु २१,५०० (एक्काइस हजार पाँच सय रुपैया मात्र) भएको थियो भने खर्च रु २६,८२४ (छब्बीस हजार आठ सय चौबीस रुपैँया मात्र) भएको थियो ।

यस समाजले स्नात्तकोतर तहमा अध्ययन गर्न फारम भरेका विद्यार्थीहरुलाई लक्षित गरिएको मक टेस्टमा आम्दानी क्रमश रु ६,७०० (छ हजार सात सय रुपैँया) र रु ७,१०० मात्र (सात हजार एक सय रुपैँया मात्र) भएको छ भने खर्च क्रमश रु १९९५ (एक हजार नौ सय पन्चानब्बे रुपैँया मात्र) र रु ३२०० (तीन हजार दुइ सय रुपैँया मात्र) रहेको छ । सरस्वती पुजाको दिन रु ३५० (तीन सय पचास रुपैँया मात्र) को आम्दानी भएको छ ।

यस समाजको गत आर्थिक वर्षको बजेटमा कुल आम्दानी रु १,३९,५१९ (अक्षरुपी एक लाख उन्चालीस हजार पाँच सय उन्नाइस रुपैँया मात्र) र कुल खर्च रु १,३७,२०० (अक्षरुपी एक लाख सैँतीस हजार दूई सय रुपैँया मात्र) रहेको छ । समग्रमा हेर्दा यस समाजलाई रु २,३१९ (अक्षरुपी दुइ हजार तीन सय उन्नाइस रुपैँया) रहेको छ । अन्तमा आर्थिक प्रतिवेदनको सम्बन्धमा कुनै प्रतिक्रिया र सुझाबहरु भए सो को अपेक्षा राख्दै मेरो प्रस्तुति अन्त गर्न चाहन्छु

धन्यवाद ।

कोभिड १९ को संक्रमणको जोखिमको कारण थेसिस सकेर जानु भएका अग्रज सदस्यहरुलाई विदाई कार्यक्रमको आयोजना हुन नसकेकोमा हामी क्षमाप्रार्थी छौँ ।

साथै उहाँहरुको थेसिस कार्य सम्पन्न भएकोमा बधाई ज्ञापन गर्दै आगामी दीनमा उहाँहरुको व्यवसायिक सफलताको लागि शुभकामना व्यक्त गर्न चाहन्छौँ ।

२३ औँ कार्यकारिणी समिति
नेपाल भौगर्भिक विद्यार्थी समाज

नेपाल भौगर्भिक विद्यार्थी समाजको २३ औँ कार्यकारिणी समिति (२०७७/०७८) का अध्यक्ष श्री पवन कुमार आचार्यज्यूको २३औँ साधारण सभामा व्यक्त मन्तव्य

यहाँ उपस्थित सम्पूर्ण महानुभाहरूलाई मेरो नमस्कार !
यस कार्यक्रमका सभाअध्यक्ष तथा नेपाल भौगर्भिक विद्यार्थी समाजका २०७६/०७७ का कार्यकारिणिका अध्यक्ष श्री अनिल रेग्मीज्यू ,
प्रमुख अतिथि, यस समाजका सल्लाहकार एवम् भूगर्भशास्त्र केन्द्रीय विभागका विभागीय प्रमुख प्रा.डा. खुमनारायण पौड्यालज्यू, तथा अन्य अतिथिमहानुभावहरू !
नेपाल भौगर्भिक विद्यार्थी समाजका सम्पूर्ण उपस्थित सदस्यज्यूहरु,

सर्वप्रथम, २०४७ सालमा स्थापना भएको यस प्रतिष्ठित नेपाल भौगर्भिक विद्यार्थी समाजको कार्यकारिणी समितिमा म एवम् अन्य पदाधिकारी र सदस्यलाई निर्वाचित गरि आउँदो १ वर्षको लागि समाजको नेतृत्वदायी भूमिका खेल्ने अभिभारा दिनु भएकोमा समाजका सम्पूर्ण सदस्यह महानुभावहरुलाई हार्दिक आभार तथा धन्यवाद ज्ञापन गर्दछु ।

हामी सबैलाई थाहा नै छ, यस समाजले भूगर्भशास्त्र अध्ययनरत विद्यार्थीको हकहितको लागि आवाज उठाउँदै आएको छ र विभिन्न शैक्षिक कार्यक्रमहरु पनि गर्दै आएको छ । मैले पनि यस निर्वाचनमा भाग लिनु भन्दा अगाडि केहि प्रतिवद्दताहरु हजुर समक्ष पेश गरेको थिँए, जसमा हजुरहरुले मलाइ विश्वास गरि निर्वाचित गरिदिनु भएके छ ।

यस संस्थामा अझैँ पनि केहि समस्याहरु विद्यमाननै रहेको छ र यसको समाधान गर्नु पर्ने अभिभारा हामी समक्ष नै आइपुगेको छ । यस समाजमा लामो समय देखि समान अधिकारको मुद्दा त्रिचन्द्र बहुमुखि क्याम्पसका सदस्य साथिहरु र अग्रजहरुले कुरा उठाउँदै आउनु भएको छ । यस समस्याको समाधान हामी सम्पूर्ण मिलेर समाधान गर्नु पर्ने आजको आवश्यक्ता हो । यसको लागि हजुरहरु पनि यस कमिटीमा आउनको लागि आग्रह गर्दछु ।

हामी यस समाजमा आइसकेपछि विभिन्न शैक्षिक गतिविधिहरुलाई निरन्तरता दिनु पर्ने नै छ । विश्वभरि फैलिरहेको कोभिड-१९ संक्रमणको महामारीले देशलाई पनि आक्रान्त पारेको छ। अघिल्लो कार्यसमितिमा पनि यसले प्रभाव पारेको थियो । २ वर्षको अन्तरालमा हुने Exhibition program हाम्रै समयमा हुनु पर्ने हो, हामी त्यसको लागि पनि तीव्र तयारी गर्ने नै छौँ । यदि कथम कदाचित यस्तै समस्या आइहालेमा हामी पछि आउने कार्यकारिणी समितिले त्यसको आयोजना गर्ने छ ।

यस समाजमा केहि समय अगाडि देखि नै समावेशीताको आवाज उठिरहेको छ । दुर्भाग्यवश यस समाजमा त्रिचन्द्र क्याम्पसका साथीहरुको सहभागिता विगतको वर्ष देखि रहेको छैन । मताधिकार र सम्पूर्ण पदमा उम्मेदवारी दिन पाउनु पर्ने जुन माग उठिरहेको छ, त्यसको समाधान गर्नको निम्ति हामी सबै मिलेर विधान संशोधन गर्नुपर्ने हुन्छ । अहिले बनिरहेको कार्यसमितिमा उक्त क्याम्पसका विद्यार्थीहरुको सहभागिताको लागि पहल गर्न चाहन्छु भने उहाँहरुको सहभागिता विना यो कार्य सम्भव नरहेको कुराको पनि जानकारी दिन चाहन्छु ।

विभिन्न राष्ट्रिय तथा अन्तर्राष्ट्रिय भौगर्भिक संघ संस्थाहरु, निजी तथा सरकारी नियोगहरुसँग जस्तै Nepal Geological Society (NGS), Department of Mines and Geology (DMG) लगायत सहकार्य गरि विभिन्न सभा, समारोह (Exhibition), गोष्टीहरु, extracurricular activities सञ्चालनको लागि अघि बढ्नेछु ।

Editorial Board को गठन गरि Bulletin/Newsletter प्रकाशनमा जुट्नेछु साथै विभिन्न उपसमितिहरु गठन गरि अत्याधिक साथिहरुलाई जिम्मेवारी प्रदान गरि समाजको काममा सहजता प्रदान गर्न बातावरण बनाउनेछु ।

स्नातक तहमा अध्ययनरत विद्यार्थीहरुबाट आमन्त्रित सदस्यको यस समाजमा प्रतिनिधित्व गराउन कोशिस गर्नेछु भने सम्भव भए सम्म स्नातक अध्यापन हुने शैक्षिक संस्थानमा इकाइ गठन गर्नको लागि पहल गर्नेछु ।

यस संस्थामा अनलाइन मार्फत खाता सञ्चालन गर्ने कुराको पनि प्रतिबद्दता यहाँहरु समक्ष पेश गर्न चाहन्छु ।

यस क्षेत्रमा देखा परेका विभिन्न क्षककगभ हरुलाई सम्बोधन गर्नको लागि नियमित Interaction Program सञ्चालन गर्नेछु । Bachelor देखि Master Levelस म्म आवश्यक पर्ने

Scientific Talk Program नीरन्तर सञ्चालन गर्ने वातावरण बनाउने छु ।

Lab लगाएत अन्य शिक्षण संस्थामा देखा परेको समस्याको समाधानको लागि quick response team बनाउन कोशिस गनेर्छु र छात्रवृती कोषको स्थापनाको लागि हरसम्भव प्रयास गर्नेछु ।

सम्बन्धित क्षेत्रबाट सहयोग प्राप्त भएको खण्डमा विश्वविद्यालय र अन्य संस्थामा रहेको Thesis, Report, Paper लगाएत अन्य कृतिहरुको digitization गरि विश्वविद्यालय र अन्य संस्थाको Library बाट online access गर्नको लागि बाटो खोल्न प्रयास गर्नेछु ।

मैले यी प्रतीबद्धताहरु पेश गरे पनि म एकजनाको प्रयासबाट मात्र सफल नहुने र कार्यसमितिको सदस्य, उपसमितिको सदस्यहरुको मात्र सहयोग नभई सम्पूर्ण साधारण सदस्यहरुको पनि ऐक्यबद्दता एवम् सहयोग अपरिहार्य रहने कुरा राख्दै मेरा मन्तव्य यहीँ टुङ्ग्याउन चाहन्छु ।

धन्यवाद ! नमस्कार्

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A Glimpse of Annual General Meeting

Nepal Geological Students' Society (NGSS)
Poush 9, 2077 (December 20, 2020)

Handover of minute and related document of NGSS by Mr. Anil Regmi, President of 22nd executive committee of NGSS to Mr. Pawan Kumar Acharya, newly elected president (23rd executive committee) of the Society.

नेपाल भौगर्भिक विद्यार्थी समाजको २३ औँ वार्षिक साधारा सभामा पेश भएका एजेण्डाहरू

१. वार्षिक प्रगति प्रतिबेदन अनुमोदन सम्बन्धमा

उक्त प्रस्ताब माथि छलफल गर्दा कार्यसमितिको तर्फबाट अध्यक्षज्यु द्वारा प्रस्तुत गरिएको आफ्नो कार्यकाल प्रगति प्रतिवेदनमाथि छलफल गर्दा विगतका काम गराइमा केही कमीकमजोरी रहेपनि समग्रमा उल्लेख्य काम गरिएको हुनाले आगामी दिनमा उक्त कमीकमजोरी कम गर्ने गरि उक्त प्रगति प्रतिवेदन सर्बसहमतिले पारित गरियो।

२. आर्थिक प्रतिबेदन अनुमोदन सम्बन्धमा

उक्त प्रस्ताब माथि छलफल गर्दा आर्थिक बर्ष २०७६/२०७७ को यस सस्थाको वार्षिक आयव्यय विवरण लगायतका विषयमा कोषाध्यक्षज्युबाट प्रस्तुत गरिएको विवरणहरु सर्वसहमतिले पारित गर्दै आगामी दिनमा हरहिसाबका श्रेस्ताहरु पन्जिकरण गर्दै अझ व्यवस्थित हिसाबले राख्न निर्देशन दिइयो।

३. अडिट रिपोर्ट पारित तथा अडिटरको नियुक्ति सम्बन्धमा

उक्त प्रस्ताब माथि छलफल गर्दा आर्थिक बर्ष २०७६/०७७को 'अडिटर' 'K.N. Khanal and Associate ले प्रदान गरेको ' अडिट रिपोर्ट ' लाई सर्बसहमतिले पारित गर्दै आगामी आर्थिक बर्ष २०७७/०७८को यस सस्थाको 'अडिटर' को रुपमा 'Dhurba and company' लाई नियुक्ति गर्ने र निजको पारिश्रमिक कार्यसमितीबाट निर्णय गरि भुक्तानी दिन सक्ने अधिकार प्रदान गर्दै सर्बसहमतिले पारित गरियो।

४. नयाँ कार्यसमिति चयन सम्बन्धमा।

उक्त प्रस्ताव माथि छलफल गर्दा नयाँ कार्यसमिती निम्नानुसारको प्रक्रिया पुर्याई निम्नानुसार चयन गरियो।

मिति २०७७/०९/०७ गते श्री अनिल रेग्मीज्यूको अध्यक्षतामा बसेको कार्यसमितिको बैठकले निर्वाचन मण्डलका सदस्यहरुको रुपमा श्री किरण दाहाल र श्री गोबिन्द ओझाज्युलाई पारित गरको थियो। बिधानअनुसारको पदपूर्ति गर्ने सम्बन्धमा खुल्ला रुपमा चयन हुने पदाधिकारीहरू(अधक्ष्य र सचिव) बाहेकको अन्य कोटा अन्तर्गत आउनुहुने पदाधिकारीले मिति २०७७ साल पुष ७ गते मंगलबार समय दिनको १२ बजे सम्म र पदको जिम्मेवारी आफ्नो CR को मार्फत NGSS official (info@ngsstu.com) इमेल ठेगानामा पठाई सक्नु पर्ने व्यवस्था गरिएको थियो, मिति २०७७ साल पुष ८ गते, समय बिहानको १२ बजे सम्म उम्मेदवारी फिर्ता गर्न सक्ने व्यवस्था गरिएको थियो ।

मिति २०७७ साल पुष ८ गते दिउसो २ बजेदेखि ४ बजेसम्म मतदानको समय राखिएको थियो। उक्त समयमा 'CR ' को तर्फबाट विभिन्न पदमा चयन भएर आएको अन्तिम नतिजा यस प्रकार रहेको थियो।

सह- सचिव (प्रथम सत्रबाट)	श्री मोहन श्रेष्ठ (एञ्जिनियरिङ्ग)
	श्री सिताराम ओझा (जेनेरल)
कोषाध्यक्ष (तेस्रो सत्र)	श्री सुजाता आचार्य (जेनेरल जिओलोजि)
सदस्यहरु (तेस्रो सत्र, Mining)	श्री रोशन न्यौपाने
तेस्रो सत्र, Hydrogeology	श्री अस्मिता सापकोटा
तेस्रो सत्र, Applied Geology	श्री प्रतिक्षा ढुंगाना
तेस्रो सत्र, Engineering Geology	श्री रिदम लामिछाने

प्रथम सत्र, General Geology	श्री रोनित पौडेल
प्रथम सत्र, General Geology	श्री टेकराज न्यौपाने
प्रथम सत्र, General Geology	श्री अनिता डल्लाकोटी
प्रथम सत्र, Engineering Geology	श्री प्रतिभा घिमिरे

र

खुला तर्फ (अध्यक्ष र सचिव) को पदको उम्मेदवारीको लागि निम्नानुसारको उम्मेदवारी दर्ता भयो।

मिति २०७७/०९/०९ गतेदेखि अध्यक्ष पदको निर्वाचनको लागि निर्वाचन मण्डलले दिउँसो १२ बजेदेखि निर्वाचन आचारसंहिता लागू गर्दै सोहि दिन दिउँसो २ बजेदेखि ४ बजेसम्म 'Online Voting ' सम्पन्न गर्यो। त्यसमा निर्वाचन आचारसंहिता निम्नानुसार रहेको थियो।

मिती २०७७/०९/०९ गते देखि अध्यक्ष पदको निर्वाचनको लागि निर्वाचन मण्डलले दिउसो १२ बजे देखि निर्वाचन आचारसंहिता लागू गर्दै सोही दिन दिउसो ३ बजेदेखि ४ बजेसम्म 'Online Voting' सम्पन्न गर्यौं। त्यसमा निर्वाचन आचारसंहिता निम्नानुसार रहेको थियो।

नेपाल भौगर्भिक विद्यार्थी सामाज २०७७/०७८ अध्यक्ष चयनका लागि निर्वाचन आचारसंहिता

१• मतदान २०७७/०९/०८ गते, दिनको ३ बजेदेखि ४ बजेसम्म मतदान समय रहनेछ।

२• नेपाल भौगर्भिक बिध्यार्थी सामाजको नियमानुसार त्रिभुवन विश्वविद्यालय भूगर्भ शास्त्र केन्द्रीय दोस्रो बर्ष तेस्रो सत्र अर्थात २०७५ ब्याचका बिध्यार्थीले मतदान गर्ना पाउनेछन्।

३• मतदान पूर्ण अनलाइन मार्फत गरिनेछ।

४• मतदानका लागि मतदाताले नर्वचं मन्डलले दिएको आधिकारिक मेल ठेगाना (ngsselection2077@gmail.com) मा मतदातालाई त्रिभुवन विश्वविद्यालयले प्रदान गरेको आधिकारिक व्यक्तिगत मेल ठेगाना (____@cdgl.tu.edu.np) बाट मतदान गर्नू पार्ने छ।

५• मतदानको लागि मतदाताले तल दिईएको नमुना बमोजिम गर्नुपर्ने छ, अन्यथा मत बदर हुनेछ।

Subject: "Vote for President"
Message must be:
Election Comittee,
I have voted Mr. ___ for the Presidential election for NGSS 2077/078 Committee
"Thankyou"

६• मतदाताको आफ्नो आधिकारिक मेलबाट एक भन्दा बढि मतदानको मेल निर्वाचन मंडल लाइ पठाएमा मतदानको मान्यता नहुने र स्वतः बदर हुनेछ।

७• एक मतदाताले दुवै उम्मेदवारलाई मतदान गरेको पाईएमा स्वतः बदर हुनेछ।

८• तोकिएको समय (२०७७/०९/०८ गते बिहीबार दिनको ३ बजेदेखि ४ बजेसम्म) भित्र मेल गरिसक्नु पार्ने र अन्यथा मत दिईने छैन।

९. मत परिणाम बराबर भएको खण्ड मा सम्बन्धित उम्मेदवारहरु र निर्वाचन मण्डल को उपस्थिति मा गोलाप्रथा द्वारा अध्यक्ष्य चुनिनेछ।

१०. मत परिणाम निर्वाचन मण्डलले नेपाल भौगर्भिक बिद्यार्थी समाजको आधिकारिक मेल ठेगाना मा पठाउने छ।

११. सदर मत मध्ये आफ्नो पछमा पछमा धेरै मत प्राप्त गर्ने उम्मेदवार अद्यक्ष्य घोसित हुनेछ।

१२. निर्वाचन सम्बन्धि बिबाद उत्पन्न भएमा बिबाद टुंगो निर्वाचन समिति ले गरेको निर्णय नै अन्तिम हुनेछ।

१३. निर्वाचन मण्डलले घोसणा गरेको नतिजा नै सर्बमान्ये हुनेछ. मत परिणाम घोसणा २०७७/०९/०९ गते बिहिबार साधारण सभा बाट गरिने छ।

<u>निर्वाचन मण्डल बाट कार्येसमितिलाई प्राप्त भएको पत्रको बेहोरा निम्नानुसार रहेको छ।</u>

मिति २०७७/०९/०८

आज मिति २०७७/०९/०८ गते NGSS को वर्ष २०७७/०७८ का लागि अध्यक्ष पदमा भएको मतदानमा सहभागी भै सफलतापुर्बक सम्पन्न गर्न सहयोग गर्नुभएका मतदाताहरुलाई धन्यवाद व्यक्त गर्न चाहन्छौ र प्राप्त भएको मत परिणामको विवरण प्रस्तुत गर्दछौ।

जम्मा मत संख्या : ७०

खको मत: ६९

बदर मत संख्या : ०

जस अन्तर्गत सबैभन्दा धेरै मत प्राप्त गर्नुभएका अध्यक्ष पदका उमेदवार पवनकुमार अचार्या वर्ष २०७७/२०७८ का अद्यक्ष्य बिजयी घोसणा भएको जानकारी गरौदछौ साथै NGSS ले दिएको जिम्मेवारी पुरा गर्दै हाम्रो निर्णय NGSS वर्ष २०७६/०७७ लाइ हस्तान्तरण गर्दछौ।

<u>निर्वाचन मंडल</u>

किरण दहाल गोविन्द ओझा

अध्यक्षमा निर्वाचित हुनुभएको श्री पवन कुमार आचार्य 'General Geology' को तर्फबाट हुनुभएकोले विधान अनुसार कार्यगत सहजताको हिसाबले सचीवमा 'Engineering Geology' बाट विवेक घिमिरे स्वतः निर्वाचित हुनुभयो।

५. विविध सम्बन्धमा ।

'विविध' माथी छलफल गर्दा कोभिड १९ को संक्रमणकम्बिन अवस्थामा पनि निर्वाचन गराई नयाँ कार्यसमिति चयन गर्न सहायोग गर्नुहुने सम्पुर्ण सहयोगी हात हरुलाई धन्यबाद दिन चाहन्छौं। र मिति २०७७/०९/०९ गते बिहान ११ बजेदेखि १ बजेसम्म अनलाइन मार्फत सम्पन्न गरि सम्पुर्ण जिम्मेवारी नयाँ कार्यसमितिलाई हस्तान्तरण गरिएको छ। संस्था मा रही प्रत्यक्ष अप्रत्यक्ष रुपमा सहयोग गर्नु हुने सम्पूर्ण सदस्यज्यू हरुलाई धन्यवाद दिन चाहन्छौं। साथै निर्वाचनमा विषेश सहयोग गर्नु हुने निर्वाचन मण्डका किरण दहाल र गोविन्द ओझा, NGSS का अध्यक्ष अनिल रेग्मी, सह सचिब सुष्मा कंडेल, सदस्य ज्यू हरु प्रवीण प्रमोद खतिवडा, प्रमोद कट्टेल, सचीव बसन्त पौड्याल, कोशाध्यक्ष सुनिता मगर लगायात सम्पुर्ण कार्यसमिति लगयत उपस्थित सबैलाई बिशेष धन्यबाद दिने निर्णय गरियो।

ELECION For 24TH EXECUTIVE COMMITTEE

The election for the 24th executive committee selection was held on 2078 Magh 10 based on the recently amended constitution. The name list and details of elected committee are given in following section.

NEPAL GEOLOGICAL STUDENTS' SOCIETY 24th EXECUTIVE COMMITTEE

President
Mr. Surendra Timilsina
surendratimilsina25@gmail.com
9863441161

Vice President
Ms. Sujata Bista
suzubista.sb@gmail.com
9843729347

Vice President
Mr. Deepak Raj Joshi
joshideepak982@gmail.com
9848611541

Secretary
Mr. Ronit Paudel
paudelronit@gmail.com
9860146871

Treasurer
Mr. Amrit Marasini
amritmarasini@gmail.com
9841264398

Vice secretary
Mr. Bishal Paudel
vishalpaudel55@gmail.com
9843701825

Member
Ms. Prativa Pokhrel
pokhrel.prativa7@gmail.com
9840053904

Member
Mr. Sujan Khatiwada
sujankhatiwada4@gmail.com
9842534589

Member
Mrs. ManishaThapa
thapamanisha278@gmail.com
9860364348

Member
Mr. Lokraj Bajgai
bajgailokraj260@gmail.com
9868401202

Member
Ms. Anushka Gyawali
iamanushkagyawali@gmail.com
9860434329

Audit Report 2077/78

Nepal Geological Student Society
Kritipur, Nepal

Schedules
For the year ended 2077/78

SCHEDULE-1
Program Received

Particulars	FY 2077-78	FY 2076-77
Central Department of Geology, TU	14,900.00	82,869.00
Sports Registration Fee		7,100.00
Sports Entry Fee Collection		21,500.00
Other Income	3,000.00	350.00
Donation Received	9,400.00	
Students Collection Fee		36,700.00
Total	**27,300.00**	**148,519.00**

SCHEDULE-2

Particulars	FY 2077-78	FY 2076-77
Registration & Renewal Charges	-	
Total	**-**	**-**

SCHEDULE-3

Particulars	FY 2077-78	FY 2076-77
Advance Funds Received from Members	-	-
Total	**-**	**-**

Nepal Geological Student Society
Kritipur, Nepal

Schedules
For the year ended 2077/78

SCHEDULE-4
Administrative Expenses

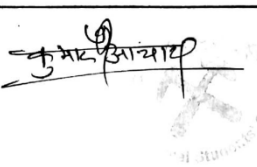
NPR

Particulars	FY 2077-78	FY 2076-77
Trophy Medal & Certificate Expenses	500.00	26,824.00
Office Rent	-	2,910.00
Program Expenses	-	105,808.00
Bank Charges and commission		-
Audit Fees and Expenses	7,000.00	11,300.00
Registration & Renewal fees	500.00	-
Printing, Photocopy & Stationary Expenses	1,125.00	9,895.00
Other Professional and Legal Fees	-	-
Refreshment Expenses	-	-
Newspaper & Magazine	-	-
Other Miscellaneous Expenses	17,640.00	-
Total	**26,765.00**	**156,737.00**

SCHEDULE-5
Tax Expenses *(Recognized in the Income Statement)*

NPR

Particulars	FY 2077-78	FY 2076-77
Tax on profits for the year	-	-
Adjustment for under provision in prior periods	-	-
Total	**-**	**-**



Nepal Geological Student Society
Kritipur, Nepal

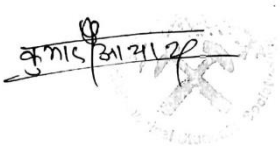
Schedules
For the year ended 2077/78

SCHEDULE 6
Fund Balance

Particulars	FY 2077-78	FY 2076-77
Balance as at 01 Shrawan	(170,402.00)	(162,184.00)
Profit transferred during the year	535.00	(8,218.00)
Balance as at 31 Ashadh	(169,867.00)	(170,402.00)

SCHEDULE-7
Other payables

Particulars	FY 2077-78	FY 2076-77
Audit fee Payable	7,805.00	11,150.00
TDS on Audit Fees	105.00	150.00
Advance From Partner	-	-
Other payable	179,289.00	179,289.00
Total	**187,199.00**	**190,589.00**



Nepal Geological Student Society
Kritipur, Nepal

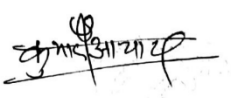
Schedules
For the year ended 2077/78

SCHEDULE-8
Cash and Bank Balance
Cash and cash equivalents for purposes of the statement of cash flows comprises

Particulars	FY 2077-78	FY 2076-77
Cash available on demand	17,332.00	20,187.00
Balance at Bank		-
Total	**17,332.00**	**20,187.00**

SCHEDULE-9
Deposits and Other Receivables

Particulars	FY 2077-78	FY 2076-77
Funds Receivable From:		
Advance from Members	-	-
Total	**-**	**-**



Nepal Geological Student Society
Kritipur, Nepal

Statement of Cash Flows
(Indirect Method)
As at 31 Ashadh 2078 (15 July 2021)

Figures in NPR

Cash Flows from Operating Activities	FY 2077-78	FY 2076-77
Profit for the Year	535.00	(8,218.00)
Adjustment for:		
Depreciation/Impairment on Property, Plant and Equipment	-	-
Add loss on sake of Fixed Assets	-	-
Loss/(gain) on sale of Property, plant and equipment	-	-
(Increase)/Decrease in Advance and other receivables	-	-
Increase/(Decrease) in other payables	(3,390.00)	-
Cash generated from Operations	(2,855.00)	(8,218.00)
Net Cash Flows from Operating Activities	(2,855.00)	(8,218.00)
Cash Flow from Investing Activities		
Proceeds from sale of PPE, Investments/Financial Assets	-	-
Acquisition of Property, plant and Equipment	-	-
Net Cash flows from Investing Activities	-	-
Cash Flow from Financing Activities		
Capital Fund Raise	-	-
Net Cash Flows from Financing Activities	-	-
Net Increase in Cash and Cash Equivalents	(2,855.00)	(8,218.00)
Cash and Cash Equivalents at the beginning 1st Shrawan	20,187.00	28,405.00
Exchanges (losses)/gains on cash and cash equivalents	-	-
Cash and Cash Equivalents at the end 31st Ashadh	17,332.00	20,187.00

Chairman Treasurer Secretary

Nepal Geological Student Society
Kritipur, Nepal

Statement of Income
For the Period Shrawan 1, 2077 to Ashadh 31, 2078 (16 July 2020 to 15 July 2021)

Figures in NPR

Particulars	Notes	FY 2077-78	FY 2076-77
Service Charge		-	-
Membership Fees		-	-
Program Received	1	27,300.00	148,519.00
Total Income		**27,300.00**	**148,519.00**
Registration & Renewal Charges	2	-	-
Administrative Expenses	4	26,765.00	156,737.00
Total Expenses		**26,765.00**	**156,737.00**
Profit Before Tax		**535.00**	**(8,218.00)**
Income Tax Expense	5	-	
Net Profit for the year		**535.00**	**(8,218.00)**

Chairman Treasurer Secretary

Ramesh Bahadur Basnet
RBC Company

Nepal Geological Student Society
Kritipur, Nepal

Statement of Financial Position
As at 31 Ashadh 2078 (15 July 2021)

Figures in NPR

Particulars	Notes	FY 2077-78	FY 2076-77
Assets & Properties			
Non-Current Assets			
Property, Plant and Equipment			
Gross Block			
Less: Accumulated Depreciation			
Net Block (A)		-	-
Current Assets			
Advance and receivables			
Cash and cash equivalents		17,332.00	20,187.00
Total Current Assets		17,332.00	20,187.00
Total Assets		**17,332.00**	**20,187.00**
Fund & Liabilities			
Fund Balance	6	(169,867.00)	(170,402.00)
Fund Received in Advance	3	-	-
Other Payable	7	187,199.00	190,589.00
		17,332.00	20,187.00
Total Liabilities		17,332.00	20,187.00
Total Fund and Liabilities		**17,332.00**	**20,187.00**

Chairman Treasurer Secretary

Ramesh Bahadur Basnet

R.B.C. & Company

Registered Auditor Membership No. 2962
The Institute of Chartered Accountants of Nepal
Certificate No. 2414 Cop No 476 C
PAN No. 301136002
KTM, Nepal

Independent Auditor's Report"

To the Chairman's Of
M/S Nepal Geological Student Society
Kirtipur, Nepal

We have audited the accompanying financial statements of **M/S Nepal Geological Student Society** *which comprises the balance sheet as at* ***31nd Ashadh 2078*** **(As on 15th July, 2021)** *the income statement, the cash flows statement for the year then ended, the statement of changes in equity and a summary of significant accounting policies & other explanatory notes.*

Management's Responsibility for the financial statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Nepal Accounting Standards. This preparation and fair presentation of financial statement that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Nepal Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statement, whether due to fraud or error. in making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statement.

Auditor's Opinion

IN our opinion, the financial statements give true and fair view of the financial position **M/S Nepal Geological Student Society** *of* ***31nd Ashadh 2078*** **(As on 15th July, 2021** *and of its financial performance and its cash flows for the year then ended in accordance with Nepal Accounting Standards.*

Ramesh Bdr. Basnet
Registered Auditor

Date: 2078.10.06

Place: KTM, Nepal

COMMITTEE OF NGSS (2047-2077)

The data of executive committee of Nepal Geological Students' Society of all the year were not documented and are not preserved in NGSS data base. The present executive committee found the book entitled "Pangea" published by NGSS in 2056 B.S. The rest of the document are retrieved from the personal and telephone communication with the senior geologists and past members of the Society. The present working committee finally knew this committee belongs to the 23rd executive committee of the Society.

23rd Executive Committee (2077): Present Working Committee

President: Pawan Kumar Acharya
Vice-President: Madan Kumar Regmi
Secretary: Bivek Ghimire
Treasurer: Sujata Acharya
Joint Secretary: Sitaram Ojha
Joint Secretary: Mohan Raj Shrestha
Members

Pratiksha Dhungana
Roshan Neupane
Asmita Sapkota
Rhythm Lamichhane
Prativa Ghimire
Tek Raj Neupane
Ronit Paudel
Anita Dallakoti
Bhisma Joshi

Advisory Committee

- Dr. Khum Narayan Paudayal, Head of Department, Central Department of Geology, TU
- Dr. Kabi Raj Paudyal, Program Coordinatory, Engineering Geology, Central Department of Geology, TU
- Mr. Mukunda Raj Paudel, Program Coordinatory, Engineering Geology, Tri-Chandra Multiple Campus, TU

Invited Members

- Mr. Dhiroj Thapa, Tri-Chandra Multiple Campus, Kathmandu
- Mr. Pradip Poudel, Birendra Multiple Campus, Chitwan
- Mr. Samadhan Paudel, Prithvi Narayan Campus, Pokhara
- Mr. Prajwal Bhattarai, Central Campus of Technology, Dharan, Sunsari

The information of sub-committee first time formed by present working committee are given in formation of sub-committee section.

The List of past working committee of NGSS are given in the following section

1st Executive Committee (2047)	**2nd Executive Committee (2048)**	**3rd Executive Committee (2049)**
President: Dilip Sadoula	**President:** Achyut Gautam	**President:** Tek Prasad Kattel
Vice President: Sagar Rai	**Vice President:** Rabindra Thanju	**Vice President:** Ajab Singh Mahara
Secretary: Dinesh Pathak	**Secretary:** Indra Raj Humagai	**Secretary:** Bishwa Mani Pokhrel
Treasurer: Naresh Kazi Tamrakar	**Treasurer:** Khum Narayan Poudel	**Treasurer:** Rojina Malla
Members	**Members**	**Members**
Birendra Piya	Basanta Kafle	Anil Ratna Sthapit
Diwakar Poudel	Dinesh Nepali	Bharat Neupane
Rajendra Bhandari	Raju Acharya	Prem Thapa
Raju Acharya	Upendra Ratna Sthapit	Pushkar Nath Ghimire
Subash Chandra Sunuwar		Shova Singh

4th Executive Committee (2050) **President:** Tika Ram Poudel **Vice President:** Ram Prasad Sharma **Secretary:** Jay Kumar Gurung **Treasurer:** Prem Thapa **Members** Durga Prasad Basyal Hari Nandan Singh Ishwor Kumar Poudel Rajendra Shrestha	**5th Executive Committee (2051)** **President:** Ishwor Kumar Poudel **Vice President:** Prafulla Man Pradhan **Secretary:** Krisna Bahadur Basnet **Treasurer:** Sasi Dhungel **Members** Binod Kumar Singh Rajesh Kumar Budhathoki	**6th Executive Committee (2052)** **President:** Arjun Aryal **Vice President:** Raghu Nath Wagle **Secretary:** Abha Shrestha **Treasurer:** Sashi Basnet **Members** Dev Prasad Jaisi Ghan Bahadurshrestha Maheshwoe Raj Mulmi Ranjan Kumar Dahal Sashi Dhungel
7th Executive Committee (2053) **President:** Raghu Nath Wagle **Vice President:** Pragati Adhikari **Secretary:** Rajesh Sharma **Treasurer:** Smita Shrestha **Members** Bipa Shrestha Dipak Kumar Chamlagain Naresh Shakya Prakash Chandra Poudel Prakash Jha Shailesh Kumar Thapa Sumesh Amatya	**8th Executive Committee (2054)** **President:** Naresh Shakya **Vice-President:** Bal Dhoj Karki **Secretary:** Suman Panthi **Treasurer:** Suman Manandhar **Members** Bipa Shrestha Mahesh Regmi Mahesh Singh Dhar Ram Chandra Wasti Samba Prasad Lamichhane	**9th Executive Committee (2056)** **President:** Prakash Chandra Ghimire **Vice President:** Birendra Sapkota **Secretary:** Desh Raj Sonyok **Treasurer:** Anita Regmi **Members** Archana Pradhan Dipendra Laudari Kabi Raj Poudel Shiva Lal Acharya Tej Prasad Gautam
10th Executive Committee (2057) **President**: Matrika Prasad Koirala	**11th Executive Committee (2059)** **President:** Diwakar Khadka *Other informations are not available*	**12th Executive Committee (2062)** **President:** Dwarika Maharjan **Vice-President:** Mr. Ujjwal Raghubanshi **General Secretary:** Mr. Amar Deep Regmi **Treasurer:** Ms. Pramila Shrestha **Member:** Mr.Rishi Gadtaula
13th Executive Committee (2064) **President:** Bharat Raj Pant *Other informations are not available*	**14th Executive Committee (2065)** **President:** Dr. Bhupati Neupane **Vice-President: Mr. Dilandra Pathak** **Treasurer: Mr. Indira Shiwakoti** *Other information's are not available*	
15th Executive Committee (2066) **President:** Pramod Pandey **Vice-President:** Kabir Sharma **Secretary:** Sujan Chandra Pokharel **Treasurer:** Krishna Dhungel *Other informations are not available* **16th Executive Committee** (2070) Pratap Bohora *Other informations are not available*	**17th Executive Committee (2071)** **President:** Prakash Pokharel **Vice-President:** Ram Datta Joshi **Secretary:** Govinda Pathak **Joint Secretary:** Bijay Thapa **Tresurer:** Sworup Singh Karki **Members** Sirjana Paudel Anupama Dhakal Nayan Pokharel Hari Khanal Mahesh Raut Dipak Dahal	**18th Executive Committee (2072)** President: Keshav Jaisi Vice-President: Ujjwal Acharya Secretary: Sabin Pokharel Trasurer: Jeevan Bhusal **Members** Anupama Dhakal *Other informations are not available*

19th Executive Committee (2073)	**20th Executive Committee (2074)**	**21st Executive Committee (2075)**
President: Deepak Gautam **Vice-president:** Nabin B.K **Secretary:** Saurav Khanal **Joint Secretary:** Bashanta Bhandari **Treasurer:** Sanjiv Bhujel **Members:** Yemuna Subedi Subarna Dhakal Arjun Kumar Pandey Avish Bohora Reshsma Sharma Kabita Maharjan	**President:** Deepak Sapkota **Vice President:** Tara Prakash Silwal **Secretary:** Jeevan Adhikari **Joint secretory:** Ayush Trital **Treasure:** Sirjana poudel **Members:** Kewal Thapa Rabi Dhungana Krishna pandey Mahendra Maharjan	**President:** Sanjeev Singh Karki **Vice-President:** Anil Ghimire **Secretary:** Kulmani Parajuli **Joint Secretary:** Samir Acharya **Joint Secretary:** Anish Khanal **Treasurer:** Manju Subedi **Members:** Rhythm Rai Dipesh Phulara Binod Ghimire Kiran Dahal Ashmita Aryal Srijan Shrestha Anil Bhandari Sanjay Prasad Kuswaha Lal Bahadur Yadav
22nd Executive Committee (2076)	**23rd Executive Committee (2077): Present Working Committee**	**24th Executive Committee (2078): Newly Elected Committee after constitution amendment**
President: Anil Regmi **Secretary:** Basanta Poudel **Joint Secretary:** Sushma Kadel **Joint Secretary:** Sudhan Kumar Subedi **Treasurer:** Sunita Magar **Members:** Santosh Sunar Ankit Kandel Uma Pandey Prabin Pramod Budathoki Pramod Kattel Babita Rupakheti		**President:** Surendra Timilsina **Vice-President:** Deepak Raj Joshi **Vice-President:** Sujata Bista **Secretary:** Ronit Paudel **Treasurer:** Amrit Marasini **Joint Secretary:** Bishal Paudel **Member:** Sujan Khatiwada Prativa Pokherel Manisha Thapa Anushka Gyawali Lokraj Bajgai

We request all our former executive member to provide information about your involvement in the above mentioned committee and some correction that should be made, we will address in our website and upcoming volume.

FORMATION OF SUB-COMMITTEE OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

Nepal Geological Students' Society for the first time in its history formed the different sub-committee to make active participants of the members of the Society in different activities. The executive committee call applications from the members of the Society to apply in sub-committee of their interest in order of their preferences. After receiving the applications, the executive committee nominated the members for the sub-committee from which coordinator and member secretary selection was made.

Nepal Geological Students' Society has nominated the following members in the sub-committee on the basis of application received from the member of the Society and the decision from the executive committee of the Society. The members of the nominated members of the sub-committee area as follows.

Editorial Board of the NGSS

Mr. Anil Datta Chaudhary	Editor-in-Chief
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Mr. Manoj Thapa	Member

The extracurricular activities organizing committee and exhibition organizing committee formed by executive committee was dissolved due to the situation of COVID pandemics as these activities could not be organized.

INAUGURATION OF OFFICE ROOM OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

Nepal Geological Students' Society for the first time established the office room for the Society in the Central Department of Geology (CDG), Tribhuvan University, Kirtipur. It has requested Prof. Dr. Khum Narayan Paudayal, Head of Department of CDG and Advisors of the Society by submitting application. The request was approved by HOD and the separate compartment was constructed on the department. Department in addition has provided computer, printer, table and chairs, cupboard to the Society. The office room was inaugurated by Prof. Dr. Khum Narayan Paudayal on Baisakh 10, 2078 (April 23, 2021).

Inauguration of office room of Nepal Geological Students' Society by Prof. Dr. Khum Narayan Paudyal, Head of Department of Central Department of Geology, Tribhuvan University and Advisors of the Society.

Executives of the Society working on office room. (left) and photograph with Dr. Kabi Raj Paudyal, Coordinator of Engineering Geology program, Central Department of Geology, Tribhuvan University and Advisors of the Society in office room (right).

Name of contributing organization and individuals.	
Central Department of Geology, Tribhuvan University, TU	Mr. Roshan Neupane
Mr. Jagadishwar Nath Shrestha	Ms. Sujata Acharya
Mr. Lila Nath RImal	Shrestha GeoHouse
Mr. Uttam Sharma	Mr. Sajan G.C
Mr. Pawan Kumar Acharya	Ms. Aneeta Thapa
Mr. Bivek Ghimire	Candidates of election for executive committee
and All Members of the Society	

WELCOME PROGRAM TO NEWCOMER STUDENTS ORGANIZED BY NEPAL GEOLOGICAL STUDENTS' SOCIETY IN COLLABORATION WITH CENTRAL DEPARTMENT OF GEOLOGY

Nepal Geological Students' Society has organized welcome program targeted to newcomer students admitted in Central Department of Geology, Tribhuvan University. The program was organized in collaboration with Central Department of Geology on 2077 Poush 29 in CDG from 1:00 pm onward. The program was chaired by Mr. Pawan Kumar Acharya, President of the Society and conducted by Mr. Bivek Ghimire, Secretary of the Society. Prof. Dr. Khum Narayan Paudayal was the chief guest of the program and Dr. Kabi Raj Paudyal, Dr. Kamala Kant Acharya, Dr. Subesh Ghimire and Mr. Narayangopal Ghimire were the guest of the program. Dr. Kabi Raj Paudyal, Coordinator of Engineering Geology program of Central Department of Geology and Prof. Dr. Khum Narayan Paudayal, HOD of the CDG, TU and advisors of the Society delivered welcome remarks to the newcomer students. The new students were offered tika by Prof. Dr. Khum Narayan Paudayal and Mr. Pawan Kumar Acharya, President of the Society offered Khada. President of the Society thanks to all the newcomer student, faculty of CDG and staffs who were present in the program and ended the program with concluding remarks.

Banner for the welcome program

Remarks by Prof Dr. Khum Narayan Paudyal and Dr. Kabi Raj Paudyal on welcome program.

Offering Tika and Khada to newcomer students.

Students present in welcome program.

SCIENTIFIC TALK PROGRAM/WEBINAR SERIES OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

Nepal Geological Students' Society has organized webinar series through online platform like ZOOM. Due to Covid pandemics, the talk program could not be organized in physical appearance. The Society has requested professional geologists to deliver the talk program to provide knowledge of practical field and addition to the course of study. Two webinar were given by geology professionals representing international level. The Society has also organized the webinar through national and international collaboration. The national collaboration was made with Tribhuvan University SEG Student Chapter, and one webinar was organized in international collaboration with Society of Sedimentary Geology (SEPM). Few programs were technically supported by Nepal Research and Education Network (NREN). The programs were attended by members and former members of the Society, members of the Nepal Geological Society and senior professionals. The Society has attempted to collect the short bio and abstract of the presentation and programs were recorded which were placed in the YouTube channel. The detail information of each webinar is given in the following section.

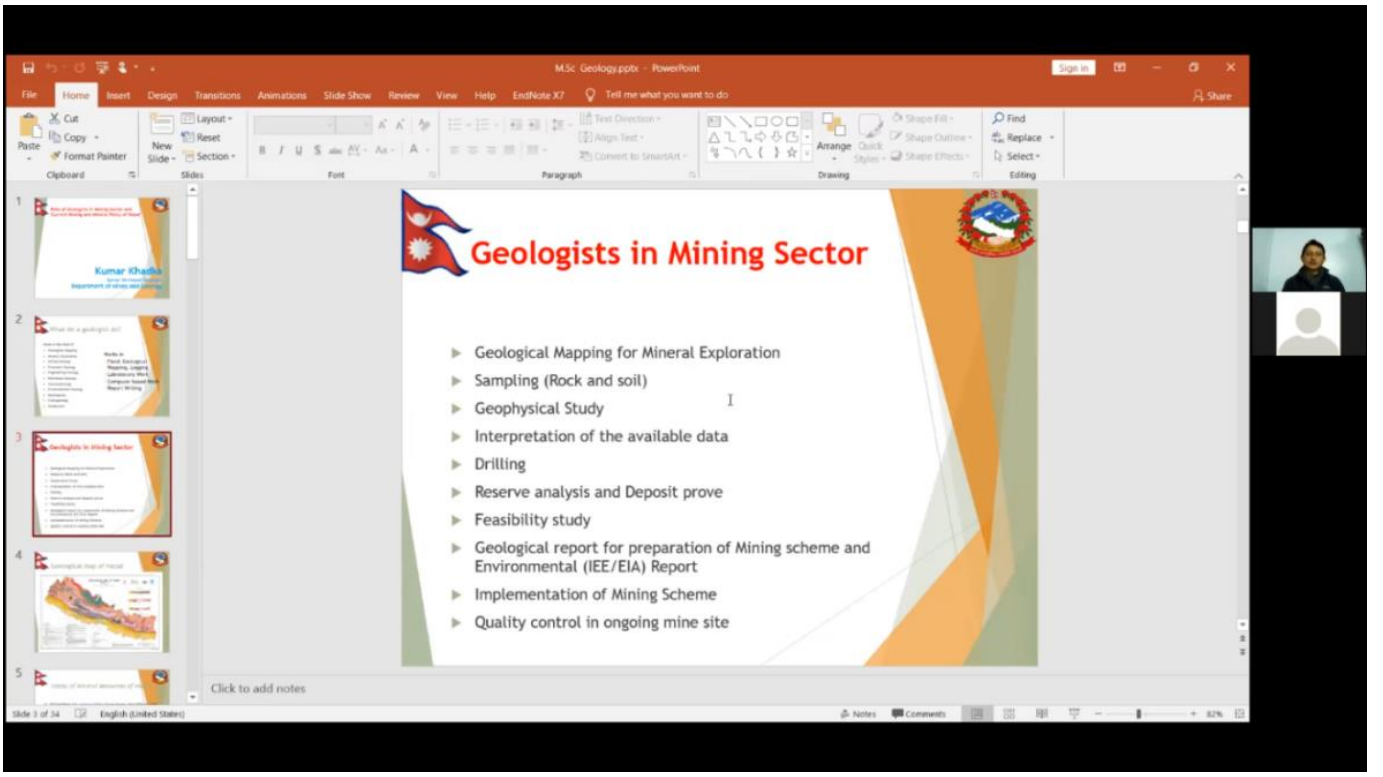
Webinar by Mr. Kumar Khadka

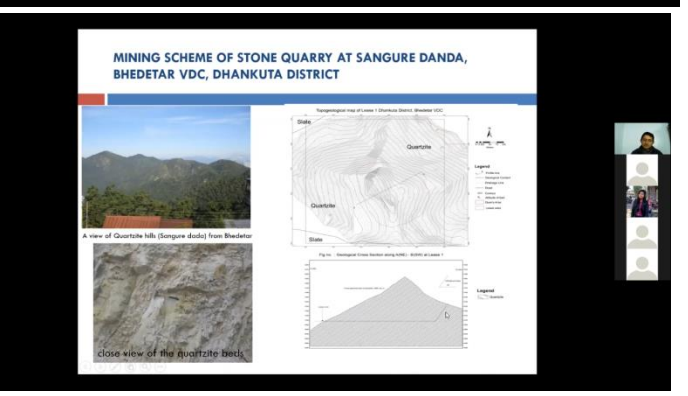
Nepal Geological Students' Society (NGS) organized the webinar of Mr. Kumar Khadka, Senior /Divisional Geologist (DMG) and General Secretary of Nepal Geological Society on 2077/10/24. He shared his expertise regarding the topic "Role of Geologists in Mining Sector and Current Mining and Mineral Policy of Nepal." The program was hosted by Mr. Bivek Ghimire, Secretary of NGSS in which more than 120 participants were present. During the Webinar Mr. Khadka illuminated the different aspects of mining sector including, Geological mapping for mineral exploration, sampling, geophysical study, interpretation of the available data, drilling, reserve analysis an deposit prove, feasibility, and more.

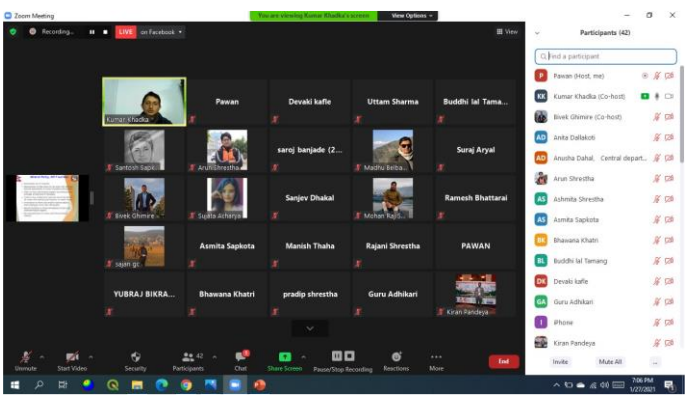
A Glimpse of Webinar by Mr. Kumar Khadka

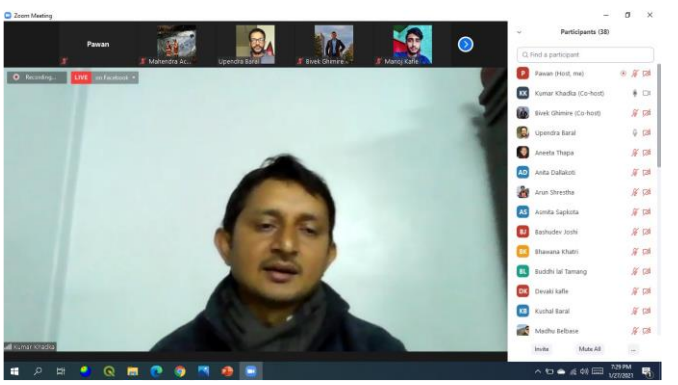
2077/10/24

Nepal Geological Students' Society









"Role of Geologists in Mining Sector and Current Mining and Mineral Policy of Nepal"

Mr. Kumar Khadka
Senior Divisional Geologist (DMG)
General Secretary, Nepal Geological Society

Abstract

The Geologist has various role in the field of geological research and development work. Among the many responsibilities, the geologist in mining sectors has some major duties which includes identifying rocks, exploration of minerals, estimating reserves and making critical decisions about the ore and providing geology related services to mine personnel. The geological mapping, sampling, processing and handling of all samples that are generated from the Mines and interpretation of chemical analysis of collected samples are also the major works of geologist. Geologist working in mining sector also need to assists in developing in-mine exploration and delineation drilling programs. He/she also need to establishes and maintains a professional relationship with local people, mine workers and fellow geologists.

Keywords: *Mining sectors, reserve estivation, drilling, rules and regulations*

Short bio of Mr. Kumar Khadka

Mr. Kumar Khadka is Senior Divisional Geologist of Department of Mines and Geology. He is currently General Secretary of Nepal Geological Society (NGS), a professional geoscientific organization of Nepal. He received his Masters Degree in Geology and Economics in 2007 AD and 2011 AD respectively from Tribhuvan University and Bachelor's degree from same university in 2005 AD.

He has been working in the Department of Mines and Geology from 2010-2017 for 7 years and get promoted to Senior Divisional Geologists in 2017. He has been actively involved in geological, engineering and environmental geological mapping of various area, district and municipalities of Nepal. In mineral and mining sectors, he is monitoring various mines including its inspections and verifications from DMG. He has collected the experiences of mine exploration, reserve estimations and detail study of various mineral deposits. He has carried out drilling and detailed study of Baitadi Phosphorite deposit and geotechnical investigation and foundation analysis in Manakamana Temple, Gorkha.

He has taken many national and international level training related to geological survey and Mineral resources management, Uranium Geology, Seismology and Earthquake Engineering, GIS and other interrelated field. He has published about eight reports on the annual report of Department of Mines and Geology. Some of his significant publications related to mining and mineral sectors are

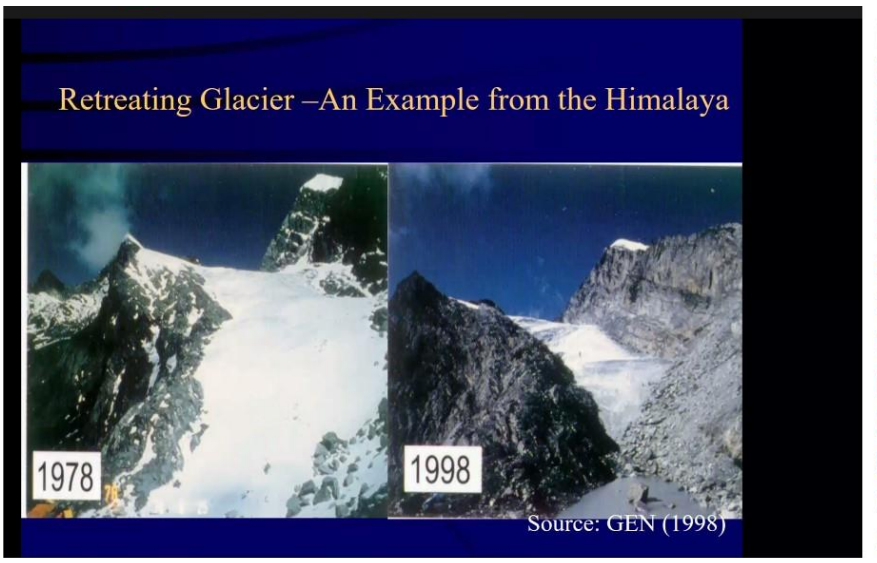
- Prospecting for Hematite ore deposit in the Dhaubadi –Pokhari area, Nawalpur district using geophysical techniques: Kumar Khadka, Thakur Kandel and Prakash Pokhrel
- Phosphorite Exploration in Bajhang and Baitadi District, Far Western Province, Nepal: Kumar Khadka, Santosh Dhakal and Sunita Bhattrai

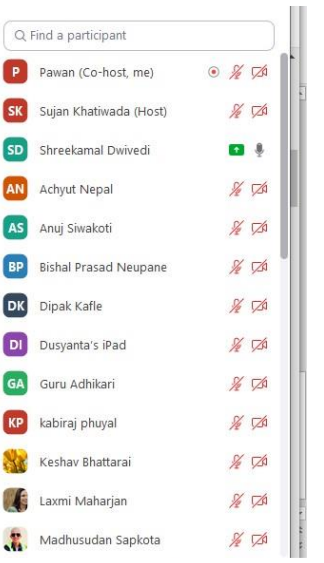
Beside these, he had published the other reports related to geological, engineering and environmental and landslide hazard zonation mapping of different area of Nepal.

Webinar by Mr. Shreekamal Dwivedi

Nepal Geological Students' Society (NGSS) organized the webinar of Mr. Shreekamal Dwivedi, Senior Divisional Engineering Geologist, Vulnerable Landslide Management Project, Department of Water Resources and Irrigation, GON, on 2077/10/16. He delivered his expertise regarding the topic "GLOF and Avalanche Triggered Flood in Nepal." During the webinar Mr. Dwivedi illuminated on different aspects of GLOF and Avalanche including, Evolution of Glacier, The Himalayan GLOF region, Retreating Glaciers, Different Glacial events occurred in Nepal and more. The webinar was attended by more than 50 participants.

A Glimpse of Webinar by Mr. Shreekamal Dwivedi
2077/10/16
Nepal Geological Students' Society





"GLOF and Avalanche Triggered Flood in Nepal"

Mr. Shreekamal Dwivedi
Senior Divisional Engineering Geologist
Vulnerable Landslide Management Project
Department of Water Resources and Irrigation, GoN

Abstract

When Toni Hagen made the geological traverse in 1954 up in the Rolwaling Valley before crossing the Trashi Labtsa pass, he must have walked (or camped) upon the present Tsho Rolpa glacier lake. This sounds unbelievable but it is the truth. In 1954 there was no such big Tsho Rolpa lake but utmost some small glacier ponds scattered upon the Trakarding Glacier. At that time it was beyond anybody's imagination that such a big and dangerous lake could be formed upon the Trakarding glacier. Similar event may happen to any of the big glaciers in the Khumbu region, where trekkers at present trek, camp, that could evolve in a big glacier lake after 40 to 50 year.

Short bio of Mr. Shreekamal Dwivedi

Mr. Shreekamal Dwivedi is Senior Divisional Engineering Geologist of Vulnerable Landslide Management Project, Department of Water Resources and Irrigation, Government of Nepal. He recieved his master's degree in Geo Information Sciences and Earth Observation with specialization in Geo-Hazards in 2007 from International Institute for Geoinformation and Earth Observation (ITC), the Netherlands and M.Sc. in Geology in 1996 from Tribhuvan University, Kirtipur, Kathmandu, Nepal.

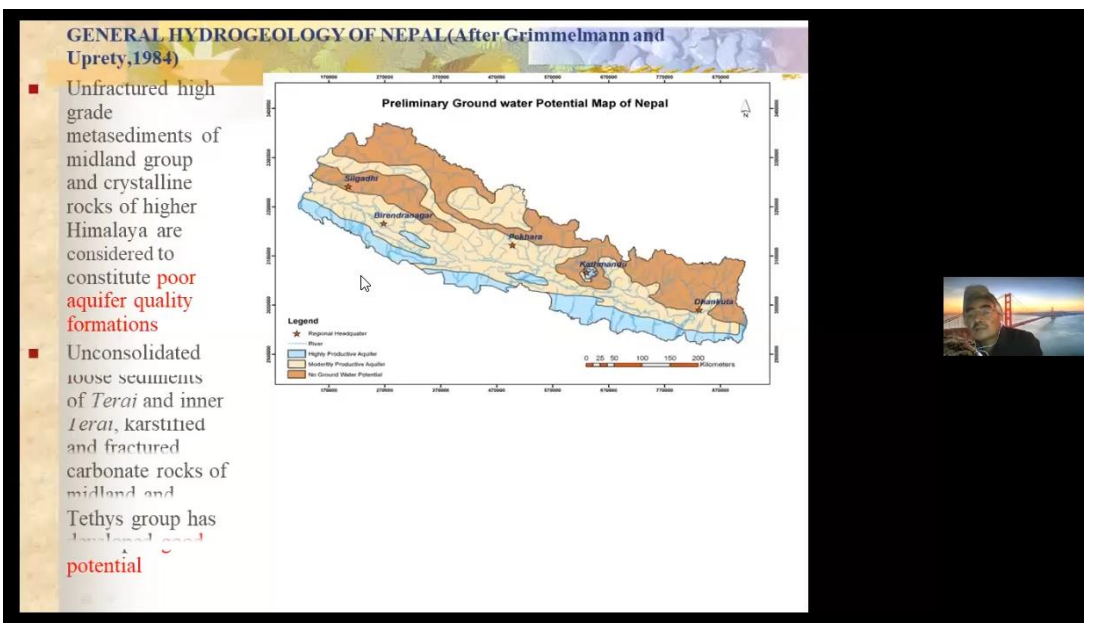
He has over 22 years of experience in disaster prevention and mitigation measures and response applying Geographical Information System and Remote Sensing and also in geological mapping, Water-induced disaster hazard mapping, Glacier Lake study, landslide, debris flow, sedimentation study and Water-Induced Disaster awareness. He gained about five years' experience in organizing trainings related to disaster prevention for midlevel technicians and engineers. He also has about 4 years of experience in budgeting and planning disaster prevention activities. He has also coordinated and co-supervised the thesis student in the research of GLOF as well.

He has taken many national and international training on local emergency operation plan with flood hazard map, highway disaster risk management and environmental impact assessment and other interrelated field. He has published about 10 different articles in different national and international journal, bulletins and papers related to Glacier Lake Outburst Flood (GLOF), Floods, landslides and geological mapping. Some of his significant publications are:

- The Tam Pokhari Glacier Lake outburst flood of 3 September 1998, Journal of Nepal Geological Society, 2000, vol. 22, pp. 539-546
- Cause and mechanism of the Seti River flood, 5th May 2012, western Nepal, Journal of Nepal Geological Society, 2013, Vol. 46, pp. 11-18

Webinar by Mr. Nir Shakya

Nepal Geological Students' Society (NGSS) organized a webinar of Mr. Nir Shakya (Former Senior Divisional Hydrogeologist, Ministry of Energy, Water Resources and Irrigation, Visiting Faculty, Tri-Chandra Multiple Campus, TU) on 2077/10/23. He delivered his insights on the topic "Ground Water Resources and Status of Investigation in Nepal: At a Glance." The program was hosted by Mr. Manoj Raj Shrestha and more than 130 participants attended the webinar and made the live discussion on the topic. During the webinar Mr. Nir Shakya shared his view regarding the Groundwater resources in Nepal (Terai and Valleys), Groundwater investigations and status of Groundwater in Nepal. Moreover, he shared his experiences in the field and provided some valuable tips to the students.



"Ground Water Resources and Status of Investigation in Nepal: At a Glance"

Nir Shakya
Vice-President, Nepal Hydrogeological Association (NHA)
Visiting Faculty in Hydrogeology, Department of Geology/Tri-Chandra Multiple Campus, TU
Corresponding email: nirshakya406@gmail.com

Abstract

Terai plain of Nepal is regarded as the continuation of Indo-gangetic plain and comprises thick layers of alluvial sediments, which has huge renewable ground water (GW) potential. It is therefore, ground water is the principle source of drinking, irrigation and industrial use in Terai, Nepal.

Different studies of Ground Water Resources Development Board (GWRDB), which is under Ministry of Energy, Water Resources and Irrigation shows GW balance of Terai plain is surplus in comparison to the present abstraction rate. But, in case of Kathmandu valley unplanned use of the resources (more than 78MLD in which 42.82MLD is of KUKL well) may create serious threats to its sustainability, due to high water demand up to 430 MLD (KUKL/KVWSMB). The abstraction rate of GW is increasing rapidly due to lack of other alternative supply resources.

Now a day, Kathmandu Valley Water Supply Management Board (KVWSMB) is responsible to explore exact situation of GW abstraction within the valley and also involving other investigation activities in order to establish institutional mechanism to regulate properly. Similarly, different governmental institutions including Kathmandu Upatyaka Khanepani Limited (KUKL) are involving in different districts for exploitation work in various purposes, with very limited R&D activities so far. In this regard, sufficient data with greater opportunity for interpretation to the young scientists especially for Master's students in geology are seeking to research in GW behavior and other.

Keywords: *Ground water (GW) resources, Million Liters per day (MLD), Water demand, overexploitation, Investigation works.*

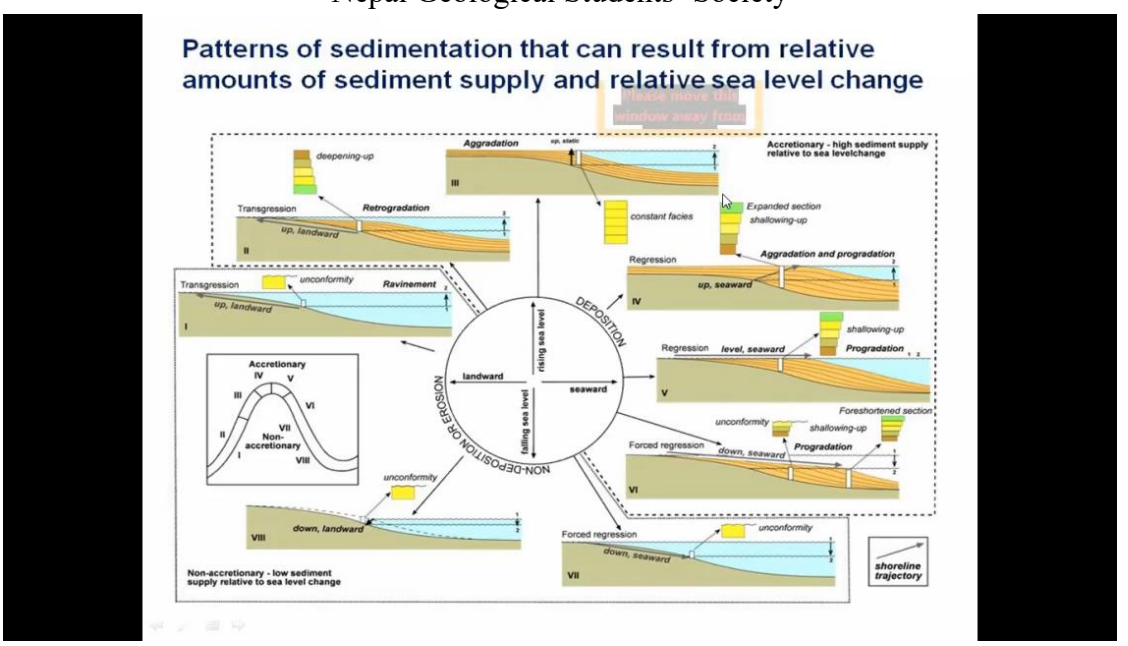
Short bio of Mr. Nir Shakya

Mr. Nir Shakya completed his M.Sc. in Geology from Tribhuvan University in 1984. He did his Post Graduation Diploma in Exploration, Exploitation and Management of Groundwater Resources, Hebrew University of Jerusalem, Israel in 1993. Mr. Shakya has worked as an Assistant Lecturer, Department of Geology, Tri-Chandra Campus, T.U from 1986 to 1987. Moreover, he has worked as a Senior Divisional Hydro-geologist, Office in Charge, and Section Chief in different regions of Nepal. Moreover, he has worked in Groundwater Exploration, Construction of Deep and Shallow tube wells, Feasibility of Groundwater irrigation projects and many more from 1987 to present. Currently, he is a vice-president of Nepal Hydrogeological Association (NHA) and Visiting Faculty in Hydrogeology, Department of Geology, Tri-Chandra Multiple Campus, T.U.

Webinar by Dr. ASM Woobaidullah

Nepal Geological Students' Society (NGSS) organized the webinar of Dr. ASM Woobaidullah, Professor, University of Dhaka, Dhaka, Bangladesh on 2077/10/28. He provided his expertise regarding the topic "Sequence Stratigraphy." The program was hosted by Mr. Bivek Ghimire, Secretary of NGSS. In the program more than 120 participants were present. During the webinar Dr. Woobaidullah discussed on the various subtopics of Sequence Stratigraphy including, Transgression, Regression, Forced Regression, Sea level change, Sedimentation pattern, Concept of accommodation, Progradation, Retrogradation, and more.

A Glimpse of Webinar by Dr. ASM Woobaidullah
2077/10/28
Nepal Geological Students' Society



"Sequence Stratigraphy"

Dr. ASM Woobaidullah

Professor, University of Dhaka, Dhaka, Bangladesh

Abstract

The study of relationships between sea level changes and sedimentation is often referred to as "sequence stratigraphy". The shore line is not constant, it changes its position with time due to either tectonic activity moving plates vertically or horizontally, or there can be changes in volume of water in the world's oceans known as eustatic sea-level change (eustasy) caused by melting and freezing of continental ice caps, or due to the effect of sedimentation sand, gravel and mud may pile up at the shore line resulting the shore line to move from its former position. These three factors-tectonic uplift/ subsidence, eustatic sea level rise or fall, and sedimentation-how they occur, where they occur, their rates and how they interact are important for sedimentology and stratigraphy. The character of sediment deposited in any environment is in some way influenced by these three factors.

Short bio of Dr. ASM Woobaidullah

Dr. A.S. M. Woobaidullah is Professor of University of Dhaka, Bangladesh. He received his PhD in Exploration Geophysics from Azerbaijan State Oil Academy, USSR in 1984 and Post Doc. in Geophysics, from Vienna University, Austria in 1996. He received his bachelor's degree and master's degree in Exploration Geophysics, (Mining Engineer), from Azerbaijan State Oil Academy, USSR in 1975-1980.

He has over 36 years of professional experience. Worked as Junior Scientist during 1983-84 in Azerbaijan State Oil Academy and as Dhaka University teacher from 1985 till the date. He also became the professor of University Malaysia Kelantan from Oct. 2010 to Jan. 2012. He is currently the member of Editorial Board of International Journal of Science and Technology from 2019 and he was the editors of Dhaka Univ. journal of Earth & Environ. Sciences from 2013-2016 and 2017-2019. He also became the editor of Dhaka University Journal of Science from 2008-2010. He has Supervised 2 Ph.D. Thesis and another 2 is under process; supervised an M. Phil. thesis and a few dozens of M.S thesis dealing with different aspects of geology & geophysics. He has successfully completed more than 30 project works and consultant jobs as a role of Project Coordinator and Chief Investigator, Co-Investigator, Geophysicists related to the geo-electric field survey and data interpretation, seismic and micro tremor survey and so on. He has taken about 7 national and international level trainings related to exploration geophysics, seismology and seismic risk mitigation, reservoir engineering, petroleum resource and safety management issue and other interdisciplinary field. He has taken the professional memberships of five different scientific societies.

He has published about 100 scientific articles and abstract volume in different national and internal journal, abstract and proceeding volumes. His researches are mainly focused on the geo-electric survey, exploration geophysics, ground water explorations, sequence stratigraphy and so on. His significant publications related to sequence stratigraphy area:

1. Afroza Parvin, and A. S. M. Woobaidullah, 2019, Incorporation of sequence stratigraphy in gas reservoir correlation: A case study, J. Asiat.Soc.Bangladesh, Sci. 45(2): 209- 216.

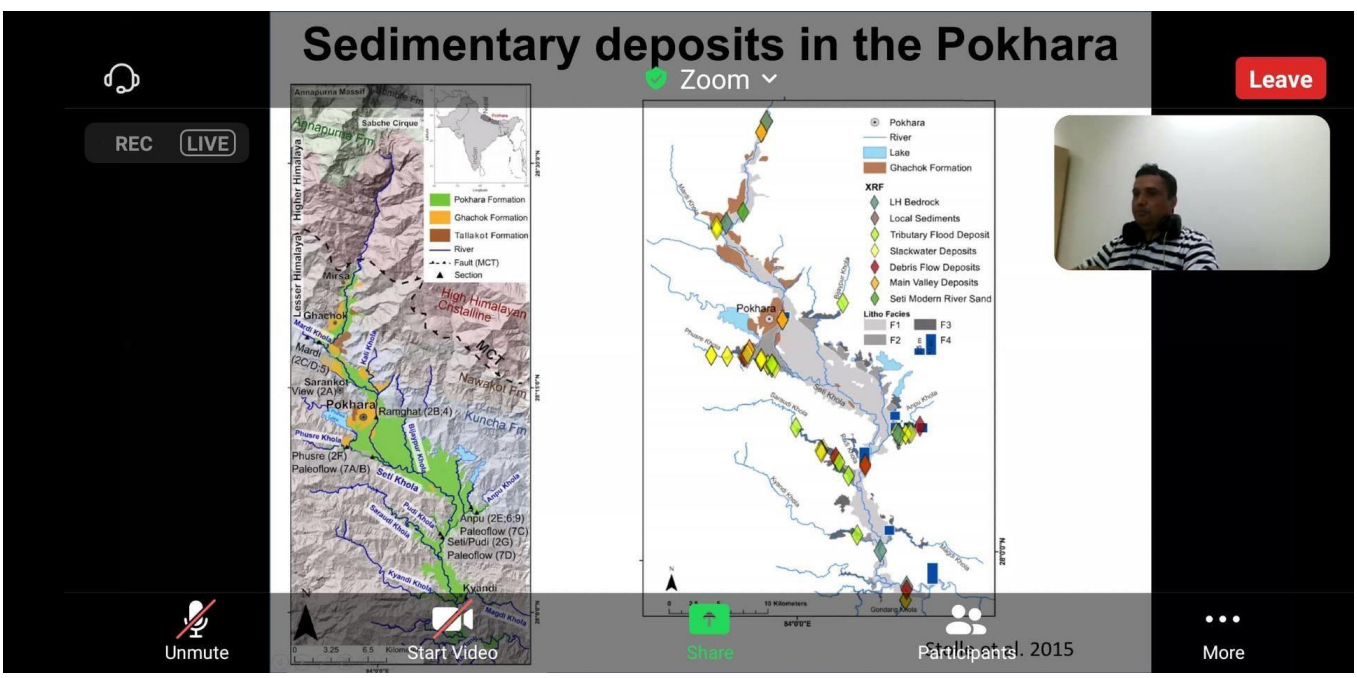
2. Afroza Parvin, A. S. M. Woobaidullah, and Md Jamilur Rahman, 2019, Sequence stratigraphic analysis of the Surma Group in X Gas Field, Surma Basin, Bengal Delta, Journal of Nepal Geological Society, 2019, Vol. 58 (Sp. Issue), pp. 39–52.

3. Afroza Parvin, Md. Jamilur Rahman, A.S.M., Woobaidullah, 2019, Petroleum prospect analysis and new gas horizon detection at Fenchuganj Gas Field in the Surma Basin, Bangladesh: An application of sequence stratigraphic concept, Marine and Petroleum Geology, Elsevier, 102 (2019) 786-799.

Webinar by Dr. Basanta Raj Adhikari

Nepal Geological Students' Society (NGSS) in collaboration with Society of Sedimentary Geology (SEPM) in the technical support of Nepal Research and Education Network (NREN) organized the webinar of Dr. Basanta Raj Adhikari, Assistant Professor, Department of Civil Engineering, Pulchowk Campus, Institute of Engineering, Tribhuvan University, Nepal on Baisakh 29, 2078 (May 12, 2021). He delivered his talk program on "Sedimentary signature in the Nepal Himalaya: Case studies from Pokhara and Thakkhola graben". More than 130 participants attended the webinar and made the live discussions. The program was conducted by Mr. Bivek Ghimire, Secretary of the Society. Dr. Adhikari discussed about his research of PhD and ongoing research on the program. He also shared the photograph of welcome program organized by Nepal Geological Students' Society during his time of study in Central Department of Geology, Tribhuvan University (CDG, TU). The discussion was made by Dr. Upendra Baral, Associate Professor of Chinese Academy of Science, Mr. Pradip Devkota, Mr. Dhiroj Thapa, Mr. Pawan Kumar Acharya, Members of the Society. At the end of the program, Mr. Pawan Kumar Acharya, President of the Society, thanks to presenter, collaborator, technical supporter, and the participants in the program. He also requested the presenter to make involve the thesis student for carrying out collaborative research, which will help students from the technical and financial aspect. He also requested to all the participants to take a membership of SEPM, a international geo scientific society of sedimentary geology to take advantage in receiving grants and to get involved in academic activities associated with SEPM.

A Glimpse of Webinar Program by Dr. Basanta Raj Adhikari
May 12, 2021 (2078/01/27), Wednesday
Nepal Geological Students' Society (NGSS)



"Sedimentary signature in the Nepal Himalaya: Case studies from Pokhara and Thakkhola Graben"

Basanta Raj Adhikari

Assistant Professor, Department of Civil Engineering, Pulchowk Campus, Institute of Engineering, Tribhuvan University, Nepal

Abstract

Sedimentary signatures are very important to understand the past events and sedimentary environment. The sedimentary geological investigation in the Nepal Himalaya has a long history. Many previous researchers have examined the sedimentary succession to interpret the role of Himalayan upliftment for the sediment generation and deposition in the sedimentary basins. These sediments tell us about the geological history, paleoenvironment, depositional environment and many others. This talk will cover the sedimentary signature of the large scale fluvial aggradation and debris flow, late Holocene landscape collapse of a Trans-Himalayan dryland and understanding of graben development in the Nepal Himalaya.

Short Bio of Dr. Basanta Raj Adhikari

Dr. Basanta Raj Adhikari is an assistant professor at the Department of Civil Engineering, Pulchowk Campus, Institute of Engineering, Tribhuvan University, Nepal. His main research focuses on tectonics of the Himalaya, climate change, hill-slope movement and human interaction, Himalayan sediment flux generation, and disaster risk reduction. He has provided technical support in many development projects in the Nepal Himalaya to control the slope movement. He is the author of more than 40 scientific papers and book chapters and received various recognitions for his work in the field of earth science i.e. Young Scientist (Integrated Research on Disaster Risk) and "young affiliates" (The World Academy of Sciences). His detail information can be found in: http://bradhikari.com.np/

Webinar by Dr. Mary Hubbard

Nepal Geological Students' Society (NGSS) in the technical support of Nepal Research and Education Network (NREN) organized the webinar of Dr. Mary Hubbard. Nepal on jestha 5, 2078 (May 19, 2021). She delivered her talk program on " lateral heterogeneity along the Himalayan mountain belt". More than 140 participants attended the webinar and made the live discussions. The program was conducted by Mr. Bivek Ghimire, Secreatrary of the Society. Dr. Habbard discussed about his research of PhD and ongoing research on the program. The discussion was made by Mr. Janak Nepali, Mr Krishna Gotame, Mr. Rhythm Lamichane , by Dr. Upendra Baral, Associate Professor of Chinese Academy of Science Mr. Sibha Subedi Mr. Basanta Bhnadari Ms. Rajani Shrestha. At the end of the program, Mr. Pawan Kumar Acharya, President of the Society, thanks to presenter, collaborator, technical supporter and the participants in the program.

"Lateral Heterogeneity along the Himalayan Mountain Belt"

Dr. Mary Hubbard

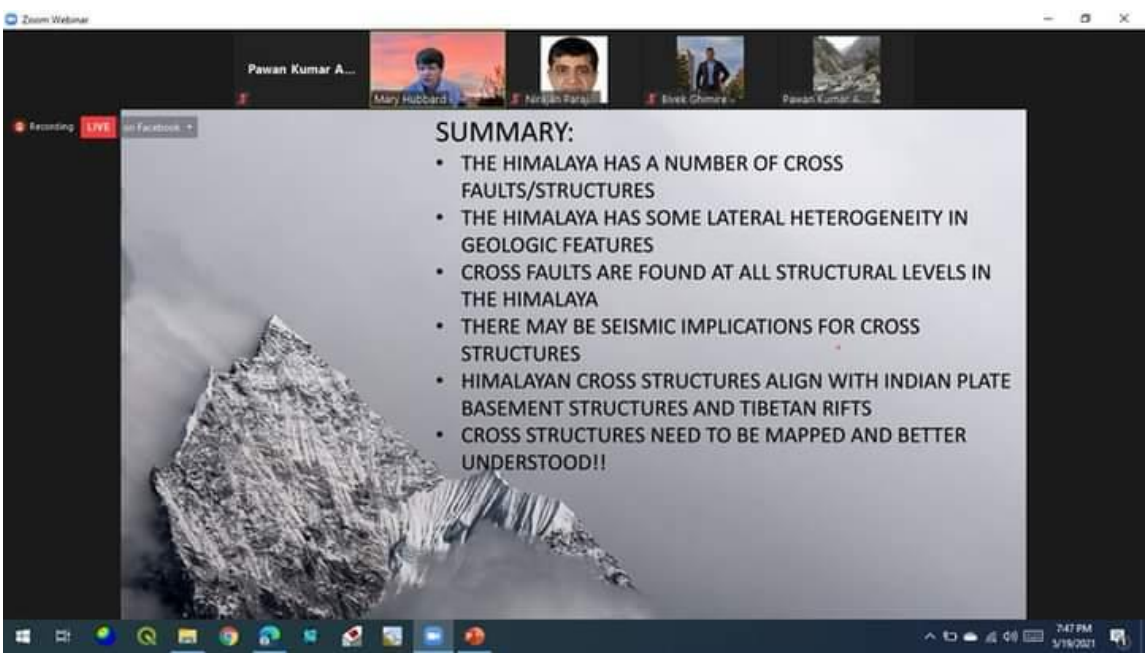
Professor, Department of Earth Science, Montana State University

ABSTRACT

Though collisional mountain belts are generally elongate and laterally continuous, close inspection reveals disruptions and variations in thrust geometry and kinematics along the strike of the range. These lateral variations typically coincide with cross structures and have been documented in thrust fault systems with a variety of geometries and kinematic interpretations. In the Himalaya, cross faults provide segment boundaries that, in some cases separate zones of differing thrust geometry and may even localize micro-seismicity or limit areas of active seismicity on adjacent thrust systems. By compiling data on structural segmentation along the length of the Himalayan range, we find lateral variations at all levels within the Himalaya.

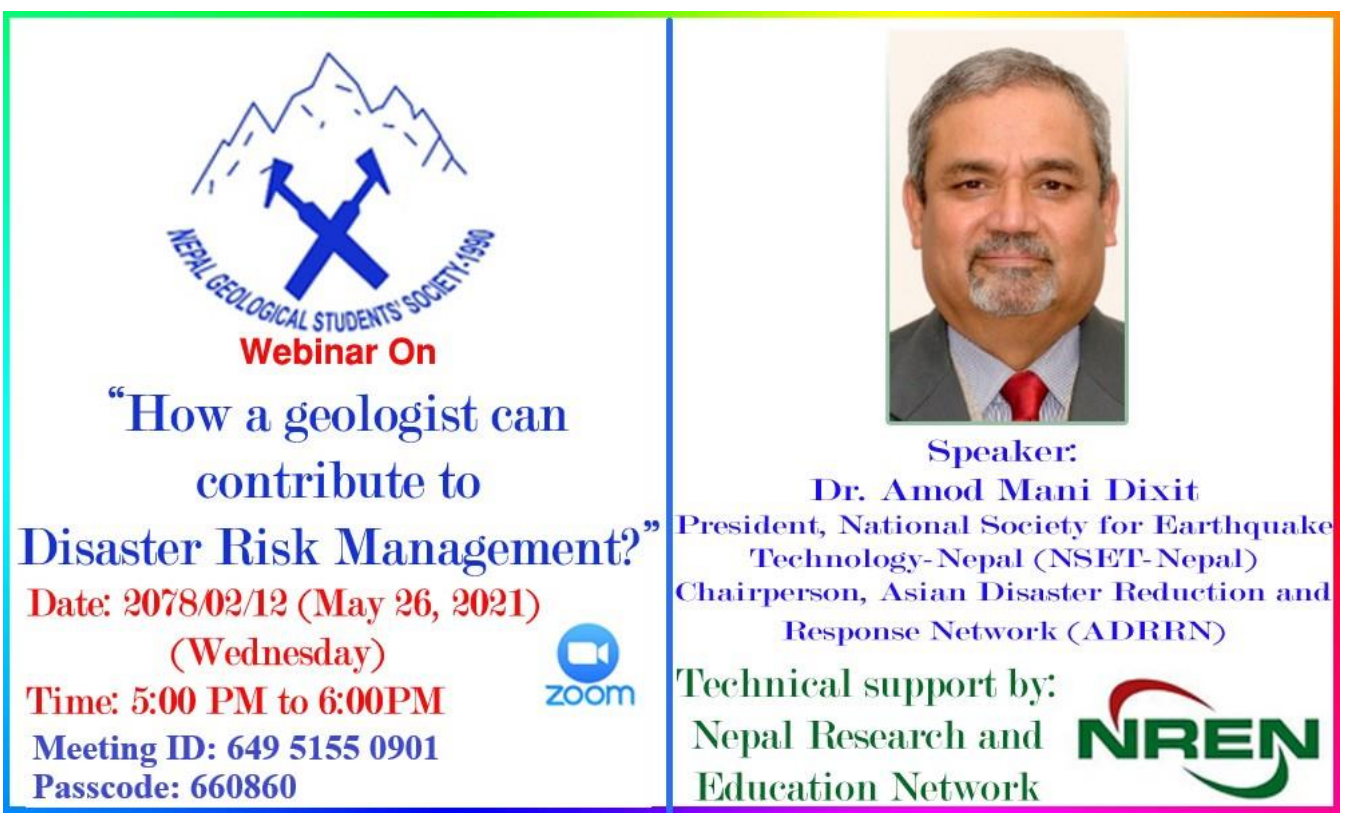
Short Bio of Dr. Mary Hubbard

As a geologist, Dr. Mary Hubbard, currently serves as a professor for Earth Sciences at Montana State University. She received her PhD from the Massachusetts Institute of Technology in 1988. Her academic research has focused on mountain belt formation around the world. Starting with dissertation research in the Himalayas of Nepal, she continued to pursue questions in tectonics and structural geology in the Pakistani Himalayas, the Western Alps of Europe, the Southern Alps of New Zealand, the Mauritainides of Senegal, and the Appalachians and Rocky Mountains of North America among other places. She started her faculty career at the University of Maine, following a NATO post-doctoral fellowship at the ETH in Zurich, Switzerland. Dr. Hubbard moved to Kansas State University in 1996 where she served as a professor and then department head. An opportunity to serve as the Dean of the College of Science brought Dr. Hubbard to Utah State University in 2007. With a passion for internationalization in higher education, she served at Utah State as the Vice Provost for Global Engagement from 2009-2013 before returning to her role as professor. In 2015, she moved to MSU where she served as Department Head for three years before returning to the faculty. In 2017 she was a Fulbright Specialist at the Tri Chandra Multiple Campus. She currently holds a Fulbright Scholar fellowship to return to Tri Chandra in 2022.

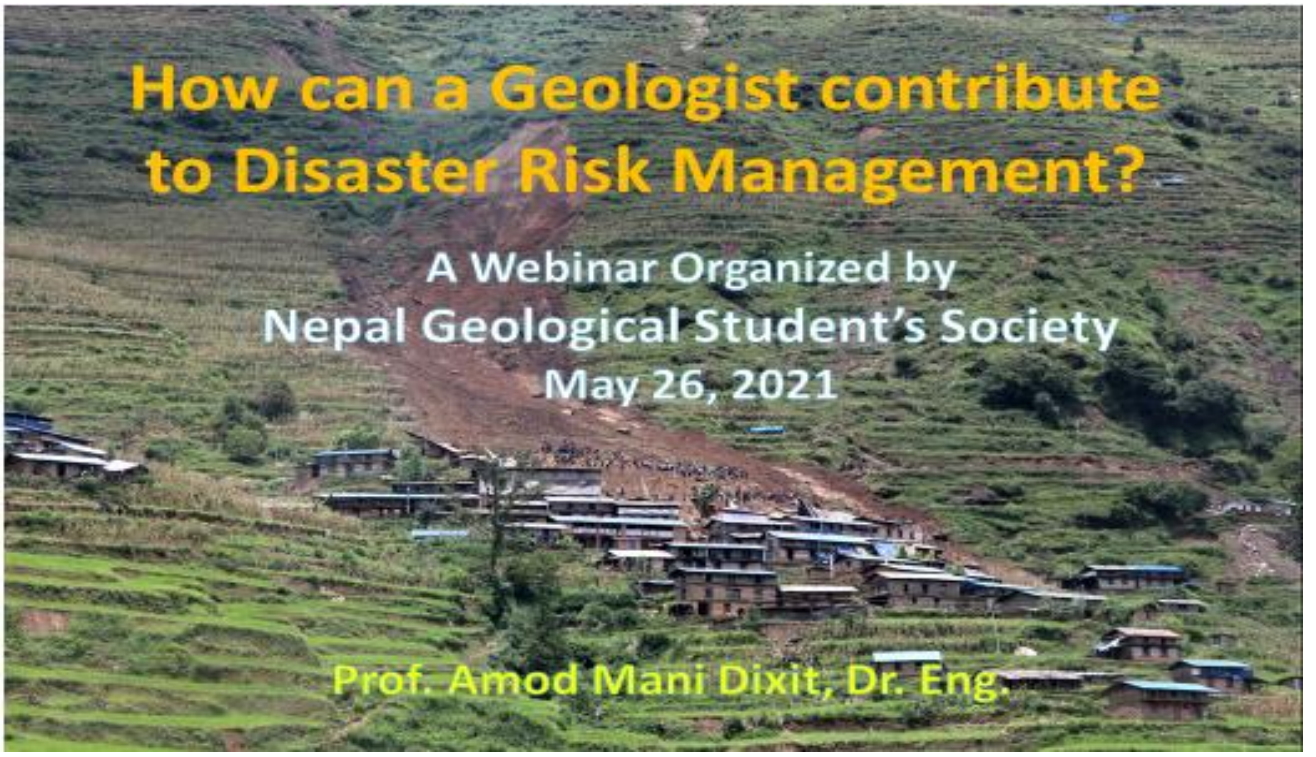


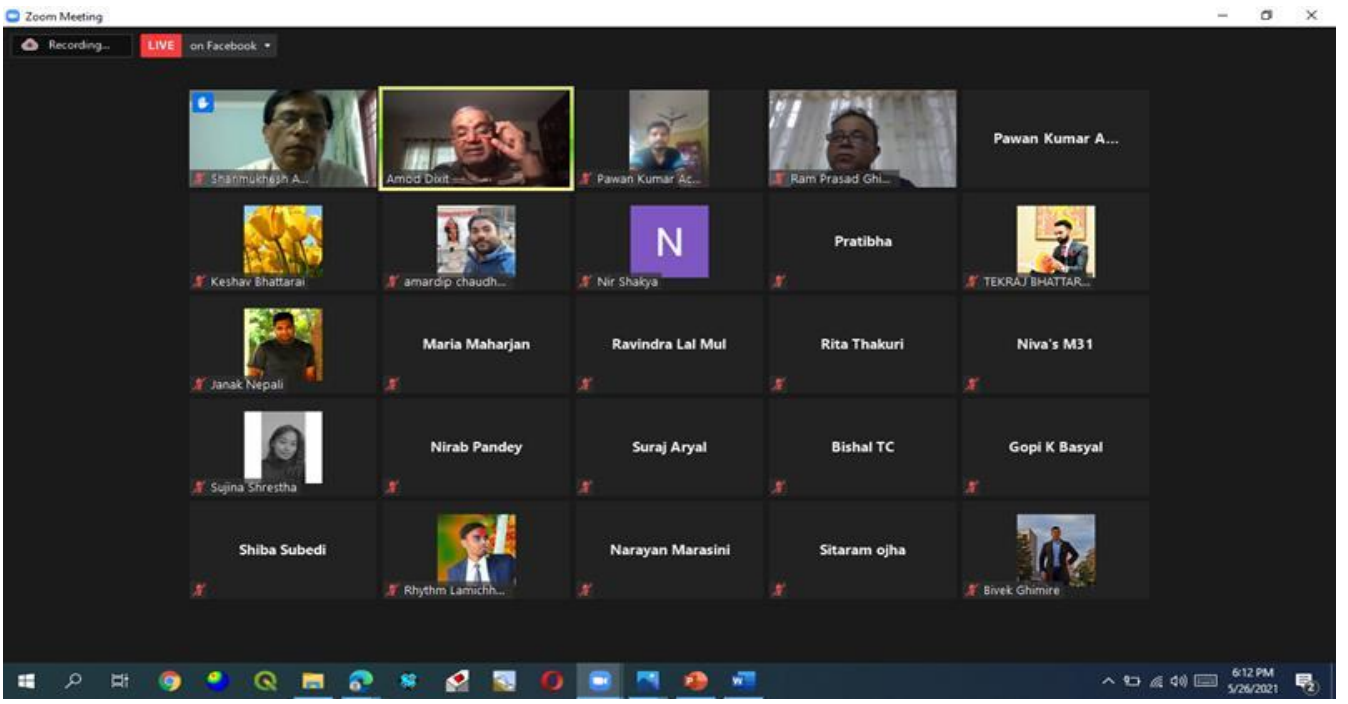
Webinar by Dr. Amod Mani Dixit

Nepal Geological Students' Society (NGSS) in the technical support of Nepal Research and Education Network (NREN) organized the webinar of Dr. Amod Mani Dixit, President of NSET-Nepal, Chairperson of ADRRN, Senior professor with the Universal College of Science and Engineering (UCSE), Pokhara University, Nepal and Advisory Board Member of Institute of Hazard Risk and Resilience (IHRR), Durham University, UK on Jestha 12, 2078 (May 26, 2021). He delivered his talk program on "How a geologist can contribute to Disaster Risk Management?". The program was attended by about 115 national and international participants including senior geologists, professors, students, members of NGSS. The program was conducted by Mr. Bivek Ghimire, Secretary of the Society. Dr. Dixit discussed about role, responsibility, awareness of geologist for mitigating various related problems in the society by providing clear points on present situation and civic awareness on hazard, risk, and disaster. He also provided various case study and existing rules with system of coordination among governmental offices. The discussion was made by Shanmukhesh Amatya, Er. Umesh Verma, Mr. Shiba Subedi, Mr. Krishna Gotame, Mr. Narayan Marasini, Mr. Anup Neupane along with other geologists and member of society. At the end of the program, Mr. Pawan Kumar Acharya, President of the Society, thanks to presenter, technical supporter and the participants in the program. He emphasized on working experience on disaster and reduction fields. He clarifies thesis grant to interested student to search on risk, hazard and disaster management. He requests present and past researchers to research on field of risk, disaster and its management along with thesis grant. The program was participated by some of senior geologist who are present and past secretary of NGSS.



A Glimpse of Webinar Program by Dr. Amod Mani Dixit
May 26, 2021 (2078/02/12), Wednesday
Nepal Geological Students' Society (NGSS)





"How a geologist can contribute to Disaster Risk Management?"

Dr. Amod Mani Dixit

President, National Society for Earthquake Technology Nepal (NSET-Nepal)

Chair person, Asian Disaster Reduction and Response Network (ADRRN)

Abstract

Disaster risk management is a comprehensive approach involving the identification of threats due to hazards; processing and analyzing threats; understanding people's vulnerability; assessing communities' resilience and coping capacity; developing strategies for future risk reduction; and building up capacities and operational skills to implement the proposed measures. Disaster risk cannot be eliminated completely, but it can be assessed and managed in order to mitigate the impact of disasters. The management of disaster risks has attracted much attention since the 2005 initiative of the International Strategy for Disaster Reduction (ISDR 2004), which defined the Ten Essentials required to empower local governments and other agencies to implement the Hyogo Framework for Action by the year 2015.

Short Bio of Dr. Amod Mani Dixit

Dr. Amod Mani Dixit is senior professor with the Universal College of Science and Engineering (UCSE) of the Pokhara University, Nepal and Advisory Board Member of Institute of Hazard Risk and Resilience (IHRR), Durham University, UK. Dr. Dixit is a Doctor of Engineering from Ehime University, Japan. He completed a MS in mineral exploration from St. Petersburg University (Russia), MS in Engineering Geology from AIT Bangkok, and was trained in Non-profit Leadership in the Graduate School of Business, Stanford. His 47-yearlong professional service comprised of overlapping two-decade stint with the Government of Nepal, ten years as a Director in a private engineering consultancy, and 25 years of fulltime Executive Director of NSET, a civil society organization, which he founded in 1994. At present, he is NSET's President.

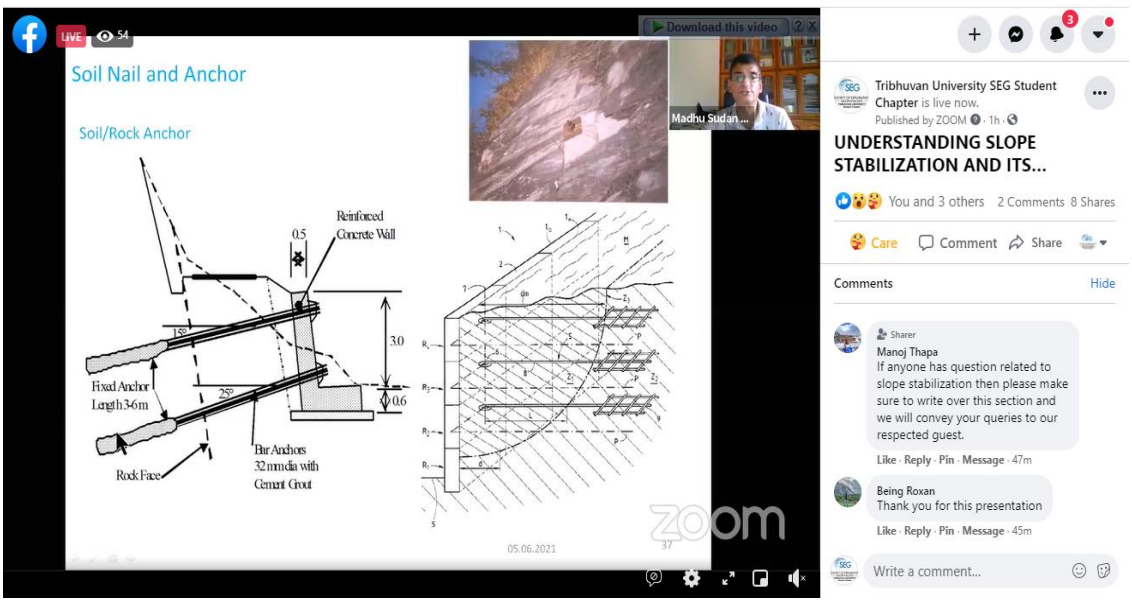
Dr. Dixit taught courses in Engineering Geology and Disaster Risk Management in Tribhuvan and Kathmandu universities of Nepal; serves as a visiting faculty (Professor) at the Ehime University, Centre for Disaster Management Informatics Research since 2018 April. He served in 2019 as a Visiting PIFI Scholar of the Institute of Mountain Hazards and Environment (IMHE) of the Chinese Academy of Sciences (CAS). Earlier, he sat as a member of the Scientific and Governing Board(s) of the Global Earthquake Model (GEM) during 2008-2017. He has worked in Nepal and many Asian countries for disaster risk reduction and earthquake response. Currently, he chairs the Asian Disaster Reduction and Response Network (ADRRN) of 50 civil Society Organizations (CSOs) working in Disaster Risk Reduction (DRR) and Disaster Preparedness (DP) in 20 countries of Asia and the Pacific.

Dr. Dixit has received several national and international recognitions including disaster management awards of the governments of Nepal and India. Under his leadership, NSET received the Sasakawa Award (Letter of Merit) from UNISDR in 2004. He has published more than 100 scientific reports, book chapters, and papers.

Webinar by Dr. Madhu Sudhan Acharya

Nepal Geological Students' society (NGSS) in collaboration with SEG (Society of Exploration Geophysics) Tribhuvan University Student Chapter organized the webinar on Jestha 22, 2078 (June 05, 2021) Saturday. On particular webinar Geotechnical engineer Dr. Madhu Sudhan Acharya presented his ideas including his exclusive experiences on the topic "Understanding Slope Stabilization and its practices in Nepal". About 100 participants attended the webinar and as the session were also shared live through the official Facebook page of SEG student chapter there were other 60 viewers watching live. The discussion was conducted by Mr. Amrit Marasini. Dr. Acharya discussed about the Slope Failure, its Scenario in Nepal and so on. The queries were asked by Mr. Dharma Upreti, Mr. Mohan Raj Shrestha, Prachandra Gautam, Ms. Aachal Tiwari, Tek Raj Bhattarai, and by other participants on chat box. At the end of the program, Mr. Pawan Kumar Acharya, President of NGSS, thanks to presenter collaborator and the participants with closing remarks in the program.

A Glimpse of Webinar Program by Mr. Madhu Sudhan Acharya
June 05, 2021 (2078/02/022), Saturday



"Understanding Slope Stabilization and its practices in Nepal"

Dr. Madhu Sudhan Acharya

Geotechnical Engineer

Lecturer, Department of Geology, Tri-Chandra Multiple Campus, T.U

Abstract

Slope stabilization refers to any implemented technique that aims to stabilize an unstable or inadequately stable slope. The purpose of slope stabilization techniques is to increase the Factor of Safety of a slope to a level that is considered adequate. Slope stability can be a major problem during the construction of surface facilities. Cutting into existing ground disturbs the mechanics of the surrounding area, which can result in landslides and rock falls. This practical reference gives you the comprehensive information you need for slope stability analysis, suitable methods of analysis with and without the use of computers, and examples of common stability problems and stabilization methods for cuts and fills. It includes detailed discussions of methods used in slope stability analysis, including the Ordinary Method of Slices, Simplified Janbu Method, Simplified Bishop Method, Spencer`s Method, other limit equilibrium methods, numerical methods, total stress analysis, effective stress analysis, and the use of computer programs to solve problems.

Short Bio of Dr. Madhu Sudhan Acharya

Dr. Madhu Sudhan Acharya is currently working as visiting professor at Tri-Chandra campus, T.U. He has completed his doctorate in Natural Science from university of Natural Resources and life sciences (BOKU), Vienne, Austria in 2007. His MSc. is in Geotechnical and infrastructure from university of Hannover, Hannover, Germany and his bachelor is in civil engineering from institute of Engineering, Tribhuvan University, Kathmandu Nepal. His working carrier started as an Assistant Engineer in District Road office Bara, Departments of Road, Nepal and worked as Engineer in Different departments of Road sector in Nepal from 1992-1996. He also worked in a consulting firm STRABAG as practitioner geotechnical engineer in German (1996-1998). Various soil Bioengineering/Geotechnical measures for landslides protections site visit, site assessment, measurements and monitoring works in Austria, (2004 to 2008), (2012- Till date). Various soil bioengineering site visits at south Tyro Italy (2004-2006).

He is life member of Nepal Engineers Association. Member of Nepal engineering council and he is also the Executive member, society of Nepal German Academicians (SONGA). He is also the Founder principal and chairman, Phulchoki English School, Nepal.

Some of his publications are listed below:

1. Acharya, M.S., Bamboo Crib Wall - A Sustainable Soil Bioengineering Method to Stabilise Slopes in Nepal, Journal of Development Innovations, Vol 4, No 1 (2020) , 99-118, ISSN 2371-9540, Karma Quest International, Canada.
2. Acharya, M.S.; Wu, W; Auer, M; te Kamp, L (2015): Centrifuge Model Test of a Bamboo Crib Wall. In: Wu,W (Ed.), Recent Advances in Modeling Landslides and Debris Flows, 49-56; Springer International Publish-ing, Switzerland; ISBN 978-3-319-11052-3
3. Graf, F; te Kamp, L; Auer, M; Acharya, M.S.; Wu, W (2015): Soil Aggregate Stability in Eco-engineering: Comparison of Field and Laboratory Data with an Outlook on a New Modelling Approach. In: Wu, W (Ed.), Recent Advances in Modeling Landslides and Debris Flows, 29-47; Springer International Publishing , Switzerland; ISBN 978-3-319-11052-3
4. Wu, W; Switala, BM; Acharya, M.S.; Tamagnini, R; Auer, M; Graf, F; te Kamp, L; Xiang, W (2015): Effect of Vegetation on Stability of Soil Slopes: Numerical Aspect. In: Wu, W (Ed.), Recent

Advances in Modeling Landslides and Debris Flows, 163-177; Springer International Publishing, Switzerland; ISBN 978-3-319-11052-3

5. Acharya, M.S.; Nowatschek, P; Wu, W; Rauchecker, M (2014): Determination of Water Absorption and Water Holding Capacities of Different Soil Mixtures with "MINIDRAIN" System to Enhance the Plant Growth. In Geophysical Research Abstracts, EGU General Assembly 2014, Vienna, Austria, 27 April – 2 May 2014.
6. Tamagnini, R; Switala, BM; Acharya, M.S.; Wu, W; Graf, F; Auer, M; te Kamp, L (2014): Finite Element Analyses of Bio-Engineered Slopes. In Geophysical Research Abstracts, European Geoscience Union General Assembly 2014, Vienna, Austria, 27 April – 2 May 2014.
7. Acharya, M.S (2013): Green Road: an Ecological Road Construction Method for the Preservation of Mountain Environment and Landscape in Nepal, Geophysical Research Abstracts, EGU General Assembly 2013, Vienna, Austria, 07 – 12 April 2013.
8. Acharya, M.S, Alvarez Suarez, SP; Rauchecker, M (2013): Determination of Increase in Shear Strength of Soil Reinforced with Plant Roots l, Geophysical Research Abstracts, EGU General Assembly 2013, Vienna, Austria, 07 – 12 April 2013.
9. Acharya, M.S (2013): Sustainable Urban Transport – A Vision for Kathmandu, In: Journal of Transportation and Development, Volume 1, No.1, January 2013.
10. Acharya, M.S (2010): Determination of strength behaviour of slope supported by vegetated crib walls using centrifuge model testing, Geophysical Research Abstracts, Vol. 12, EGU2010-326, EGU General Assembly 2010, Vienna, Austria, 02 – 07 May 2010.

Webinar by Mr. Naba Raj Shrestha

Nepal Geological Students' Society (NGSS) in collaboration with SEG (Society of Exploration Geophysicist) Tribhuvan University Student Chapter organized the webinar of Naba Raj Shrestha sir, Executive director of Three D. Consultants Pvt. Ltd on Ashar 01, 2078 (June 15, 2021). He delivered his talk program on "Current Status of Geophysical Investigation in Nepal : Challenges & Opportunities". More than 63 participants attended the webinar and made the live discussions. The program was conducted by Mr. Bivek Ghimire, Secretary of the Society. Shrestha sir discussed about geophysicist, status of geophysical condition and so on. He also shared the photograph of machines and programs during his time of study. The discussion was made by Mr. Ashok Dhungana, Mr. Amrit Marasini, Mr. Dinesh Subedi, Mr. C.B. Wali, Mr. Pawan Kumar Acharya, Mr. C.B. Wali (Chief Hydrogeologist, Joint Secretary of Department of Water Resource and Irrigation, Ministry of Energy, Water Resources and Irrigation) answered the query related about the job offers in government sector after completing Bachelors' level in Geology. Mr. Pawan Kumar Acharya (President of the Society) requested the presenter to involve the thesis student for carrying out collaborative research, which will help students from the technical and financial aspect. At the end of the program, Mr. Manoj Thapa, President of SEG (Society of Exploration Geophysicist) Tribhuvan University Student Chapter, thanks to presenter, collaborator, and the participants in the program.

"Current Status of Geophysical Investigation in Nepal: Challenges & Opprtunities"

Mr. Naba Raj Shrestha

Senior Hydrogeologist (GRDB/DoI)

Executive Director – Three D Consultants Pvt. Ltd

Abstract

Geophysical investigation in Nepal started in 1970 with geophysical manpower products from India and then Soviet Union in Department of Mines and Geology. The gravity survey in Surkhet, Dang and Dekhuri valleys had been completed. Induced Polarization, Magnetic, and Electromagnetic surveys were conducted for mineral prospects under Mineral Exploration Project. Radioactive Surveys were conducted for radioactive minerals. These days geophysical exploration activity is in subsided condition. Both proper manpower and equipment are lacking despite increase in opportunity.

Short Bio of Mr. Naba Raj Shrestha

Mr. Naba Raj Shrestha currently serves as Executive director in Three D. Consultants Pvt. Ltd. He completed his M. Sc. Geophysics, Specializing in Exploration Geophysics from Banaras Hindu University, Varanasi, India in 1975. And his P G Diploma in Exploration Geophysics from International Institute for Aerial Survey and Earth Sciences, Netherlands in 1982 and next P G Diploma in Petroleum Exploration and Management from Norwegian Institute of Technology, Trondheim University, Norway in 1987.

His working carrier as a geologist started from Department of Mines and Geology in the year 1975. He has also worked on Mineral Exploration Project/DMG as well as Petroleum Exploration Project/DMG as a geophysicist and on Groundwater Resource Development Board/Department of Irrigation as a senior Hydro geologist. He has worked on different countries like Spain for Mineral Exploration, Bhutan for Hydropower and India for Groundwater Contamination by Hospital wastes.

He has received and given trainings in different places in many fields like

- Ground Water Exploration Using Electrical Resistivity Method" Workshop on Ground Water Exploration, Chongqing, People's Republic of China, 7th - 17th April 2009
- Environmental Geology for Barrier Sediment analysis, Research Institute of Environmental Geology, Chiba Prefacture, Japan,10th April – 29th April 1998
- Seismic Data analysis and Interpretation for Petroleum Exploration, DIGICON Exploration Ltd., Singapore27th October -30th November 1989.
- Seismic Data analysis and Interpretation for Petroleum Exploration, Petro Canada International Assistance Corporation Calgary, Canada,7th July – 22nd August 1988

He is a Life Member of Nepal Geological Society (NGS) as well as of Nepal Hydrogeological Association, Nepal. He is also Life Member of Association of Exploration Geophysicists, India and Member of International Association of Hydro geologists, UK.

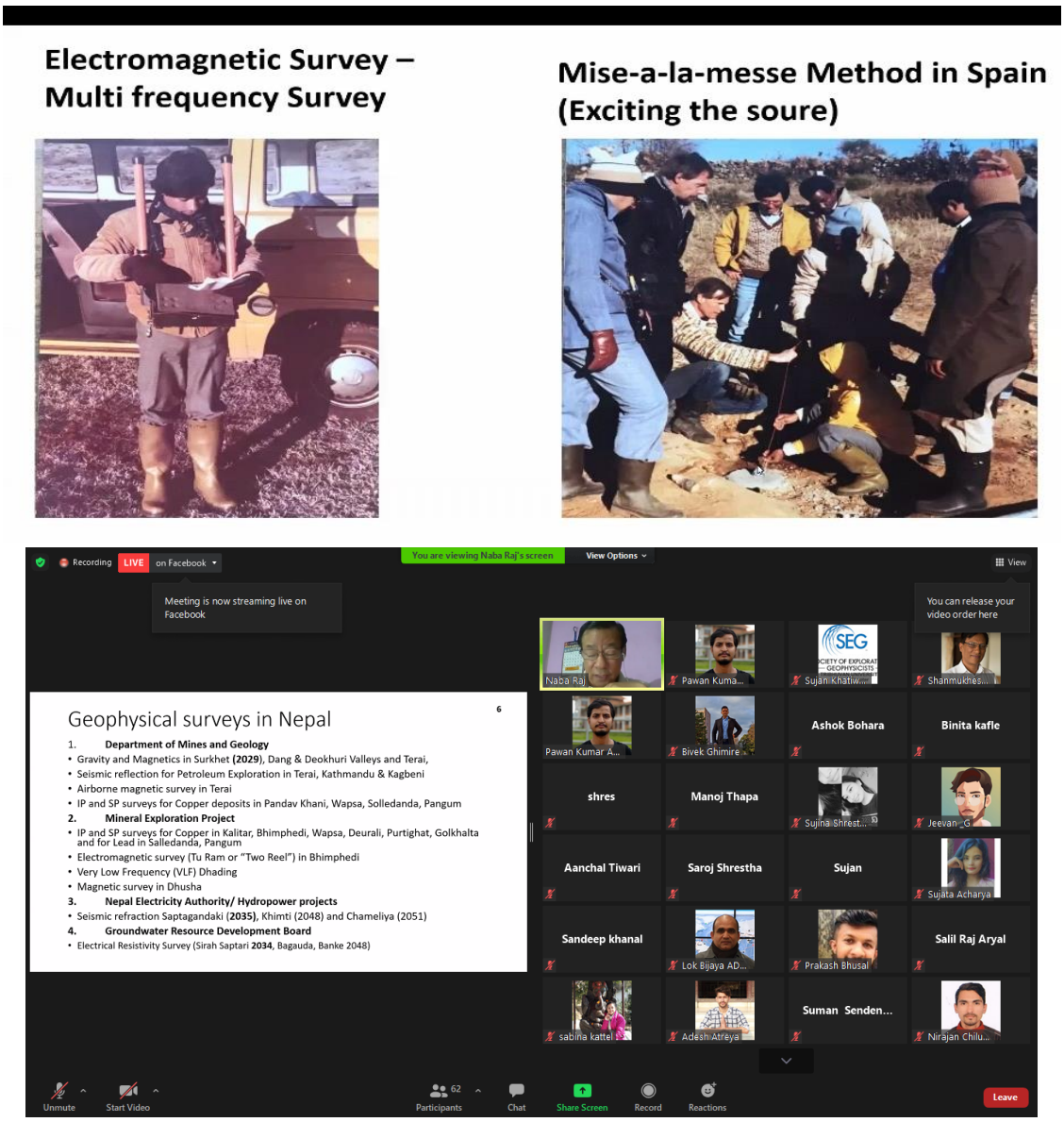
Some national papers presented by him are:

- Hydrogeological Characteristics of Bedrock aquifer of Kathmandu valley
- "Ground Water Irrigation: Status and Vision" (N R Shrestha and Jeevan Lal Shrestha), Irrigation National Workshop, Dhulikhel, Nepal
- "Managing Ground Water Resource for Poverty Alleviation", (N R Shrestha and Mahendra Gurung) 10th National Convention of Engineers, Kathmandu, Nepal
- "Hydrogeological Conditions in Jhapa, Mahottari and Banke Districts of Terai", (Hisao Ando, N R Shrestha and S Kansakar) Third Nepal Geological Congress
- "Ground Water Vulnerability Assessment in the KathmanduValley", (D Munstermann, N R Shrestha, B D Kharel) in Geological Symposium, Kathmandu

Some international papers presented by him are:

- "Evaluation of Ground Water Potential for Conjunctive use in Sarlahi District of Nepal" UNESCO/Pakistan Regional Workshop on Artificial Ground Water Recharge, Quetta, Pakistan, 10^{th} – 16^{th} May 1996
- "Reconnaissance and follow up base metal exploration in Nepal" (N R Shrestha and R R Sharma) ESCAP/USSR Regional Seminar on Modern Methods of Prospecting & Exploration for Mineral Deposits, Uzbekistan, 20^{th} August- 7^{th} October 1980

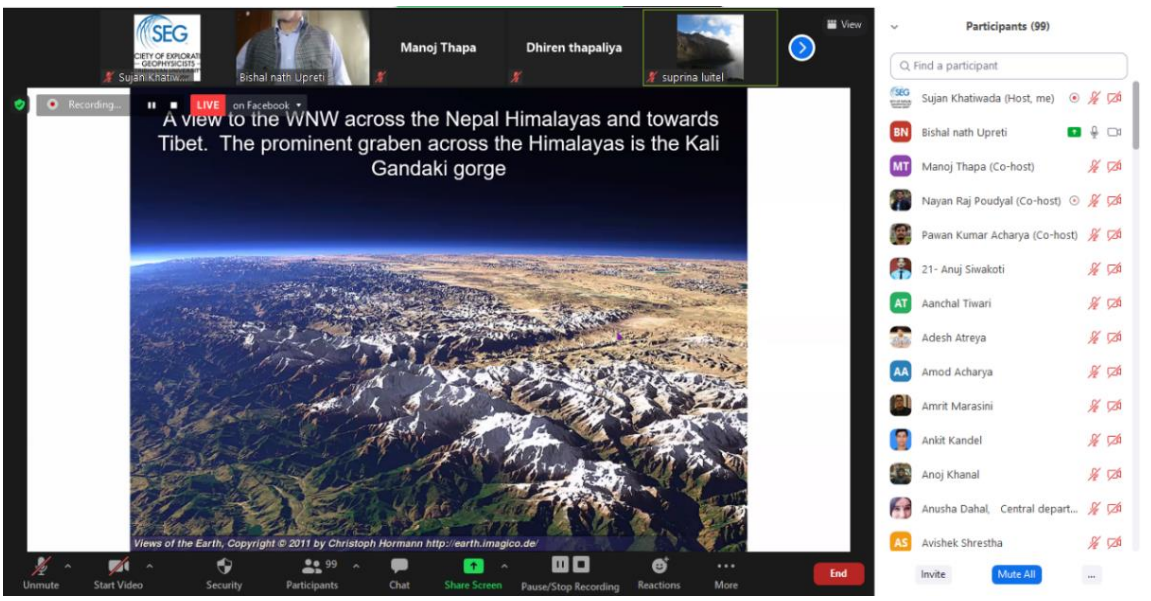
A Glimpse of Webinar Program by Mr. Naba Raj Shrestha
June 15, 2021 (2078/03/01), Tuesday
Nepal Geological Students' Society (NGSS)



Webinar by Prof. Dr. Bishal Nath Upreti

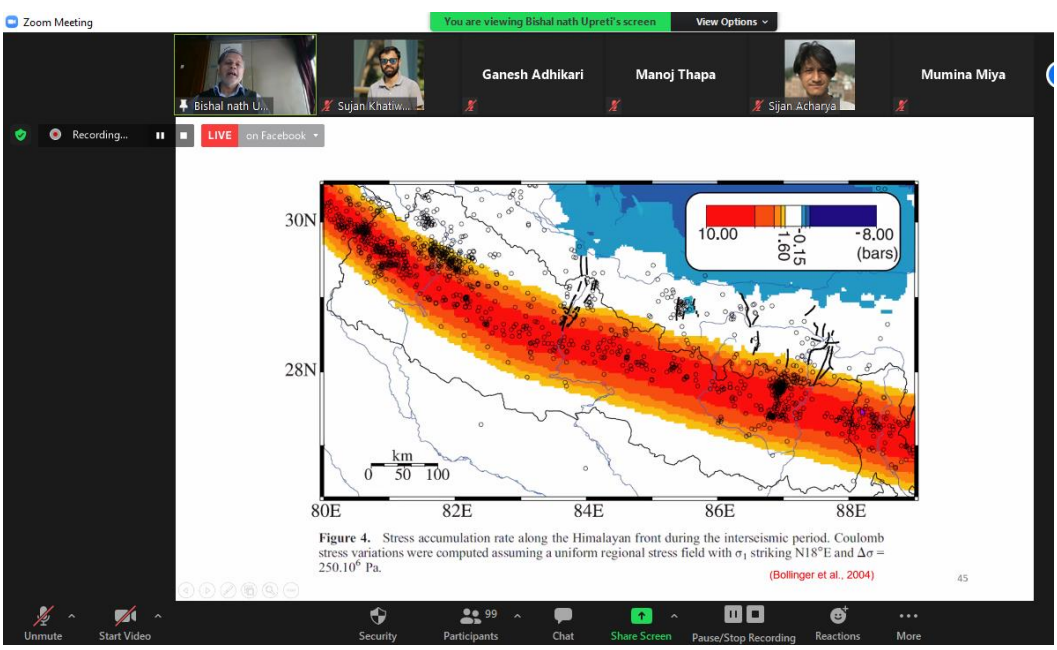
Society of Exploration Geophysicist Tribhuvan University Student Chapter in collaboration with Nepal Geological Students' Society organized the webinar of Prof. Dr. Bishal Nath Upreti on "Plate Tectonics and the Origin of the Himalaya: The Mountain in the Making" through virtual medium on Ashadh 05, 2078 (June 19, 2021). More than 100 students and geologists attended program through ZOOM and more than 100 participants were connected in facebook live.

The program was conducted by Mr. Manoj Thapa, President of the SEG Tribhuvan University Student Chapter. Prof. Upreti presented and discussed about Plate Tectonics and the Origin of the Himalaya. The discussion was made by Mr. Pawan Kumar Acharya, President of the Nepal Geological Students' Society gives concluding remarks and appreciate the contribution of Prof. Upreti in the field of geoscience in Nepal and thanks to presenter, collaborator, and the participant of the program.



Webinar by Professor Dr. Bishal Nath Upreti (Second series)

SEG (Society of Exploration Geophysicist) Tribhuvan University Student Chapter in collaboration with Nepal Geological Students Society (NGSS) on Asar 19, 2078 (July 03, 2021) organized a webinar on "**Stratigraphy and Tectonics of the Nepal Himalaya"**. The program was delivered by Professor Dr. Bishal Nath Upreti, Academician of Nepal Academy of Science and Technology (NAST) and fellow, The World Academy of Science (TWAS). The webinar and co-ordination between Dr. Upreti and participants was excellent and more than 100 participants attended the webinar and made the live discussion. The program was conducted by Mr. Manoj Thapa, President at Tribhuvan University SEG Student Chapter. Professor Dr. Upreti discussed about Himalaya-Plateau and its importance, Setting of India-Asia collision and Himalaya origin, the Major Thrusts, Tectonostratigraphy and Stratigraphy of Nepal Himalaya and so on. He also shared his work experiences and distributed some very useful articles to the participants. The program was concluded by Mr. Madan Kumar Regmi, Vice-President of the Nepal Geological Students' Society.



"Plate Tectonics and the Origin of the Himalaya: The Mountain in the Making"

&

"Stratigraphy and Tectonics of the Nepal Himalaya"

Dr. B.N. Upreti

Professor, Dean, Institute of Science and Technology, T.U

Head of Department of Geology, School of Mines, Zambia

Abstract

Tectonically Nepal can be divided into five different zones via; i) the Indo-Gangetic Plain ii) the Sub Himalaya (Churiya Zone) iii) the Lesser Himalaya iv) the Higher Himalaya and v) the Tibetan-Tethys zone. These zones are separated by several major thrusts, Main Frontal Thrust (MFT), Main Boundary Thrust (MBT), Main Central Thrust (MCT), and South Tibetan Detachment System (STDS). Among these thrusts the main central thrust is still active while main boundary thrust is almost passive thrust. The Terai Tectonic Zone which consists of over one km of recent alluvium concealing the Churia Group (Siwalik equivalents) and underlying rocks of northern Peninsular India. The Churia Zone consists of Neogene to Quaternary foreland basin deposits and forms the Himalayan mountain front. The Lesser Himalayan Zone, in which mainly Precambrian rocks are involved, consists of sedimentary rocks that were deposited on the Indian continental margin and represent the southernmost facies of the Tethyan sea. The crystalline high-grade metamorphic rocks of the Higher Himalayan Zone form the backbone of the Himalaya and give rise to its formidable high ranges. The Tibetan Tethys Zone is represented by Cambrian to Cretaceous-Eocene fossiliferous sedimentary rocks overlying the crystalline rocks of the Higher Himalaya along the Southern Tibetan Detachment Fault System (STDFS) which is a north dipping normal fault system.

Short bio of Prof. Dr. Bishal Nath Upreti

Prof. Upreti is the former Head of geology department at Tri-Chandra Campus and Central Department of Geology, and also the former Dean of Institute of Science and Technology, Tribhuvan University. He is an Academician of the Nepal Academy of Science and Technology and the Fellow and Council Member (2016-2022) of The World Academy of Sciences (TWAS). He was an Adjunct Professor at the Queensland University of Technology, Australia, and a visiting Professor at the Institute of Geology, Chinese Academy of Geological Sciences, Beijing. Prof. Upreti was a professor (2015-2021) and head, Department of Geology at the School of Mines, The University of Zambia, Lusaka, Zambia. He also taught at Arba Minch University in Ethiopia.

During his nearly 47 years of professional career, Prof. Upreti has done extensive geological research in the Nepal Himalaya and authored and edited many books and published over 85 research papers in national and international journals. Prof. Upreti was a visiting professor in the universities and Institutes of China, France, Germany, India, Japan, Ethiopia and Zambia. He was a Visiting Professor at IPGP France and the Jawahar Lal Centre for Advanced Scientific Research, India, DAAD Fellow in Germany, and Research Fellow at CRPG, CNRS in France, a JSPS Fellow (2009) and Research Fellow (1983) in Japan. He has attended, chaired and delivered keynote and invited lectures in many universities, international seminars and conferences. Prof. Upreti also served as the President of Nepal Geologic Society.

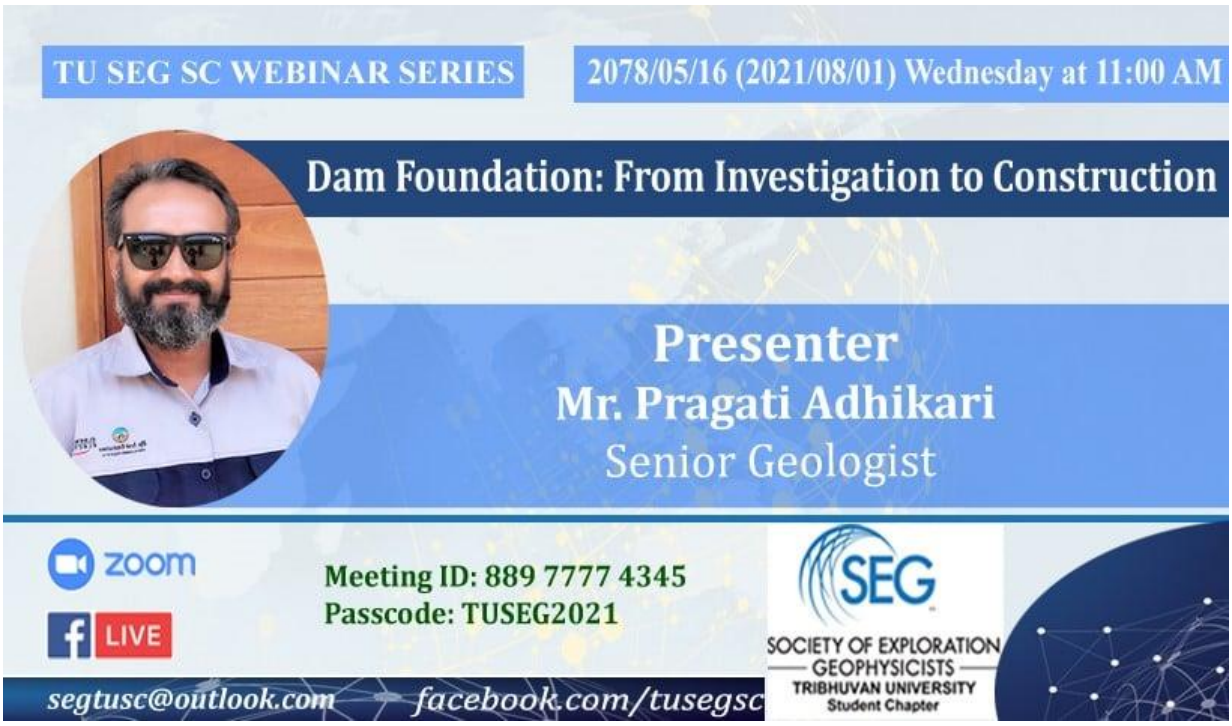
He has published over 85 research papers in national and international journals. His h-index is 31 and i10-index 47, and has over 5,500 citations.

Prof. Upreti has been awarded with national honors such as Gorkha Dakshin Bahu, Mahendra Vidhya Bhusan medals etc. and also awarded with the prestigious International Award - C.N.R. Rao Prize for Scientific Research from The World Academy of Sciences (TWAS) for his research contribution in the Nepal Himalaya. He was awarded with the Honorary Fellowship of the Nepal Geological Society and the Geological Society of America. He was elected as a Fellow of the Geological Society of America in 2019.

Prof. Upreti's main research interests are in structural geology and tectonics, Engineering geology, paleoseismology, geohazards and disaster management.

Webinar by Mr. Pragati Adhikari

SEG (Society of Exploration Geophysicist) Tribhuvan University Student Chapter in collaboration with Nepal Geological Students Society (NGSS) on Bhadra 16, 2078 (August 01, 2021) organized a webinar on "**Dam Foundation: From Investigation to Construction"**. The program was delivered by Mr. Pragati Adhikari one of the senior Geologist of Nepal. The webinar and co-ordination between Mr. Adhikari and participants was excellent and more than 50 participants attended the webinar and made the live discussion. The program was conducted by Mr. Manoj Thapa, President at Tribhuvan University SEG Student Chapter. Mr. Adhikari discussed about the dam foundation; starting to finish part and different instruments aswell. He also shared his work experiences.



Short bio of Mr. Pragati Adhikari

Mr. Pragati Adhikari is one of the senior geologist who has completed his master's degree in geology at 1997 A.D from Central Department of Geology, Tribhuvan University. Again at 2007A.D, he completed Master's degree in Sustainable Development from SMU. Excluding Nepal he has worked in different countries like Ethiopia, Indonesia, Oman, Rwanda, Burundi, Congo and Tanzania. Project that he has worked and which he is working on are:

1. Julius Nyerere Hydro Power Project, (2115MW), in the Stiegler's Gorge of Rufiji River, Tanzania (under Construction)
2. Batang Toru Hydroelectric Power Project, (510 MW), Sipirok and Marancar South Tapanuli Regency, North Sumatra, Indonesia
3. Grand Ethiopian Renaissance Dam Project, (6400 MW), Ethiopia
4. Grand Katende Hydro Electric Project, Democratic Republic of Congo
5. Kabu-16 Hydro Electric Project, Republic of Burundi
6. Nyabarongo Hydro Electric Project, Republic of Rwanda
7. Melamchi Water Supply Project
8. Chameliya Hydro Electric Project (30 MW) Darchula, Nepal
9. Upper Dordi 'A' Hydroelectric Project, Lamjung, Nepal

Webinar by Mr. Rabindra Prasad Dhakal

SEG (Society of Exploration Geophysicist) Tribhuvan University Student Chapter in collaboration with Nepal Geological Students Society (NGSS) on Bhadra 26, 2078 (September 11, 2021) organized a webinar on **"Overview of Tunneling and Role of Geologist"**. The program was delivered by Mr. Dhakal one of the senior Geologist of Nepal. The webinar and co-ordination between Mr. Dhakal and participants was excellent and more than 80 participants attended the webinar and made the live discussion. Mr. Pragati Adhikari one of the senior geologist was also involved in the discussion. The program was conducted by Mr. Sujan Bhattarai, Secretary at Tribhuvan University SEG Student Chapter. Mr. Dhakal discussed about the tunneling and what is the role that we should consider while working in the tunnel. He also shared a lot of his work experiences. He also discussed about the organizational chart, tunnel cycle, tunnel construction equipment, tunnel support system and so on. The program was concluded by Mr. Pawan Kumar Acharya, President of the Nepal Geological Students' Society.

Short bio of Mr. Rabindra Prasad Dhakal

Mr. Dhakal has completed his Master's Degree in Geology from Central Department of Geology in 2002A.D with specialization in Engineering Geological Techniques, besides engineering hydrology and engineering geophysics as a side subject. He has 18+ years of relevant working experience in diversified engineering geological, civil engineering and project management works. He is also a member of Nepal Geological Society, Nepal Tunneling Association and International Association of Engineering Geology (IAEG). He has worked as Assistant Geologist in NORPLAN A.S from 2003A.D to 2005A.D and as Engineering Geologist from 2005A.D to 2007A.D in Sunkoshi Hydropower Company Limited. After 2007 till end of 2008, he has worked as Resident Geologist for mining works through CEGMID Engineering Consultancy. From 2009A.D to 2014A.D he has worked on Sanjen Hydroelectric Project (42 MW, underground works), Middle Bhotekoshi Diversion Tunnel Project, Mai Hydropower Project (22MW) and Upper Tamakoshi Powerhouse Access Tunnel Project as Project Manager and Tunnel Engineer. Then, from 2014A.D to 2017A.D he has worked as Project Manager in Upper Dordi A Hydroelectric Project (25 MW, Underground works) and Melamchi Water Supply Project, Headworks and Ambathan Adit. In 2017 A.D, he joint as Senior Engineering Geologist for the detail design of Melamchi water supply project and is presently working as Resident Engineer for Melamchi water supply project Headworks and Ambathan Adit**.**

Certificate of Appreciation to Presenter of Webinar Series.

CERTIFICATE OF APPRECIATION

This certificate is presented to:

Dr. Amod Mani Dixit

For sharing valuable knowledge as a guest speaker/presenter during the webinar on the topic **"How a geologist can contribute to Disaster Risk Management"**.

Organized by: Nepal Geological Students' Society (NGSS)
Technical Support by: Nepal Research and Education Network (NREN)

Date: 2021 May 26

CERTIFICATE OF APPRECIATION

This certificate is presented to:

Dr. Madhu Sudan Acharya

For sharing valuable knowledge as a guest speaker/presenter during the webinar on the topic **" Understanding Slope Stabilization "**.

Organized by: Tribhuvan University SEG Student Chapter (TUSEGSC) on Collaboration with Nepal Geological Students' Society (NGSS)

Date: 2021 June 05

CERTIFICATE OF APPRECIATION

This certificate is presented to:

Mr. Naba Raj Shrestha

For sharing valuable knowledge as a guest speaker/presenter during the webinar on the topic **"Current Status of Geophysical Investigation in Nepal: Challenges and Opportunities"**

Organized by: Nepal Geological Students' Society (NGSS) in collaboration with Tribhuvan University SEG Student Chapter (TUSEGSC)

Date: 2021 June 15

CERTIFICATE OF APPRECIATION

This certificate is presented to:

Professor Dr. Bishal Nath Upreti

For sharing valuable knowledge as a guest speaker/presenter during the webinar on the topic **"Plate Tectonics and the Origin of the Himalaya:The Mountain in the Making"**

Organized by: Tribhuvan University SEG Student Chapter (TUSEGSC) on Collaboration with Nepal Geological Students' Society (NGSS)

Date: 2021 June 19

CERTIFICATE OF APPRECIATION

This certificate is presented to:

Professor Dr. Bishal Nath Upreti

For sharing valuable knowledge as a guest speaker/presenter during the webinar on the topic **" Stratigraphy and Tectonics of the Nepal Himalaya "**.

Organized by: Tribhuvan University SEG Student Chapter (TUSEGSC) on Collaboration with Nepal Geological Students' Society (NGSS)

Date: 2021 July 03

CERTIFICATE OF APPRECIATION

This certificate is presented to:

Mr. Pragati Adhikari

For sharing valuable knowledge as a guest speaker/presenter during the webinar on the topic **" Dam Foundation: From Investigation to Construction "**.

Organized by: Tribhuvan University SEG Student Chapter (TUSEGSC) on Collaboration with Nepal Geological Students' Society (NGSS)

Date: 2021 Aug 01

CERTIFICATE OF APPRECIATION

This certificate is presented to:

Mr. Rabindra Pd. Dhakal

For sharing valuable knowledge as a guest speaker/presenter during the webinar on the topic **"Overview of Tunneling and Role of Geologist"**.

Organized by: Tribhuvan University SEG Student Chapter (TUSEGSC) on Collaboration with Nepal Geological Students' Society (NGSS)

Date: 2021 Sep 11

Organization of Nepal Geography Olympiad and Agreement with STEM Foundation Nepal

An agreement for two years was made between Nepal Geological Students' Society (NGSS) and STEM Foundation Nepal for hosting Nepal Geography Olympiad (NGeO) to represent in International Geography Olympiad. The STEM Foundation Nepal is the main organizer of the program and the NGSS is the organizing partner. Mr. Surgeon B.C., Founder Chairperson of the STEM Foundation Nepal Nepal and Mr. Pawan Kumar Acharya, President of the Society signed the Memorandum of Understanding (MoU). Nepal Geography Olympiad is the national competition on geography subject targeted to school level students (up to +2). NGSS takes the responsibility to prepare syllabus, question and publish the result from the examinee. As per agreement, STEM Foundation Nepal and NGSS had successfully organized the first Nepal Geography Olympiad (NGeO). NGSS has prepared syllabus and question paper. The interview of examinee was also taken and finally four students as a finalist of NGeO were selected: Mr. Anurag Chapagain, Ms. Chaitali Agrawal, Mr. Kiran Silwal, Mr. Ranjan Kumar Prasai. The finalists had participated in the International Geography Olympiad organized by Turkish Geographical Society and Istanbul Technical Society. Due to COVID pandemics, this time the competition was held through online medium. Mr. Pawan Kumar Acharya, President and Mr. Ronit Paudel, Member of the Society provided two days training to the finalist before taking part in IGeO. Mr. Surgeon B.C. as a team leader and Mr. Pawan Kumar Acharya, as an observer from Nepal participated in the Jury meeting in the international forum before sending finalist of NGeO in IGeO.

Agreement between Mr. Pawan Kumar Acharya, President of Nepal Geological Students' Society and Mr. Surgeon B.C., Founder Chairperson of STEM Foundation Nepal for hosting Nepal Geography Olympiad to represent International Geography Olympiad.

Nepal Geography Olympiad, 2021:
Organized by STEM Foundation Nepal and
Nepal Geological Students Society (NGSS)

Syllabus for Nepal Geography Olympiad (NGeO).

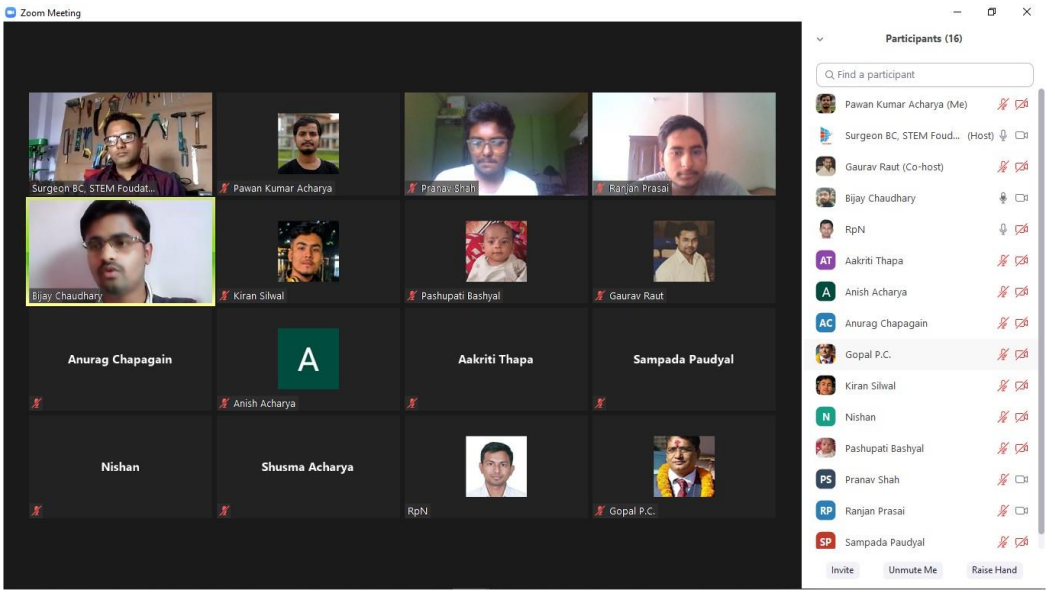
Full marks: 100

Type of questions: Subjective question and objective questions

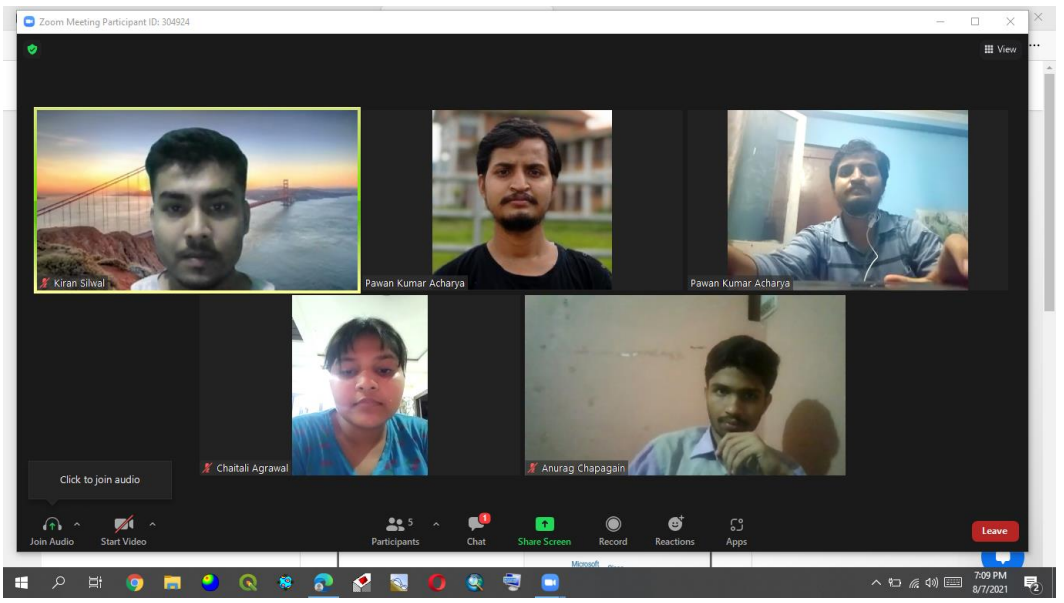
Subjective question: (4*5 = 20 marks)

Objective questions (40*2 = 80 marks)

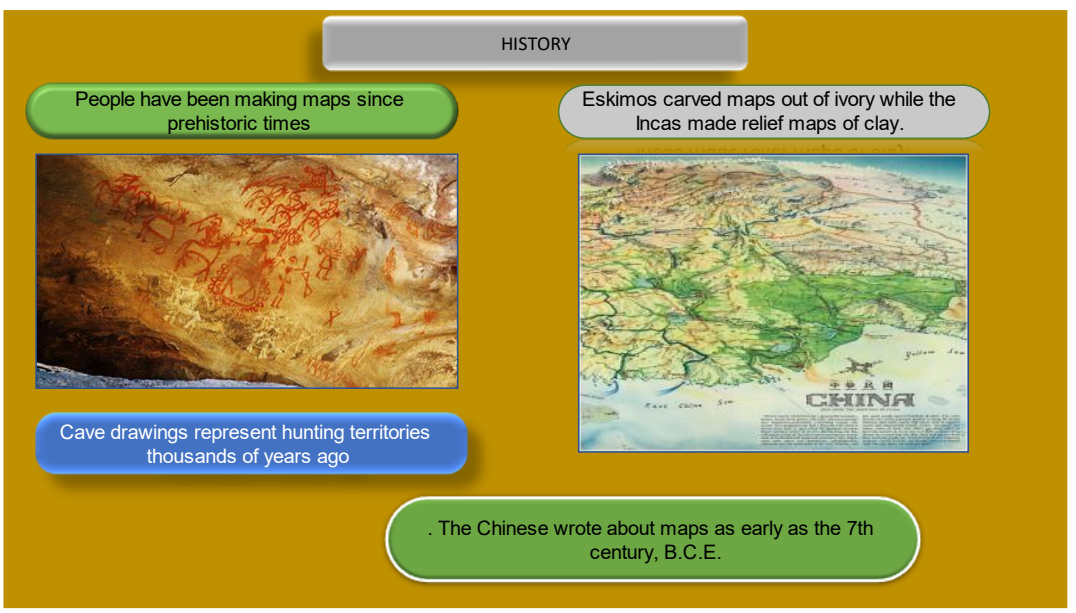
1. **Physical Geography:** Atmosphere, hydrosphere, biosphere and geosphere, Basic concepts on branches of physical geography (Geomorphology, hydrology, glaciology, biogeography, climatology, meteorology, oceanography, environmental geography)
2. **Maps:** Type of map (topographic map, google images and satellite images)
3. **Geodesy:** Shape and size of the earth, coordinate system used in preparation of Map of Nepal, latitude, longitude.
4. **Geography of World:** Continent and ocean of the world, world mountain range, world climates.
5. **Geography of Nepal:** Geographic division of Nepal and the percentage occupied by each region, major flora and fauna that occurs in each geographical regions.
6. **Climate and climate change:** Greenhouse gas producers and greenhouse effect, carbon cycle, natural climate change (due to tilted earth, ice age, continental drift, volcanic erruption, forest fire impact), monsoon climate
7. **Weather process**: Evaporation, condensation, humidity, precipitations, cause of precipitations, type of precipitation (rain, hail, snow, fog).
8. **Earth interior and plate tectonics**: Interior of earth (crust, mantle and core) and their thickness, tectonic plates (Eurasian plate and Indian plate) and their role in formation of Himalayan range.
9. **Weathering:** Basic concept on physical and chemical weathering and their types.
10. **Natural Hazard:** Earthquake (seismic wave and their types, epicenter, hypocenter, earthquake magnitude (Richter scale), causes of earthquake in Nepal Himalaya, impact of earthquake, way of risk reduction from earthquke, largest earthquake of world and Nepal, History of earthquake in Nepal and associated disaster), Basic concept on Causes of landslide, type of landslides and floods



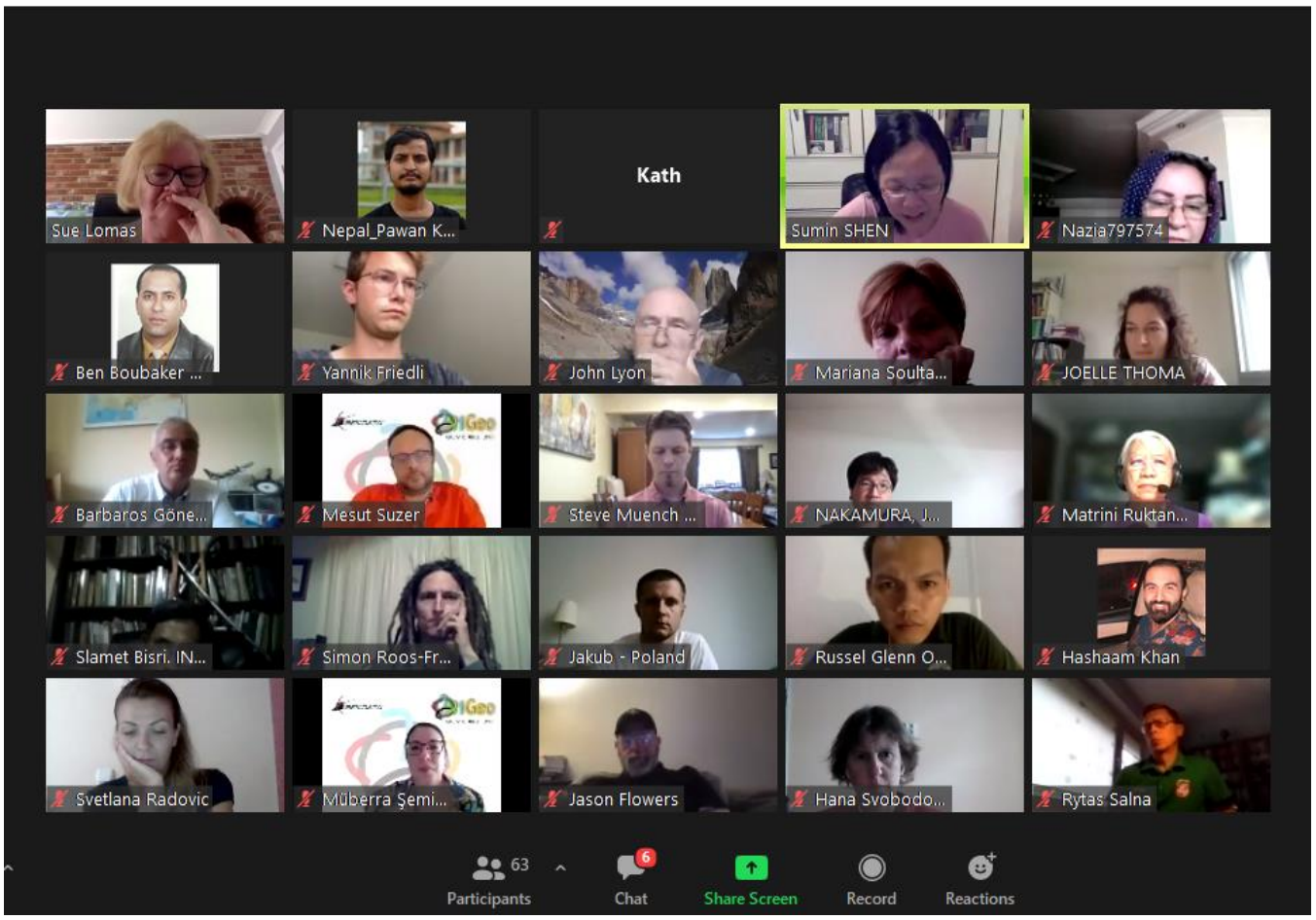
Interview of examinee for selecting the finalist of Nepal Geography Olympiad to represent in the International Geography Olympiad.



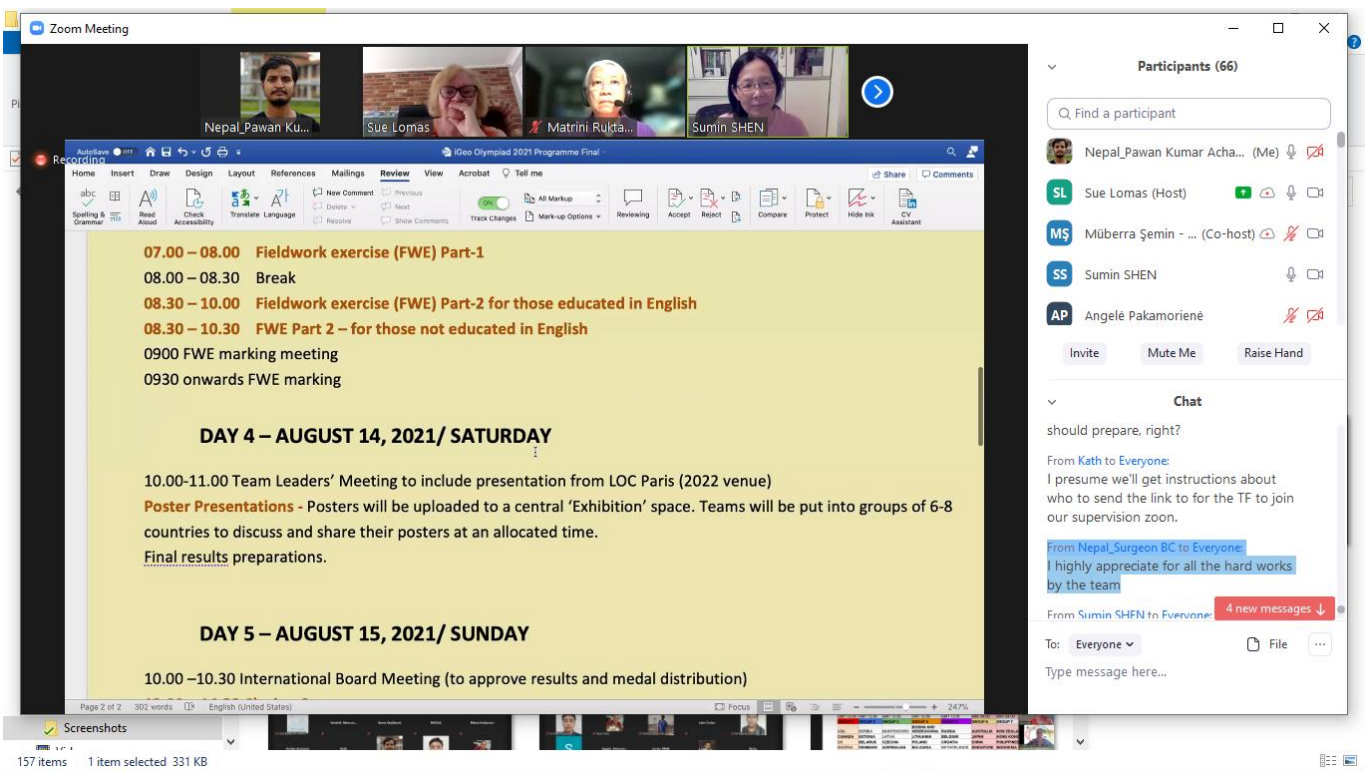
Training to Finalist of Nepal Geography Olympiad provided by Mr. Pawan Kumar Acharya, President of the Society.



Format of training material prepared by Mr. Ronit Paudel for the finalist of NGeO.



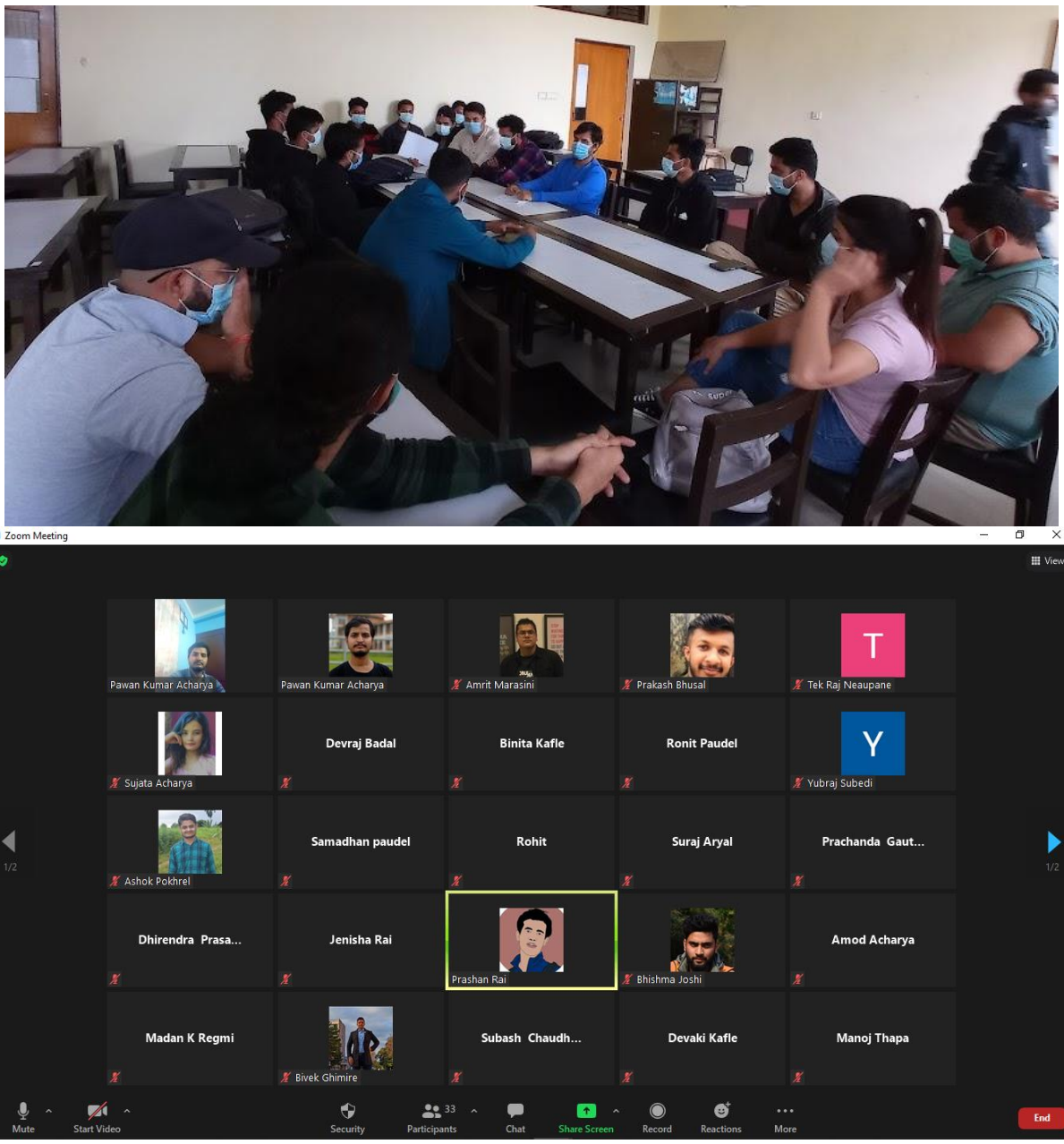
Mr. Pawan Kumar Acharya, President of the Society participating in the international jury meeting from Nepal.



Organizer informing about the framework of IGeO in the international jury meeting and Mr. Surgeon B.C. appreciating the hard work of team in comment section.

CONSTITUTION AMENDMENT OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

23rd Executive Committee of Nepal Geological Students' Society has carried out the first amendment of constitution through special AGM of the Society. The issue of constitution amendment was raised since long time after running Engineering Geology program in master's level in Central Department of Geology, University Campus and Tri-Chandra Multiple Campus, T.U. The prevailing constitution did not describe about the candidacy and voting right for the student of Engineering Geology. There was no provision of equal right to the students studying M.Sc. in Geology and related programs. In this context, the main agenda of present working executive committee was the amendment of constitution. This committee includes the student from all the campus according to earlier consideration and make several phases of discussion to its member, former members, and the advisor of the Society. The executive committee also discussed with the invited members representing the bachelors' level from their campus to describe the role of associate member and invited members of the Society. It also discusses about the suitability of formation of Units of the Society in the campus where geology is taught in bachelor's level. This committee finally became successful in amending its constitution. The election was also conducted for the selection of 24th executive committee based on the amended constitution.



Photograph of discussion on both physical and virtual medium about constitution amendment

COLLABORATION WITH NEPAL GEOLOGICAL SOCIETY IN ORGANIZING THE INTERACTION PROGRAM.

Nepal Geological Students' Society as a co-organizer organized an interaction program in collaboration with Nepal Geological Society. Two interaction programs on application of geological knowledge on hydropower and mining sector and the opportunities and knowledge gap in these sectors were organized separately in two different programs.

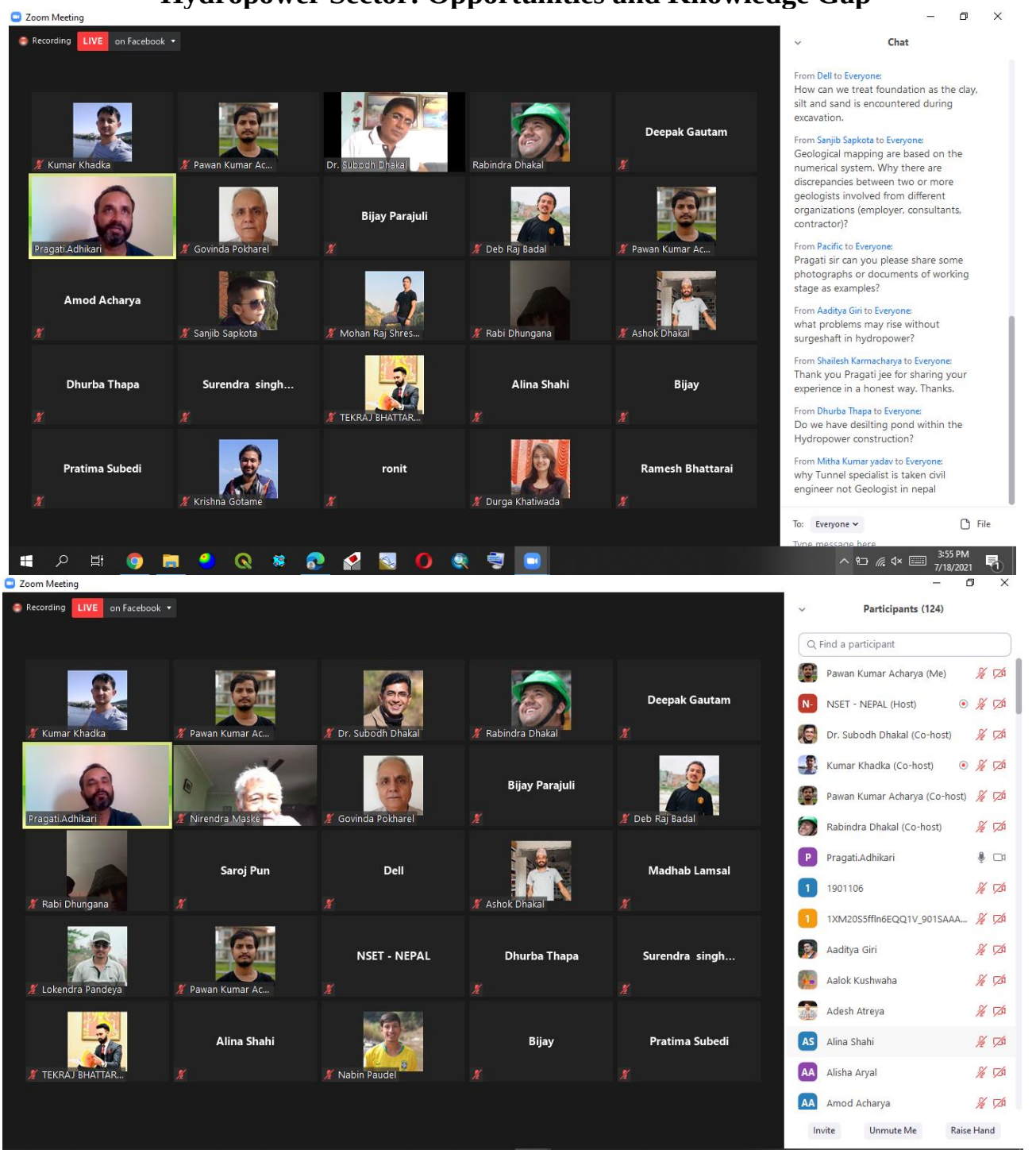
Interaction Program on Application of Geological Knowledge on Hydropower Sector: Opportunities and Knowledge Gap

Academic and Professional Development Subcommittee of Nepal Geological Society (co-organized by Nepal Geological Student Society) organized an online interaction program regarding the identification of knowledge gap between our graduates and that required in the hydropower sector and finding the ways to bridge this gap. More than 130 geoscientists and students from Nepal and abroad attended the program. Two dynamic and experienced geologists Mr. Pragati Adhikari, Chief Engineering Geologist (JV AC-EE, Julius Nyerere 2115 MW Hydro Power Project, Tanzania) and Mr. Rabindra Dhakal, Resident Engineer, EPTISA Service De Ingenieria S.L., Melamchi Design and Supervision Consultant were the panelist of the program. They provided the detail insights about the current situation, problems faced, suitability of the syllabus for applicability in the applied field, job opportunities here in Nepal as well as abroad, important softwares etc.. The program was moderated by the coordinator of the Academic and Professional Development Sub-Committee Dr. Subodh Dhakal.

The program was quite interactive as the participants put many questions and suggestions regarding the theme of the program, and the panelists were keen to address the concerns. Mr. Sam Ghimire, Mr. Sanjib Sapkota, Mr. Aditya Giri, Mr. Shailesh Karmacharya, Mr. Dhurba Thapa, Mr. Mitha Kumar Yadav, Mr. Amrit Marasini and many other took part in the discussion program. Mr. Pawan Kumar Acharya, President of the Nepal Geological Students' Society put forward a query about the suitability of internship to the graduate student and status of current syllabus studies by the geology students in bachelor's and master's level in Nepal. It was concluded that, there is not any critical problem in the current syllabus, and it is

necessary to provide internship and at least a week-long training to the potential graduates who want to work in the hydropower sector. For the job opportunities in the international market, at least few years of work experience is required. After this, there can be more opportunities for the job in the international market. National Society of Earthquake Technology-Nepal (NSET-Nepal) supported the program by providing unlimited Zoom access. Members of the Academic and Professional Sub-committee and the members of Nepal Geological Student Society also attended the program.

A Glimpse of Interaction Program on Application of Geological Knowledge on Hydropower Sector: Opportunities and Knowledge Gap



Interaction Program on Application of Geological Knowledge on Mining Sector: Opportunities and Knowledge Gap

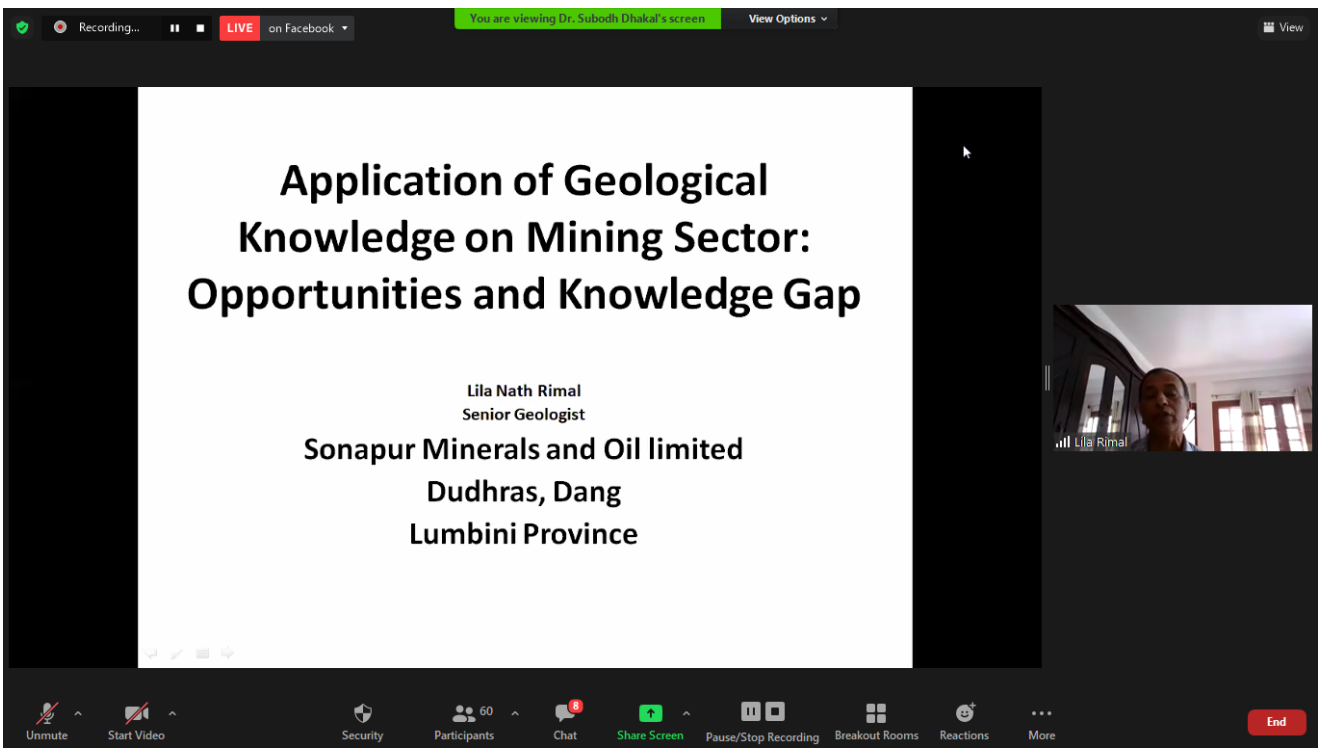
Academic and Professional Development Subcommittee of Nepal Geological Society (coorganized by Nepal Geological Student Society) also organized an online interaction program regarding the knowledge gap between our graduates and that required in the mining sector. More than 70 geoscientists and students from Nepal and abroad attended the program. Three expert panelists Mr. Bharat Kunwar, Mr. Lila Nath Rimal and Mr. Jay Raj Ghimire provided the detail insights about the current situation, working process, knowledge required, problems faced, job opportunities etc. The vast experience of the panelists provided in-depth discussion. The program was moderated by the coordinator of the Academic and Professional Development Sub-committee Dr. Subodh Dhakal. In the beginning, the co-ordintor of this subcommittee Dr. Subodh Dhakal presented the current content of the syllabus on Mining in the Bachelors and Masters level course of Geology. The program was chaired by the President of Nepal Geological Society Mr. Ram Prasad Ghimire.

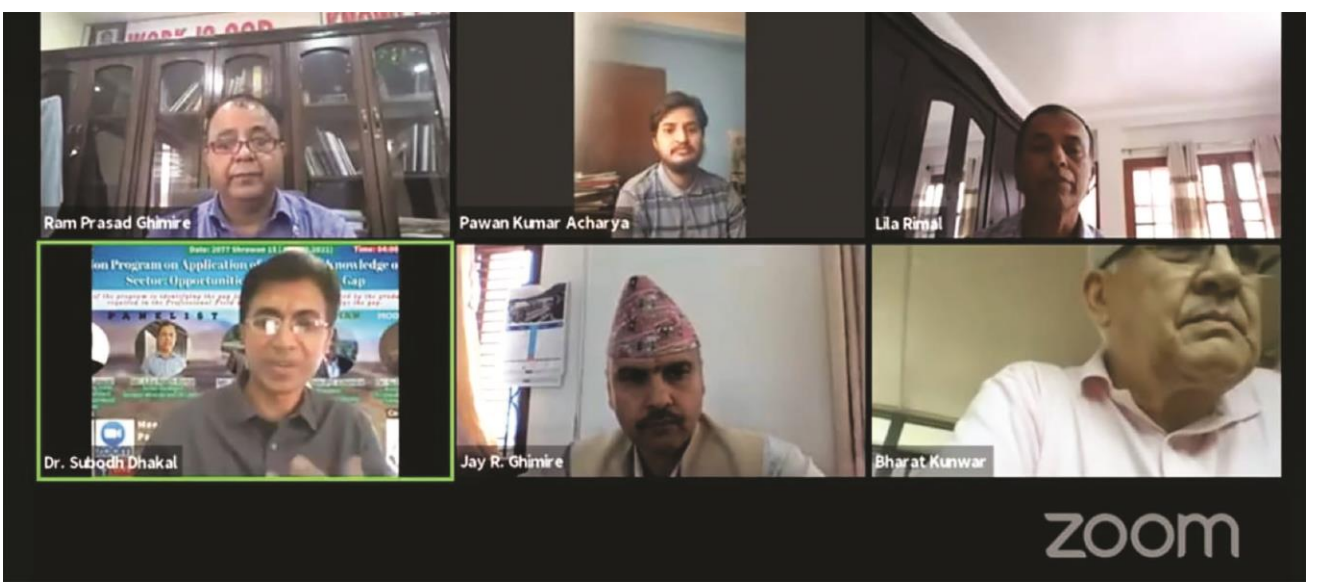
The program was quite interactive as the participants put many questions and suggestions regarding the theme of the program, and the panelists were keen to address the concerns. Mr. Pawan Kumar Acharya, President of Nepal Geological Students' Society (NGSS), placed the problem faced by mining geology students due to lack of required experts in Nepal. He also put critical comment on the problem of syllabus in bachelor's and master's level. He also stressed in the collaboration between university and Department of Mines and Geology (DMG) for the investigation and research. Mr. Niraj Baral, Mr. Roshan Neupane, Mr. Pramod Kattel, Mr. Sriram Tiwari, Mr. Dipak Dahal took part in discussion. It was concluded that the current syllabus covered most of the content required while working in the mining industries.

It was also suggested by the panelists that in the shortage of Mining Engineers in Nepal, Geologists can take over the job if they can upgrade themselves about the working method of survey techniques, equipments and vehicles. They also suggested that it is better to provide internship and at least week -long

training to the potential graduates who want to work in the mining sector. More knowledge can be provided to the graduates if they get opportunity to visit and study the currently operating mining industries about the workflow. It was also discussed that the job opportunities for the geology graduates is better currently as the industries are emerging and the supply of mining engineers is very less. National Society of Earthquake Technology-Nepal (NSET-Nepal) supported the program by providing unlimited Zoom access. Members of the Academic and Professional Sub-committee and the members of Nepal Geological Student Society also attended the program.

A Glimpse of Interaction Program on Application of Geological Knowledge on Mining Sector: Opportunities and Knowledge Gap





INTERACTION PROGRAM ON STATUS OF GEOSCIENCE EDUCATION IN SCHOOL LEVEL OF NEPAL

Nepal Geological Student's Society organized an interaction program in collaboration with Science Teacher's Association of Nepal, STEAM Foundation and International Geoscience Educational Organization on 2078/09/24 at Uniglobe SS/Collage, Kamaladi entitled "**Interaction Program on Status of Geoscience Education in School Level of Nepal"** on the chairmanship of STAN President Mr. Khil Kumar Pradhan. The program was hosted by NGSS executive member Mr. Roshan Neupane while welcome speech was delivered by NGSS executive member Mrs. Anita Dallakoti and addressed by central secretary of STAN Mr. Manoj Acharya. Associate Prof. Dr. Subodh Dhakal from Trichandra Campus, Seismologist Dr. Mukunda Bhattarai from Department of Mines and Geology, NGSS president Mr. Pawan Kumar Acharya and STAN member Mr. Manoj Kumar Khadka were the presenters in the program. All of the representative science teacher of Kathmandu, Bhaktapur and Lalitpur districts took participant in the program.

Mr. Manoj Kumar Khadka presented on 'Part of Geology in School Level Science Education'. He discussed about the part of geology content in school curriculum. He also compared the previous syllabus with changed new syllabus of science in school level and also expressed his full disagreement on the changed syllabus.

Mr. Pawan Kumar Acharya presented on 'Scope of Geology in Nepal and Activities of International Geoscience Education Organization (IGEO)'. He talked about the scope of geoscience in coming future. He elaborated about the role of geoscience in tunnelling, mining, groundwater, and disaster risk management. IGEO organizes an **I**nternational **E**arth **S**cience **O**lympiad, international competition for pupils up to the age of 19 from school level students and expose them to the international geoscience society.

Dr. Subodh Dhakal delivered his speech on 'Geological Hazard and Disasters in Nepal'. He clarified about hazard, disaster, and its impact on Nepalese society. He further described the role of geology in hazard, their identification and mitigation of landslides. He encouraged the participants to flow the awareness about hazard in school level as they are best medium to spread the awareness about hazards.

Dr. Mukunda Bhattarai presented on 'Earthquake in Nepal and Earthquake Safety'. He clarified about the mechanism of earthquake and the role of Department of Mines and Geology in earthquake sources detection. Seismic station setup, variation of seismic wave and the earthquake history in Nepal was discussed in the presentation. Basic precautions to follow while shaking of earth without panic was told and presented. The basic component of earthquake for school level was discussed in the session.

After the presentation, an open discussion among the participants and experts was done where questionnaires were raised, and the solutions were further discussed in the forum. The program was concluded by STAN President Mr. Khil Kumar Pradhan and end with Hi-Tea.

Interaction Program on Status of Geoscience Education in School Level of Nepal

Organized by:

Nepal Geological Students' Society (NGSS)
Science Teachers' Association of Nepal (STAN)
STEM Foundation Nepal
International Geoscience Education Organization (IGEO)

Supported by
Uniglobe SS/College,
Kamaladi, Kathmandu

Date: 2078/09/24, Saturday
Time: 10:00AM - 12:30PM
Venue : Uniglobe SS/College, Kamaladi Kathmandu

Sessions	Time	Activities
MC: **Mr. Roshan Neupane** Executive Member, NGSS	10:00-10:30 AM	Registration of participants
	10:30-10:35 AM	Welcome speech by **Ms. Anita Dallakoti**, Executive Member, NGSS
	10:35-10:40 AM	Address by **Mr. Ashok Choudhary**, Principal, Uniglobe SS/College.
	10:40-10:45 AM	Address by **Mr. Manoj Acharya**, Central Secretary, STAN
	10:45-10:50 AM	Address by **Mr. Surgeon B.C.**, Founder Chairperson, STEM Foundation Nepal
	10:50-11:00 AM	*Part of Geology in school level Science Education* **Mr. Manoj Kumar Khadka,** Member, STAN & Science Teacher, Arunodaya Secondary School, Kathmandu
	11:00-11:10 AM	*Scope of Geology in Nepal and activities of International Geoscience Education Organization (IGEO).* **Mr. Pawan Kumar Acharya.** President, NGSS & Council Member from Nepal, IGEO
	11:10-11:20 AM	*Geoscience curriculum in school level and teaching methodology* **Dr. Kabi Raj Paudyal,** Assistant Professor, Central Department of Geology, Tribhuvan University, Kirtipur & Former President, Nepal Geological Society.
	11:20-11:30 AM	*Geological hazards and disasters in Nepal.* **Dr. Subodh Dhakal** Associate Professor, Tri-Chandra Multiple Campus, Tribhuvan University.
	11:30-11:40 AM	*Earthquake in Nepal and earthquake safety.* **Dr. Mukunda Bhattarai** Seismologist, Department of Mines and Geology.
	11:40 AM-12:00 PM	Open discussion among the participants and experts
	12:00-12:05 PM	Concluding Remarks: **Mr. Khil Kumar Pradhan**, President, STAN
	12:05-12:30 PM	Introduction with Hi Tea

A Glimpse of Interaction Program

Mr. Mukunda Bhattarai, Seismologist, Department of Mines and Geology presenting in the program

Dr. Subodh Dhakal, Associate Professor, Tribhuvan University, presenting in the interaction program.

Format of certificate provided to participant and presenter.

NEWS IN MEDIA

विद्यालयस्तरमा भू-विज्ञान शिक्षाको अवस्था विषयक अन्तरक्रिया कार्यक्रम सम्पन्न

शनिबार, २४ पौष २०७८ गते २२:४० मा प्रकाशित Author; khabarpaana 160 Views

नेपाल भौगर्भिक विद्यार्थी समाज (NGSS), विज्ञान शिक्षक संघ नेपाल (STAN), STEAM Foundation र अन्तर्राष्ट्रिय भुविज्ञान शैक्षिक संस्थाको संयुक्त आयोजनामा "Interaction Program on Status of Geoscience Education in School Level of Nepal" आज अन्तरक्रिया कार्यक्रम भएको छ।

उक्त कार्यक्रममा विभिन्न बिज्ञहरुले प्रस्तोता दिनुभएको थियो। प्रस्तोतामा त्रिभुवन बिश्वबिद्धालय त्रिचन्द्र क्याम्पसका Associate Professor डा. सुबोध ढकाल, खानी तथा भुगर्भ बिभागका seismologist डा. मुकुन्द भट्टराई, NGSS अध्यक्ष पवन कुमार आचार्य र STAN सदस्य मनोज कुमार खड्काले विभिन्न शिर्षकमा प्रस्तोता प्रस्तुत गर्नुभएको थियो। नेपालको जस्तो भौगोलिक बनावट भएको देशमा विद्यालय स्तरबाट नै पहिरो, भूकम्प, खानी तथा खनिजहरु अध्यापन गराउनुपर्ने ठाउमा पहिला ९/१० कक्षामा राखीएका भुगर्भ सम्बन्धि बिषय पनि अहिलेको पाठ्यक्रम सुधारको बहानामा बिस्तापित गर्दा निकट भबिस्यमा देशले ठुलै क्षति ब्यहोर्नुपर्ने आकलन प्रस्तोताहरुको प्रस्तुतिमा झल्किएको थियो भने बिज्ञान शिक्षक संघ नेपालका अध्यक्षले बिध्यालय स्तरमा भुगर्भ सम्बन्धि अध्ययन अध्ययापन गराउनको लागि आफुहरुले कोर्समा समेट्न भरपुर प्रयास गरेको र निकट भबिस्यमा अध्यापन गराउनको लागि समेत आफू लागि परेको र थप आवस्यक सुझाव बिज्ञहरुबाट समेत लिने जानकारी गराउनुभएको थियो।

कार्यक्रममा काठमाडौ, भक्तपुर र ललितपुरका प्रतिनिधि बिज्ञान शिक्षकहरुको उपस्थिति रहेको थियो । प्रतिनिधित्व गर्नुहुने बिज्ञानका शिक्षकहरुले आजको कार्यक्रम निकै फलदायी भएको र थप तालीमको लागि समेत इच्छुक भएको जानकारी नेपाल भौगर्भिक बिध्यार्थी समाजलाई गराउनुभएको थियो। युनिग्लोब कलेजको हलमा भएको उक्त कार्यक्रमको अध्यक्षता STAN अध्यक्ष खिल कुमार प्रधानले गर्नुभएको थियो भने कार्यक्रम सन्चालन त्रिभुवन विश्वविद्यालय भुगर्भ शास्त्र केन्द्रिय बिभागमा अध्यनरत NGSS सदस्य रोशन न्यौपानेले गर्नुभएको थियो।

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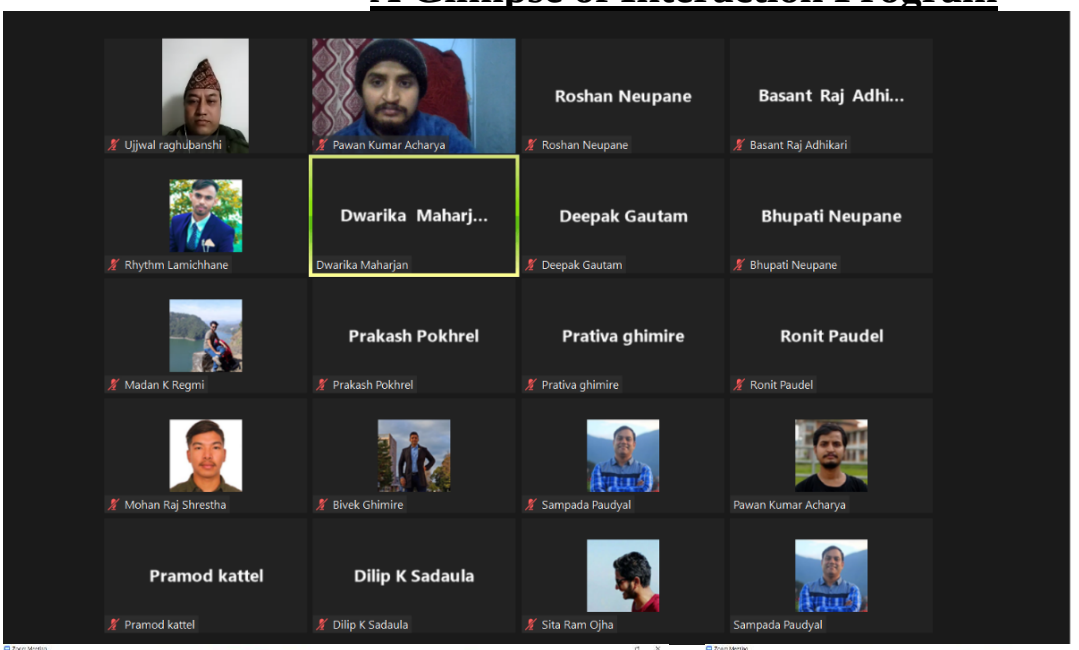
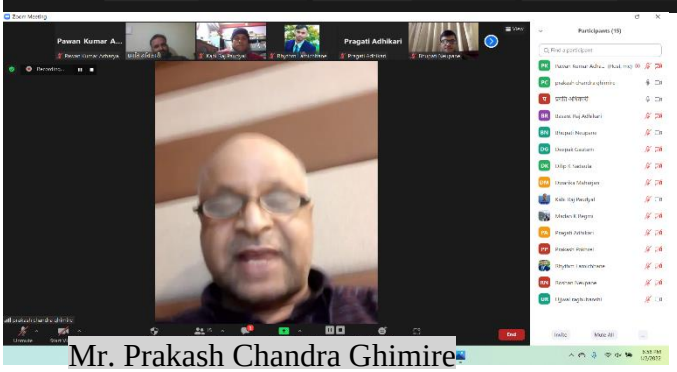
- https://khabarpaana.com/ विद्यालयस्तरमा-भू-विज्ञा/
- https://lokpati.com/2022/01/150529/?
- https://setomasi.com/archives/2489

नेपाल भौगर्भिक विद्यार्थी समाजका पूर्व अध्यक्ष, कार्यकारिणी सल्लाहकार र वर्तमान कार्यसमिति सदस्य बिचको अन्तरक्रिया कार्यक्रम

नेपाल भौगर्भिक विद्यार्थी समाजले वर्तमान कार्यसमिति पूर्व अध्यक्ष पूर्वकार्यकारी वर्तमान सल्लाहकार बीच अन्तरक्रिय कार्यक्रम सम्पन्न गरेको छ कार्यक्रममा समाजका अध्यक्ष पवन कुमार आचार्यले वर्तमान कार्यसमितिले गरेका काम तथा उपलब्धिहरु को बारेमा सहभागीहरुमाझ प्रस्तुति दिनुभएको थियो । कार्यक्रममा समाजका वर्तमान सल्लाहकार डा. कविराज पौडेलले वर्तमान समाजले गरेका कार्यहरूको प्रशंसा गर्दै आगामी दिनमा समाजलाई अगाडि बढाउन आवश्यक सल्लाह सुझाव व्यक्त गर्नुभएको थियो । कार्यक्रममा यस समाजका संस्थापक अध्यक्ष दिलिप सडौलाले तत्कालीन अवस्थामा भएका गतिविधिहरूको जानकारी तथा समाज स्थापनाको ईतिहास बारेमा प्रकाश पार्नुभएको थियो । साथसाथै आगामि दिनमा संस्थालाई अगाडि बढाउनका निमित्त आफ्नो सल्लाह तथा सुझाव व्यक्त गर्नुभएको थियो । कार्यक्रममा यस समाजका पूर्व पदाधिकारीहरु श्री प्रगति अधिकारी, श्री प्रकाश चन्द्र घिमिरे, डा. बसन्त अधिकारी, श्री द्वारिका महर्जन, श्री उज्जल रघुवंशी, डा. भूपति न्यौपाने, श्री दीपक गौतमले तत्कालिन अवस्थामा संस्थाले गरेका गतिविधिहरुलाई प्रस्तुत गर्नुका साथै आगामी दिनमा संस्थालाई सु संयोजित ढंगबाट अगाडि बढाउनका निमित्त आफ्नो तर्फबाट सल्लाह तथा सुझाव प्रदान गर्नुभएको थियो । नेपाल भौगर्भिक विद्यार्थी समाजको वर्तमान अध्यक्ष पवन कुमार आचार्यले को सभापतित्वमा भएको अन्तरक्रिया कार्यक्रमलाई समाजका सदस्य रिदम लामिछानेले सञ्चालन गर्नुभएको थियो ।

A Glimpse of Interaction Program



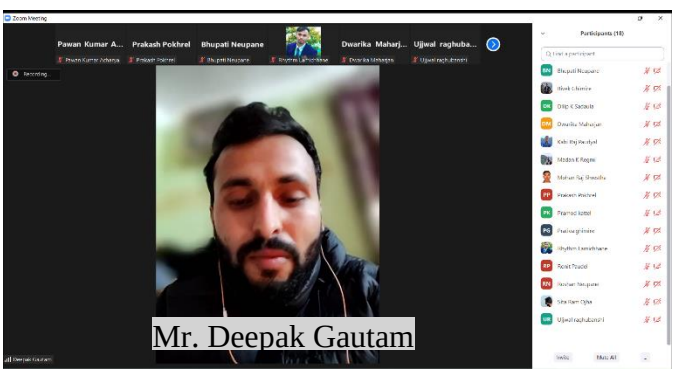

Mr. Prakash Chandra Ghimire


Dr. Kabi Raj Paudyal


Dr.Basant Raj Adhikari


Dr. Bhupati Neupane


Mr. Prakash Pokharel


Mr. Deepak Gautam

त्रिभुवन विश्वविद्यालय पदाधिकारीको कार्यालयमा ज्ञापन पत्र पेश र विभाग सँगको अन्तरक्रिया कार्यक्रम

विश्वभर फैलिएको कोरोना (COVID 19) ले सारा देश अक्रान्त बनिरहेको बेला बिश्वबिद्धालय पनि अछुतो रहन सकेन । लामो समय सम्म लकडाउन भएर कक्षा र परिक्षा स्थगित हुदा सम्म बैकल्पिक माध्यम नअपनाउदा बिध्यार्थिले एक बर्ष बढी समय खेर फाल्नुपर्ने बाध्यता बनेको छ। पछिल्लो समयमा बैकल्पिक माध्ययमबाट पढाइ भएर पनि परिक्षा भने भौतिक उपस्तिथिमै गराउनुपर्ने पुरातन सोचमा बिश्वबिद्धालय अडिक नै छ, जसबाट प्रत्यक्ष प्रभाव भुगर्भशास्त्र अध्ययनरत बिध्यार्थीलाई समेत परेको थियो र छ पनि । अनलाइन कक्षा संचालन गरेर बिभागका कुनैपनी भौतिक सम्रचनाहरु प्रयोग नभै कोर्स सक्दा पनि विश्वविद्यालयले भौतिक रुपमा पढाईहुदा जस्तै गरि पैसा असुलेको बिरोधमा नेपाल भौगर्भिक बिध्यार्थी समाजको नेतृत्वमा त्रिभुवन विश्वविद्यालय अर्न्तगतको उपकुलपतिको कार्यलय, शिक्षाध्यक्षको कार्यालय, रजिष्ट्रार को कार्यालय, विज्ञान तथा प्रविधि अध्ययन संस्थानको डिनको कार्यालय, र भुगर्भशास्त्र केन्द्रिय बिभागमा वि.सं. २०७८ साउन ३१ गते ज्ञापन पत्र बुझाएका थियो । यस कार्यक्रम पछि विभागका शिक्षण, प्रयोगशाला, स्थलगत अध्ययन लगायतको समस्या र समाधानको लागि भूगर्भशास्त्र केन्द्रीय विभागका विभागीय प्रमुख प्रा.डा. खुमनारायण पौडेल इन्जिनियरिङ भुगर्भशास्त्र कार्यक्रम प्रमुख डा. कबिराज पौड्याल, विभागका प्राध्यापक डा. दिनेश पाठक र प्रतिनिधि बिध्यार्थी बिच अन्तरक्रिया समेत भएको थियो ।

त्रिभुवन विश्वविद्यालयका उपकुलपति, शिक्षाध्यक्ष, विज्ञान तथा प्रविधि अध्ययन संस्थानका डिन लाई बुझाइएको ज्ञापन पत्रको एक झलक

भूगर्भशास्त्र केन्द्रीय विभागका विभागीय प्रमुख, इन्जिनियरिङ भूगर्भशास्त्रका कार्यक्रम संयोजक र प्रा.डा. दिनेश पाठकज्यू सँगको अन्तरक्रिया कार्यक्रम

स्वतन्त्र विद्यार्थी यूनियनको नाममा विद्यार्थीहरुले दिँइदैआइरहेको शुल्क सम्बन्धि ध्यानाकर्षणको लागि पेश गरिएको ज्ञापन पत्र

नेपाल भौगर्भिक विद्यार्थी समाजले एकातिर विद्यार्थीबाट सदस्यता शुल्क लिएर माथि उल्लेखित गतिविधिहरु गरिरहेको छ भने अर्कातिर लामो समय देखि अस्थित्वमा नरहेको स्वतन्त्र विद्यार्थी यूनियनको नाममा भर्ना गर्दा प्रत्येक वर्ष प्रति विद्यार्थीबाट रु २०० लिइरहेको छ । विद्यार्थीहरुले तिरेको उक्त रकम हालसम्म कुनै कार्यमा उपयोग भएको छैन । सोहि सन्दर्भमा यस समाजले त्रिभुवन विश्वविद्यालय अर्न्तगत रहेका उपकुलपतिको कार्यालय, शिक्षाध्यक्षको कार्यालय, रजिष्ट्रार कार्याल, विज्ञान तथा प्रविधि अध्ययन संस्थानको डिन कार्याल र भूगर्भशास्त्र विभागमा विद्यार्थी यूनियनको नाममा लिइएको उक्त रकम विद्यार्थीहरुलाई दोहोरो भुक्तानीको समस्य भोग्न नपरोस भन्दै अबदेखि यस विद्यार्थी समाजको खातामा उपलब्ध गराइदिनको लागि अनुरोधका साथ ज्ञापन पत्र पेश गरेको थियो । विश्वविद्यालय प्रशासनले उक्त कार्यमा सहमति नजनाएमा हामी विद्यार्थीहरुले भर्नाको समयमा विश्वविद्यालयलाई भुक्तानी गरेको उक्त रकम अबदेखि भुक्तानी नगर्ने जानकारी पनि सोहि ज्ञापन पत्र मार्फत गराएको थियो ।

नेपाल भौगर्भिक विद्यार्थी समाजे त्रिभुवन विश्वविद्यालय अर्न्तगत रहेका विभिन्न कार्यालयलाई बुझाएको ज्ञापन पत्र

नेपाल भौगर्भिक विद्यार्थी समाज
NEPAL GEOLOGICAL STUDENTS' SOCIETY
CENTRAL DEPARTMENT OF GEOLOGY, TRIBHUVAN UNIVERSITY
Kirtipur, Kathmandu
Estd. 1990

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मिति : २०७८/१०/०४

ज्ञापन पत्र

नेपाल भौगर्भिक विद्यार्थी समाज वि.सं. २०४७ सालमा भूगर्भशास्त्र केन्द्रीय विभाग, त्रिभुवन विश्वविद्यालयमा तत्कालीन स्नातकोत्तर तहमा अध्ययनरत विद्यार्थीहरुबाट स्थापना भएको थियो । विधिवत् रुपमा यस समाज जिल्ला प्रशासन कार्यालयमा वि.सं. २०७१ सालमा दर्ता भएको थियो । यस समाजमा हाल त्रिभुवन विश्वविद्यालय अर्न्तगत भूगर्भशास्त्र केन्द्रीय विभाग र त्रिचन्द्र बहुमुखी क्याम्पसमा स्नातकोत्तर तहमा अध्यापन हुने भूगर्भशास्त्र र इन्जिनियरिङ्ग भूगर्भशास्त्र विषय अध्ययन गरिरहेका विद्यार्थीहरु यस समाजका सदस्यहरु रहेका छन् भने स्नातक तहको अन्तिम वर्षमा अध्ययनरत विद्यार्थीहरु सहसदस्य रहने व्यवस्था छ । यस समाजले विद्यार्थीहरुबाट सदस्यता शुल्क उठाउनुको साथै अपुग रकम विद्यार्थीहरुबाट सहयोग लिइ तथा बाहिरी क्षेत्रबाट सहयोग मागेर समाजको कर तिर्ने, प्रशासन कार्यालयमा नवीकरण गर्नुको साथै विभिन्न शैक्षिक कार्यक्रमहरु जस्तै बुलेटिन प्रकाशन, प्रदर्शनी कार्यक्रम, कार्यशाला गोष्ठी, भूगर्भशास्त्र संग सम्बन्धित सम्मेलनहरुको आयोजना गर्दै आइरहेको छ ।

एकातिर यस समाजले विद्यार्थीबाट सदस्यता शुल्क लिएर माथि उल्लेखित गतिविधिहरु गरिरहेको छ भने अर्कातिर भूगर्भशास्त्र विषयमा अध्ययनरत विद्यार्थीहरुले लामो समय देखि अस्थित्वमा नरहेको स्वतन्त्र विद्यार्थी यूनियनको नाममा भर्ना गर्दा प्रत्येक वर्ष प्रतिविद्यार्थी रु २०० भुक्तानी गरिरहेका छन् । विद्यार्थीहरुले तिरेको उक्त रकम हालसम्म कुनै कार्यमा उपयोग भएको छैन । तसर्थ भर्ना शुल्कबाट विद्यार्थी यूनियनको नाममा लिइएको उक्त रकम अवदेखि यस विद्यार्थी समाजको खातामा उपलब्ध गराइदिनुहुनको लागि अनुरोध गर्दछौं, जसले गर्दा विद्यार्थीहरुले दोहोर भुक्तानी गर्नुपर्ने समस्या रहदैंन । विश्वविद्यालय प्रशासनले उक्त कार्यमा सहमति नजनाएमा हामी विद्यार्थीहरुले भर्नाको समयमा विश्वविद्यालयलाई भुक्तानी गरेको उक्त रकम अवदेखि भुक्तानी नगर्ने जानकारी गराउदछौं ।

बोदार्थ
भूगर्भशास्त्र केन्द्रीय विभाग, त्रिभुवन विश्वविद्यालय
त्रिचन्द्र बहुमुखि क्याम्पस, त्रिभुवन विश्वविद्यालय
त्रिभुवन विश्वविद्यालय कार्यकारी परिषद
डीनको कार्यालय, विज्ञान तथा प्रविधि अध्ययन संस्थान, त्रिभुवन विश्वविद्यालय
रजिष्ट्रारको कार्यालय, त्रिभुवन विश्वविद्यालय
रेक्टरको कार्यालय, त्रिभुवन विश्वविद्यालय
उपकुलपतिको कार्यालय, त्रिभुवन विश्वविद्यालय
नेपालमा अवस्थित राजनैतिक विद्यार्थी संगठनहरु

पवन कुमार आचार्य
अध्यक्ष

विवेक घिमिरे
सचिव

ONLINE ENTRANCE MOCK TEST FOR BACHELOR'S PASSOUT STUDENT APPEARING IN MSC GEOLOGY AND ENGINEERING GEOLOGY ENTRANCE

23rd Executive Committee of Nepal geological students society(NGSS) had organized and conducted six mock tests in total for the students who are preparing for the M. Sc. entrance examination of both general and engineering geology. All of the examinations were conducted by the Nepal Geological Students Society in collaboration of Society of Exploration Geophysicists(SEG). Among the total of six tests, the first two question sets were prepared by SEG in collaboration of NGSS and the rest four question sets with answers were prepared by NGSS in collaboration of SEG. The mock test series was started on the date of 28 Baisakh 2078. All of the examinations were conducted online and question sets were distributed through the google form. For the enhancement of knowledge and to make a good preparation, NGSS had provided the answer keys to all the participants after the result publication of each mock test.

Formats of question sets, answer key, answer set and examination banner are provided in the following section.

MSc. Geology Entrance Exam, Online Mock Test

Test-2078

Date: Baisakh 28, 2078 (11 May, 2021)

Time: 02:00 PM to 03:00 PM

Zoom ID and Password
Provide in your E-mail

Organized By:

NEPAL GEOLOGICAL STUDENTS' SOCIETY-1990

SEG
SOCIETY OF EXPLORATION GEOPHYSICISTS
TRIBHUVAN UNIVERSITY
Student Chapter

Result: M.Sc. Engineering Geology Online Entrance Mock Test (Set-6)
Organized jointly by Nepal Geological Student's Society (NGSS) and Tribhuvan University SEG Student Chapter)
Date: Shrawan 20, 2078 (August 4, 2021) Time: 07:00 PM - 08:00 PM

Symbol No.	Score	Symbol No.	Score
20	74 / 100	57	52 / 100
23	69 / 100	7	51 / 100
15	68 / 100	22	51 / 100
56	66 / 100	37	51 / 100
36	65 / 100	33	50 / 100
45	64 / 100	42	49 / 100
48	64 / 100	18	48 / 100
51	64 / 100	16	47 / 100
9	62 / 100	31	47 / 100
55	61 / 100	2	46 / 100
41	60 / 100	29	46 / 100

M.Sc. Engineering Geology Online Entrance Mock Test (Set-6)
Organized jointly by Nepal Geological Student's Society (NGSS) and Tribhuvan University SEG Student Chapter)
Date: Shrawan 20, 2078 (August 4, 2021) Time: 07:00 PM - 08:00 PM

Petrology, Fundamentals of Geology, crystallography, and stratigraphy

1. Which of the following mineral is described as 'magnetic pyrites'?
a. Iron pyrites
b. Chalcopyrite
c. Pyrrhotite
d. Magnetite
2. Anhydrite changes to gypsum by
a. Loss of chemical components
b. Gain of chemical components
c. The exchange of chemical components
d. Neither the loss nor the gain of chemical components
3. Ring silicate structures are characteristics of minerals crystallizing in
a. Hexagonal system
b. Hexagonal and trigonal systems
c. Hexagonal, tetragonal and orthorhombic systems
d. Hexagonal, orthorhombic and monoclinic systems
4. In which of the following minerals Al is exclusively found in 4-fold coordination?
a. Garnet
b. Hornblende
c. Augite
d. Biotite
5. The mineral leucite does not occur in
a. Undersaturated lavas
b. Sedimentary rocks
c. Volcanic rocks
d. Plutonic rocks
6. The rarest of all the garnets is
a. Pyrope
b. Almandine
c. Grossularite
d. Uvarovite
7. The individuals of which of the following groups of minerals show a number of polymorphs?
a. Mica
b. Garnet
c. Olivine
d. Pyroxene
8. 'Spinel' is
a. Mg-Al silicate
b. Mg-Al oxide
c. Mg, Fe, Al-silicate
d. Mg, Fe, Al-oxide

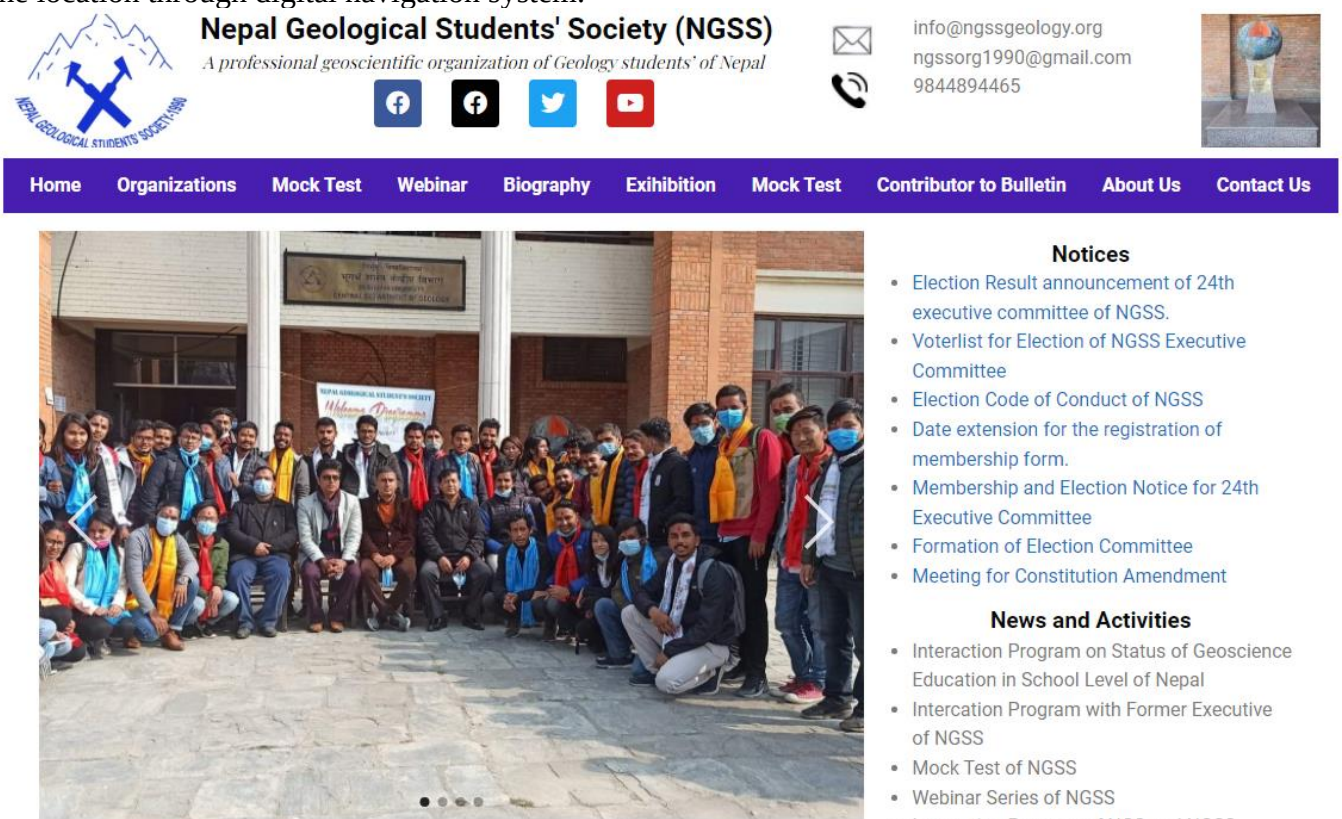
Solutions M.Sc. Engineering Geology Online Entrance Mock Test (Set-6)
Organized jointly by Nepal Geological Student's Society (NGSS) and Tribhuvan University SEG Student Chapter)
Date: Shrawan 20, 2078 (August 4, 2021) Time: 07:00 PM - 08:00 PM

Solutions

1. c. Pyrhotite
2. b. Gain of chemical components: by the gain of nH2O components
3. b. Hexagonal and trigonal systems
4. a. Garnet : For example almandine is an iron-aluminium garnet with the formula Fe3Al2(SiO4)3
5. d. Plutonic rocks : Leucite is a rock-forming mineral of the feldspathoid group, silica-undersaturated and composed of potassium and aluminium tectosilicate KAlSi2O6.
6. d. Uvarovite
7. a. Mica
8. b. Mg-Al oxide
9. a. Serpentine and calcite
10. a. Milky quartz
11. c. Lime feldspar
12. c. Triclinic potash feldspar
13. e. Pyramid
14. a
The Mohorovicic discontinuity is marked by abrupt increase in seismic wave velocities due to the increase in density that comes with the increase in pressure with depth.

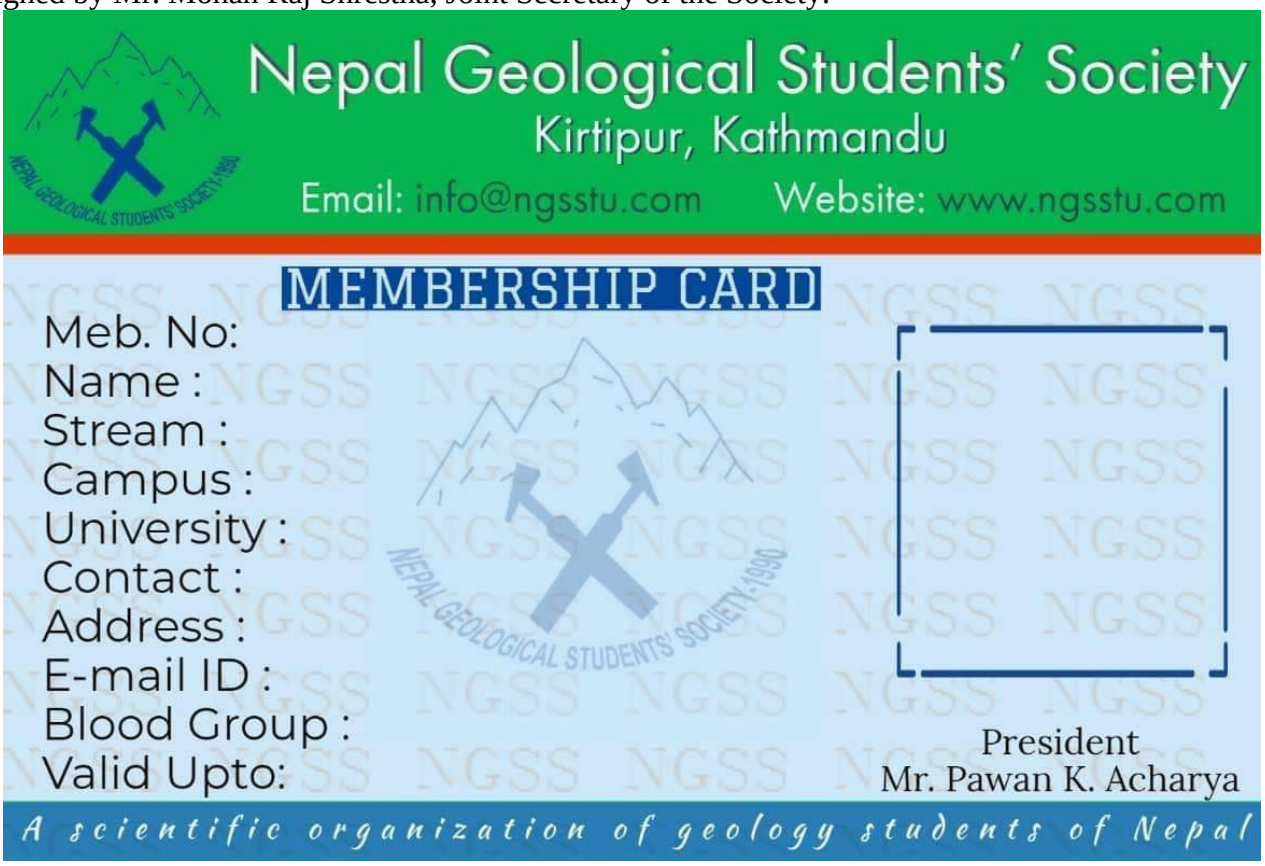
NEPAL GEOLOGICAL STUDENTS' SOCIETY WEBSITE DESIGN UPDATED

Nepal Geological Students' Society has updated the design of its website (www.ngssgeology.org). The classical design of website is updated by dynamic and interactive design and the information on the website is also added. The menu of Webinar, Mock Test, Exihibition, Biography, and Contributor to bulletin is added. The google map has been created and placed in the bottom part of website, which helps in finding the location through digital navigation system.



PREPARATION OF IDENTITY CARD FOR ITS MEMBER

Nepal Geological Students' Society has prepared the Identity Card for the member of Nepal Geological Students' Society. The identity card for the geology students studying in 2075, 2076 and 2077 batch received the Identity card. The details of the members are included in the identity card. The card was self-designed by Mr. Mohan Raj Shrestha, Joint Secretary of the Society.



BIOGRAPHY OF SENIOR GEOLOGIST

Nepal Geological Students' Society has prepared and published the biography of two well-renowned senior geologists, founder member and former presidents of Nepal Geological Society (NGS), in recognition of their valuable contribution toward scientific research and development of geoscience field in Nepal Himalaya. This biography will also provide the information of senior geologists, their contribution, publications to motivate and encourage the students and early career professional geologists in the related field. The biography of Late Mr. Vinod Singh Chhettri, Dr. Ramesh Prasad Bashyal and Mr. Krishna Prasad Kaphle is prepared for this bulletin. The biography of these senior geologists are also placed in website of NGSS (www.ngssgeology.org).

BIOGRAPHY OF LATE MR. VINOD SINGH CHHETTRI

Mr. Vinod Singh Chhetri was born in AD 1939/12/20 and is son of Mr. Indra Mani Singh and Mrs. Bimala Singh. Mr. Chhetri has completed his B.Sc. in geology from Banaras Hindhu University (BHU) from Banaras, India, M.Sc. in applied geology from Nagpur University in 1963, Post Graduate Diploma in Seismology and Earthquake Engineering, IISEE, Japan and he has obtained certificate of training in Petroleum Geology from NIOC, Tehran, Iran in 1965 and obtained training certificate in Micropaleontology from Chandigarh Punjab University in 1974 (UNESCO).

Mr Vinod Singh Chhettri honored by Rt. Honorable President of Nepal , Ms. Bidya Devi Bhandari in recognition of his contribution during the 11th Asian Regional Conference of International Association for Engineering Geology and Environment (IAEG) held in Kathmandu, Nepal (28-30 Nov. 2017)

Mr. Vinod Singh Chhetri Served in the Ministry of Industry Department of Mines & Geology from 1963 till 1987 throughout and the last position was Superintendent Geologist Gazzetted Ist class post of His Majesty's Government of Nepal. He was President of 4th executive committee of Nepal Geological Society (1986-1988) and President of Stratigraphic Association of Nepal (SAN) from 1999 to 2010. Mr. Chhetri had great contribution in the field of geological mapping and mineral exploration. He played a great role in compiling geological map of Nepal published from DMG. Beside this he had contributed a lot to the society and nation in the field of geology, seismology, and engineering geology.

PROFESSIONAL EXPERIENCES & JOB EXPERIENCES

S.N.	Position	Employer	Duration	Job description
1.	Geologist, Technical Gazzetted III class.	Ministry of Industry, Department of Mines & Geology (DMG) His Majesty's Government of Nepal (HMG).	May 1963 - Nov 1972.	Geological Mapping and Mineral Exploration (MEP).
2.	Senior Geologist, Gazzetted II class.	DMG and Mineral Exploration Projects (MEP)	Nov. 1972 - June 1979.	Chief of Planning & administration in MEP for the exploration of Lead, Zinc and Copper in Nepal and supervision of Drilling for Petroleum exploration in Dang valley of Nepal
3.	Superintendent Geologist, Gazzetted I class.	Department of Mines & Geology (DMG) HMG of Nepal.	June 1979 - Nov 1987.	Compilation of Geological Map for the Kingdom of Nepal and Engineering Geological investigation of geological hazards in Nepal with mitigation report.
4.	Seismologist (Contract Job)	Ministry of Housing & Physical Planning HMG, Earthquake Affected Areas Reconstruction & Rehabilitation Project (EAARRP)	Nov. 1988 - Nov. 1990.	Earthquake and hazard mitigation work in the affected areas caused by August 1988, earthquake of Eastern Nepal 6.7 M scale.
5.	Researcher in Earthquake Engineering Dept. of of Roorkee, India.	Science Exchange Program between RONAST and INSA (Indian National Science Academy).	April 1991 - sept. 1991	Completed a paper on seismotectonic of Nepal and adjacent areas with a catalogue of earthquakes.
6.	Lecturer in Geology	Pu1chowk Engineering Campus, Tribhuvan University	Nov. 1992 - April 1993 (One semester).	Teaching Engineering to Civil batch.
7.	Individual Geological Consultant for	Himali Ratna Udhyog	May 1993 - May 1995.	implimenting a mining scheme for a new quartz mine of Taplejung distrisct. For writing a mining scheme for a new Quartz mine of Taplejung district.

Honor and Award

- Lifetime Achievement Award by Rt. Hon'ble Vice-President of Nepal for his long term contribution in the field of Geoscience in the occasion of 9th Nepal Geological Congresss (NGC-IX) organized by Nepal Geological Society in 19-21 November 2018.

Research and Publication

He has carried out research in geological mapping and mineral exploration and geological hazards. His main research is related to earthquake of July 1980 of western Nepal which was published in IISEE journal in Japan and in Journal of Nepal Geological Society Vol. 2 No. 2 Jan 1985. He has also published paper about August 1988 earthquake of eastern Nepal in the University of Roorkee, India (1991). His other field of study includes

- Study of landslide and gully erosion for Doti-Dipayal Town Planning Project,
- Soil testing of a paper millsite.
- Feasibility study of Sunkoshi River.
- Study of Land Subsidence of Pokhara and
- Investigation of many small Hydel Projects etc.

BIOGRAPHY OF DR. RAMESH PRASAD BASHYAL

Date of birth: 2003 Baisakh 19 (May 1, 1946)
Current Address: Maharajgunj, Kathmandu
Place of birth: Barangdi, Palpa
Specialties: Geological mapping, Mineral Exploration

A short Description of Dr. Ramesh Prasad Bashyal

Ramesh Prasad Basyal is an Expert Senior Geologist with 36 years of working experience, a critical part of which was committed in the field of geological mapping, mineral investigation fundamentally non-metallic, petroleum investigation, and instructing in the Tribhuvan University. He was Born on May 01, 1946 (Baisakh 19, 2003) at Barangdi, Palpa district of Nepal. Dr. Bashyal completed his master's degree in Geology from Leningrad Mining Institute in 1968 and Bachelor of Law from Tribhuvan University, Nepal in 1973. He completed Diploma in Sedimentology and Sedimentary Geology from Pierre et Marie Curiie University, Paris VI, France in 1976 and Ph. D from the same institute in 1978.

Dr. Ramesh Prasad Bashyal honored by Contemporaneous Hon'ble Industry, Commerce and Supplies Minister Mr. Lekh Raj Bhatta, recieving Honorary Fellow Membership Award during inauguration ceremony of 10th Nepal Geological Congress (Falgun 23, 2077).

He joined then Nepal Geological Survey as Geologist (Gazette class III officer) in 1968 and served 36 consecutive years for Government of Nepal. He served as Chief of Non-Metallic Section, Department of Mines and Geology and carried out Regional geological mapping as well as prospecting and exploration of non-metallic minerals. He was promoted to Senior Geologist (Gaz. Class II officer) in 1977 and served as Chief of Planning and Evaluation Section of DMG where his key role was planning, evaluation and supervision of geological and mineral exploration programs, supervise the mineralogy and petrography laboratory, geological mapping, and phosphate prospecting, assist in financial auditing and facilitating the bilateral projects with foreign assistance.

He also taught geology for M. Sc. Students at Tribhuvan University during 1978-79. In the meantime, he served as Principal Geologist from 1984 to 1987 in Geological Survey, Department of Economic Affairs, Republic of Bophuthastwana, South Africa. He was promoted to Superintendent Geologist (Joint Secretary, Gazetted Class I) on 1995, became Deputy Director General of the Department of Mines and Geology from 1997 to 2004 and also Chief of the Petroleum Exploration and Promotion Project from 1992 to 1998 and from 2001 to 2002.

He also played lead role in conducting promotional campaigns at Calgary, Houston, London and Singapore 119 in 1994 and participated in International Petroleum Promotional Exhibitions in Denver Houston, San Diego and New Delhi. He also participated in Clarification and Negotiation Meetings with petroleum companies from USA, UK, France and Canada. He also carried out several engineering geological, geotechnical and feasibility studies for infrastructure development of Nepal on official and personal basis.


नेपाल विज्ञान तथा प्रविधि प्रज्ञा-प्रतिष्ठान

कदर-पत्र

विज्ञान तथा प्रविधि क्षेत्रको भूगर्भशास्त्र विषयमा उल्लेखनीय योगदान पुऱ्याए वापत डा. रमेश प्रसाद बस्याललाई नेपाल विज्ञान तथा प्रविधि प्रज्ञा-प्रतिष्ठानद्वारा स-सम्मान यो कदर-पत्र प्रदान गरिएको छ ।

२०७५ असार १९ गते
खुमलटार, ललितपुर

प्रा.डा. जीवराज पोखरेल
उपकुलपति

Award to Dr. Ramesh Prasad Bashyal offered by Nepal Academy of Science and Technology in recogniton of his contribution in the field of Geoscience..

In view of his research works, working experience and information acquired he has he has published more than 20 scientific papers in the national and international Journals/ Bulletin and Proceedings of the Conference/ Symposium/ Geological Congress and prepared number of professional papers and reports in the various field of Himalayan Geology and Mineral Resources especially on phosphorite exploration and petroleum exploration of Nepal from Nepal, India, China, Pakistan, USSR, Thailand and Japan. He has made many scientific and professional visits to India, Mongolia, Thailand, Austria, USSR, Turkey, Pakistan, France, USA and China. Dr. Bashyal was member in national committee of CTBTO in 1999 and in Nuclear Steering Committee in 2003.

As a Former President of Nepal Geological Society he had successfully lead the society (1988 -1990) and initiated many new activities. He is also engaged with F.G.S. (Nepal). He recieved Contemporaneous Hon'ble Industry, Commerce and Supplies Minister Mr. Lekh Raj Bhatta, recieving Honorary Fellow Membership Award during inauguration ceremony of 10th Nepal Geological Congress (Falgun 23, 2077).

*He had established the **Rama Ramesh Bashyal Scholarship Fund** through Nepal Geological Society in 2076 Baishakh 18 (May 1, 2019) to support M.Sc. students studying in Geology having good academic excellence in bachelor's level having permanent residence of remote area defined by Government of Nepal.*

Academic Qualification

Degree	**University**	**Date**
Master of Science in Geology	Leningrad Mining Institute	1963-1968
Bachelor of Law	Tribhuvan University, Kathmandu	1972-1973
Diploma (Sedimentology and Sedimentary Geology)	Pierre et Marie Curie University Paris VL France	1976-1977
Ph. D. (Diplôme De Docteur De Troiseme Cycle)	Pierre et Marie Curie University Paris VL France	1976-1978

Honor and Award

- Honorary Fellow Membership Award of Nepal Geological Society in 2076.
- Award by Nepal Academy of Science and Technology in recognition of his contribution in the field of Geoscience in 2075 Asar 19.
- Mahendra Bidhya Bhusan Ka and Kha Award

Experience

S.N.	**Position**	**Employer**	**Duration**	**Job description**
1.	Deputy Director General (DDG)	Ministry of Industry, Department of Mines & Geology (DMG) His Majesty's	05 June 1997 - 23 April 2004	a) To Prepare Plans and programs, budget and project proposal for geoscientific activities

		Government of Nepal (HMG).		b) To supervise, monitor and evaluate the annual programs. c) Evaluation and Negotiation meetings for foreign assistance for petroleum and mineral exploration projects financed by USA, Germany, UNDP, ESCAP. France, Thailand and India. Negotiation with a British Petroleum Company. d) Drafting of Mines and Minerals Regulation, 2059 e) Participation at Seminars, Workshops, Congress at Nepal, India, Thailand, Australia, USSR, Turkey, Pakistan, France
2.	Project Chief	Petroleum Exploration Promotion Project. Ministry of industry	Nov. 1992 - 19 Jan. 1998 and from 31 March 2001 - 16 July 2002	a. To carry out plans and programs, promotional activities to attract international oil companies for petroleum exploration in Nepal b. Second Amendment of Petroleum Regulation with emphasis on Seismic option and on Ring Fencing provisions of Blocks. c. Invitation of Bid proposal, promotional campaigning at Calgary, Houston, London and Singapore (1994) d. Participation at International Petroleum Promotional Exhibitions at Denver, Houston, San Diego and New Delhi. e. Evaluation of Bids. Clarification and Negotiation Meetings with Texana Resources Co. (USA) and administration of Petroleum Agreement. f. Project administration and management
3.	Superintending Geologist (Joint Secretary.	Department of Mines and Geology	16 June 1995 - 04 June 1997	a. As Chief of Planning & Evaluation section of DMG to prepare plans, supervise and monitor geoscientific and

	Technical. Gazetted I Class)			mineral exploration program of Department b. Chief of Mineralogy and Petrography Lab., to carry out phosphate prospecting and geological mapping c. Participation at Seminars, workshops at Mongolia, India and China.
4.	Principal Geologist	Geological Survey, Department of Economic Affairs. Republic of Bophuthatswana (Homeland), South Africa	June 1984 - June 1987	a) Gold and Diamond prospecting and geological mapping.
5.	Senior Geologist (Gaz II Class. Tech.)	Department of Mines and Geology	1977 - Oct. 1992	a) As Chief of Planning & Evaluation section of DMG to prepare plans, supervise and monitor geoscientific and mineral exploration program of Department b) Chief of Mineralogy and Petrography Lab., to carry out phosphate prospecting and geological mapping c) Participation at Seminars, workshops at Mongolia, India and China.
6.	Geologist (Chief of Non-Metallic Section)	Department of Mines and Geology Nepal Geological Survey,	1968 - 1976	Carried out geological mapping of Nepal Himalaya.
7.	Geologist	Different consulting firm	In different time frame	Geological exploration, geotechnical, seismological investigation, environmental study on different road project, irrigation project, hydroelectric project, etc.
	Teacher	Tribhuvan University	1978 - 1979	Teaching M.Sc. students

PROFESSIONAL SOCIETIES

a. F.G.S. (Nepal);
b. President, Nepal Geological Society, 1988-90;

PUBLICATIONS

Twenty Papers on Himalayan Geology and Mineral Resources and Petroleum Exploration of Nepal, published in India, China, USSR, Pakistan, Thailand and Nepal (List Attached)

1. **Bashyal, R.P.,** Gondwana Type of Formation with Phosphatic Rocks in SE Nenal I Geol Soc India, V 21. 1980 n 484-491
2. **Bashyal, R.P.,** Potassic Volcanics from the Permo-Carboniferous Nenal Himalavas Mem Geol S India, 3. 1980 472-474
3. **Bashyal, R.P.,** Geologv of Dhangarhi-Dandeldhura Road Section and its Regional Significance I Nepal Geol Soc VI No 1, 1981. p 15-28
4. **Bashyal, R.P. et al**., Certain Characteristics of Stromatolitic Phosphorites from Western Nepal. Abstract Fourth Int. Field Workshop and Sem on Phos India 1989
5. **Bashyal, R.P.,** Phosphatic Rocks of Barahakshetra Formation In "Geology of Phosphorite Deposits and Problems of Phosphorites Genesis." Novosibirsk, USSR, 1982, p. 126-137.
6. **Bashyal, R.P.,** Stromatolitic Phosphorites of Far Western Nepal. J. Nep. Geol. Soc., V.2, No.l, 1982, p. 1-8.
7. **Bashyal, R.P.,** Geological Framework of Far Western Nepal. Him Geol., V.12, Wadia Inst. of Him. Geol., Dehra Dun, India, 1984, p. 40-50.
8. Beden, M., Herai, G., Mascle, G., **Bashyal, R**., Brunet, M., Decaillau, B., Roiron, P., Thomas, H. 1984. Premieres decouvertes de fossiles dans les Siwaliks du Nepal central et oriental, 10^e R.A.S.T., Bordeaux, France, 2-6 vril, p.41
9. **Bashyal, R.P.,** A Preliminary Appraisal of Baitadi Phosphorites, Far Western Nepal. Fifth Int. Field Workshop & Sem, on Phos., Kunming, China, 1982, V.1, p. 55-64.
10. **Bashyal, R.P.,** Geological Outline of Nepal Himalayas. Colloquium "Tectonics of Asia", 27th Int. Geol. Cong., Moscow, 1987, V.5, p. 159-180.
11. **Bashyal, R.P.,** Geology of Lesser Himalaya, Far Western Nepal. Science de la Terre, Mem. 47, Nancy, France, 1986, p. 31-42
12. **Bashyal, R**., Decaillau, B., Herail, G., Mascle, G. 1989. Thrusting and Orogenis: The Himalayan Front in Central Nepal. Jour. Geol. Soc. Nepal V.6,
13. **Bashyal, R.P.,** The Effective Utilization and Development of Mineral Resources in Nepal. Geol. Sem., Dept. Geol., T. Univ., Kathmandu, Unpub. 53p., 2fig. 1988
14. **Bashyal, R.P.,** Non-Metallic Mineral Deposits of Nepal and their Utilization. 2nd World Cong. on Non-Met. Min., Wuhan, Hubei, China, 1989. VII, p. 335-338.
15. **Bashyal, R.P.,** Status of Granite Exploration in Nepal. The Seventh Reg. Conf. On Geol. Min. and Energy Resource of Southeast Asia (GEOSEA VII), 5-8 Nov. 1991, Bangkok, Thailand
16. **Bashyal, R.P.,** Industrial Minerals of Nepal. Proceeding of the First South Asia Geol. Cong., Feb.23-27, 1992, Islamabad, Pakistan. In: Geology in South Asia - I, R. Ahmed & A.M. Sheikh eds. HDIP, Islamabad, Dec. 1994.
17. **Bashyal, R.P.,** Status of Mineral Resources Development in Nepal. Sem. on Future Directions in Min Resour. Dev. In the Asian LDC, 29 June-01 July, 1992, ESCAP, Bangkok, Thailand,
18. **Bashyal, R.P.,** Petroleum Exploration Opportunities in Nepal. Petrol. Explor. Prom. Project/Dept. Mines & Geol, Kathmandu, Nepal. P.8
19. **Bashyal, R.P.,** Petroleum Exploration in Nepal. First Geological Congress, Nepal Geol. Soc., Kathmandu, 1997, in press.
20. **Bashyal, R.P.,** Gondwana Formations of Nepal Himalayas and their Regional Significance (Extended Abstract) Int. Symp. Assembly & Breakup of Rodinia & Gondwana and Growth of Asia. Oct. 26-30, 2001, Osaka, Japan.

Unpublished Reports: In the open files at the library of Department of Mines and Geology, Lainchour, Kathmandu, Nepal: 1. Regional geological mapping:

1. Regional geological mapping
   - Taplejung district (900 sq. km), 1970;
   - Dang, Sallyan and Rolpa districts (800 sq.km), 1973.
2. Geology of Phosphorite basin:
   - Sunsari-Udaypur-Sindhuli districts (1973),
   - Sinduli-Kavre-Lalitpur-Makwanpur districts (1974),
   - SE Nepal (1975),
   - Argakhanchi to Hetaura (1976).
3. Salt Prospecting, Narsing Khola, Mustang (1976).
4. Stromatolitic phosphorites of far western Nepal: Baitadi-Bajhang districts (1981). Baitadi-Darchula districts(1982),Bajhang-Bajura and Doti-Achham districts(1984).
5. Les Niveau Phosphate de l'Himalaya du SE Nepal. Thesse de Docteur 3eme Cycle, L'Universite Pierre et Marie Curie, Paris VI, France, 1978.
6. Investigation of thermal springs: Jumla and Jomsom area (1983), Darchula and Bajhang districts (1984).
7. Appraisal of Cobalt-copper mineralization, Gulmi district (1988)

EGINEERING GEOLOGICAL AND GEOTECHNICAL STUDIES CARRIED OUT FOR:

- Trishuli Somdang Road, 1978, EAST Consult/Royal Nepal Army.
- Attrauli-Puttar Irrigation Project, 1979, EAST/DIHM.
- Marsyangdi Hydro-electric Project, Dept. of Electricity, HMG/Nepal,2036B.S.
- Mustang Irrigation Project,1979, EAST/DIHM
- Dandeldhura-Doti Road Project, 1980, EAST/Dept. of Road, HMG/Nepal.
- Second Hill Irrigation Project, EAST/DIHM.
- Tumlingtar Irrigation Project, 1982, DIHM/CEMAT.
- Charali-Illam Road Project, 1982,DOR/EAST
- Flat Irrigation Project, Baitadi, 1983,DIHM. Chhahare-Tokha Road Project, 1983,DOR/ENDECON.
- Banepa Sindhuli Road, 1986, SILT/NIPPON KOEI.
- Kulekhani Third Feasibility Project, 1987, SILT/DOR
- The survey and mapping of Mid-western sector of Nepal, Remote Area Acess Study, BCEOM, France/SILT, 1988 .
- Geotechnical Exploration for International Convention Center, Kathmandu, DMG/DHPP, HMG, 1988
- Alternate Road Corridors (Dugeshwar-Manma-Jumla) in Mid-west Nepal under Remote Area Acess Study Project, BCEOM, France/ SILT, 1990
- Envvironmental Impact Study of MRM-Gaighat Road, DOR/NEPECON/SILT, 1990
- Environmental Impact Study of Illam-Phidim-Taplejung Road, DOR/NEPECON, 1991.
- Geological Exploration, Seismological investigation and EIA Study for the proposed Civil Service Hospital at Minbhavan, Kathmandu, Coordinator of Technical Team, HMG and Technical Advisor to NEPECON/Nepal

BIOGRAPHY OF MR. KRISHNA PRASAD KAPHLE

Current position: Visiting Professor/ Guest Lectures, **Central Department of Geology, Tribhuvan University,** Kathmandu, Nepal
Birth place: Palpa, Nepal
Current Place: Kathmandu, Nepal
Website: www.kpkaphle.blogspot.com/2011/12

A Brief Introduction to Mr. Krishna Prasad Kaphle

Krishna Prasad Kaphle is a committed Professional Senior Geologist with 46 years of working experience, a significant portion of which was dedicated in the field of geological mapping, mineral exploration mainly in base metals, gold, tin, tungsten, uranium, fuel minerals, phosphorite and limestone; engineering and environmental geological mapping; disaster risk management and environment protection in urban areas; and more than 12 years teaching in the Tribhuvan University/ Central Department of Geology, Nepal. He can fully utilize the knowledge he has obtained during his university education, training from Pakistan, Australia, Germany, Norway, USA and Nepal and the experiences gained during his professional carrier in the Department of Mines and Geology, Tribhuvan University and other foreign and national organizations.
He has worked as a Chief of Planning, Evaluation, and Information Section in Department of Mines & Geology; (DMG) and also worked as a Counterpart with experts from Germany, France, Japan, UK and USA. In addition to professional work, he has also worked as a Superintending Geologist and Chief of Geological Survey and Research Sub-Division and later Chief, Technical and Administration Services Division for 3 years all DMG during which he had represented DMG in various meetings in the Ministry of Industry, Ministry of Finance, Ministry of Home Affairs, Ministry of Science & Technology, National Planning Commission and other foreign expert group meetings in Nepal and abroad.

He was one of the members of evaluation committee to evaluate the proposals received from the CAIRN Energy PLC/ UK (2004) to obtain the petroleum exploration license from the Government of Nepal. He was also appointed by the Director General of DMG as a member of evaluation committee to check the performance of the Texana Resources Company (USA) working in Nepal (2006).

After his retirement from DMG, he had also worked as Consultant Senior Geologist in Osho Ventures SA Coal (Pty) Ltd. to work in Nepal project related to iron prospection/ exploration and mining (Feb – October 2012); to Nepal South Asian Minerals (Pvt.) Ltd. Nepal (Feb – June 2011). Part-time Technical Advisor to N & C Minerals P. Ltd. (in different time (from 2008 –2012); Short-term Consultant Geologist in TEAC Consult, SILT Consultant (P) Ltd.,

Building Design Associate (BDA), Nepal; and SEPORT Consultant (in different times).
Based on his research works, working experience and knowledge gained he has published more than 50 scientific papers in the national and international Journals/ Bulletin/ Proceedings of the Conference/ Symposium/ Geological Congress, and annual report of DMG; and also prepared over 75 professional papers and reports in the various field of Geo-science, Mineral resources and mines, Engineering and environment geology, Disaster management, Environment protection and Geo-hazards and Global warming/ Climate change.

As a Former President of Nepal Geological Society he had successfully lead the society (1994 -1996) and initiated many new activities; as a Convener he had successfully organized 1st and 6th Nepal Geological Congress and "Seismology, Seismotectonic and Seismic Hazard" International Workshop and also took parts in more than 80 Seminars/ Symposium/ Congress/ Workshop/ Meetings in different countries of Asia, Europe, America and Australia in the past and presented more than 40 research papers and took part in the discussions and preparation of documents; as an Editor of the Journal and Bulletin of Nepal Geological Society, DMG Newsletter, Annual Reports of Department of Mines and Geology, and Newsletter of Nuclear Society of Nepal he made the substantial contribution

to publish them in time and wide circulation; as a Reviewer he had reviewed quite a few geo-scientific papers published in the national and international journals etc.

His experience of successfully working with the government organizations (DMG/MOI), Tribhuvan University, UNDP, NGOs, INGOs and other stakeholders is helping him to formulate the programs, implement them and perform his duty with full responsibility.

*He had established **the Krishna-Geeta Kaphle Scholarship Fund** through Nepal Geological Society in 2076 Shrawan 12 (July 28, 2019) to support M.Sc. students studying in Geology having good academic excellence and approved proposal for a Master's Dissertation on a topic related to Mineral Exploration and Mining Sector in any part of Nepal.*

Mr. Krishna Prasad Kaphle, honored by Rt. Honorable President of Nepal, Ms. Bidya Devi Bhandari recieving the Honorary Fellow Membership Award of Nepal Geological Society in inauguration ceremony of 11th Asian Regional Conference of International Association for Engineering Geology and Environment (IAEG) held in Kathmandu, Nepal (28 Nov. 2017)

Academic Qualification

Degree	**University**	**Date**
Master of Science in Geology (1st Division 2nd Position in merit)	University of the Punjab, Lahore, Pakistan	1975
Bachelor of Science with Honours in Geology (1st Division 2nd Position in merit)	University of the Punjab, Lahore Pakistan	1973
Bachelor of Science (B.Sc.)	Tribhuvan University, Kathmandu, Nepal	1970

Experience

Over 46 years working experience (33 years' service in Department of Mines and Geology/ Govt. of Nepal, Retired in September 2007 from the post of Superintending Geologist), 12 years Teaching experience in Tribhuvan University as Part time Visiting Professor/ Guest Lecturer, >13 years consultancy services in different Foreign and Nepalese projects/ companies in different times in the past.

S.N.	**Position**	**Employer**	**Duration**	**Job Description**
1.	Visiting Professor/ Guest Lectures	Central Department of Geology, Tribhuvan University, Kathmandu	Dec. 2013 to present 2022	Teaching Mineral exploration, Mining Geology, Gemology, Isotope Geology, Petroleum and Coal Geology for M.Sc. Geology students and Supervisor of M.Sc. student's Thesis works (2015/16)
2.	Consultant Senior Geologist	OSHO Ventures South Africa (SA) Coal (Pty) Ltd. in Nepal	February – October 2012	Project related to iron prospection and exploration and mining
3.	Senior Geologist	Nepal South Asian Minerals (Pvt.) Ltd. Nepal	February – June 2011	Consultant

4.	Senior Geologist	N & C Minerals (P) Ltd	2008 – 2013	Technical adviser
5.	Superintending Geologist and Chief	Geological Survey and Research Sub-Division, DMG, Nepal	March 2005-September 2007	all types of Geological mapping, Engineering and environment geological mapping, Landslide hazard mapping, Urban geology and hazard assessment, map publication, Convener, International Workshop on Seismology, Seismotectonics and Seismic Hazard in Kathmandu on 28-29 Nov 2006
6.	Convener	International Workshop on Seismology, Seismotectonics and Seismic Hazard in Kathmandu	28 - 29 Nov 2006	
7.	Convener	DMG	1998 – 2002	Earthquake Awareness Programs organized by DMG in the Municipalities like Kathmmandu, Pokhara, Butwal, Dharan, Biratnagar and Surkhet
8.	Senior Divisional Geologist and Chief	Department of Mines and Geology	2001 – March 2005	short- and long-term project planning, work programming, budgeting, supervision and preparation of progress reports, Publications of Newsletters, Annual Reports, Production of Field reports, Organize Scientific Talk programs
9.	Senior Divisional Geologist	Department of Mines and Geology	Dec. 1997 – 2000	Technical Cooperation Project on Environmental Geology, mainly in preparation of Environment geological maps, explanatory reports, hazard assessment of infrastructure development plans of fast-growing cities like Kathmandu, Pokhara, Butwal and Dharan Municipalities and in organizing Seminar/ Workshops and prepared reports on: • Explanatory report on Engineering and Environmental Geological Maps of Kathmandu and Pokhara Valleys and assessment of infrastructure development plans/ New settlement area in Kathmandu Valley, Pokhara valley and Butwal and Dharan area. • Sanitary Landfill Site selection in 5 different municipalities. • Organized four workshops to promote Engineering and Environment Geological maps prepared by DMG/ EGP project.
10.	Senior Divisional Geologist and Chief	Department of Mines and Geology	1991 – 2001	Overall In-charge of the section and responsible for metallic mineral exploration, Geochemical exploration for base metals

11.	Geologist/ field In-Charge/ Group Leader	Department of Mines and Geology	1975 – 1990	Actively involved mineral exploration especially on lead, zinc, copper (base metals), gold, iron, uranium, tin, tungsten, polymetal sulphides, phosphorite and cement grade limestone in different parts of Nepal
12.	Geologist/ Field In-charge		1979 – 1985	Detail follow up exploration of Bamangaon Copper – Tungsten prospect and Meddi Tin prospect in Dadeldhura district, Far-western Nepal
13.	Resource Person	Central Department of Geology/ Tribhuvan University (TU), Department of Water Induced Disaster Prevention (DWIDP), Engineering College, and National college (KU) in different years,	1977 – Present	
14.	Main author		May 1997 – September 1997	Document prepared on "Comprehensive Database (Basic Information) on Natural Disaster Management Capabilities in Nepal" On behalf of Nepal Geological Society and Submitted to UNDP/DMS, Nepal.
15.	Part time Lecturer	SAAN Research Institute	Aug. 1998 – Dec. 1998	Taught Geology of Nepal Himalaya, geomorphology, rock types, plate tectonics, geological hazards like earthquake, volcanic eruption, tsunami, landslides, mass wasting, debris flow, flood, weathering, sedimentation, environmental degradation, etc. for Undergraduate students
16.	Part time Lecturer	Central Department of Geology, Tribhuvan University	1991 – 1994	Taught Igneous and Metamorphic Petrology for M.Sc. Geology Students, Supervisor of M.Sc. students doing their M.Sc. Thesis.
17.	Part time Lecturer	Tri-Chandra Multiple Campus, TU	1977/1978	Taught Mineralogy and Economic Geology for B.Sc. student.
18.	Consultant Geologist	TEAC Consultant Pvt. Ltd.	Dec. 1991 – Dec. 1992	Engineering Geological studies and geohazard assessment of small irrigation projects in Dang, Morang, and Sunsari district.
19.	Consultant Geologist	SIlLT Consult (P) Ltd	June – July 1988	Engineering Geological study of Kulekhani Hydroelectric Project Phase I and II. To identify the problem of slope stability, rock failure, soil erosion, landslide, sediment deposition
20.	Regional Advisor	UN/ESCAP/ RMRDC	April – May 1987	Regional Advisor, for Mineral Exploration
21.	Chief	USGS/USA	(May 28-June 15, 1984	Chief of Platinum Group Metal/ Resource Appraisal on USGS/USA fact finding mission to Nepal

Specialties: Mineral Exploration & Mining, Geology and Mineral Resources of Nepal.

Research Interest: Mineral Resources (Metallic minerals, Industrial minerals, Radioactive Minerals, Gemstones) their Genesis and Host rock, Petroleum and Natural gas, Natural Disaster, Engineering and Environment Geology.

Membership

- Nepal Geological Society (NGS) – Honorary Fellow Member, Founder Member, Life Member and Member of Advisory Committee
- Nuclear Society of Nepal (NUSON) – Founder Member and Life Member.
- International Association of Engineering Geology and Environment (IAEG)

Achievement (Honor and Award)

- Prabal Gorkha Daxin Bahu –IV from Late King Birendra B.B. Shahdev in 1999, in recognition of the contribution made in the development of Geosciences and Disaster Management.
- Daivi Prakop Pidit Uddhhar Padak in 1997 – Disaster Management Medal awarded by Late HM King Birendra, in recognition of the contribution made in areas of disaster management.
- Dirghasewa Padak for more than 25 years of service in the Government Department.
- Janapad Sewa Padak, For more than 15 years of service in the Government Department.
- Letters of Appreciation from Nepal Geological Society (2006 & 2014), Department of Mines and Geology (2007), and Saubhagya Ma. Bi. Chidipani, Palpa (2003).

Participation

Participated (in more than 80) and research paper presented in (more than 40) National and International Congress/ Conference/ Seminar/ Symposium/ Workshops organized by different professional and nonprofessional Societies (NGS, IAEG, GEOSAS etc.), Universities, Scientific organizations, UN/ESCAP/, UNDP, and other International and National organizations.

Major Publications – Geo-Scientific and Professional Paper

Published Paper

1. **Krishna P. Kaphle** (2022, in the process of publication in NGS Journal). Copper ore mineralization belts in the Nepal Himalaya. Paper presented as invited lecture in 10th Nepal Geological Congress, on 7 – 8 March 2021, at Kathmandu, Nepal.
2. **Krishna P. Kaphle** (2022, in the process of publication in Journal of Development Innovation, Canada). An overview on Geology, Tectonic Framework and common Geo-Hazards in the Nepal Himalaya. Paper presented as invited lecture in the International Conference on Recent Development in Earth & Environmental Sciences, Natural Resources management and Climate changes with special focus on Eastern Himalaya. Organized by Dept. Of Geology, Sikkim University, 8 – 9 October 2020, at Gangtok.
3. **Krishna P. Kaphle (2020);** Mineral Resources of Nepal and their present status: Website of *Nepal Geological Society (NGS) website: www.ngs.org.np).*
4. **Krishna P. Kaphle (2020);** Dolomite prospects in Nepal, present status and their importance in Industrial Use. Bull. Nepal Geol. Soc. vol.37, pp139-149.
5. **Krishna P. Kaphle (2019);** Preliminary assessment and evaluation of aluminum laterite (bauxite) prospects in Nepal. Bull. Nepal Geol. Soc. vol.36, pp221-226.
6. **Krishna P. Kaphle (2018);** Gypsum prospects in Nepal and its importance in mineral industries especially in Portland cement production. Bull. Nepal Geol. Soc. vol.35, pp159-165.
7. **Krishna P. Kaphle (2018);** An overview on mineral resources of Nepal with special emphasis on iron prospects and their contribution to national economy. Jour. of Nepal Geol. Soc. vol.57 (Abstract volume of NGC-IX), pp11.
8. **Krishna P. Kaphle (2017);** Mineral Potentials and investment opportunities in Nepal. Bull. Nepal Geo. Soc., vol.34, pp53-58.
9. Franco Rolfo, Chiara Groppo, Pietro Mosca, Simon Ferrando, Emanuele Costa and **Krishna P. Kaphle** (2014); Metamorphic CO_2 degassing in the active Himalayan orogen; Exploring the influence of orogenic activity on the long term global climate changes. Engineering Geology for Society and Territory Vol.1. Climate change and Engineering Geology. Springer pub.pp21-25. DOI: **10.1007/978-3-319-09300-0_5.**

10. Emanuele Costa, Enrico Destefanis, Chiara Groppo, Petro Misca, **Krishna P. Kaphle** and Franco Rolfo (2014); Preliminary chemical and isotopic characterization of high altitude spring waters from Eastern Nepal Himalaya. Engineering Geology for Society and Territory Vol.1. Climate change and Engineering Geology. Springer pub.pp99-104. DOI: **10.1007/978-3-319-09300-0_19.**
11. **Krishna P. Kaphle** (2013); Minerals, Mines and Mining: Nepalpedia Series No-1, Environment and Natural Resources edt. P. Jha, F.P. Neupane, M.L. Shrestha and I.P. Khanal; pub.by Nepal Academy of Science and Technology, Nepal, pp282-300.
12. **Krishna P. Kaphle** (2013; Rare Earth Elements their occurrences and industrial uses. News Bull of Nepal Geological Society, vol.30, pp49-56.
13. **Krishna P. Kaphle** (2013), Geo-Hydrometeorological Hazards, Effects of Global Warming and Climate Change in Nepal Himalaya, Journal of Earth Sc. and Engineering, vol.3 Number-11. David pub. Co. NY10034, USA *(Paper presented in the International Conference on Mountain Hazards-2013, Bishkek, Kyrgyzstan, 16-18 Sept, 2013).*
14. **Krishna P. Kaphle** (2012); Exploration results of Thoshe Iron deposit, Ramechhap, Nepal. Journal of Nepal Geological Society. Vol.43, Special issue, pp153-166. (Proceedings of 6th Nepal Geological Congress15-17Nov. 2010). **kpkaphle.blogspot.com**
15. **Krishna P. Kaphle** (2011), Himalayan Gemstones and their prospects in Nepal. Bull. Nepal Geol. Soc. Vol.28, pp43-50.
16. **Krishna P. Kaphle** (2011); Geological and Hydro-Meteorological Hazards and Their Risk in Nepal. Annual Disaster Review – 2010, July 2011 Series XVIII, published by GON/MOI, Department of Water Induced Disaster Prevention (DWIDP), pp23-29. *(Paper presented in the International Conference on Climate changes and Natural hazards in mountain areas "Mountain Hazards 2011", Dushanbe, Tajikistan, Sept. 19 – 21 2011).*
17. **K.P. Kaphle**, L.N. Rimal, Dinesh Nepali (2011); Use of Engineering and Environmental Geological Maps in Infrastructure Development Planning of Fast Growing Cities in Nepal. Proceedings of GeoDev International Conference, Vol.1, Dhaka, Bangladesh, 2011, p234-240. *(Paper presented in GeoDev Conference in Dhaka, 26-31October 2009).*
18. **K.P. Kaphle,** L.N. Rimal, A.K. Duwadi, B. Piya and Dinesh Nepali (2008); Disasters and Environmental Degradation in Nepal: Focus on Urban Areas. Proceedings on Seismology, Seismo-tectonics, and Seismic hazard in Nepal Himalaya (28 – 29 Nov 2006) and 5th Nepal Geological Congress (26 – 27 November 2007), Journal of Nepal Geol. Soc. Vol.38, pp61-68.
19. **Krishna P. Kaphle** (2008); Quartz as main source of silica and its industrial uses. News Bulletin of Nepal Geol. Soc. Vol.25, pp43-46, year 2008. **kpkaple.blogspot.com**
20. **K.P. Kaphle** and H.R. Khan (2007), Preliminary assessment of Polymetallic Sulphide deposit in Bering Khola – Sunmai area, Ilam district, Eastern Nepal. Department of Mines and Geology, Annual Report No.4, DMG, pp1-14.
21. **Krishna P. Kaphle** (2007), Mineral Resources of Nepal and Investment opportunities in Mining and Mineral Based Industries: Related Issues and Means for Their Solution. "Arthik Mimamsa" New Nepal Special Issue, pp65-77. Nepal Bittiya Sanstha Karmachari Sangh, Nepal Rastra Bank, Central Committee.
22. **Krishna P. Kaphle** (2006), Industrial Mineral deposits and Investment opportunities in Nepal. Nepalese Journal of Industry, Commerce and Supplies, Vol.1, No.2, pp 55 – 67.
23. **K.P. Kaphle** and H.R. Khan (2006, Exploration and assessment of Thoshe Iron deposit in Ramechhap district, Central Nepal. Department of Mines and Geology, Annual Report No.3, DMG, pp9-24.
24. **K.P. Kaphle** and S.P. Sapkota (2006), An overview of Department of Mines and Geology and Twenty Five years of DMG/ Nepal – DASE/ France Cooperation in Geological Research. Abstract volume pp3-4, International Workshop on Seismology, Seismotectonics and Seismic hazard in the Himalayan Region 28 – 29 November 2006, Kathmandu, Nepal.
25. **K.P. Kaphle** and D.R. Khadka (2005, Preliminary follow up gold exploration along Kaligandaki valley, in some parts of Myagdi, Parbat and Baglung districts, Western Nepal. Department of Mines and Geology, Annual Report No.2, DMG, pp 6-15.

26. N.R. Sthapit and **K.P. Kaphle** (2005), Present status of gold prospects in Nepal. ICOGS Asia – Pacific Newsletter No.7, pp7-19, March 2005, Japan.
27. Isha Kaphle and **Krishna P. Kaphle** (2005), Environmental Pollution: A National and Global Issue. Science & Future Vol.1, No.8, pp 53 – 54, Published by Science for development Nepal. **(Co- author).**
28. Bhola Thapa, Raju Shrestha, Ole G. Dahlauge and **Krishna P. Kaphle** (2004), Aggressiveness of sediments in Nepalese rivers with respect to sand erosion of hydraulic turbine. Abstract volume, 9th International Symposium on river sedimentation, 18 – 21 October 2004, Yichang, China **(Co- author).**
29. **Krishna P. Kaphle** (2004), Dadeldhura Granite Massif and Bamangaon Polymetallic Sulphide Mineralization in the exo-contact zone, Farwestern Nepal. Abstract volume, pp21. *(Paper presented in 4th Nepal Geological Congress, 9-11 April 2004, Kathmandu)*.
30. **Krishna P. Kaphle** (2004), Mineral Resources Development Plan, Policies, and strategies adopted by the Department of Mines and Geology, HMG Nepal. Abstract volume, pp235. (*Paper presented in Fourth National Congress on Science and Technology, organized by Royal Nepal Academy of Science and Technology (RONAST) on 23 – 26 March 2004, Kathmandu, Nepal).*
31. B.N. Upreti and **K.P. Kaphle** (2004), Geology and Mineral Resources of Nepal: An Appraisal. Abstract Volume, pp 25 – 26. *(Paper presented in the 4th National Congress on Science and Technology, organized by RONAST, 23 – 26 March 2004, Kathmandu)*.
32. **K.P. Kaphle** and B.M. Jnawali (2003), Environmental Geological Assessment of Butwal Municipality and its Surroundings, Western Nepal. Proceedings of 4th South Asia Geological Congress (GEOSAS-IV) 2002, New Delhi, India. pp417 – 428.
33. **K.P. Kaphle,** B.M. Jnawali, K. Busch and L.N. Rimal (2003), Environmental Geological Assessment of Pokhara Valley with respect to Urban Planning and new Infrastructure Development. Geoligisches Jahrbuch, Sonderhefte Reihe C, Heft SC4, pp129-141, Hannover, Germany 2003. Abstract volume pp 13 – 14. *(Paper presented in International Workshop on Engineering Geology and Environmental Planning, Hannover, Germany, 10-11 October 2002).*
34. **Krishna P. Kaphle** and Hifzur R. Khan, Ground Radiometric survey, Prospecting of Radioactive minerals and its findings in Nepal. Bulletin of Nepal Geol. Soc. Vol.20, pp63-65. August 2003.
35. B.M. Jnawali and **K.P. Kaphle** (2003), Investment opportunities in Mineral Sector in Nepal, Bulletin of Nepal Geol. Soc. vol.20, pp37- 42, August 2003.
36. **Krishna P. Kaphle** (2002), Natural Hazards and Environmental Geological Assessment of the Pokhara Valley, Western Nepal. Journal of Nepal Geol. Soc. vol.27 (special issue), pp165-172, year 2002.
37. **Krishna P. Kaphle** (2001), Karst Development and Sinkhole Hazards in some parts of Pokhara Valley, Nepal. Abstract volume, Transactions, Japanese Geomorphological Union Volume 22, No.4, pp119. *(Paper presented on 5th International Conference on Geomorphology, Tokyo, Japan, 23 – 28 August 2001).*
38. **Krishna P. Kaphle** (2000), Common Types of Natural Disasters, Their Effects and Management Capabilities in Nepal. Proceedings of 3rd South Asia Geological Congress. *(Paper presented in 3rd South Asia Geological Congress (GEOSAS-III), Organized by Pakistan Academy of Geological Sciences, Lahore Pakistan, on 23 – 26 September 2000).*
39. **Krishna P. Kaphle** (2000), Mines and Environment, Present Status and Issues in Nepal. News Bulletin of Nepal Geol. Soc., Vol.17, pp 64-67.
40. **K.P. Kaphle,** A.M. Dixit and M. Nakarmi (1999), Natural Disaster Management Capabilities in Nepal. Journal of Nepal Geological Society Vol 20 (Special Issue), pp239. *(Paper presented in the International Symposium on Engineering Geology, Hydrology and Natural Disaster with emphasis on Asia on 28 – 30 Sept 1999).*
41. **Krishna P. Kaphle** (1999), Use of Geochemical Prospecting Techniques in Metallic Mineral Exploration, and their Success in Nepal (in Nepali). News Bulletin of Nepal Geol. Soc. Vol.16, pp 61-63.
42. **Krishna P. Kaphle** (1999), Environmental Geological Assessment of New Settlement areas and various types of infrastructures in Kathmandu Valley. News Bulletin of Nepal Geol. Soc. vol. 16, pp43.

43. **K.P. Kaphle,** H.R. Khan and B.M. Jnawali (1998), Regional Geology and Structural framework of Farwestern Nepal Lesser Himalaya. Special issue, Geological Bulletin University of Peshawar, vol. 31 (Abstract volume) 1998, pp90-91.
44. **Krishna P. Kaphle** (1997), The Bamangaon polymetallic sulphide prospect, Dadeldhura district Far-western Nepal: A case study. Proceedings of Second South Asia Geological Congress (1995), pp245 – 261.
45. **Krishna P. Kaphle** (1997), Importance of Geoscience for the betterment of human beings in 21st Abstract volume, Colloquium on Geology and the Human life, Lahore, Pakistan, 4 – 6 January 1997. Pakistan Academy of Geological Sciences.
46. **Krishna P. Kaphle** (1997), Phosphorite exploration in Nepal. Bulletin of Nepal Geological Society Vol.15, pp67-68.
47. **Krishna P. Kaphle** (1996), Placer gold occurrences in the major rivers of Nepal and their possible primary source. Journal of Nepal Geological Society, Vol.13, pp51- 64, year 1996. *(Paper presented in 10th HKT International Workshop, Ascona, Switzerland in 1995).*
48. H.C. Einfalrt, **K.P. Kaphle** and P.R. Joshi (1995), Trace elements in muscovite as a guide to gem tourmaline bearing pegmatites in Nepal, an empirical approach. Journal of Nepal Geol. Soc. Vol. 11, Spc. Issue, pp141-158. *(Paper presented in 9th Himalaya Karakoram Tibet Workshop, Kathmandu Nepal, 1994).*
49. **Krishna P. Kaphle** (1994), The Dadeldhura granite Farwestern Nepal: A comparison with other Lesser Himalayan granites. Proceedings of First South Asia Geological Congress (GEOSAS-I), pp 80 – 92, (held in Islamabad, Pakistan on 23 – 27 February 1992).
50. H.C. Einfalrt, A. Hoehndorf and **K.P. Kaphle** (1993), Radiometric age determination of Dadeldhura granite, Lesser Himalaya, Farwestern Nepal. Schweiz Mineral Petrogr. Mitt. 73, pp94 – 106, year 1993. (Co-author)
51. **Krishna P. Kaphle** (1992), Geology, Petrology and Geochemistry of Dadeldhura Granite Massif, Far-Western Nepal. Journal of Azad Jammu and Kashmir University, Spc. Volume 10, pp75 – 92, year 1992.
52. **K.P. Kaphle** and H.C. Einfalt (1992), Occurrence of volcanites in the Lower Siwalik Formation: An evidence of Late Tertiary volcanic activity in the central Siwalik of Nepal. Journal of Nepal Geol. Soc. Vol.8, pp11 – 19.
53. **Krishna P. Kaphle** (1991), Geochemistry of Dadeldhura Granite and its Mineral Potential. Journal, Nepal Geol. Soc. vol.7, pp21 – 38.
54. **K.P. Kaphle** and P.R. Joshi (1982), Geological and Geochemical exploration of Copper – Tungsten prospect at Bamangaon and adjacent areas, Dadeldhura, Far-western Nepal. Proceedings of Tungsten Geology Symposium (12-22 Oct.1981), Jiangxi China, pp123 – 126 year 1982.
55. P.R. Joshi and **K.P. Kaphle** (1980), Geochemical prospecting in Nepal; A case history of Copper – Tungsten and Tin mineralization at Dadeldhura area, Farwestern Nepal. Proceedings of the Seminar pp131-135. *(Paper presented in the Seminar on Modern Method f mineral prospecting, held in Taskent, USSR).*

GEO-SCIENCE EXHIBITION PROGRAMS OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

Nepal Geological Students' Society (NGSS) has been conducting geo-science exhibition for the betterment of young students and to divert the mind as well to create interest towards the importance & benefit of Geology and Geoscience education. NGSS had organized three geo-science exhibitions till the date. All three exhibitions were organized in collaboration with Central Department of Geology and last one along with the collaboration of Nepal Geological Society (NGS). The organized exhibitions where held during

1st Geo-Science Exhibition - 2071B.S. (Baishak 28 – Baishak 30)

2nd Geo-Science Exhibition - 2073B.S. (Mangsir 29 - Poush 01)

3rd Geo-Science Exhibition - 2075 B.S. (Magh 28 - Falgun 01)

Objectives of Geo-Science Exhibition:

- Create interest in Geo-Science among younger generation
- Encouraging scientific creativity among students
- Providing visual experiences and encouraging creative thinking
- To help in the contribution to School Level teaching practice about Geo-Science
- To enhance the level of understanding Geo-Science in School Level through presentation, experimentation and live interaction
- Encouraging problem solving approach and developing appropriate technologies and applying scientific ideas in daily life situations
- To sense pride in the talent
- Popularising Geo-Science among various group and creating an awareness regarding its impact on socio-economic and sustainable development of the country
- To make people familiar with the Geological terms like Hydropower, Earthquake, Landslides, Rock, Minerals, Flood, Mountain and it's origin
- To make participants have knowledge about Geological, Engineering Geological and Environmental Mapping
- To make Geo-Science relevant by allowing students to conduct an experiment based on their own interests.

Main Attraction:

1. Geo Disaster
2. Rock, Minerals and Fossils
3. Geomorphic Features
4. Hydrologic Cycles
5. Geologic and Engineering Structure
6. Tunnel and Hydropower Development

First Geo-Science Exhibition- 2071 conducted by Nepal Geological Students' Society in collaboration with Central Department of Geology (CDG)

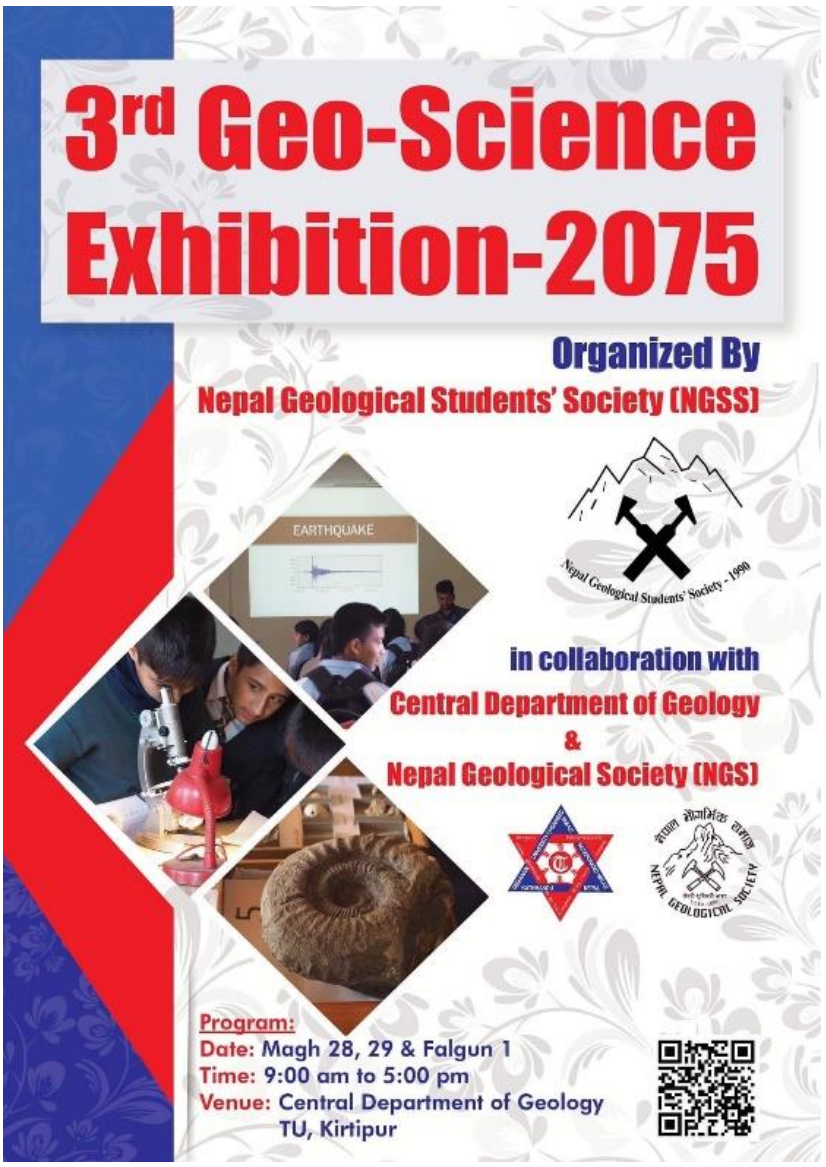
Nepal Geological Student Society (NGSS) in co-operation with Central Department of Geology organized first Geo-Science Exhibition Program on Central Department of Geology, Tribhuvan University, Kathmandu, Nepal on Baishak 28-30 2071B.S. This exhibition was organized by 17th executive committee of NGSS and Prakash Pokhrel was the President during this tenure.

A Glimpse of First Geo-Science Exhibition- 2071

Nepal Geological Students' Society

Second Geo-Science Exhibition- 2073 conducted by Nepal Geological Students' Society in collaboration with Central Department of Geology (CDG)

Nepal Geological Student Society (NGSS) in collaboration with Central Department of Geology organized second Geo-Science Exhibition Program on Central Department of Geology, Tribhuvan University, Kathmandu, Nepal on Mangsir 29, 30 and Poush 1, 2073B.S. This exhibition was organized by 19th executive committee of NGSS and Deepak Gautam was the President during the tenure.



Nepal Geological Student Society (NGSS) organized 3 day 3rd Geo-Science Exhibition Program on Central Department of Geology, Tribhuvan University, Kathmandu, Nepal on February 10-12, 2019. The program was co-organized by the Nepal Geological Society (NGS) and Central Department of Geology, Tribhuvan University. This exhibition was organized by 21st executive committee of NGSS.

The program was divided into inaugural session, exhibition session and closing session. The program was graciously inaugurated by the Hon'ble Education, Science and Technology Minister, Mr. Giriraj Mani Pokhrel. The program was chaired by Head of Department (HOD), Central Department of Geology, Prof. Dr. Lalu Prasad Paudel. Prof. Dr. Tirtha Raj Khaniya, VC of Tribhuvan University, Prof. Chaitanya Prasad Sharma, Chairman of Tribhuvan University Service Commission, Prof. Dr. Ram Prasad Khatiwada, Dean, Institute of Science and Technology were the special guest of the program.

Hon'ble Education, Science and Technology Minister exposed the Smarak made on the memory of Late Prof. Dr. Madhab Prasad Sharma, Former VC of Tribhuvan University and Founder of Geoscience Department in Nepal. The retired professors of the geology: Professor Dr. Bishal Nath Upreti, Prof. Dr. Prakash Chandra Adhikari, Prof. Dr. Ram Bahadur Sah, Prof. Dr. Megh Raj Dhital, Prof. Dr. Vishnu Dangol, Porf. Dr. Pitambar Gautam, Mr. Surnedra Raj Pant, Mr. Rajendra Pradhan were honored and Letter of Appreciation were handovered by Hon'ble Education, Science and Technology Minister. The foreign professors: Prof. Dr. Hiroshi Yagi (Japan), Prof. Dr. Harrel Thomas (India), Prof. Dr. Jorn Kurl (Germany) who have voluntarily contributed to the Central Department of Geology were also honored with letter of appreciation by Hon'ble Minister. Ms. Meera Sharma, wife of Late Prof. Dr. Madhab Prasad Sharma provided fund of NPR. 3,50,000 (Three lakhs fifty thousand Nepalese rupees only) to be granted annually from its interest to the best student as scholarship.

The inauguration program was coordinated by Dr. Dinesh Pathak, Former President of Nepal Geological Society and was conducted by Dr. Kamala Kant Acharya, General Secretary of Nepal Geological Society. In exhibition program, More than 35 geoscience related stall were placed in the program. Beside through stall, knowledge on the rock and fossil specimen, the importance of geoscience for the development of nation, natural disaster and role of geologists in natural disaster mitigation to the visitor was given through

oral and poster presentation, rock garden and fossil museum. The stall was visited by more than 6000 participants (1600 in first day, 2200 in second day and 2500 in the third day) including school level students, teachers, geoscience students, researchers, professor and other geology professionals.

In closing program, the exhibitor and volunteer of the program were honored with Letter of Appreciation by Mr. Sanjeeb Singh Karki, President of NGSS, Prof. Dr. Lalu Prasad Paudel, Head of CDG, Dr. Kabi Raj Paudyal, President of the NGS, Dr. Dinesh Pathak, Associate Professor of CDG and Former President of the Society.

The news of exihibition in Nepal Font was published in kalikakhabar.com.

A Glimpse of Third Geo-Science Exhibition
February 10-12, 2019 (Magh 28-Falgun 1, 2075)
Nepal Geological Students' Society


3rd Geo-Science Exhibition-2075
Attractions
* Geo-disasters
* Tunnel
* Hydropower
* Mineral Resources
* Fossils
Program
Magh 28, 29
& Falgun 1
9 am to 5 pm
at CDG, TU
Kirtipur
3rd Geo-Science Exhibition-2075
Organized by Nepal Geological Students' Society (NGSS)
in collaboration with
Central Department of Geology (CDG) & Nepal Geological Society (NGS)

CONGRATULATIONS

Promotions/ Appointments/ Academic Award/ Marriage

Nepal Geological Students' Society also extends its uttermost congratulations to the following former and present members for the achievement **within a year.** Nepal Geological Students' Society wishes for the successful future.

Recent Promotion

Dr. Dinesh Pathak
Promoted as Professor
Central Department of Geology,
Tribhuvan University
Date of Promotion: 15th Ashoj, 2078
Founder Secretary of NGSS

Dr. Subesh Ghimire
Promoted as Associate Professor
Central Department of Geology,
Tribhuvan University
Date of Appointment: 15th Ashoj, 2078
Former Member of NGSS

Dr. Prakash Das Ulak
Appointed as Co-ordinator of
Engineering Geology
Tri-Chandra Campus, Tribhuvan
University
Former Member of NGSS

Mr. Tika Ram Paudyal
Promoted as Head of Soil, Rock and
Concrete Laboratary
Former Member of NGSS

Recent Marriages

Mukunda Dhungana
Married to Sumitra Pandey
Central Department of Geology,
Tribhuvan University
Member of NGSS

Sushant Bhattarai
Married to **Reena Acharya**
Central Department of Geology,
Tribhuvan University
Both Members of NGSS

Madhusudan Sapkota
Married to Yukala Poudel
Central Department of Geology,
Tribhuvan University
Member of NGSS

Rupak Gyawali
Married to Karishma Khadka
Central Department of Geology,
Tribhuvan University
Both Members of NGSS

Sushila Sanjel
Married to Raju Parsad Timilsina
Central Department of Geology,
Tribhuvan University
Member of NGSS

Unika Luitel
Married to Sandesh Lamichhane
Central Department of Geology,
Tribhuvan University
Member of NGSS

Sudiptee Acharya
Married to Bibash Parajuli
Central Department of Geology,
Tribhuvan University
Both Members of NGSS

Usha Dhungana
Married to Bishal Poudel
Central Department of Geology,
Tribhuvan University
Member of NGSS

Bibek Sapkota
Married to Binda Lamichhane
Central Department of Geology,
Tribhuvan University
Member of NGSS

Continuing the congratulations for executives of Nepal Geological Society (NGS) appointed as:

1. **Dr. Ananta Gajurel -** President
2. **Ms. Monika Jha** - Vice President
3. **Dr. Lok Bijaya Adhikari** - General Secretary
4. **Ms. Sabina Khatri** - Vice General Secretary
5. **Mr. Ashish KC**- Treasurer
6. **Mr. Saurav Khanal**- Member
7. **Mr. Arjun Bhandari** - Member
8. **Mr. Indra Lamsal** - Member
9. **Mr. Lekh Prasad Bhatta -** Member
10. **Mr. Deepak Basnet -** Member
11. **Mr. Chhabilal Pokhrel -** Member
12. **Mr. Subash Mahat -** Member

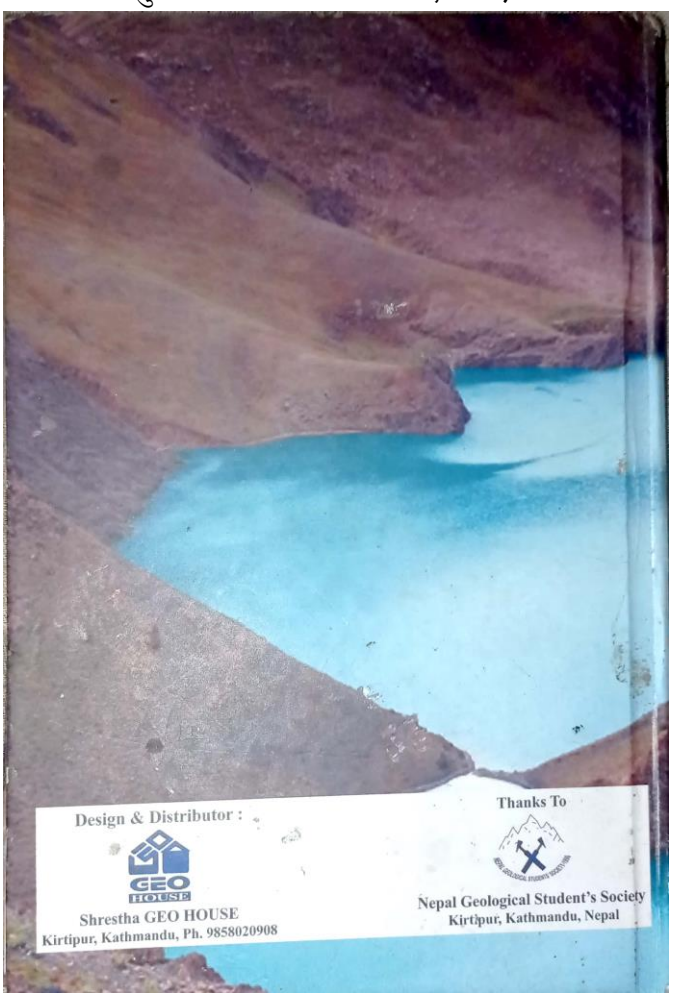
Continuing the Congratulations:

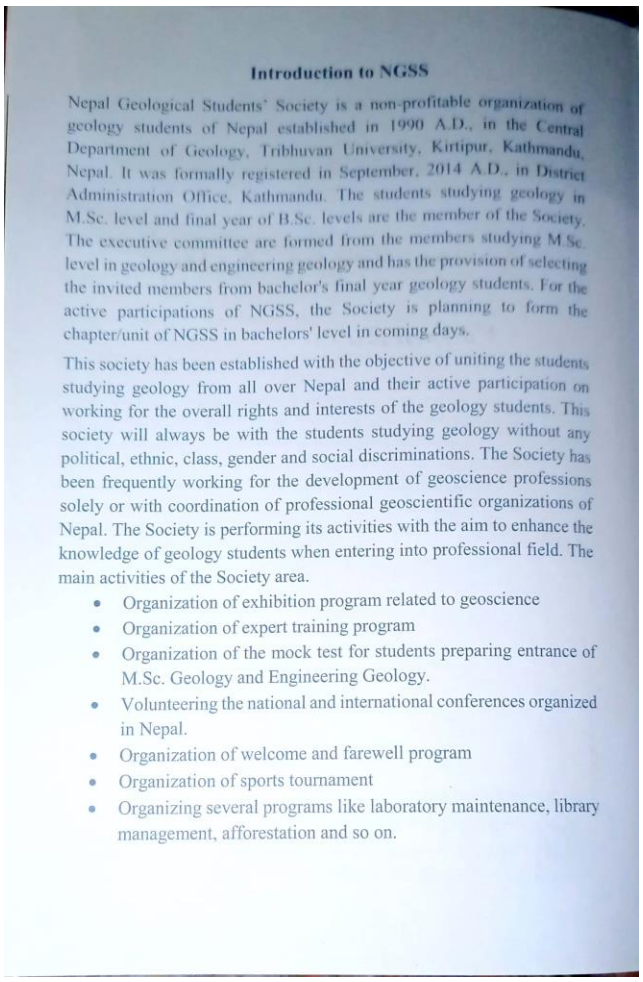
13. **Mr. Gopal Bhandari** - Appointed in Nepal Electricity Authority
14. **Mr. Arjun Kumar Pandey** - Appointed in Nepal Electricity Authority
15. **Ms. Arishma Gartaula** - Appointed in Nepal Electricity Authority
16. **Ms. Sangita Pandit** - Appointed as Hydrogeologist in Province 2
17. **Ms. Dipika Shah** - Appointed as Hydrogeologist in Province 2
18. **Mr. Ravi Acharya** - Appointed in Department of Mines and Geology (DMG)
19. **Mr. Krishna Pandey** - Appointed in Department of Mines and Geology (DMG)
20. **Ms. Shila Bhattarai** - Appointed in Department of Mines and Geology (DMG)
21. **Mr. Lekh Parsad Bhatta** - Appointed as Geologist in NDRRMA
22. **Mr. Bhuwan Awasthi** - Appointed as Geologist in NDRRMA
23. **Mr. Govinda Pathak** - Appointed as Geologist in NDRRMA
24. **Mr. Subash Gaudel** - Appointed as Geologist in NDRRMA
25. **Mr. Pushpa Raj Bhatta** - Appointed as Geologist in NDRRMA

NDRRMA (National Disaster Risk Reduction and Management Authority)

NEWS ON GEO FIELD DIARY

नेपाल भौगर्भिक विद्यार्थी समाजले पहिलो पटक पहल गरेर **Geo Field Diary** को निर्माण भएको थियो, जस्मा आर्थिक दायित्व श्रेष्ठ जियो हाउसले लिएको थियो । श्रेष्ठ जियो हाउससङको मौखिक सम्झौतामा बनाइएको डायरी बिक्री बापत १०% सस्थाको कोषमा जम्मा हुने बेवस्था मिलाइएको थियो। सम्झौता अनुरुप प्रथम पटक प्रकाशन गरिएको उक्त field diary मा भुगर्भ शास्त्रसङ सम्बन्धित फिल्डमा जादा अत्यावश्यक शिर्षकहरु समेटिएको थियो जस्तैः Location, Attitude, Photo No, Lithology र GPS coordinate. पहिलो कभर पेजमा माथीपट्टी GEOLOGICAL FIELD DIARY र तल्लो भागमा नाम, ठेगाना र सम्पर्क नम्बर समेटिएको थियो भने भित्री पहिलो पन्नामा नेपालको भौगर्भिक नक्सा राखीएको थियो। त्यसपछिको पन्नामा नेपाल भौगर्भिक विद्यार्थी समाजको छोटकरीमा परिचय राखिएको डायरीको भित्री अन्य पन्नाहरुमा एकातर्फ Graph राखेर बनाइएको थियो जसले गर्दा फिल्ड जादा गर्नुपर्ने columnar section बनाउन र चित्र कोर्न सहज बनाउदथ्यो। अन्त्यका पन्नाहरुमा आवश्यक legend र columnar section हरु राखीएको थियो। नेपालको भौगर्भिक क्षेत्रमै प्रथम पटक प्रयास गरीयको उक्त डायरीबाट फिल्डमा धेरै लाभ समेत लिन सकिन्थ्यो भने फिल्ड्मा टिपोट गर्न सहज भएको प्रतिक्रिया हामीले पाएका थियौ र आगामी दिनमा भौगर्भिक बिध्यार्थी समाजले यसलाई निरन्तरता दिन सके सस्थाको आर्थिक बिकासमा यसले राम्रो टेवा पुगे बिश्वास यश कार्यसमितिले गरेको छ । उक्त डायरीको नमुना कभर पेज तल राखिएको छ ।





Introduction to NGSS

Nepal Geological Students' Society is a non-profitable organization of geology students of Nepal established in 1990 A.D., in the Central Department of Geology, Tribhuvan University, Kirtipur, Kathmandu, Nepal. It was formally registered in September, 2014 A.D., in District Administration Office, Kathmandu. The students studying geology in M.Sc. level and final year of B.Sc. levels are the member of the Society. The executive committee are formed from the members studying M.Sc. level in geology and engineering geology and has the provision of selecting the invited members from bachelor's final year geology students. For the active participations of NGSS, the Society is planning to form the chapter/unit of NGSS in bachelors' level in coming days.

This society has been established with the objective of uniting the students studying geology from all over Nepal and their active participation on working for the overall rights and interests of the geology students. This society will always be with the students studying geology without any political, ethnic, class, gender and social discriminations. The Society has been frequently working for the development of geoscience professions solely or with coordination of professional geoscientific organizations of Nepal. The Society is performing its activities with the aim to enhance the knowledge of geology students when entering into professional field. The main activities of the Society area.

- Organization of exhibition program related to geoscience
- Organization of expert training program
- Organization of the mock test for students preparing entrance of M.Sc. Geology and Engineering Geology.
- Volunteering the national and international conferences organized in Nepal.
- Organization of welcome and farewell program
- Organization of sports tournament
- Organizing several programs like laboratory maintenance, library management, afforestation and so on.

Information of NGSS in field diary.

MEMBERS OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

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5	Amit Bhusal	Parbat	amitbhusal100@gmail.com
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LIST OF THESIS

List of Masters Thesis from Central Department of Geology in General Geology and Engineering Geology Stream.

Code	Title of Thesis	Name of Student	Year
1	Geology of the Agra Khola (Mahesh Khola Area Central Nepal)	Gopal Man Shrestha	1979
2	Geology of the Dhading area Central Nepal	Devi Nath Subedi	1979
3	Geology of Sopyang-Tistung Area , Central Nepal	Achyut Koirala	1981
4	Geology of Markhu -Tistung Area . Central Nepal	Khagendra Nath Kafle	1981
5	Geology of Barlung Chat-Jugedi Area Central Nepal	Jayandra Man Tamrakar	1981
6	Geolmorphological Evaluation of Banepa Village	Manju Chetri	1993
7	Lithostrarigraphy of Amlekhjanj -Hetauda Area Central Nepal.	Prakash Dash Ulak	1991
8	Historic Landslide of Nepal During 1902 -1990 A D , Extent and Economic significance	Ram Kumar Khanal	1991
9	Geology and Fossil Occurrences of Amlekhganj-Hetauda Area	Lila Nath Rimal	1991
10	Lithostrarigraphic and Structural Characteristic of The Nisti Khola	Ganesh Prasad Dhakal	1991
11	Geology of Amlekhganj Hetauda Area	Anant P Gajurel	1992
12	Landslides in Nepal in the Period 1970 -1980	Mahesh Karmacharya	1989
13	Geology of Malekhu and Adjoining Area	Nir Shakya	1987
14	Geology of Malekhu Area	Rajendra Pradhan	1987
15	Geology of Taruka-Kewal Pur Area	Kaustub Man	1987
16	Ground Water Resource Evaluation of Kathmandu Valley	Ramesh Gautam	1988
17	Estimation of Basement by Electrical Resistivity Survey in Naya Bhanjyang Dhaksi Area Kathmandu	Santa Man Rai	1988
18	Ground Water Resource Evaluation of Kathmandu Valley	Ramesh Gautam	1986
19	Geology of Phalabang Area Central West Nepal	Madan Ratna Manandhar	1990
20	Geology of Malekhu Buri Gandaki Region Dhading Distric	Suresh Dash Shrestha	1986
21	Geohydrology of Terai Region of Saptari Distric Eastern Nepal	Keshav K.C.	1985
22	Geology of Malekhu and Adjoining Area	Tek Raj Pant	1984
23	G. of Triveni-Barahakshatra Area, Sunsari Dhankuta	Subash Chandra Sunuwar	1993
24	Engineering Geol study of the Sildhung Landslide in Lanjujg Distric	Chet bhadur Gurung	1993
25	Petrography of the Siwalik Rocks of the Bardanda Surai Naka Area	Naresh Kaji Tamrakar	1993
26	Hydrological studies in Parts of Dang Valley	Birndra Piya	1993
27	Landforms classification of kathmandu valley	Damayanti Gurung	2048
28	Lithostratigraphy of Surai Naka-Bardada Area With Special Reference to the DhanKhola Area	Raju Gopal Acharya	1993
29	Hydrological studies in Parts of Mahottari Distries Central Nepal	Rajendra Prasad Bhandari	1993
30	Paleomagnetism of Red Sediments of Dubring Formotion Dang Dewakar Paudayal	Dewakar Paudayal	1993
31	Lithostratigraphy of Bardanda-Surai Naka Area with special reference to the Surai Khola Formation	Ghatur Bdr Shrestha	1993
32	Geological Study of Bankas basa Baradanda Area	Sudarshan Pd Adhikari	1993
33	Electrical Resistivity Survey for Groundwater Exploration in Central Chitwan Valley	Khum Narayan Paudyal	1993

34	Landslides of Likhu Khola Area along with the study of Landslides in Nepal	Kiran Kumar Ghimire	1995
35	Geology and Petrography of the Siwaliks of the Sindhulmari Area, Central Nepal	Puskar Nath Ghimire	1993
36	Geology of the Siwaliks of Sarlahi and Sindhuli Districts, Central Nepal	Upendra Ratna Sthapit	1995
37	General Geology of the Timal Danda and its surrounding area, Karve	Yogendra Bdr Kayastha	1995
38	Lithostratigraphy of Bardanda-Ainaka Area with special reference to the Chor Khola Formation	Basant Kafle	1993
39	Geological and Engineering Geological studies of the Agra Khola Basin with a special reference to landslides induced by Disaster of July 19-21, 1993	Churna Bahadur wali	1995
40	Geology and Geochemistry of the Patan-Dhung gad Area	Ajab Singh Mahara	1995
41	Engineering Geological and Geophysical investigations in the Agra Khola Basin	Taka Ram Poudel	1995
42	Engineering Geological studies of Landslidesd induced by Disaster of July 19-21, 1993 the Agra Khola	Prem Bdr Thapa	1995
43	Engineering Geological Studies in the Khimti Khola	Keshar Bdr Kandangura	1995
44	Electrical Resistivity Survey for Groundwater Exploration in Western Part of Dhanusha	Hira lal Moktan	1995
45	Lithological variation and Fossil contents of the Fluvio-Lacustrine Sediments of the Kathmandu Valley	Dipak Ghimire	1994
46	Hydrogeological study of Shallow Aquifer in Parts of Parsa Dist	Surendra Raj Shrestha	1994
47	Springs around the Kathmandu valley	Rajkumar Gambhir Singh	1994
48	Electrical Resistivity Survey for Groundwater Exploration in the Jutpani-Bacchauli Area Eastern Chitwan Dun	Rajendra Pd Khanal	1994
49	Engineering Geological studies of the Butwal Landslides and its Adjacent area	Rabindra Thanpe	1994
50	Lithostratigraphy of Mirchaiya Katari area	Narad Kumar Thakuri	1994
51	Sands inKathmandu valley prospects and problems	Dilip Kumar Sadaula	1993
52	Geomorphological Evaluation of Karra Khola valley Hetauda Chitwan Dun	Shova Singh	1995
53	A detailed paleomagnetic study of the Redbeds of the Dubring Formation, the Lesser Himalaya Dang	Soma Nath Sapkota	1994
54	Engineering Geological and Geotechnical studies of the Bhedetar-Ranke road, between Km 0+000 and Km 15+850 Eastern Nepal	Prathad Baaniya	1999
55	Geomorphological study of Harpan Khola and Phurse Khola valleys of Pokhara Basin, Central Nepal	Rosina Mali	1996
56	Environmental Geological survey along the Bagmati river in Metropolitan Kathmandu city	Jaya Kumar Gurung	1996
57	Engineering Geological and Geophysical investigations in the Dam site of the Khimti	Durga Pd Bashyal	1996
58	Radial Vertical Electrical Soundings to detect underground Tunnels and cavernous fissures around Davis Fall area Pokhara	Rajesh Pandit	1996
59	General geology of the Ampipal Area with special reference to Petrography	Vinod Kr Singh	1996
60	Geological and Engineering Geogical Studies in the Arjun Khola Area	Moti Lal Rijal	1998
61	Geology of Kulekhani Watershed in Central Nepal with Special reference to Landslides and weathering	Mahesh k Regmi	2002

62	Glacial geomorphological analysis of the Everest region for the reconstruction of recent palaeoclimatic	Bishnu Pd Adhikari	1996
63	Geology of the area between the Kakaru Khola and the Sunkoshi River Udaypur dist	Shailesh K Thapa	1999
64	Study of Groundwater from surface aquifer of Kathmandu Valley	Divas Shrestha	1999
65	geology and Structure of the Lesser Himalaya between Pokhara and Kusma	Lalu Pd Paudel	1994
66	Astudy on the Geology of the Suria Naka- Bardanda Area	Aghut R Gautam	1994
67	Geology of the Piuthan area with special reference to the Engineering Geology of the Jhimruk	Sudhir Rajaure	1994
68	Application of Electrical Logging to estimate Hydraulic parameters of aquifer sediments in Northern ground water	Achyut Dangol	2001
69	Engineering geological study and application of bioengineerign system in stablization of landslides of Sindhupalchok Dist	Bam Dev Regmi	2002
70	Landforms in the sediments of Kathmandu valley	Sagar Ratna Bajracharya	1997
71	Environmental Engineering studies in the Kulekhani watershed with special referenceto Hazard mapping around the reservoir	Abha Shrestha	
72	Ground conductivity measurements for the study of the Gokarna landfill site and other areas on the bank of the Bagmati river	Ganesh Nath Tripathi	2000
73	Engineering and Environmental geological study of Kharidhunga Thokarpa Balephi area	Ranjan Kumar Dahal	1997
74	Geology and plant fossils from the Siwaliks of Godawari area	Sharawan Gorkahali	2001
75	Engineering geological studies of th Kali Gandaki A Hydroelectric project area	Suman Panthi	2000
76	Ground water potential from the watershed of Chandragiri limestone	Naresh Sakya	2002
77	Engineerign geological mapping and geological study of the Jiri-Chhange road in Dolakha dist	Arun Dangol	2002
78	Engineering geological and geotechnical study in and around Ilam Hydropower project	Deepak Chamlagain	2000
79	Correlation between Electrical Resistivity measured on the surface with hyraulic parameters of Granular materials in Eastern chitwan Dun valley	Ghan Bd. Shrestha	1999
80	Sedimentation in the Kulekhani watershed and its impact on the reservoir of the kulekhani hydroelectric	Anirudhra Paudel	2001
81	Engineering geological watershed management studies in the kulekhani	Sambha Pd. Lamichanne	2000
82	Geology of the lesser himalaya of Sindhuli Garhi Sulibhanjyang Area	Dinesh K. Napit	1997
83	Geology of Bhaktapur Nagarkot Area	Kausal Ratna Bajhrachraya	2001
84	Engineering geological studies in the Kulekhani	Mahesh Singh Dhar	2000
85	Hydrogeologiccal study in Northern parth of chitwan Dum Valley	Murari Pd. Kharel	
86	Geological study of Arjun Khala Area	Prakash Chandra Paudel	1998
87	Geological Mapping in the Taplejung window panchthar District	Subesh Ghimere	2001
88	Hydrogeological study in southern part of Dang Valley	Birendra Sapkota	2001
89	Hydrological and Envirnmental Engineering Investigation of the Saptakoshi River	Anita Regmi	2001
90	Enveronmental Engineering Investigating Investigation of the saptakoshi	Archana Pradhan	2001
91	The study on the Groundwater Fluctuation and its Hydraulic parameters in the kathmandu valley	Usha Kharel	2001
92	The Comparative water quality Assessment on ground and surface water sources in kathmandu valley	Pramila Subedi	2002

93	Geology and Tecinical analysis of Lower Tertiary coals of Tosh Area	Kabi Raj Paudel	2001
94	Geology of Taplejung area Eastern Nepal	Dibya Raj Koirala	`200 2
95	Elatrical Resistivity Investigation and Analog Modeling fhor Reservoir Infilration and Rock Quality	Shayam Hari Ghimere	`200 1
96	Engineering Geological and slope stability Studies of Andhi Khola Syangja District	Maheshwor Khanal	2001
97	Stratigraphy Anddepositional Environment of quaternary Sediments Constituting the Eastrin part of Dang valley	Keshab Raj Rijal	2002
98	Geological Mapping and Engineering Gealogical study in the Northern part of the Taplejung	Tej Pd Gautam	
99	Geological studies in the Southeastern part of Taplejung	Chandra Prakash Paudel	2002
100	Engineering Geological Study Around the Middle Marsyangdi Hydroelectric	Prakash Chandea Ghimere	2001
101	Application of Magnetic susceptilty for Sediment Correlation and Deciphering Roadside Polluting in Kathmandu Valley	Ghanashyan Neupane	2002
102	Gealogy of Sundarijal sipaghat area Central Nepal	Rajesh Dhungana	2003
103	Exploration and Caleultion of total Natural Gas Reserve at Teku area	Suchita Shrestha	2003
104	Geochemical Analysis and Reserve Estmation of the Sinduli Limestone Depasit Sukora Udayapur	Paresh Raj Pandey	2003
105	Geology Metamorphism and Mineral Resources of the Dadeldhura Area	Ganesh Raj Joshi	2003
106	Engieering Geological and Geotechnical Stydies of the Tinpile-Banchare dada ROAD	Matrika Pd. Koirala	2003
107	Geology and Petrographic Study of the Area from Chirauneli khola to thulo khola	Ganaynadra Gurung	2003
108	Geology and Grade of Metamorphism of the Gatlechhi Area Dhading	Uddhav K. Mahato	2003
109	Studies on Sedionentology and Molluscan Fossils of the Kathmandu	Ujjwala Bajrachraya	2003
110	Engineering Geological study of the Dipayal -Mellekhsakarlekh Road	Govinda Ojha	2003
111	Engineering Geology and the slope stabilily of Bungmati Landslide in Bungmati	Annanta Man Singh Pradhan	2004
112	Hydrogelogical study of Arsenic Occ	Suman Singh	2004
113	Engineering hydrological study of Kodku Khola in referenceto water supply	Laxmi Devi Maharjan	2004
114	Engineering geological and geotechnical studies of the Phurping-Hetauda road	Damodhr Lamshal	2004
115	Engineering geological and geotechnical studies of Seti-Trishuli storage hydroelectric project Gaighat, Tanahun	Sujan Raj Adhikari	2004
116	Engineeing geological and geotechnical studied of the Phurping-Hetauda road	Srikrishna Lamichanne	2004
117	Soil erosion and environmental geological study of the Kodku khola	Bikash Shrestha	2002
118	Evaluation of Rupathali sand deposit withreference to Mining policy	Arati Chada Pradhan	2004
119	Application of ground penetrating radar for the building evaluation	Dhruba Mishra	2004
120	Engineering geological and geotechnical studies of upper Hewa Khola hydroelectric project, Panchthar	Ganesh Pd. Neupane	2005
121	Geology and landslide hazard mapping in the Thankot to Chalnakhel area	Pardip Paudel	2004
122	Palaeontological investigation of the Siwalik ground along the Chatara-Barahakshetra area	Muan Lamichanne	2003
123	Geomorphological analysis of the Kolpu khola valley	Shana Joshi	1999
124	Geology of the area between the Sunkoshi river and the Kakaru khola Udayapur	Shree Kamal Dwivedi	1997

125	Electrical resistivity measurement on Physical models of sand and cement	Krishna Bd. Basnet	1997
126	Distribution of Fluvio-Lacustrine sediments in Kathmandu valley	Rupak Staphit	1998
127	Electrical resistivity survey for groundwater exploration inNorth central part of Morang	Dushyanta Bhattrai	1997
128	Geology of the Kampughat-Chisapani area Udayapur and Khotang	BishowNath Ray Chaudhary	1997
129	Hydrogeological condition and water quality of deep tubewells in the Kathmandu valley	Sumesh Amattya	1999
130	General geology and petrography of the rockds of Sindhuli Garhi area	Dharma Raj Khadka	1997
131	Engineering geology and geotechnical studies of Kankai storage hydroelectric project, Eastern Nepal	Sunil Kumar Dwivedi	2003
132	Engineerign Geologicl study for the slope instability inChalnakhel VDC, kathmandu vallley	Prakash Dhakal	2003
133	Engineerign geological study for the slope stability of Chobhar landslide in Chobar kirtipur municipality Kathmandu	Amar Bd. Chand Thakuri	
134	Hydrogeological studies in parts of Dang valley	Birendra Piya	1993
135	Hydrogeological studies in parts of Dhanusa	Rajiv Gautam	1995
136	Post project impact studies of Jugeda tubewell irrigation project inJugada area of Kailali	Rajendra Prakash Bhatta	
137	Detail engineering geology and geotechnical studies of upper Tamakoshi	Purushottam Silpakar	
138	Applicability electrical resistivity tomography in the study of the river valleys, Nepal	Dilli Ram Thapa	
139	Study of geology of Tosh area the Northern Dang	Manoj Acharya	2005
140	Geomorphological study and drainage basin analysis in the eastern part of Dang valley	Dipenda Laudari	2001
141	Evaluation of rocks of the Tistung formation for concretea ggregate, southern part of Kathmandu valley, Tikabhairab area	Dev Krishna Maharjan	
142	Study on morphometric characteristics lithology and index properties of the rocks erom from the Chure khola basin	Dharmendra Khakurel	2004
143	Geology and structure of Shivapuri-Ranipauwa area, Central Nepal	Jyotdra Sapkota	2005
144	Stratigrphy and Metamorphism of Shivapuri-Ranipauwa area, Central Nepal	Kushal Nandan Pokhrel	2005
145	Palaeocurrent analysis in quaternary deposits from southern part of Kathmandu valley	Santosh Dhakal	2005
146	Soil erosion in Kahuri watershed and dgeologyog the adjacent area Udayapur	Tara Pd. Bhattrai	2005
147	Study on Modern Fluvial environment and geo-environmental problem inBishnumati river, Kathmandu	Basanta raj Adhikari	2005
148	Hydrogeological study in south-eastern part of Jhapa district	Ashok Sigdel	
149	Role of rock and soil materials on water storage capacity and quality in eastern part of Jhikhu khola watershed	Smita Kumari Shrestha	1999
150	studies on stratigraphy of Kathmandu valley	Nirma Shrestha	2005
151	Engineering geological study for the slope instability inChalnakhel vdc, Kathmandu valley	Prakash Dhakal	2003
152	Geologly and structure of Phurping-Raniban area, Central Nepal	Kamala Kant Acharaya	2003
153	Hydrogeological studies in parts of Bara district	Sanjiv K Sakya	1995
154	Geomorphological analysis of Samari khola watershed of Makawanpur	Binod Tandukar	1996
155	Groundwater studies in the Terai plain of Morang	Tara Niddhi Bhattarai	1998

156	Geological studies around Taplejung area, Eastern Nepal and Landslide hazard mapping of Hangdewa-Hireba watershed	Desh Raj Sonyok	2001
157	Engineering geology and the slope stability of Bungmati landslide in Bungmati	Annanta Man Singh Pradhan	2004
158	Hydrogeological studies in parts of Siraha dist	Khila Nath Dhakal	1998
159	Hydrogeological study inBharatpur area, Chitwan	Shiva Lal Acharaya	2002
160	Studies on geology and mineral resources of kathmandu valley sediments	Suhana Mool	2004
161	Geological mapping and classification of limestone of the Phulchowki area, Central nepal	Diwakar Khadka	2005
162	Study of Seismic Properties of sediments using Pand S wave and their correlation with mechanical properties of soft sediments of kathmandu valley	Om Pradhan	2005
163	Engineering geological study and stability analysis of Shrawan Danda Jyotinagar landslides, ward no 5 Butwal municipality, Rupandehi	Ashish Ratna Sakya	2005
164	Rock mass classification and design of support systems in Middle Marshyangdi Hydroelectric project, Lamjung	Krishna Pd. Uppadhya	2006
165	Feasibility of Rexcharging Aqifer Through rainwater in Patan, Lalitpur	Hitendra Raj Joshi	2006
166	Stratigraphy of Lower Tertiary succession, lesser Himalaya Western Nepal	Pragati Adhikari	1999
167	Geotechinical Investigation of Buddhanagar Bariyarpatti Road and Road trotective Measures	Prakash Jha	2000
168	Quality Assessment and Reserve Estimation and Economic Analysis of Roofing Slate in Thorpa Area Tanahun District	Nawaraj Neupane	2003
169	Petrology of Chapagaun Formation with refrence to Natural Resource of Gravel Southern Part of Kathmadu Valley	Basnata Devkota	2006
170	Engineering Geological Studies of The Gravel Deposits in The Northern Part of Kathmandu Valley	Babukrishna Bhandari	1995
171	Geomorphological Study of Horpan Khola and Phusre Khola Valley of Pokhara Basin, Central Nepal	Rasmi mali	1996
172	Engineering Geological Studies of Mahankal Fan Sundarijalm, Kathmadu Nepal	Sashi Basnet	2001
173	Hydrogeological Studies of Kathmandu Valley	Bipin Lamichane	2006
174	Hazard Investigation in The Saptakoshi Valley, Chatara Chkarghatti Area	Mitra Badahur Khadka	2006
175	Paleocurrent Analaysis in Quaternary Deposit From Northern Part of Kathmandu Valley, Central Nepal	Promod Simkhada	2006
176	Evaluation of Chandragiri Limestone as a source of Raw material for Cement Industry in Khopasi Area, Kaverpalanchowk, Central Nepal	Pravat Chadra Neupane	2006
177	Deep Aquifer recharge Study through water level monitering in Kathmandu Valley	Swostik K. Adhikari	2006
178	Study on Quality Assessment reserve Estimation in Mining Techniques of Dimension Stone of Khrpa Deposit , Central Nepal	Anita Thapaliya	2005
179	Palentology, Paleoecology and Paleoenvironment of Lukundol Formation	Sudarshan Bhandari	2006
180	Pleistocene Geology and Soil Conservation Study of Panchkhal Area	Yadunath Timsina	2007
181	Arasenic Contamination in Ground Water Of Kathmandu District, Centeal Nepal	Saugat Staphit	2007
182	Study of Geoenvironmental Problem of Manohara River of Kathmandu, Nepal	Ramita Bajaracharya	2006
183	Geotechinical Study of the Foundation of Bir Hospital Trauma Centre	Ajay Raj Adhikari	2007

184	Strean Bank Condition Erosion Process and Band Erodibility and Lateral Stability Hazard Along The Manohara River	Pramila Shrestha	2007
185	Foundation Evaluatiuon and Slope Stability Analysis In and Around the Proposed Building og Nepal Medical College, Jorpati	Sanjib Sapkota	2007
186	Geology, Geochemistry and Medical Values of Singha Tatopani and Burung Tatopani, Myagdi, Western Nepal	Hari Pd. Kadel	2007
187	Engineering Geology and Geotehnical Studies of Madi Khola Hyderoelectric, Central Shyanga District	Sudip Shrestha	2005
188	Study on the Feasibility of Establishment of Cement Plane on Chandragiri Limestone, Ramdighat Area, Central Nepal	Pawan Budhathoki	2005
189	Qualaiative Mass Movement Hazard Mapping and Geotechnical Investigation of Middle Marshyangdi Hydroelectric Project	Suresh Pd. Khanal	2003
190	Debris Flow Characterstics and Potential in Dudhpokhari area, southwestern Region of Kathmandu	Achute Prajapati	
191	Spatial And Temporal Changes of Surface Water Quality and Their Contribution in Environmental Pollution of The Major River in Kathmandu Valley	Puskar Nath Nepal	2007
192	Application of SP method for the Study of Gakarna Landfield Site and the Chalnakhel Roadside , Kathmandu Nepal	Subodha Khanal	2006
193	Study of the Gravel of the Rapal River and Narayani River for Construction Material in Central Nepal	Surendra Maharjan	
194	appliation of GPR in Hotspring of Syaphrubesi, Rasuwa	Kishna K Shrestha	2007
195	Geological, Geoengineering and Geotechnical Studies of Kulekhani III Hydroelectic Project, Makwanpur District	Kangada Prasi	
196	Hydrology and Flood Hazard Analysis in Dhobi Khola, Kathmandu	Yojana Neupane	2007
197	Enginnering Geology and Geotechnical Investigation of Part of Proposed Outer Ringroad (Harisiddhi- Luvhu)	Sadha Gautam	2007
198	Geology of Lelle Bhardeu Area in Lalitpur District, Central Nepal	Dawarika Maharjan	2007
199	Arsenic Contamination in the Groundwater of Bara District and Its Helath Impact	Shiv K Baskota	2007
200	Evaluation of Aquifer By Electrical Resistivity Logging Method in Kathmandu Valley	Surendra Shah	2006
201	Geology metamorphism and Structure of the Galchi - Devighat Area, Central Nepal	Kumar K.C.	2007
202	Engineering Hydrological and Sedimentation engineering Studies of Kankai Irrigation Project, Eastern Nepal	Ujjwal Kishna Raghubanshi	2007
203	Hydrogeological Studies of Banepa Area, Kavre	Suresh Shrestha	2007
204	Status of Sand Excavation in Northern Part of Kathmnandu Valley with refrence to Spatial Variation of Sand Quality	Mamati Syami Manandhar	2007
205	Geology Mining and Procressing of Okhre Limestone Deposit Hetuda, Central Nepal	Bharat Banjade	2008
206	Study of Mass movement at Chalnakhel Using Seismic Refraction Method	Surendra Shrestha	2007
207	The Study of Spring Water resource in southwest part of Kathmandu	Saroj Maharjan	2008
208	Dynamic Barrier of Soil In Kathmandu Valley and Its Application in Machine Foundation	Anil Kumar Chaudhary	2007
209	Geological Wxploration of Dhanbhase Cement Grade Limestone Deposit Chitwan, Central Nepal	Madan Raj Pokhrel	2008
210	Pleistocene Deposits and Environmental Geology of Pokhara Valley	Ramhari Sharma	1995
211	Application of GPR in post construction evaluation amd Monitering	Murari Khatiwada	2005
212	Engineering Geological and Geotechnical Studies of Budhigandaki Hydroelectric Project , Central Nepal	Ravindra Pd. Dhakal	2005
213	Engineering Geological and Geotechnical Studies of Lower Modi Hydroelectric Project, Parbat, western nepal	Ram Chadra Giri	2005

214	Study of Cement Grade Limestone of the Bhainse Deposit , Central Nepal	raju Pd. Sitaula	2005
215	Hydrogeological Study in the Part of Rupendhei District, Western Nepal	Krishna Pd. Ruwali	2005
216	hydrogeological Study in Southwestern Part of Banke District, western Nepal	Biraj Gautam	2005
217	Geological Mapping And Reserve Estimation of Limestone Deposit of Katunje- Badara Area, Central Nepal	Mahesh Kumar Thapa	2008
218	Getechnical Invesigation of Soil Foundation for Proposed Commercial Building, Patan, Nepal	Shiv Basnet	2008
219	Lithostratigraphy and Structural Pattern of the Siwaliks in Dang and Banke District, Midwestern Nepal	Amar Deep Regmi	2008
220	Potential of Shallow Ground Water Recharge Through rain Water Harvesting in Kathmandu Valley, Central Nepal	Sudan Bikash Maharjan	2008
221	Geotechnical Characteristics and Slope Stability Analysis of Kappan Landslide, Kathmandu, Central Nepal	Prabhu Ram Silwal	2008
222	Lithostratigraphy and Depositional Environment of Siwalik in Tui Khola Amilige and Sorrumding Area of Dang District, Midwestern Nepal	Rishi Gardutaula	2008
223	Seismic Refraction Investigation of Marshyangdi Bridge Site	Sanjiv Regmi	2008
224	Hydrogeological Studies in the part of Rupendhei District	Anil Bajrachraya	1992
225	Geotechnical Investigation of Lukundol Formation Clay for Foundation Charcteristice.	Tsering Dorji Lama	2007
226	Hydrogeological Study in the Part of Rupendhei District, Western Nepal	Rajesh Shrestha	2008
227	Hydrogeological Study of Karra khola valley;East of Hetauda;Makawanpur	Sunil Raj Paudel	2008
228	Location of Buried Geological Structure using Ground Fenetrating Radar in Bardibas Central Nepal.	Suraj Kumar Bajgain.	2008
229	Resistivity Turvey for Rock Quality Invertigation Along the Tunnnel Alignement of the Khimti.	Ganesh Mainali	2000
230	Engineering Geology and the slope stability of Sainbu -Bungamat Landslide in Bungmatl, Lalitfur.	Prakriti Raj Joshi	2005
231	Planning and Design of Khortar Khola Limestone Mine.	Narayan Banskota	2007
232	Engineering Geological and Geotechnical Study of Likhu Hydroelctric Project.	Kapil Bhattarai	2009
133	Analysis of BEARING capacity of the raift Founelation Nepal Telecom Administrative Building Sundhra,Kathmandu Nepal.	Shalina Manandhar	2009
234	Glacial Geomorpholpgical Analysis of the Everest Region for the Rrconstrution of Recent Palaeoclimatic Changes	Bishnu Prasad Adhikari	1996
235	Slope Stability Analysis of the Dumrebesi Landslide and Debris flow chitwen District, Nepal.	Satyam Poudel	2007
236	Gealogical and engineering Geological Study of the Dam site Area of Upper Tamakoshi Hydroelectric Project, Dolakha, centra Nepal.	Kumar Khadka	2009
237	' Estmation of Dynamic and Liquefaction Properties by Shear wave Velocity "	Suman Gautam	2009
238	Rock Support Design for the Underground Structures of Upper Tamakoshi Hydroelecric Project Dalakha District, Centraql Nepal.	Kanchan Chaulagai	2009
239	Comparative Hydrogeological Analysis of Lubhoo, Harishi and Thecho-- Chapagaon of Lalitpur Central Nepal -- with Reference to Water Supply Systemm,	Surya Limbu	2009
240	Geology of Tapa- Murkuti Area ,Northeast Dang,West Nepal with Special Reference to Linestone Deposits,	Nam Raj Bhattarai	2009
241	Investigation of Crushed Rock Aggregates for Unbound Pavement from Adeshwar Area. Sitapila VCD, Kathmandu Central Nepal.	Shrawan Khanal	2009

242	Toxic Contamination in the Groundwater of Saptari District and its Health Impact.	Hira Bahadur Gharti Magar	2008
243	Applicability of Different Arrays os Electrical Resisitivity Tomography in the study of Marsyangdi River`	Thakur Prasad Kandel	2009
244	Rock Slope stability of right bank of Dam area, middle Marsyangdi hydro-eliectric project, Lamjung district, central Nepal	Trilok Chandra Bhatta	2006
245	Geological Engineering Geological, Geotechnical study of the Trishuli-Galchhi Hudroelectric Project Nuwakot and Dhading cemtral Nepal	Jyoti Kumar Kc	2010
246	Disaster impact and vulnerability Assesment of the Lesser and Higher Himalaya Between Betrabati and Rasuwa Gadhi,Central Nepal	Sudip Shrestha	2010
247	Lithostratigraphy and structural analysis of the Lesser Himalaya between Betrabati and Rasuwa Gadhi, Central Nepal	Bharat Raj Pant	2010
248	Petrological study of the Lesser Himalaya along the Gorkha Narayan Gadh section, Central Nepal	Tara Pokherel	2010
249	Lithostratigraphy and structural of the Lesser Himalaya along the Gorkha Narayan Gadh section Central Nepal	Sujan Devkota	2010
250	Engineering geological and Geotehnical investigation of Rasuwa Gadhi Hydro-Electric project Rasuwa, Central Nepal	Anil Khatri	2010
251	Induced Polarization (chargiability) study by using stainless electrode	Manoj Thapa	2010
252	Geological study and reserve estimation of Kalikatar Limestone Deposit Kalikatar Makwanpur Nepal	Nabin Osti	2010
253	Geological Engineering Geological, Geotechnical study of the Rasuwagadhi Hydroelectric project Rasuwa central Nepal	Bishnu Siwakoti	2010
254	Engineering Geological pilot srudy of Balkhu- Sanepa concret Bridge over Bagmati river in Kathmandu Valley	Monika Jha	2006
255	Geological, Enginerring Geological and Geotechnical Study of Upper Trishuli-3A Hydroelectric project Nuwakot and Rasuwa District Central Nepal	Narayan Krishna Ganesh	2010
256	Geological Mapping and GIS based landslide hazard Mapping of Northern Kavrepalanchok Central Nepal	Ramesh Pandey	2010
257	River dynamics and restoration design of the Nakhu khola	Binod Maharjan	2010
258	Role of Geological Structures and Clay mineralin the occurrence of Landslide along Mugling-Narayangargh Highway Section	Bhupati Neupane	2010
259	Lithostratigraphy and Metamorphism of the Lesser and Higher Himalay in Betrawati- Rasuwa gadhi Langtang area central Nepal	Toya Nath Ghimire	2010
260	Basin analysis of the Northern part of the Kathmandu Valley, Kathmandu Nepal	Pramod Nepal	2004
261	Engineering Geologgical study and slope stability anlaysis of Thankot Landslide Kathmandu Nepal	Om prakasah paudel	2004
262	Geological exploration of masrang cement Grode Limestone Deposit, chitwan, central Nepal	Pankaj Devkota	2010
263	Lithostratigraphy and strucutre of the Kalanki- Trishuli Area Central Nepal	Bishow raj Silwal	2011
264	Geology, petrography and metamorphism of Kalanki- trishuli area central Nepal	Sobit Thapaliya	2011
265	Landslide Susceptibilty Mapping of the Ghurmi-Dhad Khola area in Eastern Nepal using GIS	Subeg Man Bijukchhen	2011
266	Geological and Mineral Resources of the Bandipur Area, Lesser Himalaya, Central Nepal	Naresh maharjan	2011
267	Geology and structure of the kota Baidi area, Tanahu District, Central Nepal Lesser Himalaya	Deo Kumar Limbu	2011
268	Engineering Geological Study of Chameliya Hydroelectrc project Darchula Far Western Nepal	Dilendra Raj Pathak	2011

269	Geology of Ghurmi- Dhadf Khola area in west Nepal with refrence to strain analysis of Mct zone	Babu ram Gyawali	2011
270	Morpho tectonmic and paleosesmological study around the Charnath khola area, central Nepal	Indira Shiwakoti	2012
271	Engineering Geological And geotechnical study of the Sanjen khola hydroelectric project Rasuwa, central Nepal	Madhab Lamsal	2012
272	Geological, Engineering geological and geotechnical study of the Bheri- Babai diversion project Surkhet, Mid western Nepal	Lelin Raj Dhungel	2012
273	Geological structure and grade of metamorphism in the Galchi Gajuri area, Dhading District Central Nepal	Upendra Baral	2006
274	Geological engineering geological and geotechnical study of the upper Trishuli-2 Hydroelectric project Rasuwa, Central Nepal	Kedar Shrestha	2012
275	Geological seeting, Lithostratigraphy and metamorphism of Khaum Klippe and its adjacent areas of Tanahun District, Central Nepal,Lesser Himalaya	Roshan Koirala	2012
276	Geology and mineral resource of the Khasaran Watak area, Tanahu district central Nepal, Lesser Himalaya	Lok Bijaya Adhikari	2012
277	Lithostratigraphy,Petrography and metamorphism of Dharan-Mulghat area, Eastern Nepal	Saunak Bhandari	2012
278	Geological Engineering Geological and geotechnical study of the Mai Khola Hydroelectic project,Illam, Eastern Nepal	Puskar Raj Joshi	2012
279	Geological study of oil and gas seeps development in Dailekh area Mid western Nepal	Ratnamani Gupta	2012
280	Geology of Dharan-Mulghat area in East Nepal with special refrence to Microstructure and strain Analysis	Lalit rai	2012
281	Lithostratigraphy and structural pattern of the Siwalik in Surkhet and Bardiya district Midwestern Nepal	Nirmal Kafle	2012
282	Engineering geological and Petrographic Study of the Lesser Himalaya rocks for concrete Aggregrate, Kabhre area, central Nepal	Prem Nath Paudel	2012
283	Seismic Hazard Assessment of the Dhankuta Municipality,Eastern Nepal.	Chintan Timsina	2011
284	Landslids Susceptibility Mapping of the Ranipauwa -Jiwanpur Area in central nepal using GIS.	krishna Prasid Dhungel	2012
285	Lithotratigraphy and Structures of the Damauli-Kotbaidi area, Lasser Himalaya, Central Nepal.	Pramod Pandey	2012
	Study of Deopsiticnal Sedimentary Environment of Nuwakot Complex in Muglin --Bandipur Area of central Nepal, Lesser Himalaya.	Sabitra Pokhrel	2013
287	Vegetation and Climate from the Siwalik Sediments in the Dudhaure khola Section.(Amlekhganj-Hetauda Area)	Bishwa Mani Pokharel	2013
288	Lithology and Structure of the Presiwalik Rock Around Katari-patana Bhanjyang Area.Udayapur District,Eastern Nepal.	Narayan Adhikari	2013
289	Sedimentological Study of Lithological Succession South of the MBT,Hetauda-Sukaura Area,Makawanpur`District,Central Nepal.	Dev Kumar Syangbo	2013
290	Geology Structure and Metamorphism of the Manahari-Taubas Area,Central Nepal.	Laxman Subedi	2013
291	Landslids Susceptibility Mapping of theSeti Watershed Between Bhimad and Damauli,Western Central Nepal.	Gautam Prashad Khanal	2013
292	Hydrogeological study and Well Site Selection Using Geophycal of Bosigaon -Shantibasti Area Kathmandu District Central Nepal.	Sabindra Bahadur Shrestha	2013
293	Study of River Sediments Construction Aggregates formthe Trishuli River ,Galchhi Central Nepal.	Shailendra Shrestha	2013
294	Geological and Petrological Study of Solighopte (tanahu) to Pokhari (Nawaiparasi)Area of tha Central Nepal, Lesser Himalaya	Sabit Shrestha	2013

295	Geological and Petrological Studies of Rocks and Their Comparisons, Exposed in Malekhu-Markhu Section and Muglin-Narayangardh Section of Central Nepal,Lesser Himalaya.	Rajan Pudasaini	2013
296	Geology of Katari-Patana Bhanjang Area Eastrn Nepal with Secial Reference to Pertography of Pre.Siwalik Rocks	Santosh Adhikari	2013
297	Hydrogeological study on the Formation of Bis Hazari tal,a Wetland in Chitwan Districe, Central Nepal	Kabita Karki	2013
298	Groundwater Potential of Chandragiri Buried Valley	Junu Adhikari	2013
299	Hydrogeological study in Western Parts of the Chitwan Dun Valley	Sushmita Bhandari	2013
300	Rock Support Drsign for the Underground Structures of Melamchi water Diversion Scheme Project.	Sujan Chandra Pokharel	2013
301	River Morphology and Flood Hazard Mapping in the Pathariya Khola,far -Western Nepal.	Bala Ram Upadhyaya	2013
302	Channel Bar Morphology and Flood Risk Mapping in Karnnali River ,far -Western Nepal.	Roshan Raj Bhattarai	2013
303	Geological Mapping and Soil Erosion Investigation in the Part of Seti Watershed Between Bhimad and Damauli, West Nepal.	Madan Bhattarai	2013
304	Rock mass Characteristics and Kinematic Anilysis of ROCK Slopes of the Lesser Himalaya Thopal Malekhu River area Central Nepal	Jaya Laxmi Singh	2014
305	Study of Magnetic Susceptibility Lasser Himalaya iRock in Between Kathmandu to Damauli Section of Central Nepal and its Implication for Magnetostartigraphic Correlation	Rajendra Acharya	2014
306	Litho- Biostratigraphy of Siwalik Sediments in Arun Khola Area in Nawalparasi and Palpa Districts ,Western.	Yubaraj Lamichhane	2014
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511	Engineering Geological Investigation of Bajedi Landslide in Bajura District,far Western Nepal.	Tara Prakash silwal	2019
512	The Role of Geological, Geomorphological and Geotechnical Characteristics in the Evolution of Sunkuda Landslide, Bajhang District,far Western Nepal.	Rabin Rimal	2019
513	Susceptibility analysis of Eartquake Induced Landslides in Central Nepal Along FastTrack Road	Rupendra Maharjan	2019
514	Application of Finite Element and Limit Equilibrium Methods in Stability analysis of Sunkuda landslide, Bajhang District,Nepal.	Badri Bahadur Budhathoki	2019
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518	Determination of Strength Anisotropy of Rocks by Point Load Test Under Varying Loading Direction and Temperature.	Ajita Bhandari	2019
519	Hydrogeological Assessment and Seasonal Varoation of Grounawater Quality of Malyangdi and Lamahe khola Watershed, Parbat, Nepal.	Depesh Phulara	2019
520	Regional Geological Framework from Palpa Klippe to Jajarkot Nappe Along Tansen-Tamghas Section Western Nepal.	Sunil Lamsal	2019
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522	Assessment of Grounawate Resource of Siraha District with Detailed Hydrogeological Mapping in Lahan Municipality	Sushmita Luitel	2019
523	Well Performance and Hydrochemical Assessment of Tubewells in and Around Lahan Municipality	Sadikshya Mainali	2019
524	Geological Mapping and Study of Sedimentary Structures Rukumkot-Naigad Region,Rukum (East) District, west Nepal.	Kapil Karki	2019
525	Geology of the Region Between Rukumkot and Naigad,Rukum (East) District,with special Reference to Small scale Structures and Deformation	Praveen Upadhyaya Kandel	2019
526	Geology of thr area Around Musikot, Rukum (west) District, with Emphasis on Petrographic Characteristice.	Rishi Raj Baral	2019
527	Lithostrtigraphic and Structural Characteristics of the aeea Around Musikot in Rukum (west) District,Western Nepal.	Gyanendra Raj Sapkota	2019
528	Mirostructures and Deformation History of the Lesser Himalaya in the Phalebas area Parbat Districe, western Nepal.	Kulmani Parajuli	2019
529	Groundwater Quality Assessment in Between Narayani Nadi and Lithar khola of Chitwan District, Nepal.	Archana Adhikari	2019
530	Groundwater Flow Modeling in Between Narayani Nadi and Lithar khola of Chitwan District, Nepal.	Rita Bhandari	2019
531	Study on Mannings Roughness Coefficient, Discharge and Surface Water Quality of the Karra khola, Hetauda, Makawanpur District.	Ananta Joshi	2019
532	Study on Floodprone area and Streambank Erosion Susceptibility of the Karra khola, Hetauda, Makawanpur District, Central Nepal.	Rythum Rai	2019
533	Aquifer Mapping and Sensitivity Assessment of Belsot khola Watershed, Udayapur District,Eastern Nepal.	Jeevan Adhikari	2019
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535	Study on Provenance Mode of Detrital Sand of the Karra Khola Makawanpu District	Suman Roka	2019
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590	Study of Metamorphism and Microstructung at and Adjacent to Palung Granite in Kalitar-Tistung Section of Central Nepal.	Subarna Maharjan	2021
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594	Geological Study of Lesser Himalaya in the Putalibazaar -Biruwa area ,Syangja District, Nepal.	Anil Regmi	2021
595	Study of Engineering Properties of Aggregates for Railway Ballast, Rapati Nadi,Central Nepal.	Nirjal aananda Kumar Pokharel	2021
596	Supper Analysis of Soft Ground Tunneling; A Case Study of Super Madi Hydroelectric Project,Kaski District,Western Nepal.	Bhawana Sharma	2021

597	Study on River Dynamics and Characterization of Downstream Riverbed Materials of Banganga River at Mountain Front Section.	Govinda Ojha	2021
598	Assessment of Soil Erosion and Characterization of Riverbed Materials of Babai bRiver Watershed, Siwalik Nepal	Deepa Pokharel	2021
599	Delineation of Groundwater Potential Zone in the Mountainous Region of Jogmai Watershed,Ilam District,Eastern Nepal.	Samir Acharya	2021
600	Investigation of Springs in Pyuthan Municipality, Pyuthan District, Nepal.	Niraj Basnet	2021
601	Study of Groundwater and Surface Water Interconnection Along the Bangaga River Section (Upstream from thr E-W Highway)Kapilvastu District,Nepal.	Shree Krishna Ranabhat	2021
602	Groundwater Potential Mapping Characterization and Discretization of Factors for Groundwate Occurrence Around Mandandeupur area ,Kavrepalanchok District, Central Nepal.	Shraddha Dhungana	2021
603	Groundwater Potention Mapping Characterization and Discretization of Factors for Groundwater Occurrence in Khadadevi-Manthali area of Ramechhap Distirct.	Kshamata Bhattarai	2021
604	Groundwater Potention Mapping Characterization and Discretization of Factors for Groundwater Occurrence Around Dudhauli area,Sindhuli.	Sunita Magar	2021
605	Comparative Assessment of River sand and Crushed-Rock sand for Suitability Analysis for Mortar,Baruwa-Trijuga nadi area,Eastern Nepal sub -Himalaya.	Ritesh Sapkota	2021
606	Determination of Strength Anisotropy of Slate by Point and Brazilian Tensile Strength Tests Under Varying Loading Directins and Temperatures.	Anil Bhandari	2021
607	Investigation ofsUB-Surface Geological and Man- Made Features in and Around Tinkune -Chabhil Section of Ring Road and Adjoining Roads of Kathmandu Metropoliton City Using Ground Penetrating Radar(GPR)	Basanta Paudel	2021

List of Masters Thesis in Tri-Chandra Multiple Campus in Engineering Geology Stream.

Batch 2072 - Thesis Defense on 2075		
S.N.	Name	Thesis Title
1.	Badal Pokharel	Landslide Susceptibility Evaluation in Rasuwa District after the effect of 2015 Gorkha Earthquake
2.	Akash Acharya	Engineering Geological Study of Shantibajar-Syafrubensi Road In The Lesser Himalaya of Central Nepal
3.	Krishna Pudasaini	Engineering Geological Study And Slope Stability Analysis Along Fast Track From Thingan To Chalnakhel (Lesser Himalaya)
4.	Arishma Gadtaula	Susceptibility Mapping of Earthquake Induced Landslides using Weight of Evidence Method in Haku, Rasuwa District, Nepal
5.	Pushkar Bhandary	Engineering Geological Mapping And Slope Stability Analysis of The Fast Track Road Alignment Between Nijhgadh - Kolkhop (Siwalik Group of Nepal, Bara and Makawanpur Districts of Narayani Zone), Nepal
6.	Rabina Hada	Isotopic Analysis of Siraha And Saptari Districts, Western Part of Koshi River for Connectivity Assessment of Shallow And Deep Aquifers
7.	Sanjeeta Pandit	Distribution and Classification of Springs in Bansbari Area of Melamchi Municipality, Sindhupalchowk, Nepal

8.	Sharmila Neupane	Isotopic Analysis of Surface Water- Groundwater In Sunsari and Morang District for the Connectivity Assessment of Shallow and Deep Aquifer
9.	Shila Bhattarai	Characterization of Construction Aggregates in the Southern Part of Kathmandu Basin
10.	Harish Dangi	An approach of earthquake-induced landslide hazard mapping: A case study in Nuwakot District, Central Nepal
Batch 2073 - Thesis Defense on 2075		
11.	Prakash Badal	Landslide Susceptibility Mapping of Birendranagar Municipality, Surkhet by using Statistical Approach (Weightage Evidence Methods)
12.	Radha Krishna Adhikari	Engineering Geological Study of Taprang Landslide (Kaski District, Gandaki Province)
13.	Sushil Neupane	Construction material resource investigation in Kathmandu Valley's southern part and its proper utilization
14.	Sandip Pokharel	Landslide Susceptibility Analysis using Frequency Ratio Method, at Dharche Rural Municipality, Gorkha, Western Nepal
15.	Bibash Parajuli	Cut slope stability assessment of Kaligandaki road corridor in Siwaliks, west central Nepal
16.	Tara Nath Giri	Engineering geological study of Kaligandaki road corridor from Bhakro Khola to Dhadbesi village, Nawalparasi District, west central Nepal (Lesser Himalaya)
17.	Rabi Dhungana	Study of Portal Slope and Tunnel Stability In Mai Beni Hydropower Project, Ilam, Nepal
18.	Lal Bahadur Thapa Singjali	Landslide Characterization and Susceptibility Assessment in Namche-Khumjung Area of Everest Region, Solukhumbu District
19.	Sabin Tiwari	Water-Rock Intereaction and Hydro-Chemical Analysis of Spring Water around Melamchi Area, Sindhupalchok District, Central Nepal
20.	Samir Dhungel	Geomorphological Mapping of Lobuche Area Using Uav and its Application In Engineering Geology, Eastern Nepal
21.	Anil Ghimire	Moraine Dam Stability Analysis of Ngozumpa Glacier in Gokyo Area, Eastern Nepal
22.	Sanjeet Maka	Geomorphological Mapping of Gokyo Village Surroundings and Analysis of Lake Sediments of Taujin Cho Lake with its Engineering Significance
23.	Dinesh Nath	Deep Aquifer Characteristics of Northern Groundwater District in Kathmandu Valley
24.	Bal Krishna Shrestha	Soil Erosional Modeling and Sediment Characteristic of Gokyo Lake and its Surroundings: Engineering Geological Significance
25.	Pranita Pun	Landslide Characteristics and Susceptibility Modelling in Thaha Municipality, Makwanpur District
26.	Bhuwan Awasthi	Recent Trend of Glacial Surface Lowering And Evolution of Supraglacial Ponds in Khumbu Glacier, Everest Region, Nepal
Batch 2074 - Thesis Defense on 2078		
27.	Bhim Raj Neupane	Engineering Geological Mapping And Rock Mass Classification Along Dumkibas To Barghat Road Tunnel (Part Of Mahendra Highway)
28.	Puskar Thapa	Estimation Of Soil Erosion By Using RUSLE Method (Geospatial Tool) In Thopal Khola Catchment, Dhading District, Central Nepal
29.	Prabin Shrestha	An Estimate Of Safe Angle For Cut Slope Under Different Geology And Rainfall Intensity
30.	Sanjeev Parajuli	Effectiveness Of Using Soil Nail With Semi-Flexible Mat In Comparison With Conventional Slope Protection

31.	Ananta Kafle	Engineering Geological Investigation Of The Turture Landslide Of Burtibang (Baglung District), With Emphasis On Its Failure Mechanism.
32.	Dhurba Tiwari	Geohazard Assessment In Bhanu Municipality Of Tanahun District, Western Nepal

UPCOMINT EVENT
NEPAL GEOGRAPHY OLYMPIAD, 2022 TO REPRESENT INTERNATIONAL GEOGRAPHY OLYMPIAD, 2022

Nepal Geological Students' Society (NGSS) and STEM Foundation Nepal after successfully organizing the Nepal Geography Olympiad (NGeO) to represent in International Geography Olympiad in 2021. It is goint to organize the second Nepal Geography Olympiad from April 02, 2022 to April 08, 2022. The STEM Foundation Nepal is the main organizer of the program and the NGSS is the organizing partner. Nepal Geography Olympiad is the national competition on geography subject targeted to school level students (up to +2). NGSS takes the responsibility to prepare syllabus, question and publish the result from the examinee. NGSS will prepare question paper from the syllabus prepared last year. The interview of examinee will be taken and finally four students as a finalist of NGeO will be selected. The finalists will participate in the International Geography Olympiad going to be held in Paris, 2022. The Nepal Geological Students' Society will provide training to the finalist of NGeO before appearing in IGeO.

ARCHIVE OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

Nepal Geological Students' Society
Central Office

P. O. Box :
Phone :

Gandhi Bhawan
Kirtipur, Kathmandu, Nepal

Ref. No.

Date: Sep. 9, ...1992

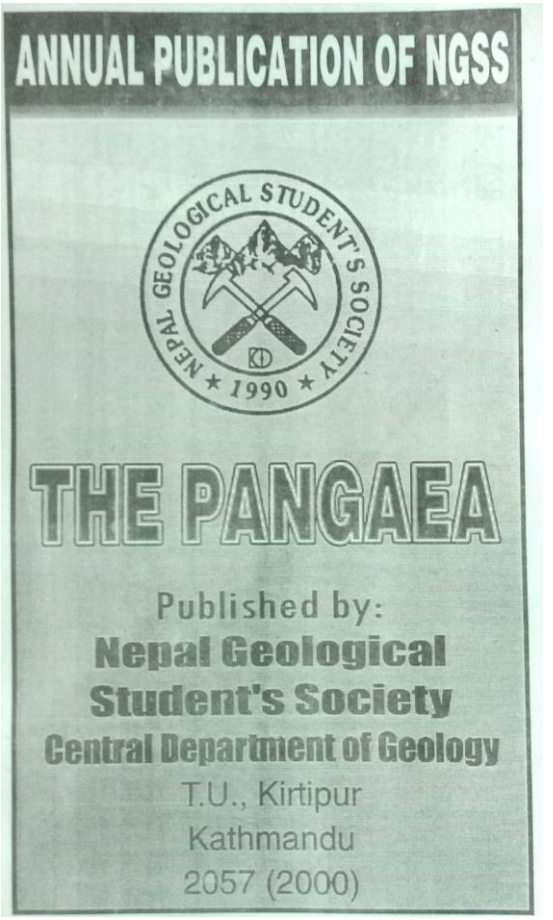
TO WHOM IT MAY CONCERN

This is to recognize that Mr. Dinesh Pathak is one of the founder member of Nepal Geological Students' Society (NGSS), Tribhuvan University, Nepal (1990). He served the society as a secretary for one year since Jun 1990 to May 1991. This recognition certificate is awarded for his dedication and to honour Mr. Pathak's commitment and sacrifice for the establishment of the society by delivering intellect, vision and envaluable time for the growth and development of the society and it's spontaneity.

Achut Gautam
President

Indra Raj Humagain
Secretary

Lettter of recognition certificate awarded to Prof. Dr. Dinesh Pathak, Founder Secretary of the Nepal Geological Students' Society in 1992 A.D by NGSS.



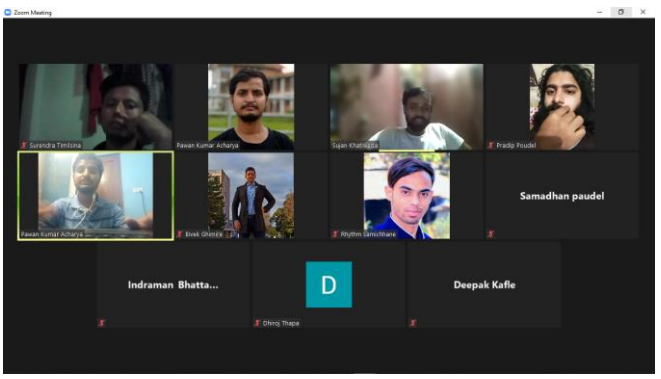
"The Pangea", First Newsletter published by NGSS in 2056

Welcome and Felication Program Organized by NGSS in B.S. 2060, by 11th Executive Committee of NGSS under the presidency of Mr. Diwakar Khadka.

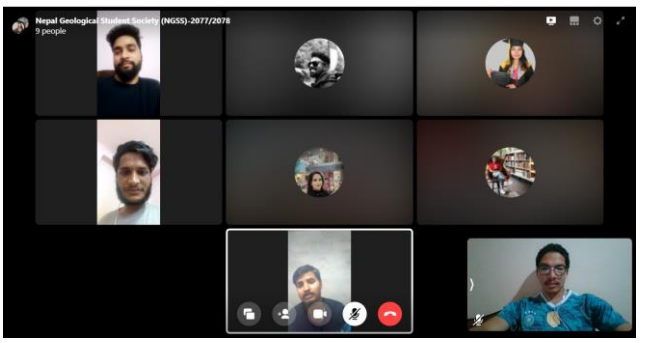
PHOTOGRAPH OF ACTIVITEIS OF NEPAL GEOLOGICAL STUDENTS' SOCIETY

Photo taken after interaction with Mr. Uttam Bol Shrestha, Former President of Nepal Geological Society

Mr. Pawak Kumar Acharya, President of Nepal Geological Students' Society taking suggestion from Mr. Kumar Khadka, Immediate Past General Secretary of Nepal Geological Society.



Photograph of meeting of constitution amendment sub-committee with its invited member.



Executive Committee meeting in ZOOM during Lockdown

Dicussion between executives of NGSS with Prof. Dr. Khum Narayan Paudayal, HOD of Central Department of Geology, TU and Advisor of the Society.

ARTICLES

THE SIGNIFICANCE OF GEOLOGICAL STRUCTURES IN DAM AND TUNNEL SITES

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INTRODUCTION

Nepal is located in the central part of the Himalayas range and has been suffering from numerous geological instability events. The importance of geological investigations and understanding of geological structures in the design of medium to large infrastructure is increasing to minimize the geological uncertainty. Engineering geology is a critical topic for design engineers to understand since it allows them to correctly plan a project while taking into account design, location, and other relevant geological aspects. This article focused only on the importance of geological structure for the design/investigation of the tunnels and dams site.

GEOLOGICAL INVESTIGATIONS

Major civil engineering projects such as dams, reservoirs, tunnels, highways, bridges, and buildings are built on rocks or soils. The engineer must have a thorough understanding of the strata or soil through which construction work will be carried out or on which it will be supported. Many dam failures, building foundation failures; bridge and tunnel collapses have been linked to a lack of understanding of geological conditions in and around these structures.

To understand the ground condition and achieve the investigation goals, geological studies are divided into two main groups: surface investigations and subsurface investigations. The primary goals of these investigations are to determine the geological condition and geological structures of the area. Surface investigations, no matter how thorough they are, can only provide surface information. These are widely classified as preliminary surveys and must be followed by well-planned subsurface investigations.

GEOLOGICAL STRUCTURES

The Nepal Himalayas was formed as a result of the collision of the Indian plate and the Tibetan plate about 50 million years ago (Kizaki, 1994). Due to the continuous thrusting of the Indian plate, rocks of the Himalayas are faulted, sheared, and folded as a result of which, the geology became more complex. Rocks of the Nepal Himalayas are divided into Siwalik, Lesser Himalaya, Higher Himalaya, and Tibetan Tethys Himalaya from south to north by three major thrust faults namely Himalayan Frontal Thrust (HFT), Main Boundary Thrust (MBT), and Main Central Thrust (MCT), (Figure 1). Each of these Himalayan rocks is distinguished by weak, varied, and deformed rock types with characteristic geological structures. The collision of the Indian Plate and the Eurasian Plate, as well as the forces associated with their subduction and upliftment, resulted in such diversity and deformation structures. The geological structures did not form at the same time or in the same location, implying temporal and spatial implications (Dhakal, 2017). The regional structures and their subordinate local structures are needed to examine during the investigation of the dam, tunnel, and other large infrastructure sites to minimize or avoid the geological risks.

Any feature that occurs before or during the creation of the rock is referred to as a primary structure, (Wilkerson,2019) bedding plane and mud cracks are an example of a primary structure. Any structure formed in response to applied stress that results from plate movement as a secondary structure (Wilkerson (2019). Folds, fractures,

faults, foliations, joints in metamorphic rocks and a variety of other characteristics are examples of secondary structure. Observing and analyzing geological features aids us in determining the types of stressors that existed on Earth in the past. Local and Regional geological structures like unconformities, faults and fractures, and folds, thrust, etc. are also the product of the plate tectonic and dynamic nature of the earth surface, presence of these structure in the engineering project locations make great sense to understand the site geology.

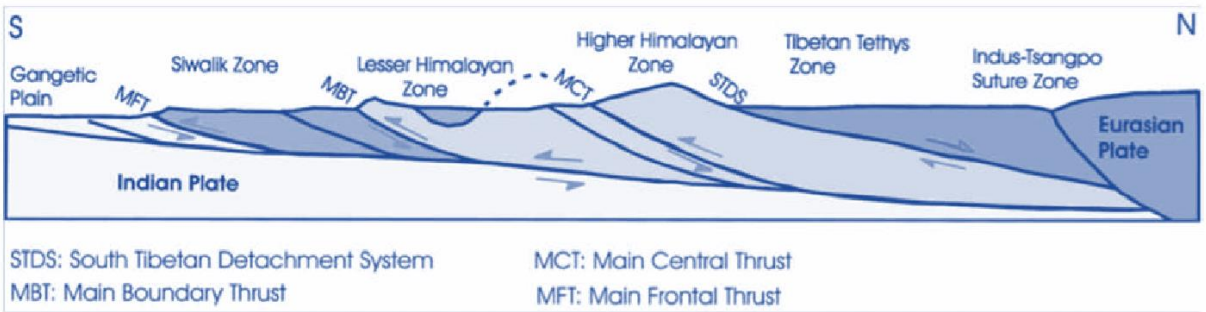


Figure 1 Geological section of Himalaya (modified after Harris & Whalley, 2001)

THE IMPORTANCE OF GEOLOGICAL STRUCTURES

For a design engineer, the physical features of rocks, minerals, and other civil engineering materials, such as textures and grain size, are critical. Similarly, secondary geological structures such as folds, faults, and joints, thrust, and foliation that arise after the formation of rocks may be more suited or unsuited for a given design and construction purpose. The following headings examine the impact and significance of these geological structures on various engineering projects and components.

EFFECT OF THE GEOLOGICAL STRUCTURE AT THE DAM SITE

Site geology and availability of various geologic data obtained from site investigation is a key point in dam construction. Different sites are not the same and depend on local and regional geology. Geological structure plays an important role in dam site geology, imposes major limitations on dam behavior during and after construction stages(Barjasteh. A, 2019). The various geological structures on the dam site, as well as their impact on the dam site, are described here.

Folding of the rock strata at the dam site

If the dam site includes folds, the inclination of limbs in the dam site may result in a geological setting that is either more favorable or unfavorable at the dam site. The different cases are presented in Table 1 to show the effect of following on the dam.

Effect of the faulted rock strata on dam site

Under no circumstances may dam-building be undertaken if the dam site exhibits any faulting, irrespective of its orientation (dip direction/dip amount). This is not only due to concerns about potential site relative displacement but also due to the possibility of earthquakes endangering the dam's safety and stability. Furthermore, if the fault zone is crushed or deeply fractured as a result of water pressure or construction load pressure, it becomes physically incapable of withstanding the dam's stresses. In such instances, water porosity and permeability will typically increase, resulting in a further fall on efficiency.

A faulted site or fault zone is not ideal for dam construction, but it can be recommended if the tectonic history of the faulted region indicates that

the site has become stable and there is no risk of recurrence of faulting. If the faults are on the upstream side, the downstream dipping faults are risky due to the possibility of uplift pressure and leakage (Figure 2). Special efforts must be made to avoid the fault's disadvantages.

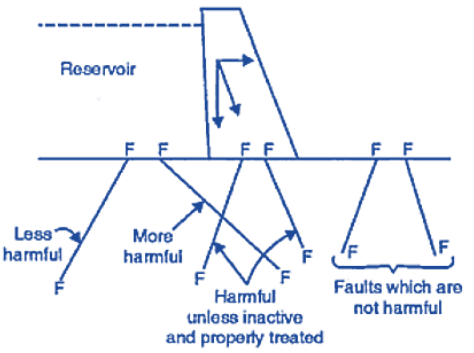
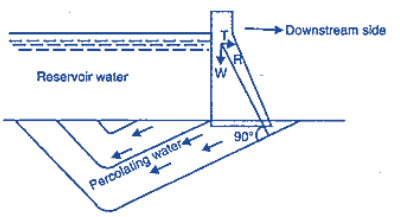
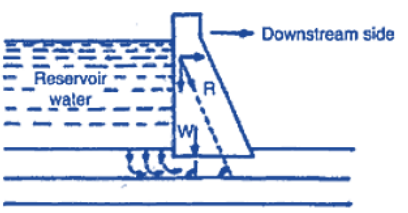
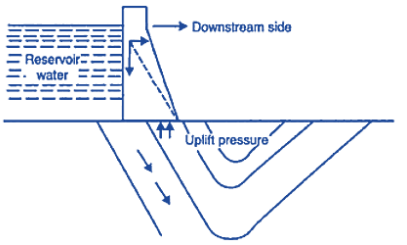
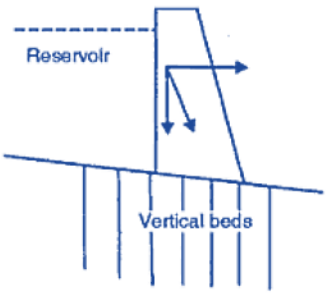
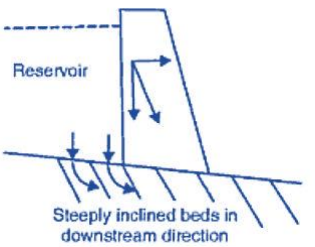


Figure 2 Cases of the fault orientation and their harmfulness to the dam

Table 1 Cases of the folding of the rock strata at the dam site

S.N	Descriptions	Remarks
Case -1	It is more favorable and advantageous if the beds of the limb of the fold dip gradually upstream. This is because the dam's weight (W) acts vertically downwards at the dam site, and there is also a significant lateral thrust (T) due to reservoir water. The resultant force (R) between these two will always be inclined downstream. The inclination (R) can range from 10° to 30° from vertical depending on the amount of reservoir water. This means that beds with a mild upstream dip will be perpendicular to the resultant force and, as a result, will be able to sustain the stresses or loads acting in the area to the best of their ability.	
Case-2	When forces apply perpendicular to the bedding planes, sedimentary rocks have the largest load-bearing capacity; nevertheless, when forces act parallel to the bedding planes, the same rocks have the least competence; this point is highly essential when considering the dam site. By totally limiting the possibility of uplift pressure, the geological context of folds might also indirectly contribute to the dam's stability. This is because any conceivable reservoir water leakage (indicated by arrows in fig.) is directed upstream due to the slope of the beds. As a result, there is no room for reservoir water to flow beneath the dam. When the dam is built on horizontal strata, as indicated below, the above-mentioned benefit is lost. In this case, the dam's resulting force will be sloped downstream rather than perpendicular. This isn't ideal, but it's not horrible either. And the dam's high-pressure reservoir water will attempt to leak beneath the dam along horizontal bedding planes, creating uplift pressure and, depending on the dam's position, unstable geological conditions.	

S.N	Descriptions	Remarks
Case-3	If the dam is built over the limb of a fold that dips downstream, as indicated in the diagram. Depending on the amount of dip, the dam's resultant force will be parallel or nearly parallel. The sedimentary beds are less competent in this circumstance, resulting in an unfavorable geological context. The reservoir water will leak along the bedding planes in this circumstance, causing the dam structure to become more unstable.	
Case-4	Vertical beds at a dam site. Because strata usually have some slope, it's unusual to find vertical beds. If such an occurrence occurs in the provided location, there will be no concerns with uplift pressure on the dam or leaks below the dam. It will, however, have no advantage in terms of rock competence.	
Case-5	If the beds have a steep downstream dip, this arrangement has all of the drawbacks. Furthermore, the resultant force and bedding planes are almost parallel, implying that the beds are less competent.	

Effects of jointed bedrocks on dam site

Joints are the most prevalent geological features that may be found all over the world. They are clear-cut openings and gaps of various sizes that contribute to rock weakness, porosity, and permeability. Unless the joints are prominent and tightly spaced, the rocks with joints can be simply handled and the locations can be used for construction operations because they are not under any strain. Grouting is generally capable of overcoming the negative effects of joints because it fills the gaps between joints, increases the compactness and competency of the rock, and brings cohesiveness to the rocks. Porosity and permeability are also reduced.

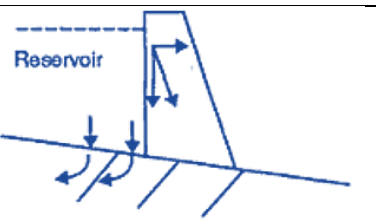
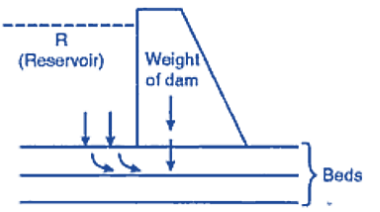
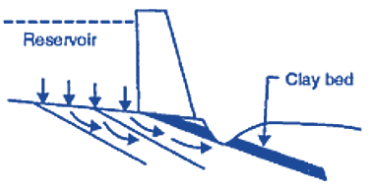
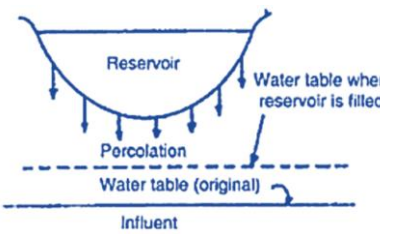
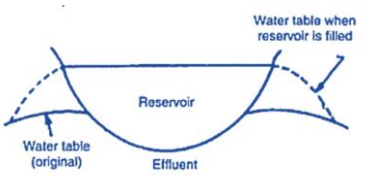
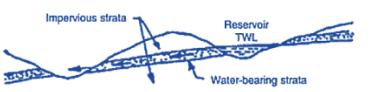
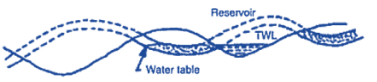
EFFECT OF GEOLOGICAL STRUCTURES ON THE LOCATION OF RESERVOIRS

Construction of large structures in karst as dams, reservoirs, and hydropower tunnels is particularly sensitive and risky task (Milanović 1997). Due to geological formations, there is a significant difference in reservoir water leakage. The cases of the major geological settings found at reservoir sites and their effect on the dam are present in the Table 2.

EFFECTS OF GEOLOGICAL STRUCTURES IN TUNNELING

Himalaya has made rock mass highly folded, faulted, sheared, fractured and deeply weathered. This complex geological setting thus has posed considerable stability problems in tunnelling and is a great challenge for the successful tunnelling in Nepal (K. K. Panthi, 2004). The various geological structures on the tunnel site, as well as their impact on the tunnel, are described hereunder.

Table 2 the cases of the major geological settings found in dam sites

S.N	Descriptions	Remarks
Case-1	In the case wherein beds of the limb dip in the upstream direction, there will not be any effective leakage of water from the reservoir. This is so because all percolated water will be directed in the upstream direction only, along the bedding planes.	
Case-2	The case wherein if strata at the reservoir site are horizontal, there may be little seepage of water of the reservoir in the downstream side along the horizontal bedding planes.	
Case-3	In the case wherein strata dip in the downstream direction, there shall be considerable leakage of reservoir water along the bedding planes which are dipping in the downstream direction	
Case-4	If fault or shear zone occurs as outcrops along the upstream course of a river, they contribute heavily to the load of the river. This means severe silting problems in the concerned reservoirs. However, if the water table occurs at or near the surface of the reservoir site, faults do not contribute to the loss of water.	
Case-5	In the case of joints present in the reservoir site or basin, they act as avenues for serious leakage of water. The prevailing water table position will affect the influence of leakage. If the groundwater is contributing to the surface water (effluent conditions), the resultant effect will nullify the effect of the presence of joints and cause no leakage. When faulting occurs upstream, the other negative consequence of joints is identical to faulting. If jointing has occurred on the upstream side of the valley, such disintegrating rocks are subjected to rapid erosion and contribute significantly to the river burden. This means that the reservoir's silting rate will be quite high.	 
Case-6	In a lithological scenario, all beds at the reservoir site are conformable and striking parallel to the length of the valley, concerning the relative location of the beds. A permeable bed (such as sandstone or cavernous limestone) occurs between the impermeable beds in this scenario (like shales) and the valley holding the reservoir. In a topographic scenario, another parallel valley occurs at the lower level and adjacent to the reservoir because topographically, there is no such thing as an upper reservoir.	 *The tilted permeable bed is exposed in the adjacent valley*  *Folding occurs in the reservoir area*

S.N	Descriptions	Remarks
		 *A fault occurs in the reservoir area*

Effect of the folding to the tunnel alignment

The cases of the folding found along with the tunnel site and their effect on the tunneling are presented in

Table .

Effect of faults at Tunnel alignment

Normally faults are harmful and undesirable as they create a variety of problems. The problems with faults occurring at the tunnel site can be presented in Table 3.

Effect of Joints on Tunnel alignment

Joints are the visible fracture in the rock mass in a regular manner. A joint set is a family of parallel, evenly spaced joints that can be identified through mapping and analysis of their orientations, spacing, and physical properties. A joint system consists of two or more intersecting joint sets. Joints are joints that allow the ground to be saturated with water. They cause serious groundwater problems unless the water table position is reasonably below the level of the tunnel floor. Joints may act as sites for the development of solution cavities and solution channels in limestone terrain. This is due to the action of percolating carbon dioxide-bearing waters.

Table 3 Folding cases and its effect to tunnel alignments

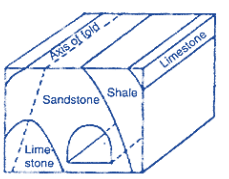
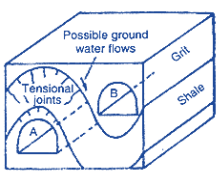
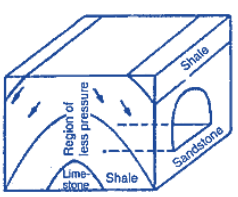
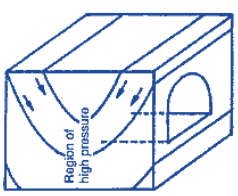
S.N	Description	Remarks
Folds: Case-1	For tunneling purposes, folded rocks are generally unsuitable because the affected rocks are under great strain. Along the crests of folds, the beds contain numerous tensions and other factures, and if the tunnel is made through them, frequent falling of rocks from the roof may occur. If the work is taken up along the thick beds of limbs, parallel to the axis of the fold, the disadvantages associated with crests and troughs do not occur. This is because the wedge-shaped shapes will lie perpendicular to the curved bedding and prevent rocks from falling as they act as key rocks in arches.	 
Folds: Case-2	This situation is equally unfavorable when the tunnel alignment is perpendicular to the fold axis since different rock formations are encountered from place to place along the length of the tunnel, and the tunnel must also travel through a sequence of anticlines and synclines. These two elements cause variation in rock physical qualities as well as in anticlinal physical conditions. The criteria are exactly reversed in synclinal folds.	 

Table 3 cases of the fault found along with the tunnel site and their effect on the tunneling

Cases	Faults/weak/shared zones	Description
Case-1	Active fault zone	The active fault zone is the place where there is scope for further recurrence of faulting which will be accompanied by the physical displacement of lithological units. Such faults will lead to dislocation and discontinuity in the tunnel alignment. So the occurrence of any active fault in tunnels is very undesirable.
Case-2	Inactive fault zone	The inactive fault zone is the place where there is no scope of further occurrence of faulting, yet these are prone to intense fractures due to earlier faults. This means that these zones are of great physical weakness. So if such zones occur along the course of a tunnel, it is necessary to provide lining.
Case-3	Highly permeable zones (with or without faulting)	Zones that are highly porous, permeable, and decomposed may occur at tunnel sites these also require heavy concrete lining.

In sedimentary rocks, the occurrence of joints is undesirable because these rocks, which are originally weak and incompetent and become weaker. In metamorphic rocks, joints are not characteristic but are frequently present. Granite gneisses and quartzites, being very competent, can remain suitable for tunneling even if some joints occur in them. But schist and slates with joints will become very incompetent and necessarily require lining.

Joints, being oriented cracks, their attitude concerning the tunnel alignment are also very important. Joints that strike parallel to a tunnel axis naturally persist for long distances and hence are undesirable for tunneling (Figure 3and Figure 4). On the other hand, joints that strike oblique or perpendicular to the alignment of the tunnel axis will have a limited effect on them.

Strike perpendicular to tunnel axis		**Strike parallel to tunnel axis**	
Drive with dip		Drive against dip	
Dip 45°-90°	Dip 20°-45°	Dip 45°-90°	Dip 20°-45°
Very favorable	Favorable	Fair	Unfavorable
Strike parallel to tunnel axis		**Irrespective of strike**	
Dip 20°-45°	Dip 45°-90°	Dip 0°-20°	
Fair	Very unfavorable	Fair	

Figure 3 The effect of discontinuity strike and dip orientation in tunneling (Bieniawski, 1989)

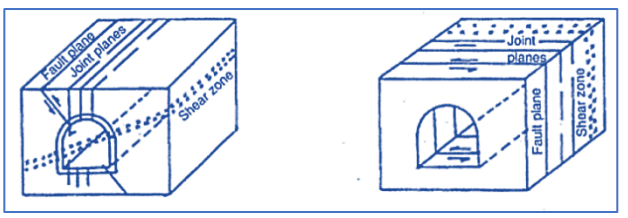


Figure 4 Effec of the joints and shear zones to the tunnel

CONCLUSION

Nepal is positioned in the central Himalayan range and has seen multiple geological instability occurrences. To reduce geological uncertainty, geological investigations and understanding of geological structures are becoming increasingly important in the design of medium to large infrastructures. A designer/investigator needs to understand the impact of geological structures like folding, faulting and jointed rock mass on dams, reservoir sites, and tunnel alignments to make a safe and economical design

REFERENCES

Bieniawski, Z. T. (1984): Rock Mechanics Design in Miningand Tunneling. A.A Balkema, Rotterdam, 280 p.

Barjasteh. A, February 2019, Influence of Geological Structure on Dam Behavior and Case Studies, (online), Available: http://dx.doi.org/10.5772/intechopen.78742, DOI: 10.5772/intechopen.78742,

Harris, N., & Whalley, J. (2001). Understanding the continents (Block 4), Mountain Building, The Open University.https://www.researchgate.net/publication/301479127_Geological_Divisions_and_Associated_Hazards_in_Nepal

K. K. Panthi, 2004, Proceedings of Norwegian Tunnelling Conference, 25-26th November 2004, Oslo, Norway

Kizaki, K., 1994. An Outline of Himalayan Upheaval. Jagadamba, Kathmandu, 127 p.

Milanović PT (1997) Reservoirs in karst: common watertightness problems. In: Günay G, Johnson I (eds) Karst Waters and Environmental Impacts. A.A. Balkema, Rotterdam, pp 397–400

Wilkerson, M.S., October 1, 2019, "Primary Structures." Geoscience 350A: Structural Geology/Tectonics, DePauw University

EXPERIENCE IN UNDERSTANDING GROUND WATER (GW) DEVELOPMENT AND MANAGEMENT

Pratap Singh Tater

Hydro Geologist/Past President NHA/NGS

INTRODUCTION

Water is the life of any living creatures including human. Without water life cannot exists. Water may be from surface or below ground. Water can be found in most of the places whether in hills, mountain and flat area. So, water availability is not an issue. Than what is the issue about water? We hear from the leaders and eminent person that now the world war will be for water.

Why water is so important for? Is it true for the developing world?

The truth is that we the human creating problems in using water. We are the one who exploit the surface as well as water below the surface. The water below the surface is taken as Ground Water.Most of the country and the communities across the world using Ground Water for drinking, irrigation, industrial and recreation purpose.

SCENARIO IN NEPAL

Our country Nepal is rich in water resources whether in surface or ground water. But we hear from media, academicians, local administration and communities that the water is depleting year by year. The scarcity of water particularly for drinking purpose is getting problems. Why the people talk in this water rich country?

GROUND WATER CONDITION IN THE COUNTRY

There are many study has been done for Ground water availability, its potential, its use for Irrigation and drinking water particularly in the Indo-Gangetic plains which is known as Terai of Nepal. The groundwater in the Terai plain is a part of the larger system in the Gangetic basin. Groundwater is a very important water resource for the Terai

Almost one half of the country's population is living in the Terai and they depend solely on groundwater for their domestic water needs as well as irrigation and other purposes. The population in Terai has increased in last 20 years. Accordingly the water demand has gone up.

The study in hills and mountain is still not done properly though the government is taking initiative. The communities and industrial agencies are trying to exploit ground water in the hill and mountain without seeing its complications.

USE OF GROUND WATER

Increase of Smart Township, new industries, Hotels and Resorts, Development of infrastructures and extra water relating activities are creating stress on water in Terai and also in mid valleys like Kathmandu, Dang and Surkhet etc. It is obvious that the water demand will be increasing in the day to come. We are the one to manage the water demand of the population. There are over exploitation in some places. There is no/ or poor control of the Government in the use of not only ground water but also surface water.

There are rules and regulation to control the use of water resources including ground water but it is not properly implemented. Therefore, anyone can dig holes, make bore holes, and tube wells without knowing its effect. Even in the Terai where we say that it has plenty of water underneath which showing down ward trend according to the local people and communities.

According to the recent study and media report of various area of Terai indicates that there will be scarcity of ground water in Terai.

WHAT TO DO AND WHAT SHOULD BE THE ROLE OF THE EXPERTS?

We the expert must not be after the rumors. The academicians and the ground water expert must do the relevant study. The study must inlude the nature of Chure/Bhabar and excavation of the materials, the river pattern, water level fluctuation, recharge area and precipitation together with the effect of deforestation may address the existing ground water issues in Terai. Similarly, the study of hills and mountain aquifer must be studied so that we can avoid the problems exists in Terai and valleys.

The exploitation of ground water is not scientifically and systematically. There are many drilling companies in Terai need no permission to drill bore holes/tubewells. They have poor knowledge about the effect on aquifers and behavior of ground water. Here the experts must give suggestion to the Government to mitigate the problem regarding ground water. Local body is also made aware about ground water and its problems and proper use. So,that it can be managed efficiently.

CONCLUSION

There are challenges in exploration, exploitation and management of ground water in the country. There are few Government organization addresses ground water exploitation and local management. We have to understand the groundwater is the part of mining, so to use the water need permission and registration from the respective authority to manage the resource effectively.

Therefore, one strong permanent organization must be formed to do survey, locate recharge area, conservation of the recharge area, find the total reserve, demarcation of area to use, method of construction of wells and provide license to use.

It is the time now to delineate the area of recharge zone, settlement, industry and recreation to avoid stress and contamination in ground water as well as surface water.

WATER DIVINING OR DOWSING
USEFUL TOOL OR A HOAX

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Water dowsing or divining is an age-old technique of finding water underground and other hidden substances without using any scientific tools. A water dowser uses as simple as a stick or a rod to determine where to place a well. Despite the fact that hydrogeologists or geologists strongly oppose the use of water divining to locate groundwater, this ancient art is practiced widely with strong enthusiasm even in the present days in many parts of the world. Dowsing believer consider it as a valid technique of finding water underground. Many people, engineers, farmers, water companies and even government agencies mostly in the western countries use dowsing as an effective low cost solution to find water underground and finding other hidden substances. In this article an attempt has been made to elucidate the practices of dowsing, the beginning and history of dowsing, the mechanisms how it works if at all, the scientific testing of it and the present scenario of the practice of dowsing across the world. Though dowsing as has been claimed to have many applications, in this article an emphasis is given only to water dowsing.

KNOW DOWSING

Dowsing, in general terms, is the art of finding hidden or lost substances accomplished with the aid of a simple tools like forked stick, rods, a pendulum or other devices by walking over targeted area until response is observed.

Engineer Raymond Wiley has defined dowsing in his book 'Modern Dowsing' in 1970 as “the exercise of the human faculty which allows one to obtain information in a manner beyond the scope and power of the standard human physical senses of sight, sound, touch, etc.” This helps us to understand how some dowsers believe that their ability is “a psychic experience closely related to some kind of mental radar” (Baum 1974).

The American Society of Dowsers describes dowsing as "the practice of using tools to interpret the answers to questions." ASD further states "there are three important things to consider when you first learn to dowse. The first is that dowsing works best when there is a need, not greed. Second, it is important to be focused and free of distractions whenever you dowse. And third, dowsing is a skill and like other skills it comes quickly to some and slowly to others, and practically everyone requires practice to become proficient" (ASD online 2019).

Christopher Bird author of 'Divining Hand' wrote "to dowse" is to search with the aid of a hand held

instrument such as a forked stick or a pendular bob on the end of a string for anything".

"Water dowsing," "water witching," "divining," "doodle bugging" "scanning", and "rhabdomancy" are other names for the practice of locating groundwater using a dowsing devises. In the recent times, however the phenomenon has come to be called dowsing almost universally.

More modern labels for dowsers include motorscopists, psychoscopists, psychogenic water locators, psychometrist geomancers, radionics and radiesthesics. In the British army, those who practice dowsing have come to be called "first-class well diggers".

Traditionally dowsing has been used not just to finding groundwater but also oil, minerals, buried utility lines, septic tanks, graves, lost jewelry, missing people, lost landmarks, roots of big trees, buried foundation, reestablish property boundaries, geological faults, large dry caves, detect criminals or hidden soldiers, as well as analyze personal character, and trace lost animals. A few dowsers even claim the ability to diagnose and cure disease or to determine the sex of an unborn child. Today dowsing is also reported to be used to find energy lines, ghost hunting, spirit communication, and even homework help. Dowsers believe that it's a great tool for enhancing our intuition and decision-making abilities.

All the world over dowsing practice prevails, surprisingly however the traditional non-scientific practice of dowsing is more prevalent in the western so called advanced world than in poor third world countries. The universal practice of dowsing may be evidenced by the fact that most languages spoken on Earth have words to describe dowsing.

The French called the dowser sourcier – one who locates water sources. The Swiss called the dowser brunnenschoncher, or 'water seeker'. The Danes' name for dowsing is finklerut, the Swedes', dalkarl. In Mexico, dowsers are called burros. The early Chinese called dowsing 'talking to' or 'seeking' the "dragon flow" with the "claw of the dragon", or dowsing rod. Dowsing was also called fungshui or fing, meaning 'wind', and chi meaning 'water witching'. In the US dowsers have variously been called "water devils", "rod wielders", "doodle buggers" and "water diviners" (Canadian Society of Dowsers, online 2020).

There is no word for dowsing found in the Sanskrit literature nor is it in Nepali, Hindi, Bengali or Tamil, indicating the absence of practice of art of dowsing in the past in the South Asian countries.

Since successfully locating underground water can save a farmer the trouble of digging several wells that end up dry, and since scientific approaches can be expensive, there is a strong incentive for people to want water dowsing to work. The owners are understandably reluctant to gamble on a dry hole. They want to be sure that the well is drilled in a location where it will produce water of adequate quantity. They want to drill a successful well, close to their house.

HISTORY OF DOWSING

The first recorded use of dowsing is thought to be in a cave painting discovered at Tassili caves in Algeria dated to be 8000 years depicted a man holding forked stick, possibly dowsing for water. Similarly, cave drawings were also found in Peru and Iraq dated 8000 years old depicting dowsing.

The writings of Confucius (2500 BC) mention dowsing. A statue of Chinese Emperor Kwang Yu (2200 BC) portrays him holding a forked stick (commonly used for dowsing). Bible describes Moses using a rod to find water. The Queen of Sheba and King Solomon as mentioned in the Hebrew Bible used dowsing for prophecy and to choose the women for the harem respectively.

The oldest Egyptian stone drawings and carvings (2200 BC) show men in headdresses holding forked sticks or pendulums. During Roman times the author Cicero (50 BC) is said to have used dowsing rod. Cleopatra (47 BC) is reported to have

carried dowsers with her always and used them to find gold. Marco Polo (1271 AD) knew of pendulums, dowsing rods, and the compass, He used them all widely. Various books produced in Germany from the 12th to 14th century examined the phenomenon of dowsing.

Dowsing as practiced today may have originated in Germany during the sixteenth century, when it was used in an attempt to find metals. German scientist Georg Agricola (mineralogist and metallurgist), a pioneer in scientific classification of minerals, authored 'De re Metallica' published in 1556. This classic work examines dowsing and its applications for metal ore. Queen Elizabeth I (1558-1603), introduced dowsing to England in the sixteenth century to keep up with the success that Germany had already experienced.

The actual word 'dowsing rod' first appeared in print in a seventeenth century essay written by famous English Philosopher John Locke, who referred to the ability to divine, or discover, mines of gold and silver. In his essay, Locke wrote that by the use of the dowsing rod, one could devise or discover water and precious minerals. Locke used the term deusing-rod for the old Latin name virgula divina meaning divining rod.

In the 1700's and 1800's in England, Germany and France various books on mining and engineering extensively to dowsing were published. Around 1800's, Pendulums and dowsing went into a decline but during the 1920s saw the revival of pendulums and dowsing techniques.

Albert Einstein one of the greatest scientists of all time wrote: "I know very well that many scientists consider dowsing as they do astrology, as a type of ancient superstition. According to my conviction this is, unjustified. The dowsing rod is a simple instrument which shows the uncanny reaction of the human nervous system to certain factors which are unknown to us at this time."

An extensive classic book on the history of dowsing was published in 1979 by Christopher Bird, a Best Selling author (Co-author of Secret Life of Plant) under the title of 'The Divining Hand: The 500 year-old Mystery of Dowsing". This book brought about significant publicity in the media and increased curiosity of the people towards dowsing. Then after there have been many more books and paper published on art of dowsing. Of significance is "The Ultimate Guide for the 21st Century" by Elizabeth Brown who is an internationally renowned Causative Diagnostician. This book brought as is claimed the undoubted benefits of the ancient art to a modern world, and made dowsing, and its unlimited applications as claimed, accessible to all.

A paper which requires special mention is "Unconventional Water Detection, Field Test of the Dowsing Technique in Dry Zone", written by Han-Bieter Betz, a Physicist in University of Munich published in the Journal of Scientific Exploration in 1995. Through several experiments on dowsing Betz concluded that "some dowsers in particular tasks, showed an extraordinarily high rate of success, which can scarcely be explained as due to chance".

In modern-day technology, dowsers still have their place. Water companies still use them to locate new water sources. Oil companies, as well as mining industries, still use this technology.

DOWSING TOOLS

Dowsing Rod: The rods used by dowsers over the ages have variously been called Jacob's rods, divining rods, shining rods, leaping rods, trembling rods, rotating rods, dipping rods, transcending rods, superior rods, sticks, wands and many more. The following two types of rods are commonly used.

Y Rods or Forked Stick: The most common dowsing tool is Y-shaped tree branch. The two ends on the forked side are held one in each hand with the third (the stem of the Y) pointing straight ahead. The dowser then walks slowly over the ground, the stick reacts when discovery is made.

Usually, this reaction is a strong downward pull, known as the dowsing response. Many dowsers prefer forked sticks made from willow, peach, or witch hazel wood.

L Rods or Angle Rods: Many dowsers use a pair of simple L-shaped metal rods thirty centimeter by fifteen centimeter. One rod is held in each hand, with the short arm of the L held upright, and the long arm pointing forward. When something is "found", the rods cross over one another. If the object is long and straight, such as a water pipe, the rods may point in opposite directions, showing its orientation. Dowsing Rods can easily be made from wire coat hangers.

Figure 5 Dowsing with Forked Stick

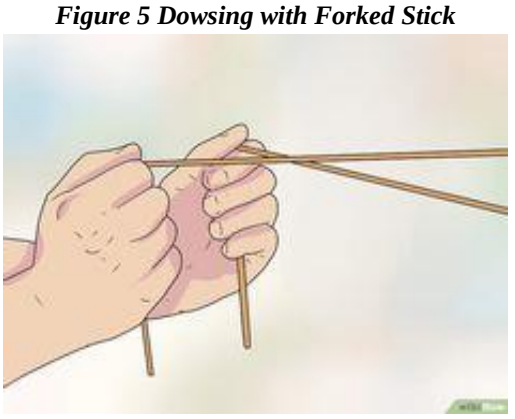

Figure 6: Dowsing with Rod

Figure 7: Pendulum Dowsing

Some insist that dowsing or divining rods should be made only from freshly cut twigs, because only these can tune into the forces of nature, while other on the use of brass or steel rods.

The Pendulum: A pendulum is a weighted object that is hung from a single chain or cord. It's never made of a magnetic substance, but is often a crystal. It's also possible to use objects such as a trinket, a bead, a metal ball or even a key. The weight of pendulum should be about sixty grams, and the thread should be ten to fifteen centimeter. The cord is held between the thumb and first finger, allowing the weight to move freely. Dowser stops the movement of the weight with his/her free hand, and then asks the pendulum to indicate a "yes" response. The pendulum then reacts with movement from side to side, backwards and forwards, or in a circular motion, either clockwise or counter clockwise. The different movements give range of different answers. Once we have the movement that indicates "yes," we should ask for "no," followed by "I don't know" and "I don't want to answer." In this way any questions can be answered by one of these responses.

Hand Dowsing: Some people are able to dowse with their hands. The most common way is to shake the hands while walking over the area being dowsed. Once you have located what you're looking for, the hands stop shaking.

Map Dowsing: Some dowsers don't even have to visit the location to be dowsed. For them, a map of the area is sufficient over which they hold a pendulum. They know they have located the target area when the pendulum begins to move in a circle or back and forth.

Body Dowsing: An extension of dowsing is to use the entire body. Some dowsers find this particularly useful when buying books. If there is a choice of two books and not certain which one to

buy, dowsers place one to his left and the other to right. He then closes his eyes, and silently asks which book to buy. The whole body then involuntarily leans toward the book that would be most useful to him. Interestingly body dowsing can be done without anyone noticing.

Also used as dowsing tools have been scissors, pliers, crowbars, shotguns, whale bones, barbed wire, clothes, welding rods, rings and other jewelry, feathers, candles (both lit and unlit), conch shells, medicine bones, aurameters, coconut fruit, eggs, Chinese diagram called “the Pakoua” and last but not least fingers and hands!

Dowsers say that what works for one dowser would not work for another. They claim that each novice dowser must experiment to find a tool that works for him.

In recent years, electronic dowsing rods, also known as long range locators have sprung up on the market, often costing hundreds or even thousands of dollars. The makers claim that these devices have specially tuned electronics that allow one to find anything from water to gold to humans (kidnapped or lost).

HOW DOES DOWSING WORK?

How does dowsing work? Countless theories abound, even today, yet, one cannot be absolutely certain that any one, or even a combination of such theories, discloses the whole story. Nobody knows the quick answer - not even experienced dowsers. However a number of studies have tried to establish how dowsing works.

Of more interest than how does dowsing works, however, is the issue of whether dowsing works at all. Obviously, many people believe it does. As has already been mentioned dowsing has been in practice for thousands of years. Thousands of dowsers practice their art every day in all parts of the world. There have even been some scientists in recent years who have offered some proof that dowsing works. There must be something to it, or so it seems.

People who practice dowsing believe that groundwater moves in subsurface streams, veins, or streams that must be intersected by the drill to produce an adequate flow of water. They believe that locations where this water is present are surrounded by forces that will produce a response in their tools. Some claim powers that enable them to "see" through soil and rock. According to dowsers, the attraction of the water may be so great that they are said to have suffered blistered or bloody hands from the twisting. Dowser, undoubtedly believe that he or she is endowed with a natural ability or has found a workable if unexplainable method of locating groundwater.

Some theorize there is a psychic connection established between the dowser and the sought object. All things, living and inanimate, the theory suggests, possess an energy force. The dowser, by concentrating on the hidden object, is somehow able to tune in to the energy force or "vibration" of the object which, in turn, forces the dowsing tool to move. The dowsing tool may act as a kind of amplifier or antenna for tuning into the energy.

Some dowsers believe that water occurs in veins resembling the veins of one's body. According to Henry Gross, one of the best known modern dowsing practitioners, underground water flows upward from great depths, forming "domes." He believes such domes to be the source of water for underground veins that flow in various directions. The dowsers attempt only to locate the positions of the so-called water veins.

Some Supporters claim that the dowser has a subliminal sensitivity to the environment, perhaps via electroception, magnetoception, or telluric currents.

Some supporters believe that the dowsers detect a physical field on site. If this is true then what could it be? The following types of fields have been suggested as possible candidates: Gravitational, Magnetic, Electric, Electromagnetic, Radioactive,

Seismic, Geothermal, and Geochemical. Of these, the magnetic, electric and electromagnetic fields are probably the most likely candidates. If it is a physical, then an explanation must be provided for the generation of the signals, and for the detection mechanism within the human body.

UK Groundwater Forum states, that the muscles in the body react to some electromagnetic effect caused by the presence of the metal or the water flowing through the pipe; the rods then amplify this effect so that the searcher becomes aware of them. Another theory is that some diviners know from their experience and local knowledge where groundwater is likely to be located and subconsciously cause the reaction.
Canadian Society of Dowser explains process of dowsing from two points of view, scientific and spiritual. To find a common ground for both standpoints we can say then, that while dowsing we are tuning into subtle vibrations both inside and around us.

From a scientific point of view, dowsing is a process by which electrical impulses are sent to the dowser's brain. In response, a compatible wavelength is created and another electrical impulse is sent back. These kinds of impulses create a micro-constriction of muscles, which pushes energy down along the arm and underarm to finally reach the string and the pendulum, creating its movement. Since "positive" or "negative" states of our energetic system are represented by different level of energy, we also observe two different movements of pendulum.

From a spiritual point of view, dowsing takes place when your mind connects and vibrates in harmony with your soul (as an extension of Higher Source). Information needed is given to dowsers from higher dimensions, penetrates their physical existence and manifests itself as a movement of the pendulum (CSD online 2019).

The most common reason for believing in dowsing as is suggested by professional dowser is based upon experiences and anecdotes of dowsers and those who observe them. The evidence is simple: dowsers find what they are dowsing for and they do this many times. The fact that this pattern of dowsing and finding occurs repeatedly lead many dowsers and their advocates to make the causal connection between dowsing and finding water, oil, minerals, etc.

Some sources claim that strong psychic energy is radiated by the object and detected by the dowser; others believe that ghosts, spirits or mysterious Earth energies direct the dowser to their targets.

Most dowsers do not consider it important to doubt their dowsing powers or to wonder if they are self-deceived. They never consider doing a controlled scientific test of their powers. They think that the fact that they have been successful over the years at dowsing is proof enough. When dowsers are scientifically tested and fail, they generally react with genuine surprise.

SKEPTIC'S VIEW OF DOWSING

The belief in dowsing typically involves the misunderstanding that underground water consists of large underground rivers flowing through caverns. In this thinking, one spot on a farm would be a good location to drill a well because it is lined up with the underground river, whereas another spot twenty feet away would be a bad location since it misses the underground river. In reality, most groundwater does not occur commonly in veins, domes or underground rivers but instead flows everywhere through the tiny pores and cracks in the rocks. It is replenished by nature according to local geology and climate. Any area that receives a moderate amount of rainfall and having favorable geology, will always hit water if dug deep enough.

It is therefore most geologists and hydrogeologists do not endorse the practice of dowsing. USA's The National Ground Water Association in a position statement, “strongly opposes the use of water witches to locate groundwater on the grounds that controlled experimental evidence clearly indicates that the technique is totally without scientific merit” (NGWA, 2016).

The US Geological Survey (USGS) states that. "Case histories and demonstrations of dowsers may seem convincing, but when dowsing is exposed to scientific examination, it presents a very different picture. The natural explanation of "successful" water dowsing is that in many areas underground water is so prevalent close to the land surface that it would be hard to drill a well and not find water. In a region of adequate rainfall and favorable geology, it is difficult not to drill and find water. Some water exists under the Earth's surface almost everywhere. This explains why many dowsers appear to be successful".Skeptics, opines that the dowsers who seem to have a track record for success, they contend, are either lucky or they have good instincts or trained knowledge for where water, minerals and the like can be found. Skeptics of dowsing believe dowsing apparatus has no special powers but simply amplifies small but otherwise imperceptible movements of the hands, which has long been established to be the ideomotor effect. Ideomotor movements are unconscious, involuntary motor movements that are performed by a person because of prior expectations, suggestions or preconceptions. To put it simply, sometimes our brain tells our body to do something without us knowing.

Christopher Baird, Assistant Professor of Physics at West Texas A&M University claims that the person that is dowsing hopes that the dowsing tool will respond when he walks over the area to be probed. The dowsing tools do indeed move, but not in response to anything underground. They are simply responding to the random movements of the person holding the rods. The rods are typically held in a position of unstable equilibrium, so that a small movement gets amplified into a big movement. The movements of the tools do not seem like they are coming from the small vibrations in the dowser's arms, since these vibrations are so small and the rod's movements are so large. From the false assumption that the movements of the rods are not coming from the small random vibrations of the dowser's arms, people then make the illogical leap that the movements must therefore be caused by something powerful that is out of sight, i.e. hidden treasure.

James Randi a scientific skeptic declared that dowsing doesn't work but law of average does. He further noted that" dowsers often cannot agree on even the basics of their profession: "Some instructions tell learners never to try dowsing with rubber footwear, while others insist that it helps immeasurably. Some practitioners say that when divining rods cross, that specifically indicates water; others say that water makes the rods diverge to 180 degrees."

If the well driller does not find water at the indicated spot, the failure may be blamed on interference of hills with the dowsing, a short circuit of "current," incorrect drilling, or the crushing or deflection of the delicate water veins by the driller.

SCIENTIFIC TESTING OF DOWSING:

Several controlled scientific testing over the last hundred years have been carried out to examine whether or not dowsing makes any sense. Dowsing abilities examined in many countries around the world prove that dowsing does not work on the basis of its stated scientific claims.

The following are some of some of the tests carried out to investigate whether water dowser can, as

they claim, detect water from a distance by extraordinary means.

In the early 20th century dowsing studies were examined by geologist John Walter Gregory. Gregory concluded that the results were a matter of chance or explained by observations from ground surface clues. Geologist W. A. Mac Fadyen tested three dowsers during 1943–1944 in Algeria. The results were entirely negative.

A 1948 study in New Zealand by P. A. Ongley tested seventy five dowsers' ability to detect water. According to Ongly no one showed slightest accuracy.

In 1971, dowsing experiments were organized by British engineer R. A. Foulkes on behalf of Ministry of Defense. The results of the studies were no more reliable than guessing.

Le Page's blog links to detailed experiments conducted in Germany in the 1980s which showed that the dowsers tested weren't locating water at levels better than random chance. It is a good lesson in statistical reasoning: that a few individuals did significantly better than the others, for example doesn't attest to a rare talent but to the simple fact that this too is an expectation of random outcomes.

In 1984, Michael Martin, professor of philosophy at Boston University, tested Paul Sevigny, then president of the American Society of Dowsers. He reports that even after forty trials, Sevigny performed at levels worse than chance. After Martin reviewed his results, as well as those of James Randi, plus a scholarly overview of the evidence for dowsing provided by Evon Vogt and Ray Hyman (1979), he concluded, “The available evidence can be succinctly summarized: When dowsers perform under controlled conditions, they do not do better than one would expect by chance.”

In 1990, thirty "expert" dowsers were invited to Kassel, Germany to have their abilities tested in a double-blind study organized by famous magician and psychic debunker James Randi. The three day test of some thirty dowsers involved plastic pipes carrying flowing water were buried underground at known locations and the dowsers were tested as to their ability to determine if water was flowing through the pipes. The dowsers had to tell whether water was running through each pipe. All the dowsers signed a statement agreeing this was a fair test of their abilities. The test result results were no better than random guessing.

Not that all the testing results were negative. One of the strongest evidence favoring dowsing comes from Germany and the so-called "Barn" experiment. In 1987-1988, Hans Dieter Betz, University of Munich physicist carried out comprehensive test study of dowsing. Betz concluded that some dowsers "in particular tasks, showed an extraordinarily high rate of success, which can scarcely if at all be explained as due to chance.." Betz declared that he had incontrovertible evidence of the dowsers' abilities. Betz further said "I am certain of my field research, a combination of dowsing and modern techniques can be both more successful, and far less expensive, than we had thought."

In 1995 Betz's report "Unconventional Water Detection: Field Test of the Dowsing Technique in Dry Zone" was published in the “Journal of Scientific Exploration in 1995”. In this report Betz ruled out chance and the use of landscape and geological features by dowsers as explanations for their success. He also ruled out "some unknown biological sensitivity to water." Betz thinks that there may be "subtle electromagnetic gradients" resulting from fissures and water flows which create changes in the electrical properties of rock and soil. Dowsers, he thinks, somehow sense these gradients in a hypersensitive state. "I'm a scientist," says Betz, "and those are my best plausible scientific hypotheses at this point....we

have established that dowsing works, but have no idea how or why."

Fact of the matter is that in five hundred years of examination and research no one has come up with a reasonable and concrete explanation of why and how of dowsing.

STORY OF A DOWSER

Sharron Hope a MA in Education, hydrogeology graduate, one of the leading dowsers of the US having over thirty five years of experience of dowsing for water wells narrates her story: I have a BA degree in Psychology, an MA in Education & the Arts. I have done graduate work in hydrogeology. I learned to dowse with a pendulum in 1968. I have been dowsing for water wells since 1979.

I head to the property, I find a tree branch, and I hold it out in front of me. Then, I turn around in a circle, and when the branch senses energy, it'll start dipping down towards the earth, but just minutely—you have to really concentrate on what you're doing; you have to forget about everything else, just relax and turn slowly, and when you feel that dip, you walk in that direction. When you get over the site where there is the most water, that stick is gonna point down to the earth.

Water, is flowing underground, and it's flowing past rocks, and rocks actually store energy. So as it goes through those rocks, the water strips off some of that energy—some of those electrons—from the rocks. And that energy goes shooting straight up. That's what the tree branch, up on the surface, is responding to. I started doing water wells in 1979. And I've noticed over the years that there are heavily-traveled deer trails over water veins. And a lot of times, when I go out to dowse, the spot that I find to drill the well is where two deer trails cross. So wild animals, too, can pick up on that energy that comes up from the water.

I'll mark that spot, and then I'll get my L-rods out. They're made of solid brass, and they have a copper handle. So I'm holding on to the handles, and I'm standing a little bit away from the site that the branch found. And I move towards that site, and I get right over it, and then those two L-rods will cross. Hope says: 'If you call a geologist, it'll cost you $2,000 a day' by comparison, she charges a one-time fee of only $250 for a well-siting.

TOP OF FORMDOWSING IN RECENT TIMES

Despite having a very few scientific evidence in its favor dowsing has become a common phenomenon in the US and Europe. It is less common in Africa and Asia than in US and Europe. In most of the dowsing countries the dowsers have formed the professional organisation to promote development of dowsing and enhance cooperation amongst the professional dowsers.

The American Society of Dowsers the largest organised body of dowsers in the world founded in 1961 has more than two thousand active members. The idea behind creating the American Society of Dowsers as is claimed is Charles Richet, a Nobel Laureate's quote: "We must accept dowsing as fact. It is useless to work experiments to prove its existence. It exists. What is needed is its development."

The British Society of Dowsers, formed in 1933, (one of the oldest society) for dowsers to encourage the study and enhance the knowledge of dowsing. Active dowsing societies in some of other countries are Canadian Society for Dowsers, French Dowsing Society, Japanese Society of Dowser, Russian Association of Dowsers, Australian Society of Dowser and Indian Society of Dowsers. Likewise there are dowsing societies in Germany, Ireland, Finland, Denmark, Israel, New Zealand, Argentina, Austria, Sweden, Italy, Mexico, the Netherlands, Spain, the West Indies, Switzerland, South Africa, and Vietnam and so on. There is School of Indian Dowsers and Geomancy

in Mumbai India for research and development of different dowsing techniques.

Dowsers are reported to have been employed by UNESCO, major water and pipeline companies, and the Canadian Ministry of Agriculture. The US marines and British army have used dowsing to detect landmines, ammunition dumps and tunnels in Vietnam, the Falklands and the Gulf. It is also used by many health practitioners and by geomancers, to detect geopathic stress.

In Russia it is reported that Soviet geologists are using dowsing in their work. Moscow State University and the University of Leningrad have established training schools in dowsing in cooperation with the Russian Army. The Chinese Army, for years has used dowsers to scout the terrain and locate enemy sites as well as to determine optimum areas for advancing forces to encamp each night. The Czechoslovakian Army maintains a permanent corps of dowsers. The Canadian Army Engineers also rely on dowsing (CSD online 2019).

Several Engineering Companies, Water Companies, Mining Companies, Breweries, Laundries, Building Contractors, Farmers, Government Departments, Police Armed Forces etc. the world over are the frequent user of dowsing techniques (Wilcock,1994).

The Independent 22 Nov 2017 reported "Almost all of the UK's water companies have admitted their engineers use dowsing rods to detect leaks or find pipes, despite there being no scientific evidence for their efficacy"

Thousands of specialized books have been published on the ancient art of dowsing. National Convention, conferences symposium and workshops are held every year in dowsing using countries across the world. Magazines and Journals online and offline are published regularly. International dowsing day is celebrated on 5th May following birthday of the late British dowser Hamish Miller.

Whether or not dowsing actually works is a matter of debate. A **hydrogeologist** finds no reason why water dowsing should work. Yet many believe it apparently works well enough and reliable enough to keep the practice alive. The practice of dowsing is so intense and widespread that no community can ignore it. It is therefore the research and testing of dowsing and debate on dowsing will and should continue to prove whether the dowsing is useful tool or a hoax and if it works at all how and why. What may be the outcome of the further testing, it is for sure that forked sticks, metal rods and crystal made pendulum will continue to be part of the well-digger's toolkit in generations to come.

When asked, "What is electricity?" Thomas A Edition replied: "I don't know – but it is there – so let us use it". If a technique works whether a traditional or a scientific one, without knowing what, how and why, there is no reason why anyone should not use it to his/her benefit if at all.

REFERENCES

American Society of Dowsers, https://dowsers.org/ Accessed 13th May, 2020

Ankerberg, J. and Weldon, J. Can Scientific Testing Prove Dowsing Works**,** 2012**.** https://jashow.org/articles/can-scientific-testing-prove-dowsing-works/

Baird, Christ. How does Water Dowsing Work. Category: Earth Science, Published: April 15, 2015, <https://wtamu.edu/~cbaird/sq/2015/04/15/how-does-water-dowsing-work/

British Dowser, <britishdowsers.org, Accessed 12th May 2020.

Brooks, Michael. Why Dowsing Make Perfect Sense, New Scientist 29 July 2009, The Daily Newsletter. <https://www.newscientist.com/article/dn17532-why-dowsing-makes-perfect-sense/

Canadian Society of Dowser, https://canadiandowsers.org, Accessed 13th May 2020

Groundwater Solution, http://www.groundwatersolutions.co.uk/Water-dowsing-does-it-work, Accessed 13th May 2020.

Innerfeld, H. Introduction to Dowsing, Canadian Society of Dowsers, 2020. https://canadiandowsers.org/introduction-to-dowsing/

Janks, J. Dowsing Rods: Empirical Evidence and Application for Charting the Subsurface. https://boarderlandscience.org/journal/vol/ie/jank.Emperical-Evidence-for-dowsing.html

Journey of Ascension, (Updated 2020), Pendulum dowsing: History/Timeline. https://journeytoascension.com/pendulum-dowsing-history.

King, H., Dowsing as a Method of Finding Underground water, Geology.com https://geology.com/articles/water-dowsing/

..

USGS, Water Dowsing. https://pubs.usgs.gov/gip/water_dowsing/pdf/water_dowsing.pdf, Accessed 12th May 2020.

Wilcock, John. Dowsing for Caves, 1996, http://matienzocaves.org.uk/dowsing/dowsing-general.pdf

Webster, R, Dowsing Tools, Llewellyn https://www.llewellyn.com/journal/article/344

Webster, R. Dowsing Tools, Canadian Society of Dowser. https://canadiandowsers.org/dowsing-tools/

Wikipedia, Dowsing https://en.wikipedia.org/wiki/Dowsing, Accessed 11th May 2020.

Youngblood, L. Dowsing: Ancient History, American society of Dowsers, 2019, https://dowsers.org/dowsing-history/.

CONCEPT OF GROUTING AND ITS USE IN HYDRO POWER PROJECTS

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The process of injecting any suspension by a drill hole is called grouting in construction field. Grouting is a method to inject cement and water mix into the ground (mainly rocks) by a desirable pressure. The principle is to fill all joints, voids, cracks and cavities by pressure through drill holes (bore holes) with a designed mix (cement, water or chemicals). So, the process is also known as pressure grouting. The purpose of grouting is to increase the strength, to reduce deformability and permeability of the rock mass.

Groutability: The ability of grout to penetrate into the rock is called groutability. It depends upon the aperture of the joints, mix ratio and fineness of the cement. For hair cracks or minor cracks the grout take is very minimal compared to cavities, voids, karst beneath the earth. Groutability of cracks is ratio of the width of the crack and the grain size of the grout material. Groutability and permeability may vary with each other.

TERMINOLOGIES IN GROUTING

Following listed terms are mostly used in the process of grouting-

a. Drill hole: The hole which is to be grouted is drilled with the drilling machine. The hole is either drilled with percussion or rotary drilling machine. The diameter of the hole is drilled as per requirement by the designer. Any type of casing in that stage is discouraged where grouting is to be done.

b. Depth: It means the depth of the drilled hole in the rock which is ready for grouting. The depth of the hole depends upon the structure and type of grouting. For example in contact grouting the depth of hole shall be very shallow compare to curtain grout.

c. Stage: The length of the hole where grouting is to be applied is called stage. While performing grouting, both ends shall be tighten to stop moving grouting except grouting stage. The stage of grouting is decided by designer or experience person. It may 1, 3, 5m or else.

d. Order: The start depth of the grouting in drill hole. There are two types of order as- ascending and descending. In ascending order grouting is started from the bottom of the hole to the top of the hole. And in descending order grouting process goes from top to bottom which is done either with packer or without packer.

e. Packer: A rubber device which is inflated manually or pneumatic. It stops grout to move from one stage to another. Single and double packer are use as per order and stage. Use of packer will be decided by operator.

f. Lugeon: It is the measurement of permeability of the rock. One Lugeon equals 1 liter per minute per meter at a pressure of 10 bars.

So, formula of calculating Lugeon is Take × 10 bar/ test pressure

g. Take: It is also called grout take. The quantity of grout mix taken by bore hole is called take. It is measured in liter.

h. Mix: The proportion of water and cement is called mix which is in ratio. The water cement ratio is written as W:C. If 4 kg of water is

mixed with 1 kilo of cement, it is written as 4:1. The mixes are two types

i. Thin mix: It is used for better penetration because it is capable to grout finer cracks. For the thin mix the cement particle size is around 300-400 (m^2/kg) Blaine value. It ranges from 5:1 to 2:1. The bleeding of such mix is high.
ii. Thick mix: It is denser, stronger and uniform type of mix. It hardly penetrates finer cracks and takes time to penetrate the normal joints too. If pressure is increased to grout, probability of hydro fracturing and hydro jacking will be occurred. The mix of water cement ratio more than 1:1 is thick mix. The bleeding of such mix is low and can fill the cracks and joints. These days it is also called stable mix. In stable mix the water cement ratio will be 0.8 to 0.6. The bleeding of such mix is less than 5%.

If the grout pressure is increasing or constant with decreasing take, or take remains constant with increasing pressure, the mix ratio shall not be changed. If the take crosses 300 liter or continued taking same ratio for 30 minutes, and no significant change in pressure and take is observed, the mix ratio shall be changed by thicker mix. If the grout take is more than 30 l/min, the mix ration shall be changed.

i. Communication and by-pass: The communication between the holes are occurred due to link between grouting holes and empty drilled hole. If some cracks are linked with grouting hole, the grout may come from the surface or another drilled holes. In such case the grouting activities should be suspended till setting of grouted cement. It can be suspended for 12 hours to start again the grouting.

j. By-pass is the defect where grouted cement start coming from the same hole. If there will be high pressure in low strength rock area, the rock attached with packer collapsed and start coming the grout outside. In such case the packer is lifted at least 1 meter up and started the grouting again. If it is not stopped coming out again then grouting should be suspended till setting of cement. After setting of cement packer may not be inserted, so it may need re-drilling of hole.

k. Check holes: The holes drilled and tested the performance of grouting is called check holes. Check holes are done by using water by Lugeon test.

l. Volume and pressure: The quantity of grout taken is volume and the force applied to push the grout inside the fractures is pressure.

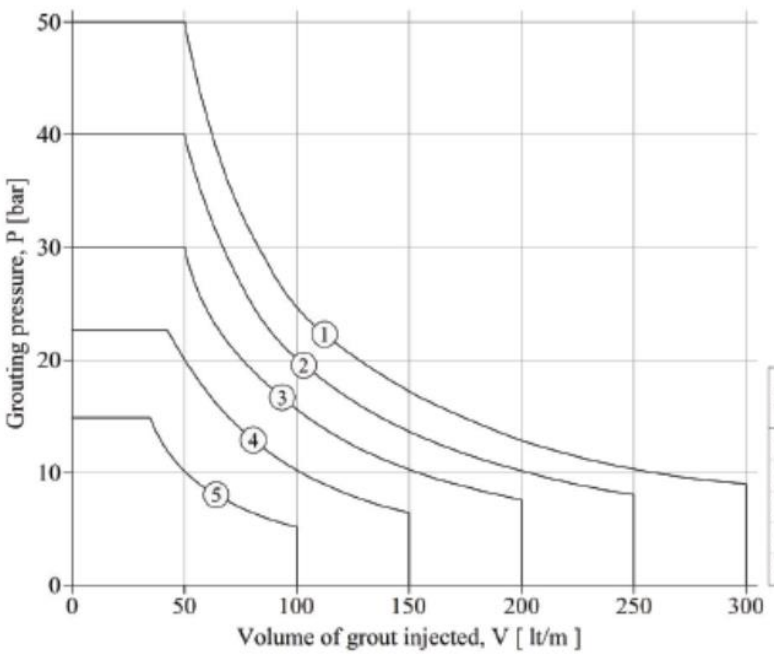
GROUTING APPROACH

There are two types of grout injection methodology, the pioneer one is absolute refusal method. This method can be applied in any geological condition whereas the second method is called GIN method is only applicable in an area where there is more or less homogenous lithology.

Absolute Refusal: It is also known as conventional method. The refusal criteria is based on the previous experiences and fixed by the thumb rule. As per the rock condition, maximum pressure is decided to apply so that rock may not exhibit hydro-jacking and hydro-fracturing. To control the excessive use of grout, a volume to be grouted is also fixed. In refusal method the grout is started from thin mix say 5:1 in the beginning. As volume increase, the water cement ratio is changed. For example, the starting mix is 2:1 for maximum volume 100 liter. If the take overcomes this figure the mix will be changed in to 1:1 with maximum volume 200 liter and so on. When it reaches 200 liter it again changes to 0.7 till maximum established volume say 500 liters. Some designers also follow this rule for the refusal criteria- the injection will be stopped if the pressure reaches maximum or grout take will be

extremely minimum for 1 or 2 minutes. The maximum grouting pressure should not be higher than minimum stress of the rock. So the grout pressure should be designed as per stiffness of rock, orientation of discontinuities and depth of the hole. Houlsby (1990) suggested that grout shall be started with thin mix and low pressure to thick mix with increasing pressure. It means at a condition of maximum pressure the mix will be thick as well as grout take. Grouting process is continued until the refusal of grout by hole. The theory of absolute refusal is continuity of grout till grout take is above certain volume. It means the process of the grouting shall be done unless it reaches a maximum pressure and no take. In this method of grouting, maximum volume of grout is fixed but it is indefinite that the spreading of grout in fractures are uniform or not.

Grout Intensity Number (GIN): GIN method of grouting is very new concept established by Dr. Giovanni Lombardi. GIN is defined by GIN= P. V where P is applied pressure to inject grout and V is consumed volume. It has a curve which is called GIN limit curve with respect to pressure and volume. The GIN curve defines the limit within which grouting is performed. The limiting boundary curve helps to avoid application of high pressure and excessive volume of grout by protecting damage in the rock. The main principle of GIN method is to reduce grouting pressure in function of the volume of the grout injected (Lombardi, 1993). The main benefit of the GIN method are to avoid wastage of grout and use of practicable pressure to avoid any damage in the rock. GIN can be said as a tool rather than a method. GIN helps to obtain the best grouting with minimum effort. It needs a stable mix which has low water cement ratio. The grouting injection parameters such as pressure, volume and rate of injection (GIN) are established in the way that when any of the parameters reaches the defined curve, it stops further grouting. So, one of the three parameters GIN, maximum pressure and maximum volume is to be achieved for fulfilling grouting process..



Nr.	Intensity	GIN [bar·lt/m]	P_{max} [bar]	V_{max} [lt/m]
①	very high	> 2'500	50	300
②	high	2'000	40	250
③	moderate	1'500	30	200
④	low	1'000	22.5	150
⑤	very low	< 500	15	100

Fig.1 Standard GIN limiting curves (Lombardi, 1993)

The Y-axis shows the pressure and X-axis shows the volume (See Fig.1). The maximum pressure applied is called P_{max} and the maximum volume defined is V_{max}.. The GIN value is based on the geological and geo-

mechanical condition of the rock. If the rock is good the high GIN value is adopted and for poor rock it is selected low valueThe GIN value which is determined at the time of design is fixed till the completion of the grouting program. For the different rock type of the same location the GIN value can be fixed different. After completing one section of area, performance can be checked and it can be changed the GIN value again. But, it is discouraged to avoid changing of GIN value. If the grout take crosses the curve in very low pressure, there will be generation of grout hole. It is due to filling of fractures at low pressure. Then it generates new hole near the filled hole.

Primary holes take high volume in low pressure, secondary holes take moderately and tertiary or other generated holes take low volume with high pressure (See Fig.2). Thus generated holes shall not be the same depth as previous. The generation criteria is introduced by GIN method. If the hole reaches 75% of the designed pressure, grout can be considered successful. In contact grouting it is not necessary to apply GIN method.

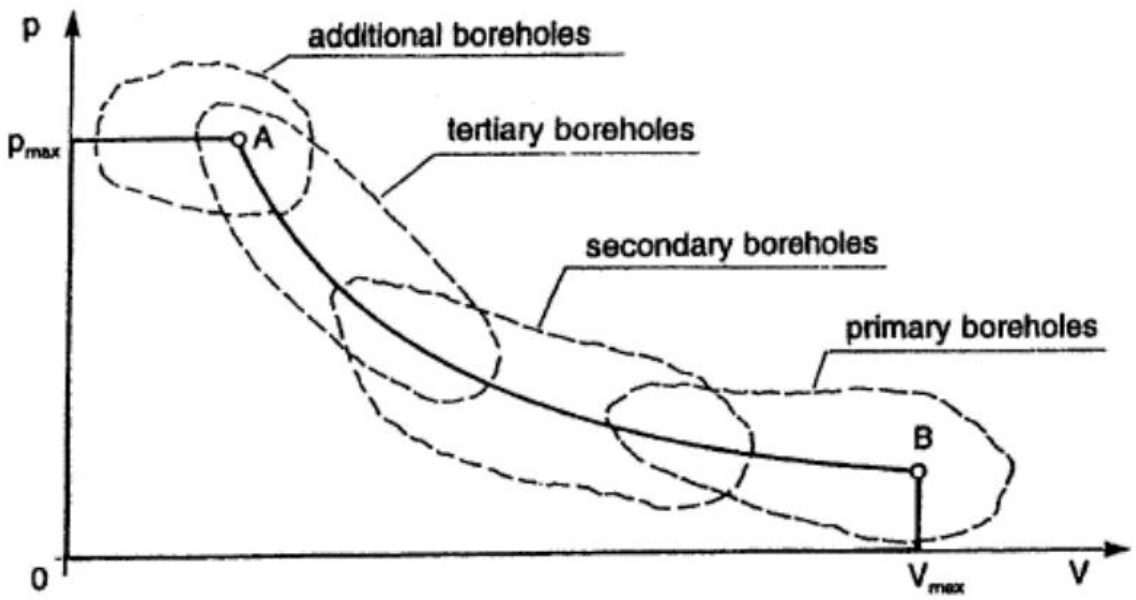


Fig.2 Result of grouting curtain by different holes (Lombardi, 1993)

TYPES OF GROUTING IN HYDRO POWER PROJECTS

There are different types of grouting process are required in the components of hydro power projects such as tunnel, dam, slopes etc. Mainly cement grout are discussed here.

Curtain Grouting: It is also known as grout curtain. Curtain grouting is done in the upstream of the dam from grouting gallery. Grouting galleries are designed parallel to dam axis. The length of the curtain grouting shall be extended from one abutment to other. In some cases the grouting gallery is extended inside the slope. The main purpose of curtain grouting is to minimize the permeability from the reservoir by creating a barrier of the non-permeable cement. Generally, curtain grouting are done in an inclination of 5-10^0 towards reservoir or as per fracture orientation. The inclination should arrange in that way grout can fill the maximum numbers of opening and seal the potential fissures.

The depth of the drilling holes for curtain grouting is decided based on the dam height. In general practice, the depth of the holes shall be $2/3$ (two third) of the dam height. Some of the designer goes for the theory at least half of the dam height for sound rock with low permeability determined by water pressure test. The distance between two primary holes shall be on the

order of 6 to 12m in general practice. The water test and grouting test can be a good report to decide the spacing of primary holes. And allocation of secondary will be at the middle and tertiary at the both ends of the secondary. It follows the split spacing method to decide the depth and distance between holes. The generation criteria of holes are fixed by the designer.

Consolidation Grouting: Consolidation grouting can be done in both tunnel, shaft and dam foundation. Consolidation grouting in dam foundation is also called blanket grouting. The main purpose of the consolidation grouting in tunnel is to improvise the rock condition by consolidation and to minimize the flow of water outward. The purpose of consolidation grouting in the dam is to reduce the permeability and deformability of the rock by increasing strength against shear force. In the dam, consolidation grouting are done either upstream or downstream of the curtain grouting. In gravity dam, they are performed on the downstream of the curtain grouting. The depth of such grouting is shallow compared to the curtain grout.

In the tunnel consolidation grouting is executed after lining (after shotcreting in unlined tunnels). The purpose of consolidation grouting in tunnel to perform monolithic behavior of the surrounding rock mass by reducing permeability and improving deformability. In extremely poor rock condition, prior to excavation, consolidation grouting is also done on the face to strengthen the rock mass, to stop water inflow and make easier progress of the tunnel which is called pre-excavation grouting. Water inflow in the tunnel from spring, shower or seepage can easily be controlled by consolidation grouting. Such path should be sealed otherwise water may flow outward or inward.

This is the last work done in the tunnel. The diameter of grout holes for consolidation grouting in dam and tunnels are different. In tunnel, the diameter ranges from 35-40mm hole and length is determined by designer which is equivalent to diameter of tunnel. Spacing of the hole is based on the character of rock mass and presence of fractures. Grouting of upper portion shall be completed before drilling of lower holes.

The consolidation grouting in dam shall begin after placing of at least one lift of the concrete. Consolidation grouting is done in the foot print of the dam. The spacing of the drill holes for grout follow a certain geometry. But, in general it can be done in 3m grid. The depth of the grouting hole based on the geological condition of the foundation. By thumb rule it can be done 10m for any ordinary dam and 20m for high dams. NX size of the hole is sufficient for the consolidation grouting.

Contact Grouting: The purpose of contact grouting is to fill the voids between concrete and excavated rock surface. During concreting, it is assumed that some voids may produce due to undulated surface, unattempt compaction, entrapped air or characteristics of cement setting. These voids should be filled with grouting which is called contact grouting. This type of grouting is done everywhere if there is contact of concrete/steel and parent rock. The length of the hole should cross the rock surface of 10-30cm. So the length is shortest in compared to other grouting. This is just a backfilling of cement grout, it needs very low pressure such as 2-5 bar. The pattern of hole shall be done 6m spacing in staggered arrangement.

युवा भूगर्भविद र समृद्द नेपाल

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परिचय

१. देश समृद्ध हुन आफ्नो देशभित्र रहेका स्रोत र सम्पदाहरु को पहिचान गरि तिनको सहि उपयोग गर्नु पर्दछ।

२. नेपाल आजसम्म पनि अल्पविकसित राष्ट्र हुनुमा हाम्रो सोच बाधक रहेको देखिन्छ्रा ।

३. नेपालको भू-भागमा रहेका सम्पदागरु जस्तै; जल, जङ्गल, जडिबुटि, खनिज, माटो आदिको वैज्ञानिक प्रयोग अत्यावश्यक छ। यसको अलावा यहाँका प्रकृतिक सुन्दरता र मौलिक संस्कृति सँग जोडिएको पर्यटन विकास पनि देशको अर्के आधार हो।

४. विज्ञान र प्रविधिको समस्यानुकुल प्रयोग गर्न सकिएन भने हामी सदैका लागि विश्वसामु गरिब देखिने छौं।

५. विज्ञान धेरै विधाहरुमध्ये भू-विज्ञान एक प्रमुख हो जसको क्षेत्र व्यापक छ र समुदाय सँग प्रत्यक्ष सरोकार राख्दछ ।

विषय प्रवेश

नेपालको सन्दर्भमा भू-विज्ञानको प्रयोग निम्नानुसारका कार्यमा हुँदै आएको छ।

१. खनिज सम्पदाको विकास गर्न,

२. भौतिक संरचना निर्माण गरि दिगो विकास गर्न,

३. भूमिगत जल (Groundwater) को पहिचान र प्रयोग गर्न,

४. प्राकृतिक प्रकोपहरु जस्तै; बाढी, पहिरो, हिमताल बिस्फोटन, भुकम्प आदि बाट समुदायको सुरक्षा गर्न।

यो लेखको मुख्य उद्देश्य युवा भूगर्भविदलाई नेपालमा भूगर्भको के महत्व छ र भविष्यमा भूवैज्ञानिकहरुले गर्नु पर्ने योगदानको बारेमा जानकारी गराउनु रहेको छ।

खनिज औद्दोगिकरणका लागि नभै नहुने प्रकृतिक स्रोत हो। यो प्रकृतिको वरदान पनि हो। खनिजको अन्वेषण र प्रयोगले मानव सभ्यताको विकासमा फड्को मारेको इतिहास छ। मानव सभ्यताको महत्वपूर्ण कालखण्डहरुलाई ढुङ्गे युग, तामा (ब्रोन्ज युग), फलाम युग, स्टिल युग र न्युकिलिएर युगमा विभाजन गरेर खनिजबाटै नामाकरण गरिएको छ। मानव सभ्यताको विकास र खनिजको अन्तरसम्बन्ध यसैबाट छर्लङ्ग हुन्छ। नेपालमा वि.सं. २००७ सालपछि खनिज खोज्ने र विभिन्न ठाउँबाट तामा र फलाम निकाल्ने कार्य भएको ईतिहास भेटिन्छ। त्यो समयमा खनिज उत्खननको लागि बनाइएका सुरुङ् तथा खाल्टा खुल्टिहरु अहिले पनि विभन्नक ठाउँमा देखिन्छन् भने धाउहरु पोलेर धातु निस्किए पछिका काम नलाग्ने फोहोर (किट) ठाउँ ठाउँमा पाइएका छन्। हालसम्म अध्ययनले नेपालमा ५० भन्दा बढि प्रकारका खनिजहरु भेटिए पनि प्रमुख रुपमा धातु खनिज (फलाम, तामा, जस्ता, शिशा), औद्दोगिक (चुनढुङ्गा, मार्बल, म्याग्नेसाइट, टाल्क), रत्न (वेरिल, टुर्माकिन, क्यनाइट, क्वार्ज), निर्माणजन्य श्रृङ्गारिक खनिज, पेट्रोलियम र ग्यासको सम्भावना देखिएको छ। जसमध्ये चुनढुङ्गाको उत्खनन् धमाधम भैरहेको छ। अन्य खनिजहरुको विकास आजसम्म पनि हुन सकेन। यो हामी भूगर्भशास्त्री र सिङ्गो राष्ट्रको विडम्बना हो, हामी किन पछि पर्यौं त? छोटो चर्चा गरौं। राजा पृथ्वी नारायण शाहको

पालामा खनिज खोज्ने र विकास गर्ने कुरामा प्रसस्त ध्यान दिइएको थियो। उनको दिव्योपदेशमा समेत, "षानी नी भयाका ठाउँमा गाउँ भया गाउँ सारी षानी चलाउनु।" भनिएको छ। राणा शासनमा समेत खनिज प्रशोधन गरिएको र हात हतियार समेत स्वदेशी फलाम, सिसाबाट बनाइएको इतिहास छ। त्यस समयमा वैज्ञानिकहरुलाई नेपाल आवतजावतमा रोक लगाइएकाले बाहिरी प्रविधि भित्रिन भने सकेन। राणा शासनको अन्त्य पछि नेपालको भूगर्भ अध्ययन गर्न धेरै विदेशी भू-वैज्ञानिक आउन थाले र देश भित्र पनि खानी तथा भूगर्भ विभागले खनिज अन्वेषण गर्न थाल्यो। अहिले सम्म आइपुग्दा एक तहको अध्ययन भै सकेता पनि खनिजमा आधारित उद्दोग ज्यादै न्युन छन्। यसबाट प्रष्ट हुन्छ कि खनिज अन्वेषणमा हाम्रो अध्ययन पुगेको छैन। राज्यले पनि यसको लागि ध्यान दिन सकेको छैन भनेर।

खनिज प्रायः उद्दोगहरुको कच्चा स्रोत हो। औद्दोगिक विकासको मुटु हो। तसर्थ खनिजको अध्ययन, अनुसन्धान, संरक्षण र विकास गर्नु अनिवार्य छ। हामी प्रत्येक पलमा खनिजमा आधारित उत्पादनसँग साक्षात्कार गरिरहेका हुन्छौं। हामी बस्ने घर, ढुङ्गा, माटो, बालवा, गिट्टि, ईटा र सिमेन्टले बनेको हुन्छ। डण्डी फलामबाट आउँछ। भित्तमा पेरिस जिप्सम पोतिन्छ। घरमा पोत्ने रङ पनि जमिनबाटै पाइन्छ। झ्यालका शिशा सिलिकन पगालेर बनाइन्छ, बिजुलिका तार तामाले बनेका छन्। पाइपहरु प्लास्टिकबाट आउछ। भर्याङमा मार्बल छ, भान्सामा ग्रेनाइट छ र आंगनमा ढुङ्गा बिछ्याइएको छ। यी सबै भौगर्भिक उपज हुन्।

अब एउटा गाडी हेरौं, औसतमा १ टन फलाम, २५० पाउण्ड आलमुनियम, ५० पाउण्ड कार्वन, ४० पाउण्ड तामा, ४० सिलिकन, २५ पाउण्ड जिङ्क आदि गरि ४० प्रकारका खनिज पदार्थहरु प्रयोग भएका हुन्छन्।

घरभित्र हेरौं त! खाना पकाउने भाँडा, बाल्ने ग्यास, लेख्ने पेन, मोबाइल, कृषि औजार, कृषि मल, विषादी, कम्प्यूटर, ए.सी., फ्रिज, ओभन सबै भौगर्भिक उपज हुन्। त्यसैले खनिज सर्वेक्षण र अनुसन्धानमा लगाएको खर्च देशको समृद्धिको लागि हो भन्ने बुझ्नु र बुझाउनु पर्दछ। यस कार्यको लागि भूगर्भविद्को भुमिका नै अग्रणी हुन्छ। देशका निर्णयक तहमा योजनाकार, निति निर्माता, राजनितिज्ञ र समाजसेवी सबैमाझ यो चेतना दिई समयमै खनिजमा आधारित उद्दोग सञ्चालन गर्न ढिला भै सकेको छ।

अब जाऔं भौतिक संरचना निर्माणतर्फ! राष्ट्रिय गौरवका अर्बौं खर्च हुने परियोजनाहरु जस्तै; हाड्रोपावरको स्थान निर्धारण, सुरुङ् निर्माण, खानेपानी आयोजना, खनिजमा आधारित उद्दोग, नहर, सडक, ठूला भवन, पुल-पुलेसा आदिको निर्माणमा उचित स्थान निर्धारण गर्न भूगर्भशास्त्रको ज्ञान अति आवश्यक हुन्छ। कुन जमिन बलियो छ वा परियोजनाको लागि उचित छ वा भनि जमिनको इन्जिनियरिङ्ग गुण सम्बन्धि सुचना वा ज्ञानबिना बनाइएका संरचनाको दिगोपन नहुने हुँदा लगानी खेर जाने सम्भावना हुन्छ। भौतिक संरचनाको जग र त्यसको आसपासको जमिन बलियो र सुरक्षित हुन नसके संरचनाको आयु अल्पकालिन हुने खतरा रहन्छ।

अब हेरौं भूमिगत जल, झसा पानीको मुहान संरक्षण तर्फ। तराई तथा भित्री मधेशमा कृषि, खानेपानी तथा अन्य प्रयोजनाको लागि आवश्यक पानीको स्रोत भनेकै जमिनभित्रको पानी हो जसलाई भूमिगत जल (Ground Water) नामले चिनिन्छ। उक्त पानीको अवस्थितिको बारेमा थाहा पाउन, जमिनभित्र पानीको बगाइ तथा माटो र चट्टानको प्रकृती अनुसार पानीको कुल आयातन समेत निर्धारण गर्न भूगर्भको ज्ञान अत्यावश्यक छ। हाल नेपालको धेरै पहडी भू-भागमा समेत पानीका स्रोतहरु सुक्दै गएकाले पानीमा अभावमा सिङ्गो गाउँ, बस्ती नै आक्रान्त भएका उदाहरणहरु प्रशस्त सुनिन थालेका छन्। यसको कारणहरु पत्ता लगाउन तथा पानीको भूमिगत सतह सन्तुलन गर्ने उद्देश्यले पुनर्-भरण पोखरी (Artificial Recharge Pond) निर्माण गर्न उचित जमिन छनौट गर्ने

लगायतका कामहरुमा भूगर्भविद्को उल्लेखनिय भूमिका रहन्छ। नेपालको सन्दर्भमा हेर्ने हो भने प्राकृतीक प्रकोपहरु विशेषतः पहिरोले वर्षेनी ठूलो जन-धनको क्षति हुदैं आएको छ। पहिरो जाने ठाउँ, कारण, रोकथामका उपायहरु सम्बन्धि प्रमुख विज्ञका रुपमा भूगर्भविदहरुले काम गर्दै आएका पनि छन्। त्यसैगरी भूकम्पिय जोखिम न्यूनिकरण पुर्वाधार निर्माणमा जमिनको छनौट गर्न तथा बाढि, हिमतालहरु विस्फोट हुन सक्नु र जमिन भासिनु आदी जस्ता प्रकोप न्यूनिकरणमा समेत भूगर्भशास्त्रीहरुको नेतृत्वदायी भूमिका रहन्छ।

छलफल तथा निष्कर्ष

क) खनिज विकासः यदि आधुनिक उपकरणहरु प्रयोग गरी सर्वेक्षण गर्ने हो भने नेपालमा अझै थुप्रै खनिजहरु फेला पर्नेछन् । खनिजमा आधारित उद्दयोगहरुको विकास देशको अर्थतन्त्रको मेरुदण्ड हो। भुगर्भविदहरुको एउटा समुह यस क्षेत्रमा लाग्नु पर्दछ। हरेक देशले खनिज क्षेत्रको विकासका लागि राष्ट्रिय खनिज नीति बनाएका हुन्छन्। यसको उदाहरण चीनलाई लिन सकिन्छ। चीनको मुख्य आर्थिक उन्नति भनेकै खनिजको विकास हो। नेपालमा खनिज विकास निति निर्माण हुन जरुरी छ। खनिज उद्दोगलाई चाहिने प्रमुख जनशक्ति भनेको भूगर्भविदहरु भएकोले खनिज उद्दोग, सरकार र शिक्षण सस्था, विश्विद्यालयबिच समन्वय गरि अगाडी बड्न ढिला भैसकेको छ। खनिजको प्रभावकारी गरि देशलाई आत्मनिर्भर बनाउने हो भने यस सम्बन्धि कार्यहरु गर्न अन्य देशहरुमा जस्तै छुट्टै खनिज मन्त्रालय बनाई कार्य गर्नु आवश्यक छ। उक्त मन्त्रालयले आधुनिक प्रविधिबाट खनिज खोज्न, परिक्षण गर्ने र खनिजमा आधातरित उद्दोगहरु सञ्चालन गर्न सक्नेछ र देशको समृद्धिमा उक्त कार्य कोशेढुङ्गा सावित हुनेछ। रत्न-पत्थर जस्ता बहुमुल्य खनिज माथिको एकाधिकार रोक्न र यस प्रकारका खनिजको चोरी निकासी रोक्न समेत उक्त मन्त्रालय अन्तर्गत बन्ने निति र संरचनाले काम गर्न सक्नेछ। नेपालको सन्दर्भमा हेर्दा यहाँ प्रशस्त बलियो प्रकारका चट्टान, ढुङ्गा छन्। त्यसै गरि यहाँ निर्माणजन्य सामग्रीहरु जस्तै; माटो ढुङ्गा, गिट्टी, बालुवा, ग्राबेल आदि प्रशस्त छ। पहाडका बलिया चट्टानबाट यस प्रकारका सामग्रीहरु बनाउन सकिन्छ। साथै हामीकहाँ रहेका ग्रेनाइट, स्लेट, दर्शनढुङ्गा, मार्बल, एम्फिबोलाइट जस्ता चट्टानलाई छाप्ने, विछ्याउने, छाउने, सजाउने जस्ता थुप्रै कार्यहरुमा प्रयोग गर्न सकिन्छ। त्यसैले हामी खनिजको गरिब देशका नागरिक होइनौं।

ख) भौतिक संरचना निर्माणः जमिन अर्थात् भूगर्भ अनुकुलको संरचना बनाउनु पर्दछ। कमजोर र बलियो जमिन निर्धारण गर्न भौगर्भिक अध्ययन जरुरी छ। यसको लागि राज्यले बजेट र मानव संसाधन व्यवस्था गर्नै पर्दछ। हामी भूकम्पिय उच्च जोखिममा बस्दछौं। त्यसैले हाम्रा संरचनालाई भूकम्प मैत्री बनाउन र संभावित विनाशकारी भूकम्पको सामना गर्न तयारी अवस्थामा रहनु बाहेक अरु विकल्प छैन। यसबाट डराएर भाग्नु भनेको डार्विनले भनेझैं हाम्रो अस्तित्व मेटिनु हो। त्यसैले हाम्रो अस्तित्व जोगाउन भूकम्पमैत्री संरचना निर्माण जरुरी छ र त्यस कामका लागि गहन भौगर्भिक अनुसन्धान आवश्यक छ। त्यसैगरि अर्बौं रुपियाँ खर्च हुने जलविद्युत, सुरुङ् निर्माण, खानेपानी, सिँचाइ, सडक जस्ता परियोजनामा समेत भूगर्भविदहरुको ज्ञानलाई प्रचुर प्रयोग गर्न सके मात्र दिगो विकास संभव छ। भूगर्भशास्त्रको ज्ञान नभएका व्यक्तिहरुले भूगर्भसम्बन्धी कामहरु गरेको पाइन्छ। योग्यता नपुगेका व्यक्तिहरुबाट त्यस्ता कार्य हुँदा डिजाइन नै त्रुटिपूर्ण हुने, यथेस्ट भौगर्भिक अध्ययनबिना खनेका सुरुङ् भत्किने, खुम्चिने जस्ता समस्याहरु देखिने, कमजोर भौर्गर्भिक संरचना वा भू-धरातललाई दोष दिदै डिजाइन पुनः परिवर्तन गरि आयोजनाको लागत कैयौं गुणा बढाइ लगानिकर्तालाई डुबाउने, भौगर्भिक अध्ययन बिना खनेका बाटोहरु निर्माणको बेला वा निर्माण सम्पन्न पश्चात् अस्थिर हुने, भू-धरातल र

त्यसमा रहेका चट्टानको अवस्थिती र इन्जिनियरिङ्ग गुण नबुझी सडक खन्दा उत्पन्न पहिरोले घर, बस्ती, समुदाय, ऐतिहासिक र सास्कृतिक सम्पदाहरु लगाएतका अन्य भौतिक संरचनहरु नै जोखिममा पर्ने, राष्ट्रिय गौरवका परियोजनाहरु नबन्दै भत्किने तथा बाढी, पहिरोको जोखिममा पर्ने गरेको समस्या देखिन्छ। यसको जिम्मेवारी कसले लिने? त्यसैले यी समस्याहरु समाधान र नियन्त्रका लागि नेपालमा भौगर्भिक परिषद्को आवश्यकता देखिएको छ। त्यति मात्र होइन, भूगर्भशास्त्रिहरुले प्रदान गर्ने सेवालाई प्रभावकारी बनाउन र आफूले सम्पादन गरेका प्राविधिक कार्य, परामर्शप्रति सम्बन्धित भूगर्भविद्लाई उत्तरदायी बनाउन तथा दण्ड र पुरस्कारको समेत व्यवस्था गरि पेशाप्रति अझ जागरुक र ससक्त बनउन समेत उक्त परिषद्को गठन अत्यावश्यक छ। हाम्रो जस्तो हिमाली र पहाडी क्षेत्र धेरै भएको मुलुकमा बाटो निर्माणको जिम्मा पाएको सडक विभागमा भूगर्भविद्हरुको सरकारी दरबन्दी नहुनु लज्जास्पद छ। त्यसैले प्रत्येक वर्ष बाटो भत्किने, पहिरोले पुर्ने तथा पुनर्निर्माणमा ठूलो धनराशी खर्च हुनुमा यसको सम्बन्ध छैन त? हाम्रो समद्धि भौतिक संरचनाको दिगोपनसँग जोडिएको छ। भौगर्भिक संरचनाको दिगोपन, भौगर्भिक सर्वेक्षण र कार्यान्वयनसँग जोडिएको छ ।

गा) सामाजिक तथा शैक्षिक समस्याः भूगर्भशास्त्र अध्ययन गरेका, नगरेका, यस सम्बन्धी ज्ञान भएका, नभएका सबैले भू-विपद् व्यवस्थापनसँग सम्बन्धित भूगर्भशास्त्रिले गर्नुपर्ने कार्यहरु गरेको देखिन्छ। भूमी प्रयोग योजना होस् वा बस्ती बिस्तार होस् वा प्रकोप नियन्त्रण कार्य होस् वा यस्तै माथि उल्लेख गरिएका प्रत्यक्ष जीवन जोखिमसँग जोडिएका परियोजनामा भूगर्भविदको संलग्नता नहुँदा घर, बस्ती जोखिममा पर्ने भएकाले सामाजिक समस्या देखिएको छ। विषयको विशेषज्ञता निर्धारण नहुँदा प्रकोपका विषयमा अड्कल र अन्दाजको भरमा असम्बन्धित व्यक्तिले समेत विज्ञ जस्तो गरि रेडियो, टेलिभिजन, पत्रपत्रिका, अनलाइन न्यूज तथा सामाजिक सन्जालमा हचवाको भरमा बोल्दा जनमानसमा गलत सुचना प्रवाह भै आतङ्कको सिर्जना हुने तथा यस्ता गलत सुचनाले व्यक्तिको ज्यानै गएको समाचार समेत सुन्नुपर्ने स्थिति सिर्जना भएको छ। अन्य विकसित मुलुक लगायत सार्क देशको विद्यालय तहको विज्ञान विषयको पाठ्यक्रम र हाम्रो देशको पाठ्यक्रममा तालमेल छैन। देश विकासलाई आवश्यक खनिज, प्रकोपको ज्ञान, भू-पर्यटन, भूमिगत जल जस्ता विधाहरु समेटिएको पाठ्यक्रम अपुग छ। केहि समेटिन पुगेका शिर्षक अन्तर्गत लेखिएका पाठ्यपुस्तकमा प्रशस्त त्रुटिहरु देखिन्छन्। सच्याएर पढाउन सक्ने सम्बन्धित विधाका वा तालिम प्राप्त शिक्षकहरुको अभाव छ। वि.सं. २०७२ को गोर्खा भूकम्पमा आएको एउटा समाचार अनुसार खुला चौरमा खेलिरहेका बालबालिकाहरु भूकम्प आइरहदा दौडेर स्कुलभित्र छिरेर टेबलमुनि लुक्न पुगेका र संरचना भत्किदा किचिएर मृत्यु भएका थिए। यो किन भयो? विद्यालयमा पढाउदा भनिएको थियो कि भू-कम्पबाट बच्न टेबलमुनि बस्नु पर्दछ। तर किन बस्नु पर्दछ वा भू-कम्पको बेला के हुन्छ वा भूकम्पिय जोखिम के हो भन्ने विषयमा व्यवहारिक ज्ञान सिकाइएको थिएन। त्यसैले प्रकोपको विषयमा गलत सिकाइ भयो भने यसले उल्टो परिणाम दिन सक्दछ। हाम्र युवा विद्यार्थी विपत् व्यवस्थापनको लागि स्वयंसेवक मात्र होइन सुचना र चेतनाका वाहक पनि हुन्।

अन्तमा, भूविज्ञानको ज्ञानलाई उचित र सम्बन्धित ठाउँमा प्रचुर प्रयोग गरि देशलाई समृद्धिको बाटोमा लैजान हातेमालो गरौं। राज्यका विभिन्न तह, तप्कामा बस्ने जिम्मेवार व्यक्तिलाई भूगर्भको महत्व बुझाएर देश विकासमा साझेदारी गरौं।

नेपाल भौगर्भीक विद्यार्थी समाज: इतिहास र वर्तमान

पवन कुमार आचार्य

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नेपाल भौगर्भिक विद्यार्थी समाजको परिचय

नेपाल भौगर्भिक विद्यार्थी समाज नेपालमा भूगर्भशास्त्र अध्ययनरत विद्यार्थीहरुको प्रतिनिधित्व गर्ने एक मात्र गैर(नाफामुलक संस्था हो । यस समाजको प्रमुख उद्देश्य देशैभरि भूगर्भशास्त्र अध्ययनरत विद्यार्थीहरुलाई एकताबद्ध गर्नु, हकहीतको लागि काम गर्नु र आवाज उठाउनु हो । यसको अलावा यस समाजको उद्देश्य विभिन्न शैक्षिक कार्याक्रमहरुको आयोजना गरि विद्यार्थीहरुको सिपविकास गर्नुको साथै आफुले हासिल गरेको ज्ञानलाई विद्यालय स्तर र समाजसम्म पुर्याउनु रहेको छ । भूगर्भशास्त्र विषयमा स्नात्तकोत्तर तहमा अध्ययनरत विद्यार्थीहरु सदस्य रहने व्यवस्था छ भने स्नातक तहमा अध्ययनरत विद्यार्थीहरु यस समाजको सह-सदस्य रहने प्रावधान रहेको छ । यस समाजको सदस्यहरुबाट नै यस समाजको कार्यसमितिको निर्माण हुने गर्दछ । उक्त कार्यसमितिको अवधि एक वर्ष रहन्छ ।

यस समाजले आफ्नो स्थापना काल देखि नै भूगर्भशास्त्रसँग सम्बन्धित शैक्षिक एवम् वैज्ञानिक कार्याक्रमहरु जस्तै भूवैज्ञानिक प्रदशर्नी, न्यूजलेटरको प्रकाशन, स्नात्तकोत्तर तह अध्ययन गर्न प्रवेश परीक्षाको फारम भरेका विद्यार्थीहरुलाई सहयोगार्थ नमुना प्रवेश परीक्षा सञ्चालन र नियमितरुपमा तालिम, गोष्ठी, सेमिनार, अन्तरक्रिया आदि कार्यक्रमहरुको आयोजना गर्दै आइरहेको छ । समाजले पहिलोपटक बुलेटिन पनि प्रकाशन गर्दै छ।

यसको अलावा यस समाजले अतिरिक्त क्रियाकलाप, खेलकुद सप्ताह, वनभोज कार्यक्रम, विभागमा नवआगन्तुक विद्यार्थीहरुका लागि स्वागत र थेसिस सकाएका अन्तिम सेमेस्टरका विद्यर्थीलाई बिदाई कार्यक्रमको नीरन्तर आयोजना गरिरहेको छ । यस समाजले नेपालका केहि संघ संस्था र अन्तर्राष्ट्रिय संस्थाहरुसँगको साझेदारीमा पनि कार्यक्रमहरुको आयोजना गर्छ । समाजले विद्यार्थी एवम् भूगर्भविद, भूगर्भशास्त्र विभाग, विभिन्न सरकारी एवम् गैरसरकारी संघ संस्थाबाट प्राप्त सहयोगबाट नै कार्यक्रमहरुको आयोजना र प्रशासनिक एवम् अन्य खर्चहरु व्यवस्थापन गरिरहेको छ ।

नेपाल भौगर्भिक विद्यार्थी समाजको इतिहास र मुख्य कार्यहरु

नेपालमा पहिलोपटक भूगर्भशास्त्र विषयको अध्ययन वि.सं. २०२५ सालमा त्रिचन्द्र बहुमुखि क्याम्पसमा भूगर्भशास्त्र विभागको स्थापना भएको थियो र स्नातक तहको अध्ययनको सुरुवात भएको थियो । स्नातकोत्तर तहको अध्ययन भने त्रिचन्द्र क्याम्पसमै २०३३ सालबाट सुचारु भएको थियो । उक्त समयमा स्नातक र स्नातकोत्तर तहको अध्ययन सेमेष्टर प्रणालीमै हुने गरेको थियो र वि.सं. २०३८ मा स्नातकोक्तर तहमा सेमेष्टर प्रणालीको अन्तय भई वार्षिक प्रणालीको सुचारु भएको थियो । वि.सं. २०७० सालमा सेमेष्टर प्रणालीको पुनरावृति भएको थियो । वि.सं. २०३६ सालमा त्रिचन्द्र बहुमुखि क्याम्पसमा भूगर्भशास्त्रमा अध्ययनरत विद्यार्थीहरुले Geological Student Club नामक संस्थाको स्थापना भएको पाइन्छ । वि.सं. २०४३ सालमा भूगर्भशास्त्र केन्द्रीय विभागको स्थापना भएको थियो र स्नातकोत्तर तहको अध्यापन सोहि विभागमा मात्र हुन थाल्यो । स्थापनाको ४ वर्षमा वि.सं. २०४७ मा स्नातकोत्तर तहमा भूगर्भशास्त्र अध्ययनरत विद्यार्थीहरुद्वारा नेपाल भरका भूगर्भशास्त्र अध्ययनरत विद्यार्थीहरुलाई एकत्रित गरि उनीहरुकै हकहितमा काम गर्ने उद्देश्यका साथ नेपाल भौगर्भिक विद्यार्थी समाज स्थापनाको लागि पाइलाहरु चालिएका थिए। अग्रज सदस्यहरुको निरन्तर प्रयासले वि.सं.

२०७१ सालमा यस समाज आधिकारीक रुपमा जिल्ला प्रशासन कार्यालयमा दर्ता भए सँगै पाइलाहरुले मूर्त रुप पाउन सफल भएका थिए। विभिन्न आरोह अवरोह पार गर्दै यस संथाले यहाँसम्म आइपुग्दा भूगर्भशास्त्रका विद्यार्थीहरुलाई एकताबद्ध पार्न र उनीहरुको सिकाइका निमित्त उल्लेख्य योगदान पुर्याउदै आएको छ।

स्थापनाकालका विद्यार्थीरुले समाजका लागि आवश्यक नियमका बुँदाहरु वनभोज कार्यक्रममा छलफल गरेर वनभोजमै पारित गरि विधान निर्माण गरेको कुरा अनौपचारिक छलफलका क्रममा प्राप्त भएको थियो। उक्त कार्यसमितिका तत्कालीन अध्यक्ष दिलिप सडौलाका अनुसार सोहि समयमा भूगर्भशास्त्र केन्द्रिय विभागमा प्रयोगात्मक सिकाइका लागि अपुग आवश्यक सुविधा उपलब्ध गराउन समाजले तत्कालिन उपकुलपति श्री केदार भक्त माथेमाज्यू समक्ष मागहरु राखेको थियो । फलस्वरुप विद्यार्थीहरुले माग राखेको भन्दा धेरै सुविधा प्राप्त गर्न सफल भएका थिए। साथै त्यस बेला यस समाजका लागि निर्माण गरिएको विधानले अन्य विभागका विद्यार्थीहरुलाई पनि विधान बनाउन रेफरेन्स मेटरियलको काम गरेको थियो।

नेपाल भौगर्भिक समाजको स्थापना कालदेखि अहिलेसम्म बनेका कार्यसमितिको विवरण नरहेको सन्दर्भमा वर्तमान कार्यसमितिले समाजको इतिहास उत्खनन् कार्य सुरु गर्यो। उपलब्ध जानकारी अनुसार ३१ वर्षको यात्रामा संस्थाले २४ कार्यसमितिहरु पायो भने बाँकि समय संस्था नेतृत्वविहिन रह्यो।र, वर्तमान कार्यसमिति २३ औँ कार्यसमिति रहेको पनि फेला परेको छ ।

वि.सं. २०५६ सालमा श्री प्रकाश चन्द्र घिमिरेको अध्यक्षतामा गठन भएको कार्यसमितिले Pangea नामक न्यूजलेटर प्रकाशन गरेको थियो । वर्तमान कार्यसमितिले उक्त किताबको प्रतिलिपि तत्कालिन अध्यक्षबाट प्राप्त गरेको थियो। Pangea मा त्यसबेलासम्म गठन भएका कार्यसमितिको अभिलेख भएका कारण वर्तमान कार्यसमितिलाई विवरण सङ्कलण गर्न केहि सहज भएको थियो। त्यसपश्चात् समाजाबाट कुनै स्मारिका वा बुलेटिन प्रकाशन नभएका कारण बिचका कार्यकालको अभिलेख उपलब्ध छैन।मौखिक कुराकानिका आधारमा प्राप्त जानकारीअनुसार हालसम्म गठन भएका कार्यसमिति अध्यक्षका विवरण यस प्रकार रहेको छ।

- श्री दिलिप सडौला (२०४७)
- श्री अच्युतराज गौतम (२०४८)
- श्री टेक प्रसाद कट्टेल (२०४९)
- श्री टीकाराम पौड्याल (२०५०)
- श्री इश्वर पौडेल (२०५१)
- डा. अर्जुन अर्याल (२०५२)
- श्री रघुनाथ वाग्ले (२०५३)
- श्री नरेश शाक्य (२०५४)
- श्री प्रकाश चन्द्र घिमिरे (२०५६)
- डा. मातृका प्रसाद कोइराला (२०५७)
- श्री दिवाकर खड्का (२०५९)
- श्री द्वारिका महर्जन (२०६२)
- श्री भरतराज पन्त (२०६४)
- श्री भूपति न्यौपाने (२०६५)
- श्री प्रमोद पाण्डे (२०६६)
- श्री प्रताप बोहोरा (२०७०)
- श्री प्रकाश पोखरेल (२०७१)
- श्री केशव जैसी (२०७२)
- श्री दीपक गौतम (२०७३)
- श्री दीपक सापकोटा (२०७४)
- श्री सन्जिव कार्की (२०७५)
- श्री अनिल रेग्मी (२०७६)
- श्री पवन कुमार आचार्य (२०७७), वर्तमान कार्यसमिति
- श्री सुरेन्द्र तिमिल्सिना (२०७८), नवनिर्वाचित कार्यसमिति

(यो जानकारी List of Committees शिर्षकमा यसै बुलेटिनको प्रथम खण्डमा अन्यत्र पनि समावेश गरिएको छ ।)

स्थापना कालको दशक सम्म र बिचको अन्य केहि कार्यकालमा यो समाज सक्रिय रहेको देखिन्छ ।उक्त समयको अन्तरालमा यस समाजले विभिन्न कार्यक्रमको

आयोजना गर्नुको साथै समाजका सदस्यहरुले पुस्तकालय स्थापनाको लागि पुस्तकहरु संकलन गरि पुस्तकालय स्थापनामा भूमिका निर्वाह गरेका थिए। त्यसपछि समाजको कार्यसमिति केहि वर्ष नबनेको पनि देखिन्छ ।स्वागत र बिदाई कार्यक्रमको जिम्मेवारी यस समाजले पहिले देखिनै लिदै आएको देखिन्छ । पर्याप्त मात्रामा तथ्याङ्क उपलब्ध नभएको कारण विगतमा यस समाजले गरेका सम्पूर्ण कार्यक्रमहरुको जानाकारी यस लेखमा समावेश छैन ।

केहि वर्षको निष्क्रियतापछि नेपाल भौगर्भिक विद्यार्थी समाज २०७० सालमा पुनः सक्रिय भएको थियो । उक्त समयमा त्रिभुवन विश्वविद्यालयमा इन्जिनियरिङ् भूगर्भशास्त्र सञ्चालको लागि कार्ययोजना बनिरहेको थियो र उक्त विषय अध्ययन गर्न इन्जिनियरिङ् शिक्षा लिएकालाई पनि समावेश गर्ने तयारी भएको हुँदा त्यस समयका समिति अध्यक्ष श्री प्रताप बोहोराको अध्यक्षतामा बनेको समितिले उक्त प्रावधान हटाउनका लागि सशक्त आन्दोलनको आयोजना गरेको थियो। र, दबाब कार्यक्रम सफल पनि भएको थियो। त्यस यता २०७१ सालबाट समाजले निरन्तर कार्यसमिति पाइरहेको छ। साथै विद्यार्थीमाझ समितिको बढ्दो लोकप्रियतासँगै समितिको नेतृत्व गर्न चाहनेको सङ्ख्या विगतका केहि वर्षमा बढेको छ। त्यसैले कुनै समिति गठनमा मतदान प्रक्रिया पनि हुने गरेको छ।

वि.सं. २०७१ मा श्री प्रकाश पोखेलको अध्यक्षतामा बनेको कार्यसमितिले यस समाजलाई २०७१ भाद्र २५ गतेको दिन जिल्ला प्रशासन कार्यालयमा दर्ता नं. २१९ अन्तर्गत रहि दर्ता गराएको थियो । उक्त कार्यसमितिले भूगर्भशास्त्र केन्द्रीय विभाग, त्रिभुवन विश्वविद्यालयमा, सोहि विभागको सहयोगबाट पहिलो पटक भौगर्भिक प्रदर्शनीको आयोजना गरेको थियो । यस कार्यक्रमको प्रमुख उद्देश्य विद्यालयस्तर र स्नातक तहका विभिन्न संकाय (वातावरण विज्ञान, वन विज्ञान, इन्जिनियरिङ, आदि) का विद्यार्थी र शिक्षकमाझ भूगर्भशास्त्र विषय सम्बन्धी महत्व र जानकारी प्रदान गर्नु रहेको थियो । उक्त कार्यक्रमले समाजको आर्थिकोपार्जनमा पनि विशेष योगदान पुर्याएको थियो ।

वि.सं. २०७२ सालमा श्री केशव जैसीको अध्यक्षतामा गठन भएको कार्यसमितिले उक्त समयमा हाजिरि जवाफ प्रतियोगिता, खेलकुदको कार्यक्रमहरुको आयोजना गरेको थियो । २०७२ मा गएको गोर्खा भूकम्पको कारण पूर्वनिर्धारित र योजना बनाइएका भूवैज्ञानिक प्रदर्शनी र अन्य कार्यक्रमहरु स्थगित भएका थिए ।

वि.सं. २०७३ मा श्री दीपक गौतमको अध्यक्षतामा गठन भएको कार्यसमितिले पनि थुप्रै शैक्षिक कार्यक्रमहरुको आयोजना गरेको थियो । यस समाजले दोस्रो भौगर्भिक प्रदर्शनीको पनि आयोजना गरेको थियो र उक्त समय अगाडि गोर्खा भूकम्प-२०७२ पनि गएको थियो। त्यस बेला समाजले विद्यालय स्तर र स्नातक तहका भूगर्भशास्त्र लगायत अन्य विभिन्न संकायका विद्यार्थीहरुलाई भूकम्प सम्बन्धि यथेष्ट जानकारी प्रदान गरेको थियो । उक्त प्रदर्शनी कार्यक्रमबाट आर्जन भएको नाफाबाट समाजले भूगर्भशास्त्र केन्द्रीय विभागसँगको सहकार्यमा पृथ्वीको भौगर्भिक अवस्था चित्रण गर्ने ग्लोबको साथै त्रिभुवन विश्वविद्यालयका पूर्व उपकुलपति एवम् भूगर्भशास्त्र विभागका संस्थापक प्रमुख स्वर्गीय प्रा.डा. माधव प्रसाद शर्माको स्मृती स्मारक निर्माणको कार्य सुचारु गरेको थियो । उक्त समयमा त्रिभुवन विश्वविद्यालयले भूगर्भशास्त्रमा स्नात्तकोत्तर तहमा अध्ययन गर्ने विद्यार्थीहरुलाई प्रदान गर्दै आइरहेको स्थलगत भत्ता खारेज गर्न लाग्दा यस कार्यसमितिले विशेष पहल गरि उक्त रकम विद्यार्थीहरुले पाउने व्यवस्था कायम राख्न सफल भएको थियो।यस कार्यसमितिले अन्य कार्यक्रमलाई निरन्तरता दिएको थियो ।

वि.सं. २०७४ मा श्री दीपक सापकोटाको अध्यक्षतामा बनेको कार्यसमितिले भूगर्भशात्र केन्द्रीय विभाग र त्रिचन्द्र बहुमुखि क्याम्पसमा पहिलो पटक सञ्चालनमा आएको इन्जिनियरिङ् भूगर्भशास्त्रमा अध्ययनरत विद्यार्थीहरुलाई कार्यसमितिमा समावेश गरेको थियो । यसै कार्यसमितिले स्नातक तहको अध्ययन सकेर बसेका भूगर्भशास्त्रका

विद्यर्थीहरुलाई स्नात्तकोत्तर तहमा अध्ययन गर्नु पूर्व दिनुपर्ने प्रवेश परीक्षामा सहज होस् भन्ने उद्देश्यले नमुना परीक्षा (Mock Test) सञ्चालनको सुरुवात गरेको थियो, जुन समाजको आर्थिकोपार्जनको अर्को श्रोत बन्न पुगेको छ । यस कार्यसमितिले नेपाल भौगर्भिक समाजसँगको सहकार्यमा भूगर्भशास्त्र स्नातकोत्तर चौथो सेमेस्टरमा अध्ययनरत विद्यार्थीलाई ट्रेनिङ् पनि दिएको थियो।

वि.सं. २०७५ मा श्री सन्जिव कार्कीको अध्यक्षतामा निर्माण भएको कार्यसमितिले पनि उल्लेख्य कार्य गरेको थियो । वि.सं. २०७१ सालमा दर्ता भएको यस समाज विविध कारणले नवीकरण नहुँदा, यस समाज लगभग खारेजीको अवस्थामा पुगेको बेला यस कार्यसमितिले यस समाजको नवीकरण गरि समाजलाई पुर्नजीवित गरेको थियो । यस कार्यसमितिले तेस्रो भूवैज्ञानिक प्रदर्शनी भूगर्भशास्त्र केन्द्रीय विभाग, त्रिभुवन विश्वविद्यालय र नेपाल भौगर्भिक समाजसँगको सहकार्यमा आयोजना गरेको थियो । प्रदर्शनी कार्यक्रम समारोहमा विश्वविद्यालयका तत्कालीन सहकुलपति एवम् माननीय शिक्षा, विज्ञान तथा प्रविधि मन्त्री श्री गिरिराजमणी पोखरेलज्यूबाट उद्घाटन भएको थियो । यस कार्यक्रमका विशेष अथिति त्रिभुवन विश्वविद्यालयका तत्कालीन उपकुलपति प्रा.डा. तीर्थराज खनीया हुनुहुन्थ्यो । त्यसैगरी कार्यक्रमको अध्यक्षता भूगर्भशास्त्र केन्द्रीय विभागका प्राध्यापक डा. लालु प्रसाद पौडेलले गर्नु भएको थियो साथै उक्त समारोहमा त्रिभुवन विश्वविद्यालय सेवा आयोगका तत्कालीन अध्यक्ष प्रा. चैतन्य प्रसाद शर्मा, त्रिवि विज्ञान तथा प्रविधि अध्ययन संस्थानका तत्कालीन डीन प्रा.डा. राम प्रसाद खतीवडा तथा नेपाल भौगर्भिक समाजका तत्कालीन अध्यक्ष डा. कवीराज पौड्यालको गरिमामय उपस्थिती रहेको थियो ।

उक्त कार्यक्रममा माननीय शिक्षा, विज्ञान तथा प्रविधि मन्त्रीज्युले त्रिभुवन विश्वविद्यालयका पूर्व उपकुलपति एवम् भूगर्भशास्त्र विभागका संस्थापक प्रमुख स्वर्गीय प्रा.डा. माधव प्रसाद शर्माको स्मृतीमा निर्मित स्मारकको अनावरण गर्नुको साथै उक्त विभागमा कार्यरत सेवा निवृत प्राध्यापकहरु प्रा.डा. विशाल नाथ उप्रेती, प्रा.डा. प्रकाश चन्द्र घिमिरे, प्रा.डा. राम बहादुर साह, प्रा.डा. मेघराज धिताल, प्रा.डा. विष्णु डंगोल, प्रा.डा. पीताम्बर गौतम, श्री सुरेन्द्र राज पन्त, श्री राजेन्द्र प्रधान लगायतलाई सम्मानीत गर्दै कदर पत्र पनि उपलब्ध गराउनु भएको थियो । यस विभागमा अध्यापनको लागि स्वयंसेवकको रुपमा लामो समयदेखि अध्यापन गर्दै आउनु भएका विदेशी प्राध्यापकहरु प्रा.डा. हिरोसी यागी (जापान), प्रा.डा. हरेल थोमस (भारत) र प्रा.डा. योर्न कुर्ल (जर्मनी) लाई पनि माननीय मन्त्रीज्यूले उहाँहरुको विशिष्ट योगदानको कदर गर्दै सम्मानीत गर्नु भएको थियो । यसका साथै समितिले आयोजना हुँदै आइरहेको स्वागत तथा विदाई कार्यक्रम, नमुना प्रवेश परीक्षा र अन्य कार्यक्रमहरुलाई पनि निरन्तरता दिएको थियो ।

वि.सं. २०७६ मा श्री अनिल रेग्मीज्यूको अध्यक्षताम गठन भएको कार्यसमितिले पनि विभिन्न कार्यक्रमहरुको आयोजना गरेको थियो । यस समितिले पनि आयोजना हुँदै आइरहेको स्वागत तथा विदाई कार्यक्रम, नमुना प्रवेश परीक्षा र अन्य कार्यक्रमहरुलाई नीरन्तरता दिनुका साथै खेलकुद सप्ताहको पनि आयोजना गरेको थियो। यस कार्यसमितिले कार्यकालमा विश्वव्यापी रुपमा फैलिरहेको कोरोना संक्रमणको महामारीले समाजको कार्यलाई प्रभावित पारेको थियो। तापनि अनलाइन माध्यमबाट विभिन्न ज्ञानमुलक वेविनार र अन्तरक्रिया कार्यक्रमहरुको आयोजना गरेर कार्यसमिति सक्रिय रह्यो। साथै यस कार्यसमितिले संस्थाको इतिहासमा पहिलोपटक अनलाइनबाट मतदान गरि नयाँ कार्यसमितिको चयन गरेको थियो।

नेपाल भौगर्भिक समाजको वर्तमान कार्यसमितिको अवस्था र कार्यक्रमहरु

यस कार्यसमितिको कार्यकाललाई पनि दुइ लहरको कोभिड संक्रमणको महामारीले केहि प्रभावित पारेको थियो । तथापि वर्तमान कार्यसमिति केहि कार्यहरु गर्न सफल भएको छ ।

समितिले भूगर्भशास्त्र केन्द्रीय विभागसँग विशेष पहल गरि यस विभागभित्र एउटा कार्यकक्षको स्थापना गर्न सफल भएको छ । यस कार्यकक्षको उद्घाटन यस विभागका विभागीय प्रमुख एवम् यस समाजका सल्लाहकार प्रा.डा. खुमनारायण पौडेलबाट भएको थियो । समाजलाई विभागले कार्यकक्षको अलावा टेबल, कुर्सी, दराज, कम्प्युटर र प्रिन्टर पनि उपलब्ध गराएको थियो ।

अघिल्लो कार्यसमितिमा केहि कारणले त्रिचन्द्र बहुमुखि क्याम्पसमा अध्ययनरत विद्यार्थीहरुले केहि विमति सहित विधान संशोधनको माग राख्दै उपस्थिती नजनाएको सन्दर्भमा विधान संशोधन यस कार्यसमितिको प्रमुख एजेण्डा रहन गएको थियो । सोहि सन्दर्भमा यस कार्यसमितिले त्रिचन्द्र बहुमुखि क्याम्पसका विद्यार्थीहरुलाई समितिमा समावेश भई विधान संशोधनमा साथसाथै लाग्न प्रस्ताव राखेको थियो । सोहिअनुरुप कार्यसमितिले सबैलाई समेटि विशेष साधारण सभाको आह्वान गरि विधान संशोधन गरेको थियो । परिवर्तित प्रावधान अनुसार स्नात्तकोत्तर तहमा अध्ययनरत विद्यार्थी र यस समाजका सदस्यहरुले कार्यसमितिको जुनसुकै पद (आरक्षित कोटा बाहेक) मा पनि दाबेदारी दिन र मतदान गर्न पाउने व्यवस्था रहेको छ । यस विधानले नेपाल भौगर्भिक समाजका अध्यक्ष र स्नात्तकोत्तर तहमा भूगर्भशास्त्र विषय अध्ययन-अध्यापन हुने नेपालका सम्पूर्ण क्याम्पसका कोअर्डिनेटर र विभागीय प्रमुखलाई सल्लाहकार समितिमा समावेश गराउने प्रावधान मिलाएको छ र यस समाजको निवर्तमान अध्यक्ष समितिको संयोजक रहने व्यवस्था पनि गरेको छ । साथै संशोधित विधानको आधारमा नयाँ कार्यसमिति गठन पनि भइसकेको छ ।

वर्तमान कार्यसमितिका सम्पूर्ण गतिविधिहरु र विद्यार्थी एवम् भूगर्भविद्, प्राध्यापकहरुको लेख समावेश गर्ने उद्देश्यको साथ बुलेटिन प्रकाशनमा जुटेको छ । यो लेख यहि बुलेटिनको अंश रहने छ ।संशोधित विधानअनुसार भूगर्भशास्त्र अध्यापन हुने प्रत्येक क्याम्पसहरुबाट प्रतिनिधित्व हुने गरि स्नतक अन्तिम वर्षमा अध्ययनरत विद्यार्थीहरुबाट एक-एकजना विद्यार्थी आमन्त्रित सदस्य रहने प्रावधान रहेको छ। सोहि प्रावधानमा रहेर वर्तमान समितिले पहिलो पटक भूगर्भशास्त्र अध्यापन हुने ४ क्याम्पसहरुः त्रिचन्द्र बहुमुखि क्याम्पस-काठमाडौं, वीरेन्द्र बहुमुखि क्याम्पस-चितवन, पृथ्वीनारायण क्याम्पस-पोखरा र केन्द्रीय प्राविधिक क्याम्पस-धरानमा स्नातक अन्तिम वर्षमा अध्ययनरत विद्यार्थीहरुको प्रतिनिधित्व रहने गरि एक–एक जना आमन्त्रित सदस्यलाई समाजमा संलग्न गराएको छ ।

यो कार्यसमितिले पहिलोपटक विभिन्न उपसमितिहरुको गठन गरि समाजका विभिन्न कार्यहरु गर्न उक्त कार्यसमितिलाई जिम्मेवारी प्रदान गरेको छ । उपसमितिका कार्यहरु यसै बुलेटिनको प्रथम खण्डमा समावेश गरिएको छ ।

यस समाजले STEM Foundation Nepal सँगको सहकार्यमा Nepal Geography Olympiad को आयोजना गर्नको लागि उक्त संस्थासँग दुइ वर्षको लागि सम्झौता गरेको छ । यस सम्झौता अनुरुप संस्थालाई केहि आर्थिकोपार्जन पनि हुने छ । सम्झौता अनुरुप प्रथम वर्षको कार्यक्रम सकिएको छ भने अर्को वर्षको कार्यक्रम पनि आयोजना हुँदै छ । यस सम्बन्धि विस्तृत विवरणहरु पनि यसै बुलेटिनमा समावेश गरिएका छन् ।

समाजले नेपाल विज्ञान शिक्षक संघ, STEM Foundation Nepal, र अन्तराष्ट्रय भूविज्ञान शिक्षा संगठन International Geoscience Education Organization (IGEO), सँगको सहकार्यमा काठमाडौंमा अवस्थित यूनिग्लोब कलेजमा "नेपालको विद्यालय तहमा भूविज्ञान शिक्षाको अवस्था" नामक अन्तरक्रिया कार्यक्रमको आयोजना पनि गरेको थियो ।

यस समाजले कोभिड संक्रमण महामारीको समयमा विद्यार्थीहरुलाई आर्थिक समस्या पर्न गएको कारण शुल्क केहि प्रतिशत मिनाह गरिदिन अनुरोध गर्दै त्रिभुवन विश्वविद्यालय अन्तर्गत रहेका भूगर्भशास्त्र केन्द्रीय विभाग, विज्ञान तथा प्रविधि अध्ययन संस्थान, रजिष्ट्रारको कार्यालय, शिक्षाध्यक्षको कार्यालय र उपकुलपतिको कार्यालयमा ज्ञापन पत्र बुझाएको थियो । विविध कारणले विश्वविद्यालय प्रशासनले उक्त माग सम्बोधन गर्न नसकेतापनि यस समाजले

विद्यार्थीहरुको आवाज सम्बन्धित निकायमा पु¥याउन विशेष भूमिका खेलेको थियो । समाजले सोहि कार्यालयहरुमा लामो समय देखि अस्तित्वमा नरहेको स्वतन्त्र विद्यार्थी यूनियनको नाममा प्रत्येक विद्यार्थीहरुबाट उठ्ने गरेको निश्चित शुल्क यस समाजलाई आगामि दिनदेखि सम्भव भए सम्म प्रदान गर्न र सम्भव नभएमा अध्ययनरत विद्यार्थीहरुले उक्त रकम प्रदान नगर्ने व्यहोरा सहितको ज्ञापन पत्र पनि बुझाएको थियो । यस कार्यक्रमलाई आगामी कार्यसमितिले पनि निरन्तरता दिन आवश्य देखिन्छ ।

समाजले अन्य संस्थाहरुसँगको सहकार्यमा कोभिड संक्रमणको महामारी र बन्दाबन्दीको अवस्थालाई मध्यनजर राख्दै भूगर्भशास्त्र विषयसँग सम्बन्धित रहि दर्जन बढी वेवनार र अन्तरक्रिया कार्याक्रमहरु अनलाइन माध्यमबाट आयोजना गरेको थियो । साथै समाजले त्रिभुवन विश्वविद्यालय SEG Student Chapters सँगको सहकार्यमा स्नात्तकोत्तर तहको प्रवेश परीक्षा तयारिमा रहेका विद्यार्थीका लागि पहिलोपटक अनलाईन माध्यमबाट ६ वटा नमुना परीक्षाको आयोजना गरि नतिजा पनि प्रकाशन गरेको थियो ।

नेपाल भौगर्भिक समाजसँगको सहकार्यमा यस समाजले सह–आयोजकको रुपमा दुईवटा अन्तरक्रिया कार्यक्रम अनलाईन माध्यमबाट गरेको थियो । साथै समाजले विभिन्न वेवनार र अन्तरक्रिया कार्यक्रममा विभिन्न राष्ट्रिय एवम् अन्तराष्ट्रिय संगठनहरुसँग समन्वय गरेको थियो ।

यस कार्यलसमितिले संस्थाका पूर्व कार्यसमिति सदस्यहरुसँग अनलाईन माध्यमबाट अन्तरक्रिया कार्यक्रमको आयोजना गरेको थियो जसले समाजको इतिहास बुझ्ने मौका दिएको थियो। र, यो लेख पनि सोहि कार्यक्रमको देन हो ।

यसका अलावा यो कार्यसमितिले पहिलोपटक संस्थाका सदस्यहरुलाई परिचयपत्र वितरण कार्य, वेवसाइटको नयाँ डिजाइन, स्वागत कार्यक्रम, खेलकुदमा भाग लिने विद्यार्थिहरुलाई सहयोग गर्ने कार्यक्रम पनि गरेको छ ।

अन्तमा, यस समाजले आफ्नो कार्यकालमा सडक विभागमा भूगर्भविद्हरुको दरबन्दी सिर्जना गर्न नेपाल भौगर्भिक समाजलाई पहल गर्न आग्रह गर्ने र सडक विभागमा पनि उक्त मागहरु राख्ने योजना बनाएको थियो। कोभिड संक्रमणको महामारी र अन्य कारणहरुले सफल हुन नसकेतापनि आगामि कार्यसमितिहरुले पहल गर्ने छन् भन्ने विश्वास छ। यसको अलावा स्नातक तहमा भूगर्भशास्त्र विषयमै स्नातकको प्रमाण पत्र पाउनको लागि स्नातक प्रथम वर्ष देखिनै पूर्ण रुपमा भूगर्भशास्त्र र यो सँग सम्बन्धित विषयमात्र पढाउने मोडलमा लैजानको लागि पहल गर्ने योजनाको केहि तयारी गरे पनि पुरा हुन सकेन। उक्त मोडल इन्जीनियरिंग अध्ययन संस्थानमा लागु गरिदै आएको छ। आगामी दिनमा यी लगायत यस्ता विषयहरुलाई नयाँ कार्यसमितिले अगाडि बढाउने अपेक्षा गर्दछौं।

यस कार्यसमितिले नेपाल भौगर्भिक समाजलाई विद्यार्थी शाखाको रुपमा यस समाजलाई समावेश गराउनको लागि पनि पहल गर्दै आएको छ । उक्त कार्यको लागि विधान संशोधन अपरिहार्य रहेको प्रतिक्रिया आएको थियो । हाललाई विधान संशोधन भइसकेको अवस्थामा आउँदो कार्यसमितिले यस पहललाई नीरन्तरता दिने आशा गर्दछौं ।

आभार

यस लेख तयार पार्नको लागि प्रेरणा दिनुहुने मेरा आदरणीय गुरु श्री नीर शाक्यज्यूप्रति विशेष आभार व्यक्त गर्न चाहन्छु भने यस समाजको इतिहासको बारेमा जानाकारी प्रदान गरिदिनुहुने यस समाजका पूर्व अध्यक्ष, पूर्व कार्यकारिणी एवम् साधारण सदस्य, भूगर्भविदहरुप्रति पनि कृतज्ञ छु। साथै यो लेख लेख्न मौका प्रदान गरिदिनुहुने वर्तमान कार्यसमितिका सदस्य र साधारण सदस्यहरुलाई सम्झन चाहन्छु । यस लेखमा सल्लाह प्रदान गरिदिनुहुने साथि श्री अनीता थापालाई पनि आभार व्यक्त गर्न चाहन्छु ।

नेपालमा खानी तथा खनिज क्षेत्रको अवस्था र देश विकास र समृद्दिमा यसको भूमिका

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विश्वकै दुइ विशाल र शक्तिशाली राष्ट्र उत्तरमा चीन र दक्षिणमा भारतको बिचमा रहेको भूपपरवेष्ठित राष्ट्र नेपालले कुल २४०० किलोमिटर लम्बाइ रहेको हिमालय श्रृङ्खलाको एक तिहाइ भाग (८०० किलोमिटर) ओगटेको छ । नेपाल विभिन्न प्राकृतिक श्रोतहरुले भरिपुर्ण छ । खनिज पदार्थहरु पनि देशको प्रमुख प्राकृतिक श्रोतहरु हुन् । प्राय खनिजहरु जमिनमुनि अवस्थित रहेका हुन्छन् र यी खनिजहरुलाई उत्खनन् गरि खानीको सञ्चालन गर्ने गरिन्छ । खनिजको प्रयोग हामी दैनिक अव्यस्त हुने चिजहरुमै देख्न सक्छौँ । घर बनाउन प्रयोग हुने ढुङ्गा, माटो, सरिया, इट्टा, सिमेन्ट, भुइँमा उच्छ्याउने टाइल, घरमा पोतिने रङ, जडानहुने लगायत सम्पूर्ण चिजहरु खनिज र यसको उत्खनन् सँग नै जोडिएको हुन्छ । हामीले दैनिक रुपमा उपभौग्य गर्ने वस्तुहरु अधिकांश खानी र खनिजको उपज हुन् ।

यस्ता स्रोतको दिगो विकासले औद्योगिक विकास, रोजगारी सिर्जना, विदेशी वस्तु तथा सेवामा निर्भरता न्यूनीकरण, विदेशी मुद्रा को बचत, व्यापार घाटा नियन्त्रण गर्न, देशको अर्थतन्त्रलाई बलियो बनाउन र योगदान गर्न महत्वपूर्ण भूमिका खेल्छ ।

राम्रो गुणस्तर र उचित मात्रामा रहेको खजिन पदार्थहरुको उत्खनन् गरि दिगो विकास गर्न सकेको खण्डमा औद्योगिक विकास, सर्जना, विदेशी वस्तु तथा सेवामा निर्भरता न्यूनीकरण, विदेशी मुद्राको बचत, व्यापार घाटा नियन्त्रण गर्न, देशको अर्थतन्त्रलाई बलियो बनाउन र योगदान गर्न महत्वपूर्ण भूमिका खेलेको हुन्छ । विश्वकै केहि धनि राष्ट्रहरुमा खानीको विकास व्यापक मात्रामा पाउन सकिन्छ ।

नेपलमा परापूर्व काल देखि नै परम्परागत रुपमा खजिनहरु उत्खनन् भएको इतिहास भेटिन्छ । किसानहरु आँफुलाई चाहिने औझारहरु स्थानिय स्थरमा आँफैले निर्माण गर्दथे । करिब २५० वर्ष अगाडि पृथ्वी नारायण शाहले आफ्नो दिव्य उपदेशमा “षानि भयका ठाउँमा गाउँ भया, गाउँ सारि षानि चलाउनु” भन्ने कुरा संलग्न हुनुले उक्त कुराको पुष्टि गर्दछ ।

राणाशासनको पालामा खनिजको प्रशोधन भई आँफुले चाहिने हातहतियार यहि देशको फलाम र शिसाबाट बनाइएको इतिहास छ । थोसे फलाम भण्डार (रामेछाप) मा सन १९२१ मा बन्दुक उत्पादन गर्ने कारखाना स्थापना भएको थियो । नेपालको पहिलो वैज्ञानिक गहेन्द्र शमसेर राणाले देशमै

उत्पादन भएको फलाम र शिसाबाट बनाएको बन्दुक, अहिले पनि बेलायतको संग्रहालयमा सुरक्षित राखिएको छ ।

राणा शासनमा विदेशीहरुलाई प्रवेश गर्न निषेध गरिएको कारण भौगर्भिक अध्ययन, खनिजको अन्वेषण र आधुनिक प्रविधिको विस्तारले तीव्रता भने पाउन सकेन । वि.सं. २००७ सालमा देशमा प्रजातन्त्रको स्थापना भए देखि विदेशीहरुलाई पनि प्रवेश गर्न दिइयो र नेपालमा भौगर्भिक अध्ययन अनुसन्धानको सुरुवात हुन पुग्यो । खानी तथा भूगर्भ विभागले पनि खनिजको खोज तथा अन्वेषण कार्यलाई तीव्रता दियो । खानी तथा भूगर्भ विभाग हाल नेपालमा भौगर्भिक अध्ययन, अनुसन्धान तथा खनिज सम्पदाको प्रबर्धन एवम् विकासको लागि क्रियाशील रहेको एक मात्र सरकारी संस्था हो । नेपालको संभवत सबैभन्दा पुरानो विभागहरु मध्ये एउटा यस विभाग रहेको छ । यस विभागको ऐतिहासिक पृष्ठभूमि केलाएर हेर्दा वि.सं. १९८६ मा नहर तथा जियोलोजि अड्डा, वि.सं. १९९९ मा खानी अड्डा, वि.सं. २०२४ मा भौगर्भिक सर्वेक्षण विभाग हुँदै वि.सं. २०३३ मा आएर यसको नामाकरण

तालिका १: नेपालमा खनिज पदार्थको सम्भाव्य क्षेत्रहरु (स्रोत : नेपाल परिचय), नेपाल सरकारसञ्चार तथा सूचना प्रविधि मन्त्रालय

क्र. सं.	उपलब्ध खनिज	खनिज पाइने स्थानहरू
१	फलाम	फूलचोकी, ठोसे, चितवन, कुलेखानी, भैंसे, प्युठान, बभ्राड, डोटी, जन्तर, लब्धी, फर्पिङ
२	तामा	तामाखानी, सीमाखानी, कुलेखानी, बुढ्खोला, वाप्सा, बाह्रबिसे, मार्फा, बन्दीपुर, ओखलढुङ्गा, इलामडाँडा, म्याग्दी ।
३	अभ्रख	भोजपुर, डोटी, चैनपुर, सिन्धुलीगढी, ज्यामिरे, निबुवा गाँउ, रसुवा, बभ्राड, लमजुङ, गोसाइकुँण्ड, सुन्दरीजल
४	चुनढुङ्गा	चोभार, भैंसे, धनकुटा, मोरङ, चितवन, मकवानपुर, पाल्पा, गोदावरी, सुर्खेत
५	सिसा	गणेश हिमाल, फूलचोकी, मकवानपुर, बाग्लुङ, मार्फु, गल्कोट, तिप्लीङ, बैतडी
६	जस्ता	गणेश हिमाल, फूलचोकी, माजेर खोला, नाम्पा
७	गन्धक	चिसापानी गढी, गोसाइकुण्ड, बराहक्षेत्र
८	खरी	सिन्धुपाल्चोक, खोटाङ, भोजपुर
९	स्लेट	बन्दीपुर, बाग्मती, नुम्बिनी, गण्डकी, जनकपुर
१०	मार्बल	गोदावरी, महाभारत पर्वत शृङ्खला
११	गेरु	सिन्धुपाल्चोक, चौतारा
१२	कोइला	दाङ, सल्यान, चौतारा, चितवन, मकवानपुर, काठमाडौँ उपत्यका
१३	पेट्रोलियम	कोइलाबास, नेपालगञ्ज, धनगढी, मुक्तिनाथ, दैलेख, प्युठान, दाङ र तराई, चुरे पहाड, महाभारतको विस्तृत क्षेत्रफलमा पाइने सम्भावना निकै रहेको ।
१४	ग्याँस	तराईको विस्तृत भूभाग, मुस्ताङ क्षेत्र र काठमाडौँ उपत्यका
१५	सुन	सुनकोसी, बुढीगण्डकी, रिउ खोला, कालीगण्डकीको बगर, बेरिङ, कोसी नदीमा प्लेसर सुन पाइएको छ ।
१६	चाँदी	चिसापानी गढी, बाग्लुङ, फूलचोकी
१७	कोवाल्ट	पाल्पा, गुल्मी, अर्घाखाँची, धनकुटा
१८	सोडा	सल्यान, डोटी
१९	सिधेनून, वीरेनून	रसुवा, स्याप्रुबेंसी
२०	निओवेरस र अन्य पत्थर (दुर्लभ धातु)	गोरखा, डडेल्धुरा, जाजरकोट
२१	निकेल	खोकलिङ, नाम्पा, टुडथाङ, भोर्ले
२२	म्याग्नेसाइट	दोलखाको खरिढुङ्गा, उदयपुरको कम्पुघाट, मुस्ताङको नूनखानी

स्रोत: नेपाल परिचय

खानी तथा भूगर्भ विभाग रहन गएको हो । खनिज पदार्थको खोज तथा अन्वेषण, खानी सञ्चालनको अनुमतिपत्र जारी गर्नुको साथै यसको नियमन पनि गर्ने गरेको छ ।

नेपालमा व्यवस्थित रुपमा भौगर्भिक नक्साङ्कन, खनिज पदार्थको खोज तथा अन्वेषण हुन थालेको वि.सं. २०१८ मा खानी विभागको स्थापना र २०२४ मा भौगर्भिक सर्वेक्षण विभागको स्थापना भए देखि नै हो । वि.सं. २०२३ मा राज्यको लगानि रहेको काठमाडौँमा अवस्थित हिमाल सिमेन्टको स्थापना भएको थियो । वि.सं. २०४० सालमा पेट्रोलियम ऐन र वि.सं. २०४२ मा खानी तथा खनिज ऐन को निर्माण गरि पेट्रोलियम र खनिज पदार्थ अध्ययन, अनुसन्धान र उत्खनन्लाई विधिवत् रुपमा अगाडि बढाइएको थियो ।

खानी तथा भूगर्भ विभागको अनुसार नेपालमा ६३ थरिका खनिजहरु (धातु, अधातु, रत्न पत्थर, पेट्रोलियम, प्राकृतिक ग्याँस, भूतापीय तातो पानी) को उपलब्धता रहेको छ । नेपालमा विभिन्न खनिज पाइएता पनि हाल चुनङ्गाको उत्खनन् र खोजतलास कार्य तीव्र रुपमा विस्तार भएको छ । खानी तथा भूगर्भविभागले वर्षेनी नीजि क्षेत्रलाई खोजतलास र खानी सञ्चालनको लागि अनुमतिपत्र प्रदान गर्ने गरेको छ । नेपालका विभिन्न स्थानहरुमा विभिन्न प्रकारका खनिजहरुभेट्न सकिन्छ । नेपालको केहि क्षेत्रमा भेटिएका मुख्य खनिज र यसको सम्भाव्य क्षेत्र तालिका १ मा प्रस्तुत गरिएको छ ।

वि.सं. २०७७/७८ मा खानी तथा भूगर्भ विभागले जारी भएका तालिका २ मा दिइएको छ । यसमा पनि चुनढुङ्गाको उत्खनन् र खोजतलास कार्यको लागि अधिक मात्रामा अनुमति पत्र जारी गरिएको छ । चुनढुङ्गा उत्खनन् बाट हाल ५५ वटा सिमेन्ट उद्योगको स्थापना भएको छ भने अरु निर्माणन्मुख रहेका छन् । चुनढुङ्गाको अलावा रत्न पत्थरहरुको उद्योग पनि सञ्चालनमा आएका छन् । धौवाडी फलाम खानी उद्योगको पनि स्थापना भएको छ र अध्ययन कै चरणमा रहेको छ । दैलेखमा पेट्रोलियम पदार्थको लामो समय देखि चर्चामा रहृयो र हाल यसको चिनिया र नेपाली विशेषज्ञ टोलीबाट अध्ययन भइरहेको छ ।

तालिका २ : खानी तथा भूगर्भ विभागले वि.सं. २०७७/७८ मा उत्खनन् कार्य र खोजतलास कार्यको लागि जारी गरेको अनुमतिपत्रको सङ्ख्या (स्रोत : खानी तथा भूगर्भ विभाग)

क्र.सं.	खनिज	उत्खनन् कार्यको अनुमति पत्रको सङ्ख्या	क्र.सं.	खनिज	खोजतलास कार्यको अनुमतिपत्रको सङ्ख्या
१	क्याल्साइट	१	१	एक्वामेरीन	१
२	कोइला	१०	२	क्याल्साइट	१
३	तामा	१	३	कोइला	४
४	डोलोमाइट	२	४	तामा	१३
५	ग्रेनाइट	१	५	डोलोमाइट	१२
६	फलाम	१	६	पन्ना	१
७	क्यानाइट	८	७	सुन	५
८	शिसा	३	८	ग्रेनाइट	१५
९	चुनढुङ्गा	७५	९	फलाम	८
१०	म्याग्नेसाइट	२	१०	काओलिन	२
११	मार्बल	१	११	क्यानाइट	१
१२	क्वार्ट्ज	२	१२	चुनढुङ्गा	१७६
१३	क्वार्टजाइट	९	१३	पोलिमेटल	२
१४	रातो माटो	५	१४	क्वार्ट्ज	४
१५	स्लेट ढुङ्गा	५	१५	क्वार्टजाइट	२२
१६	टल्क	१०	१६	रातो माटो	२
१७	टुर्मालाइन	८	१७	रुबी	२
१८	जस्ता	१	१८	सिलिका बालुवा	१३
१९			१९	टल्क	५
			२०	टुर्मालाइन	१
	जम्मा	१४५		जम्मा	२९०

केहि दशक अगाडि तयारी गरिए पनि गणेश हिमाल शिसा तथा जस्ता उद्योग र खरिढुङ्गा म्याग्नेसाइट उद्योग सञ्चालनमा आउन सकेनन् । सञ्चालनमा आएको गोदावरी मार्बल, हिमाल सिमेन्ट उद्योग पनि वातावरणीय कारण देखाई बन्द हुने पुगे । जसले देशको आर्थिक समृद्दिलाई प्रभावित तुल्यायो ।

हामी नेपाली बहुमुल्य खनिजमा सुतिरहेको छौँ । करोडौ बर्स लागेर बनेका खनिज कौडीको भाउमा छरपष्ट भएका छन् । सरकारी उदासीनताका कारण अध्ययनलाई प्राथमिकता नदिँदा धेरै खनिज पदार्थहरु उत्खनन् हुन सकेका छैनन् । सरकारले बैदेशिक लगानीकर्ता अनुकुल नियम कानुन हालसालै ल्याएपनि देशको चरम राजनैतिक अस्थिरता र भ्रष्टचारको कारण बैदेशिक लगानीकर्ता आकर्षक हुन सकेका छैनन् ।

उत्खनन् तथा खोजतलास कार्यका प्रभावकारी अनुगमन नहुँदा राज्यले करोडौं राजस्व गुमाईरहेको छ । नेपालमा करिब सात बर्स अगाडी नाकाबन्दी को समयमा खनिजको उत्खनन गर्ने कुरा निकै चल्यो, आफुलाई चाहिने खनिज आफै उत्पादन गर्ने र आत्मनिर्भर बन्ने देशको सपना अहीले फेरी सेलाउदै गइरहेको छ । तर पनि नेपालका सम्पूर्ण राजनैतिक दलको पहिलो एजेण्डा आर्थिक बृदी हो, जुन सफलता बनाउने पहिलो आधार खानी र खनिज हो । तसर्थ सरकार एवम् राजनैतिक दल गम्भिर हुन आवश्यक छ । सरकारले अध्ययनमा धेरै भन्दा धेरै लगानि गर्न पनि आवश्यक छ ।

जेफ्री सैक्स र एन्ड्यू वानरको एउटा अध्यनले खनिज श्रोत देशको आर्थिक बृढीको आधार मात्र नभई मानव विकास सुचान्कको प्रमुख आधार पनि हो भन्ने प्रमाणित गरेका थिए । तसर्थः नेपाल सरकारले खनिजलाई पहीलो प्राथामिकतामा राखेर देसलाई नयाँ तरिकाले समृद्धि तर्फ अग्रसर हुन जरुरी छ

REVIEW ARTICLES

STUDY OF GUTENBERG-RICHTER LAW AND OMORI'S LAW FOR AFTERSHOCK ANALYSIS OF 2015 EARTHQUAKE

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ABSTRACT

The 25 April 2015 earthquake in Nepal caused significant damage to structures and resulted in the deaths of many people in towns and villages. In addition, on May 12, 2015, a significant aftershock of magnitude 7.3 inflicted fatalities and substantial structural damage, primarily in the epicentral area. This paper summarizes the study of aftershock that occurred in central Nepal spanning the period of 44 days from the data obtained from National Seismological Centre using some empirical laws on earthquake. Gutenberg-Richter Law describes the frequency-magnitude characteristics of aftershock sequence whereas modified Omori's law models a temporal decay of aftershock occurrence rate. For further insight into aftershock occurrences statistical analysis is carried out. The empirical relation is established by analysing the data and value of associated parameters are obtained. The compliance of data with Gutenberg-Richter law and Modified Omori's law are tested in this paper.

Key Words: *Earthquake, Guttenberg-Richter Law, Omori's Law, Least Square Method*

BACKGROUND

Nepal is situated on the tectonic plate border between the Indian and Tibetan plates, making it a seismically active region. The Himalayan earthquakes are primarily caused by a north-eastward indentation of the Indian plate beneath the Eurasian plate, followed by a continent-continent collision no later than 50 million years ago [Molnar, P., & Tapponnier, P. (1975)]. The Indian plate is converging with Eurasia at 45mm/yr. rate towards the north according to USGS. The record of earthquake in Nepal dates back to 7 June 1255 during the reign of King Abhaya Malla. On April 25, 2015, a huge earthquake struck, causing massive damage and loss. The magnitude of earthquake was 7.8 with its hypocentre located in Barpak, Gorkha. The earthquake occurred in the Himalayan arc's subduction zone, where the Indian and Eurasian plates collided [Avouac, J. P. (2003)]. As a result, significant tremors were felt in Kathmandu and was the largest event since 1934 Bihar- Nepal earthquake. The 12 May 2015 event is largest aftershock to the date of 25 April 2015 Nepal earthquake. The aftershock occurred as the result of thrust faulting associated with Main Himalayan Thrust.

Aftershocks are dangerous because they are often unpredictable, can be of large magnitude, and can collapse structures that have been damaged by mainshocks. Aftershocks from large earthquakes provide information about the earth's crust, therefore aftershock analysis has been a popular study area in recent years. Aftershocks are often studied using statistical methods (such as the Gutenberg-Richter Law and modified Omori Law/ Omori-Utsu Law).

The major goal of this research is to look at the aftershocks of the Gorkha earthquake that occurred between April 25 and June 7, 2015. For this purpose, the size distribution (b-value) as well

as the rate of aftershock decay are determined. Analysis of these parameters can lead to a greater grasp of aftershock evolution of the region.

METHODOLOGY

The supplementary material for the article is obtained from National Seismological Centre and Adhikari et al. (2015).

The statistical analysis of aftershock data is carried out by applying Gutenberg-Richeter Law and Modified Omori's Law. The aftershock data for the laws of Gutenberg-Richter and Omori is fitted using least square method and associated constants were obtained.

GUTENBERG-RICHTER LAW

The well-known Gutenberg-Richter rule in seismology describes the magnitude-total-number of earthquakes connection in a specific location over time.

log_10 N = a-bM

or, N = 10^(a-bM)

where, N is the number of earthquakes with magnitude ≥M in a given region in a time interval T; a & b are constants. The magnitude and sequential occurrence of 2015 Gorkha earthquake is presented in Table 1.

Table 1: Magnitude and sequence of 2015 Gorkha Earthquake (National Seismology Center)

Magnitude	4.5	5	5.5	6	6.5	7	8
Number of Occurrence	365	117	49	18	1	3	1

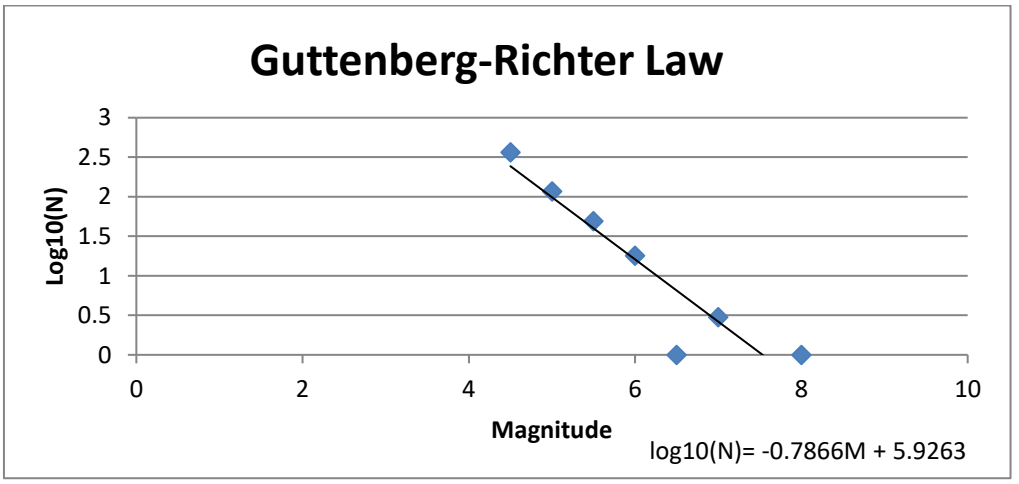

Figure 1. Magnitude-frequency distribution of aftershock ($M_L \geq 4$) of 2015 Gorkha earthquake.

This graph in Figure 1 shows the frequency-magnitude relationship. The a and b values are estimated by least square method. The b-value has served as a kind of tectonic parameter and is typically in the range of 0.7-1.1. Alternative method for obtaining b- value is "maximum likelihood". These two approaches give closer results for larger data.

OMORI'S LAW AND MODIFIED OMORI'S LAW

Following the 1891 Nobi (Mino-Owari) earthquake in central Japan and two subsequent earthquakes in Japan, Omori investigated the decline in half-day and monthly frequency of felt aftershocks over time. He demonstrated that at time t, the frequency of aftershocks per n interval of time unit (t) is well described by

$$n(t) = \frac{k}{(c+t)} \qquad (1)$$

K and c are constants in the equation. In his publications, Omori utilized a distinct time origin, with t =0, t= 1.... corresponding to the first, second.… time intervals, respectively. After failing to fit the exponential function, he concluded that Eq. (1) gives a decent fit to the data.

He believed Eq. (1) to be the most basic instance of the equation.

$n(t) = K(t+c)^{-1} + K'(t+c)^{-2} + \ldots$ (2)

or $n(t) = K\{(t+c) + k'(t+c)^{2} + \ldots\}^{-1}$ (3)

and claimed that Eq. (3) adopting the first and second terms is more satisfactory in the case of the 1889 Kumamoto earthquake.

A modified version of Omori's law proposed by Utsu in 1961 is expressed as,

$$n(t) = \frac{k}{(c+t)^{p}} \quad (4)$$

Table 2: After shock data of 2015 Gorkha Earthquake (National Seismological Centre)

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
N	161	67	33	11	24	14	14	10	9	9	3	4	4	7	1	3	5	59	17	10	7	11

`Day	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
N	2	6	2	3	2	8	3	6	3	5	7	5	4	2	2	0	2	3	1	2	1	2

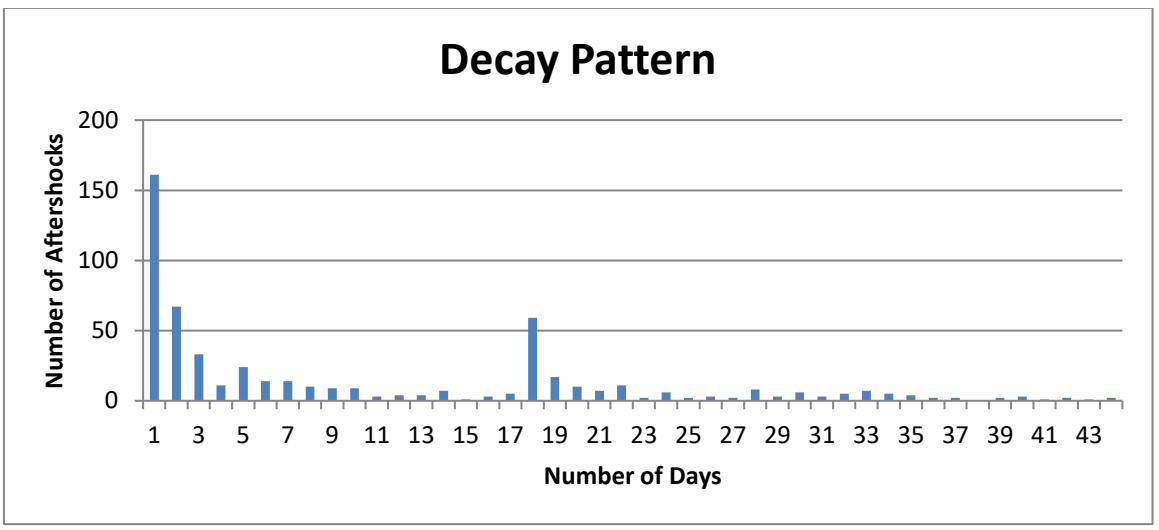

Figure 2. Chart showing decay pattern of aftershock with days.

RESULT AND DISCUSSION

Overall, 554 events with M_L greater than 4.0 were picked and located within 44 days after the mainshock (between 2015 April 25 and June 7). The fitting of the 2015 Nepal aftershock data to Gutenberg-Richter relationship with least square method is shown in Figure 1. The estimated slope parameter i.e. b-value is 0.7866; slightly less than value of 0.80 ± 0.05 estimated by Adhikari et.al. (2015). So, the fitted equation of the GR law is obtained as:

$$\log_{10} N = 5.9263 - 0.7866M$$

Figure 2 shows the trend of decay pattern of aftershock. After the mainshock the major aftershock is observed after 18 days. Figure 3 shows that the modified Omori's law fitted in the aftershock data of the 2015 earthquake. The temporal decay parameter i.e. p-value is 1.256 which is almost in range to the value of 0.80 ± 0.4 estimated by Adhikari et.al (2015). Also, the fitted equation of the Omori's law is obtained as:

$$n(t) = \frac{158.45}{(t+0)^{1.256}}$$

The result support the applicability of well-established empirical laws for characterizing the 2015 Nepal aftershock data.

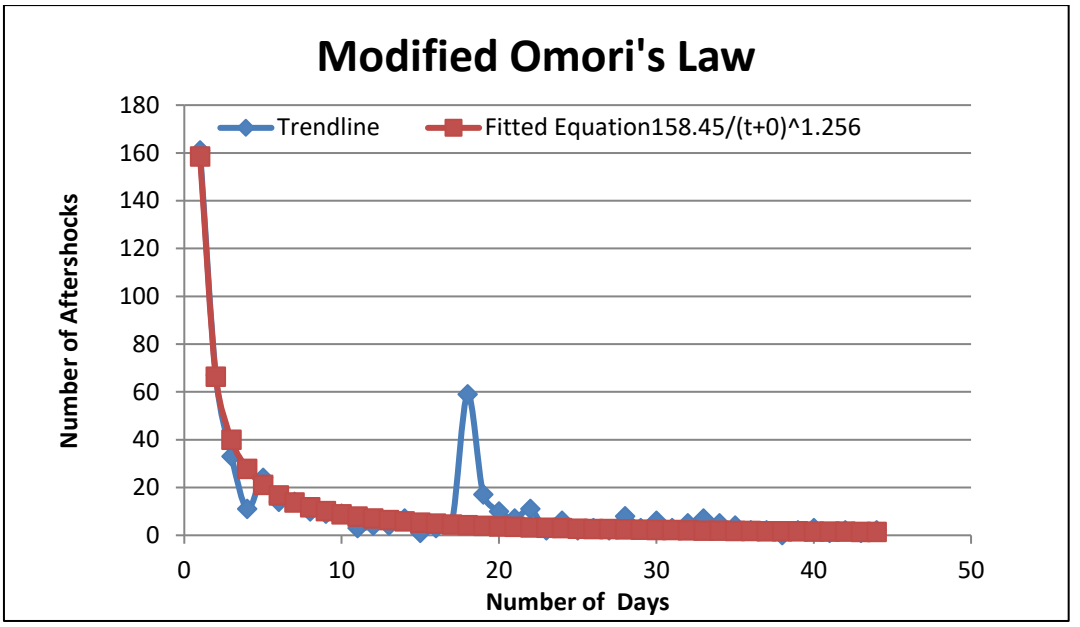

Figure 3. The modified Omori fitting of aftershocks ($M_L \geq 4$) occurring within 44 days of 2015 Gorkha earthquake.

CONCLUSIONS

The earthquake of moment magnitude 7.8 occurred at the subduction interface along Main Himalayan thrust arc and triggered several moderate to large aftershock as the result of thrust faulting associated with Main Himalayan Thrust causing a massive amount of harm and loss. The aftershock data available from National Seismological Centre are analysed for frequency-magnitude characteristics and temporal decay of aftershock activity. Statistical analysis of aftershock data is carried out using Gutenberg-Richter relationship for frequency-magnitude using least square method and modified Omori's Law for decay pattern of aftershock activity. Hence the compliance of data with Gutenberg-Richter law and Omori's law are tested.

REFERENCES

Ader, T., Avouac, J. P., Liu-Zeng, J., Lyon-Caen, H., Bollinger, L., Galetzka, J., et. al. (2012). Convergence rate across the Nepal Himalaya and interseismic coupling on

Adhikari, L.B., Gautam, U.P., Koirala, B., Bhattarai, ..., Bollinger, L. (2015) The aftershock sequence of the April 25 2015 Gorkha-Nepal earthquake. Geophys. J. Int. 203, 2119–2124.

Avouac, J. P. (2003). Mountain building, erosion, and the seismic cycle in the Nepal Himalaya. *Advances in geophysics*, *46*, 1-80.

Molnar, P., & Tapponnier, P. (1975). Cenozoic Tectonics of Asia: Effects of a Continental Collision: Features of recent continental tectonics in Asia can be interpreted as results of the India-Eurasia collision. *Science*, *189*(4201), 419-426.

the Main Himalayan fault: implications for seismic hazard. J. Geophys. Res. 117,

B04403. doi:10.1029/2011JB009071

Stern, R. J. (2002). Subduction zones. Rev. Geophys. 40, 1012. doi:10.1029/2001RG000108

Takewaki, I., Murakami, S., Fujita, K., Yoshitomi, S., and Tsuji, M. (2011). The 2011 off the Pacific coast of Tohoku earthquake and response of high-rise buildings under long-period ground motions. Soil Dynam. Earthquake Eng. 31, 1511–1528. doi:10.1016/j.soildyn.2011.06.001

STRUCTURAL AND THERMAL CHARACTERISATION OF FELDSPAR END MEMBERS

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ABSTRACT

Feldspar group of minerals is one of the most abundant group of minerals found in the earth's crust occurring in many types of sedimentary, metamorphic as well as igneous rocks. Synthetic samples of end members orthoclase and albite have been prepared to study the structural and thermal characters by X-ray diffraction, distance calorimetry and thermogravimetric analysis. Samples are found to crystallise in orthoclase in monoclinic system with space group C2/m(12) and albite in triclinic system refined in space group PI(bar) (2), both in accordance with the SEM images. DSC curve shows gentle endothermic peak showing decomposition at higher temperature showing very less mass loss as represented by TGA curve.

Keywords: *Albite; orthoclase; XRD, Thermal characterisation*

INTRODUCTION

Feldspar group of minerals, being one of the most abundant of all minerals are profoundly present in all types of rocks (Deer, Howie and Zussman 1983). Feldspar is one of the most abundant minerals in martian meteorites as well as main rock forming mineral of basaltic rocks on mars surface (Bandfieldet al. 2000; Bandfield 2002; Christensen et al. 2001; Larsen et al.2000).Their ubiquity with their wide range of composition has led inevitably to their use as a primary tool in the classification of igneous, metamorphic or sedimentary rocks. The majority of feldspar may be classified chemically as members of the ternary system $KAlSi_3O_8$ (K- feldspar) - $NaAlSi_3O_8$ (albite) - - $CaAl_2Si_2O_8$ (Anorthite). Compositions between $NaAlSi_3O_8$ and $KAlSi_3O_8$ are referred as alkali feldspars and those between $NaAlSi_3O_8$ and $CaAl_2Si_2O_8$ as plagioclase feldspar Feldspar group of mineral forming a solid solution series serves a major role in various key reactions of petrological studies as well as in phase equilibrium models due to which the characterisation of feldspar group of mineral is important. Feldspars is widely used as raw materials in glass industry, ceramic industry, biomedical applications as dental porcelains and various others (Fuertes et al 2021). Feldspars acts as a flux element in ceramic industry to obtain a range of ceramic products such as porcelain stonewares, bricks, stoneware materials, ceramic wares (Coletti et al 2018; Hernández et al 2000, 2001; Martin et al 2009) To achieve a proper understanding of feldspar relationships, it is necessary to characterise them not only according to chemical composition but also according to structural state, the latter depending upon the temperature of crystallisation and on subsequent thermal history. The abundance of feldspar leads them to be involved in several key reactions of petrological interest. Mernagh 1991 gave the first comprehensive comparison of Raman spectra of both feldspar groups. Poolton et al. 1995 described the thermal enhancement effects of orthoclase, albite and plagioclase feldspar using optically stimulated luminescence processes. Tribaudino et al. 2010 calculated the volume thermal expansion coefficient and the anisotropy of thermal expansion for nine natural feldspars. In this contribution, authors have prepared synthetic

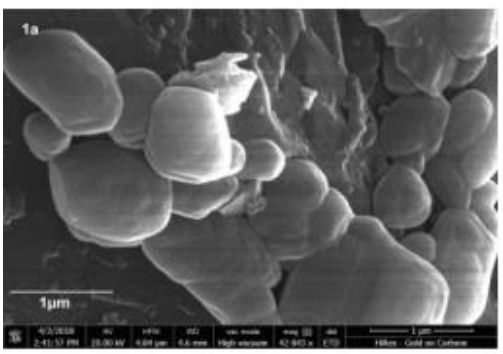
samples of alkali feldspar end members to describe the thermal and structural behaviour.

SAMPLE PREPARATION

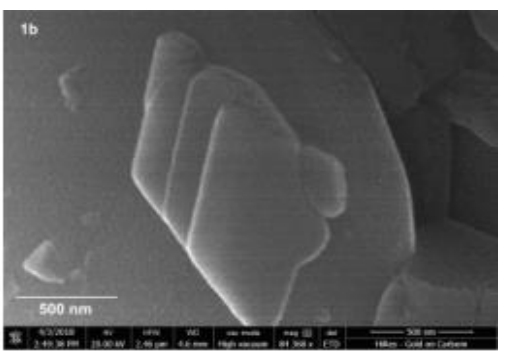
Crystalline Samples were prepared in approximately 2 gram batches from reagent grade oxides. For preparation of two grams of $KAlSi_3O_8$ and $NaAlSi_3O_8$ glass, 1.2952 gram of SiO_2, 0.3644 gram of Al_2O_3 and 0.3384 gram of K_2O for $KAlSi_3O_8$ while 1.3748 gram of SiO_2 , 0.3888 gram of Al_2O_3 and 0.2364 gram of Na_2O for $NaAlSi_3O_8$ respectively has been mixed thoroughly for several hours to maintain homogeneity. The mixtures were heated at a temperature of 800 °C for $KAlSi_3O_8$ and 900 °C for $NaAlSi_3O_8$ for several hours. Samples were then ground and mixed thoroughly again to maintain homogeneity.

CHARACTERIZATION

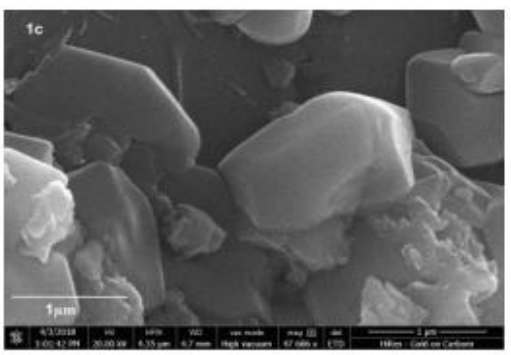
PXRD (Powder X-ray diffraction) measurements were carried out on a Huber G70 diffractometer (Rimsting, Germany) using Mo-Kalpha radiation (λ=0.7107nm) and at room temperature (RT= 293K). Morphological characterisation was also carried out by SEM (Scanning Electron Microscope) using a NOVA NANO SEM-450, FEI at a scale ranging from 500 nm to 5µm. Both thermogravimetric analysis (TG) and differential scanning calorimetry (DSC) were carried out in a Simultaneous Thermal Analyser NETZSCH STA 449F1 STA449F1A-0187-M having range of 27/10.0 (K/min)/1000 with initial mass ratio as 1.200.



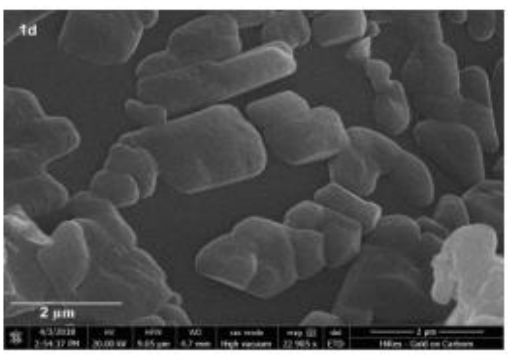
1a. SEM image of orthoclase (Scale= 1µm)



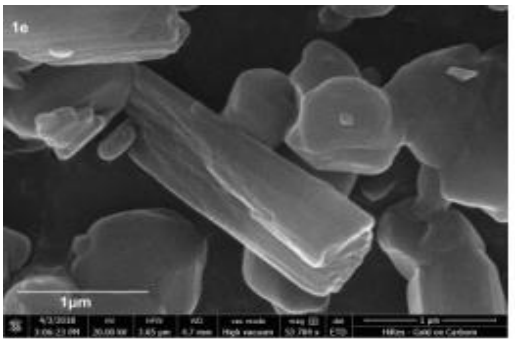
1b. SEM image of orthoclase (Scale= 500 nm)



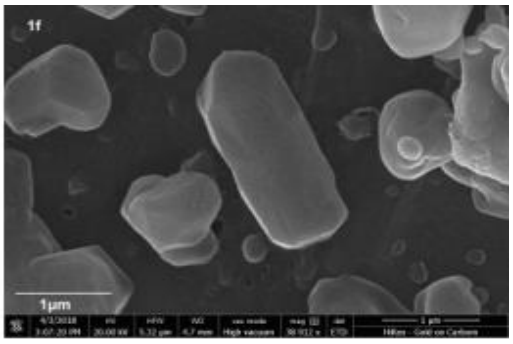
1c. SEM image of orthoclase (Scale= 1µm)



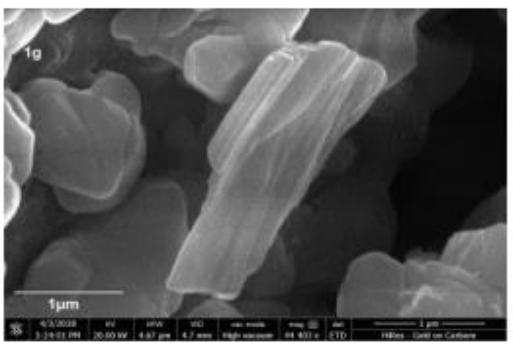
1d. SEM image of orthoclase (Scale= 2µm)



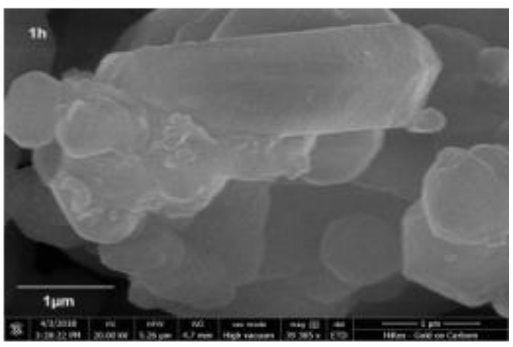
1e. SEM image of albite (Scale= 1µm)



1f. SEM image of albite (Scale= 1µm)



1g. SEM image of albite (Scale= 1µm)



1h. SEM image of albite (Scale= 1µm)

RESULT & DISCUSSION

Structural Characterisation by Scanning Electron Microscope:

To understand the morphology and crystallinity of the orthoclase and albite crystals, SEM images are analysed in detail as shown in Fig.1(a-h). Orthoclase usually crystallises in monoclinic system having usually short prismatic elongated crystals. Albite crystallises in triclinic system having crystals usually in tabular form. The SEM images shown in Figure 1a-d depict morphology of orthoclase in monoclinic system showing prismatic crystals while Fig.1e-h depicts triclinic morphology of albite. The obtained SEM images are observed at a scale of 500nm, 1µm and2µm.

STRUCTURAL CHARACTERISATION BY POWDER X- RAY DIFFRACTION

Orthoclase is found to be crystallising in monoclinic system with space group C2/m(12) with unit cell dimension as **a**: 8.611(2) angstrom, **b**: 13.046(5) angstrom and **c** : 7.175(3) angstrom while angle β: 116.01° showing chemical formula as $KAlSi_3O_8$ as Potassium Aluminium Silicate. The diffractogram shown in Fig 2(a) depicts the typical pattern of orthoclase and the wavelength values respectively having highest intensity at 26.767° 2θ value.

Albite has been found to be crystallising in triclinic system refined in space group PI(bar) (2) with unit cell dimension as **a**: 8.1 angstrom, **b**: 12.9 angstrom and **c** : 7.2 angstrom while angle α: 94°, β: 116.5°, γ: 88° showing chemical formula

$NaAlSi_3O_8$ as Sodium Aluminium Silicate. The diffractogram shown in Fig. 2(b) depicts the typical pattern of albite structure and the wavelength values respectively having highest intensity at 26.996° 2θ value.

STRUCTURAL CHARACTERISATION BY DSC AND TGA

The samples were individually heated from room temperature to 800°C with a heating range of 10K/min in an open alumina crucible. Once the selected temperature was reached, the sample was cooled down to room temperature with a heating rate of -40K/min. The DSC curve of orthoclase and albite shows exothermic peak indicating the decomposition process of both minerals. In case of orthoclase, small release of volatiles is observed at 98.5°C with heat flow 0.4633 mW/mg, afterward showing decrease of mass till 800°C. The thermogravimetric analysis shows very small amount of mass loss, approximately 5% till 800 °C. Albite which is exothermic in nature shows mass loss at 78.5 °C and 113.9 °C with heat flow of -0.3889 mW/mg and -0.3846mW/mg respectively while at 571.7 °C, it shows a larger amount of mass loss of –1.206mW/mg. Thermogravimetric analysis of albite carried out show approximately 10 % of mass loss till 800 °C.

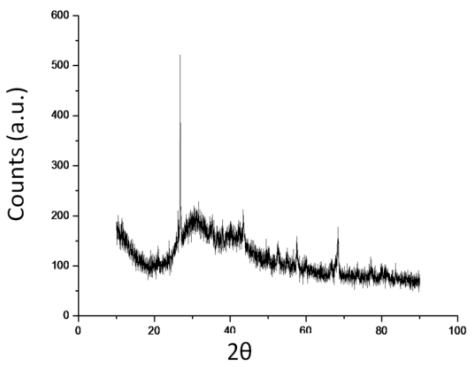


Fig 2a: XRD graph of Orthoclase

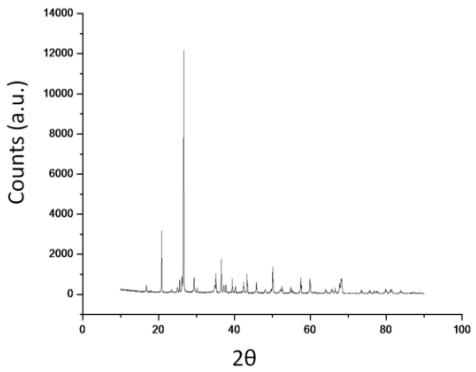


Fig 2b: XRD graph of Albite

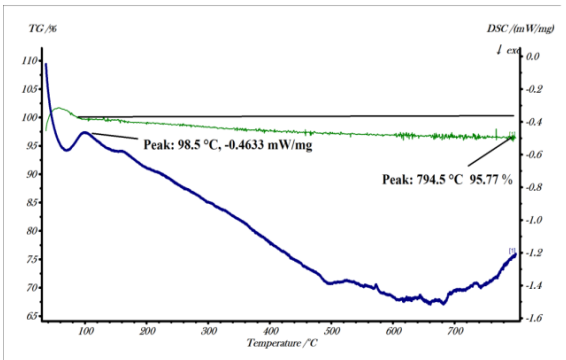


Fig 3a: DSC and TG curve of orthoclase

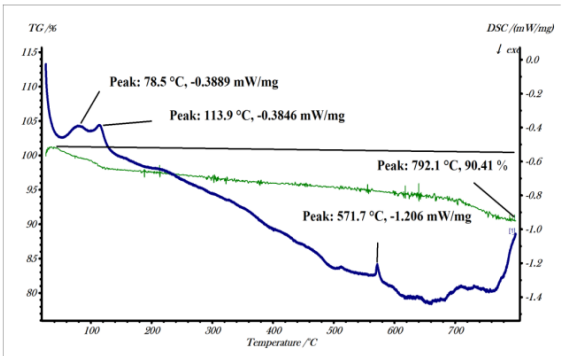


Fig 3b: DSC and TG curve of Albite

CONCLUSION

Synthetic samples of orthoclase and albite were prepared in order to characterise the thermal and structural behaviour of feldspar end members. Structural and thermal investigation shows that orthoclase characterises in orthorhombic system with different length axis and very small mass loss. While albite crystallises in triclinic system with higher amount of mass loss comparative to orthoclase. Going beyond the basic geology, feldspar group of minerals is widely used in ceramic industry, fillers and extenders in paints

and rubber industry, dating elements in earth sciences as well as archaeology, luminescence dating, dental porcelains and various other field due to which considerable attention is required to characterise the feldspar group of minerals

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REFERENCES

Bandfield, J.L., Hamilton, V. E., Christensen, P.R. (2000). A global view of Martian surface compositions from MGS-TES. *Sci*, 287(5458), 1626-1630.

Bandfield, J.L. (2002). Global mineral distributions on Mars. *J Geophy Res: Planets*, 107(E6), 9-1.

Christensen, P.R., Bandfield, J.L., Smith, M.D., Hamilton, V.E., Clark, R.N. (2000). Identification of a basaltic component on the Martian surface from Thermal Emission Spectrometer data. *J. Geophy Res: Planets*, 105(E4), 9609-9621.

Coletti, C., Maritan, L., Cultrone, G., Dalconi, M.C., Hein, A., Molina, E. and Mazzoli, C. (2018). *Recycling trachyte waste from the quarry to the brick industry: Effects on physical and mechanical properties, and durability of new bricks. Construction and Building Materials*, 166, 792-807.

Fuertes, V., Reinosa, J.J., Fernández, J.F. and Enríquez, E. (2021). Engineered feldspar-based ceramics: A review of their potential in ceramic industry. *J Euro Ceramic Soc*, 42(2), 307-326

Hernández-Crespo, M.S. and Rincón, J.M. (2001). New porcelainized stoneware materials obtained by recycling of MSW incinerator fly ashes and granite sawing residues. *Ceramics International*, 27(6), 713-720.

Hernández-Crespo, M.S. and Rincón, J.M. (2000). Recycling of the granite quarries and municipal incinerator wastes for the processing of new materials as porcelainized stoneware. *Materiales de Construcción*, 50(260), 49-62.

Larsen, K.W., Arvidson, R.E., Jolliff, B.L., Clark, B.C. (2000). Correspondence and least squares analyses of soil and rock compositions for the Viking Lander 1 and Pathfinder landing sites. *J. Geophy Res: Planets*, 105(E12), 29207-29221.

Martín-Márquez, J., De la Torre, A.G., Aranda, M.A., Rincón, J.M. and Romero, M. (2009). Evolution with temperature of crystalline and amorphous phases in porcelain stoneware. *Journal of the American Ceramic Society*, 92(1), 229-234.

Mernagh, T. P. (1991). Use of the laser Raman microprobe for discrimination amongst feldspar minerals. *J. Raman Spect*, 22(8), 453-457.

Poolton, N. R. J., Bøtter-Jensen, L., Johnsen, O. (1995). Thermo-optical properties of optically stimulated luminescence in feldspars. Radiation Measurements, 24(4), 531-534.

Tribaudino, M., Angel, R. J., Cámara, F., Nestola, F., Pasqual, D., Margiolaki, I. (2010). Thermal expansion of plagioclase feldspars. Contrib. Mineral Petrol, 160(6), 899-908.

W. A. Deer, R. A. Howie, J. Zussman. (1983). *An Introduction to the Rock Forming Minerals*. Longrnan, Hong Kong.

PRELIMINARY EXPLORATION OF CHAPE KHOLA LIMESTONE PROSPECT IN THE TISTUNG FORMATION OF KATHMANDU COMPLEX

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ABSTRACT

Limestone, chemically known as calcium carbonate, is one of the major non-metallic mineral resources of Nepal. Limestone having CaO of 40-50% and MgO less than 5% is regarded suitable for cement production and is defined as cement grade limestone. The present investigation has focused on the occurrence of limestone deposit to assess its grade and possible reserve in the Chape Khola section located in Dhunibesi-01, Dumrechaur, Dhading district of Bagmati Province. A detail geological investigation and mapping was carried out on the scale of 1:10,000. The limestone was found to be localized in the upper boundary of the Tistung Formation. The area showing promising results from chemical analysis of grab sample was defined as proposed mining boundary. The chemical analysis of the chip and channel samples and the possible reserve estimation of the limestone deposit was carried out with in this area. The possible reserve of the limestone prospect was estimated by projecting the information of chemical analysis of oriented limestone bed to the depth assuming its in-depth homogeneity. The present investigation estimates the possible reserve of the limestone prospect is about 4.018 million tons, comprising 45% of CaO, and 1.8% of MgO i.e., cement grade limestone. It is recommended to conduct geophysical exploration followed by drilling to assess whether the deposit is economically feasible or not.

Key Words: *Limestone, Reserve Estimation, Assay of limestone.*

INTRODUCTION

Limestone chemically known as Calcium Carbonate is categorized as construction materials of the non-metallic minerals, which is the major component to produce cement. About 1.5 billion tons of limestone reserve has been estimated in the 7,000 sq. km. stretches of the country, in which 750 million tons of probable and possible reserves are included (DMG, 2017). The limestone having high percentage of CaO (40-50%) and low percentage of MgO (<5%) is regarded suitable for the cement production.

After the systematic geological mapping and mineral exploration activities in Nepal is initiated in the decade of late sixties, the Himal Cement Factory, a state-owned cement factory was established in 1967 AD and operation was started in 1975. According to Cement Manufacturers' Association (2020), 55 cement industries are in operation in Nepal, among which three are Foreign Direct Investment (FDI) based, two are government owned and rest are locally and private owned and 2 FDI based industries are under construction (Nepal Rastra Bank, 2021). The installed capacity of these cement industry is more than the present demand. "In 2018/19, the domestic demand was 9.05 million tons, where domestic cement industries produced 7.49 million tons while 1.56 million tons of cement was imported. The reason of importing cement despite the capacity is due to issues like certification, quality inconsistency and bulk supply ability issues related to domestic cement industries" (Cement Manufacturers' Association, 2020; TEPC, 2020).

A study carried out by MOICS (2019), Government of Nepal projected the annual

demand to reach 20 million tons per annum by 2024. The construction of more cement industries is essential to meet the forecasted demand. So, the exploration work of limestone resources should be continued in many areas to establish the cement industries. Therefore, the prospecting and preliminary exploration studies of limestone resources is aimed in the Chape Khola section located in Dhunibesi-01, Dumrechaur, Dhading district of Bagmati Province. It is geographically located in between longitude of 618116 E to 619938 E and in between the latitude of 3069886 N to 3071266 N.

The specific objectives of the present investigation are:

- To prepare a geological map on Chape Khola section and its surrounding on 1:10000 scale.
- To study the geological control of mineralization in the area.
- To delineate the limestone band, assess the grade of limestone and estimate possible reserve of limestone deposits after proposing the mining boundary.
- To give decision whether to proceed for the detail exploration or to stop the work at present stage.

METHODOLOGY

For the research, a desk study was carried out where the relevant literature, maps, google images were thoroughly reviewed. The desk study was followed by the geological field investigations, where the GPS coordinate was taken, and the location was traced in the topographical map (2085 05 & 2785 01D). The attitude and thickness of the bed and distance were measured with the help of Brunton Compass and measuring tape. The limestone band was traced in the study area and the sampling site was chosen. The grab sampling was taken, and chemical analysis was carried. After the result was obtained from the chemical analysis of these samples, the best site containing the good assay of limestone was selected for carrying out chip and channel sampling.

The pebble sized chip samples within definite width were taken in the area where the exposure was not clearly observed, and the extension of limestone band was discontinuous. In the area, where the continuous band of limestone was clearly visualized, the channel samples were taken. 5 cm width and 3 cm deep continuous channel was dig after clearing the exposure. The chemical analysis of these samples was made in the chemical laboratory. Possible reserve of limestone deposits was calculated by section-method, assuming the in-depth homogeneity in the assay and orientation of limestone band. The geological map and cross-section was prepared after completing the field and laboratory work and the data were analyzed to recommend whether to continue the detail exploration work or stop the work at present phase of investigation.

The methodology used in the study is elaborated in the flowchart (Figure 1).

GEOLOGICAL SETTING

Regional Geology

Tectonically, the study area lies in the upper part of Tistung Formation and lower part of the Sopyang Formation of Kathmandu Complex of Central Nepal Lesser Himalaya located in the northern portion of Mahabharat Synclinorium (Stöcklin and Bhattarai, 1977; Stöcklin, 1980). The Tistung Formation is composed of metasandstone, siltstone, phyllite and slate in dominant proportion. This unit is characterized by distinct color banding (green, pink, yellow and violet) and intense purple weathering color. In few sandstones unit cementing agent is calcareous and impure limestone intercalation are occasionally recorded. The Sopyang Formation transitionally overlies the Tistung Formation and is comprised of dark argillaceous and marly slates and subordinates argillaceous limestones.

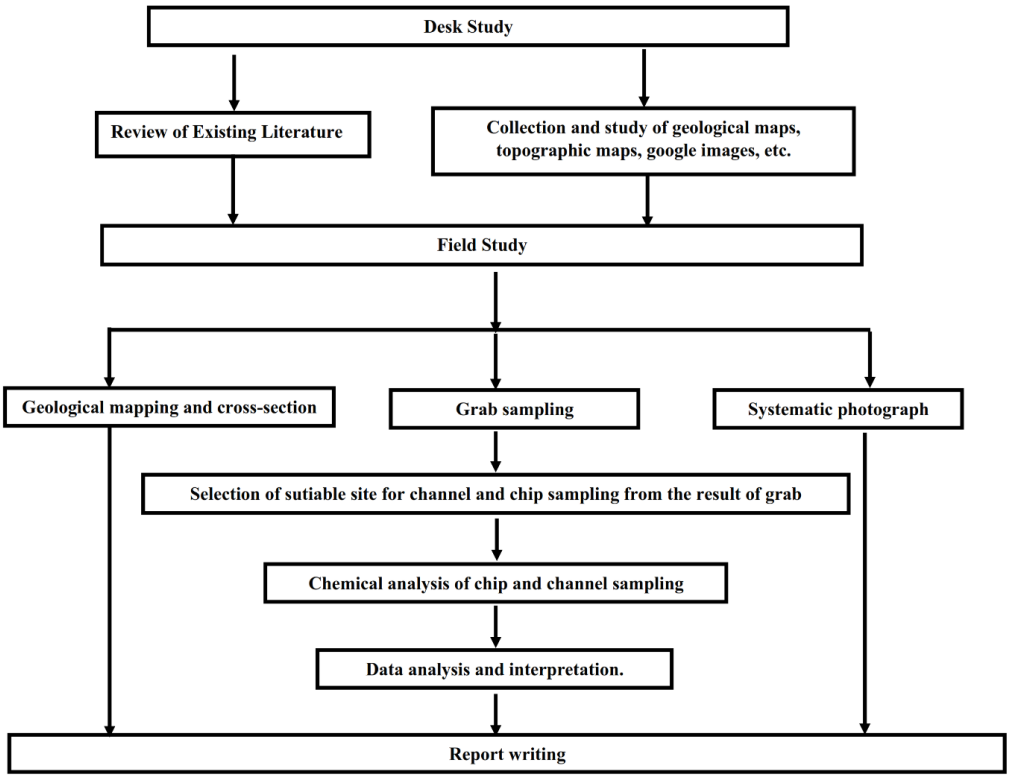


Figure 1: Methodology flowchart of study.

Detail Geology

The geological map was prepared in the study area to trace the occurrence of limestone and its geological control. The stratigraphic units are derived from the stratigraphic unit of Stocklin and Bhattarai 1977) and Stocklin (1980). The geological investigation shows the existence of upper part of Tistung Formation and the basal part of the Sopyang Formation. Dark grey metasandstone with slightly calcareous matrix and dark grey phyllite are the major rock types found in the study area. The alternation of fine-grained metasandstone and thin bedded finely crystallized dirty white to light grey limestone are frequent (Photograph 1). The Sopyang Formation is characterized by the occurrence of green phyllite, metasandstone with subordinates of the limestone band. These limestone bands are not mappable in the area.

Distribution of limestone band

The thin bands of limestone are localized in the upper boundary of Tistung Formation (Figure 2.a) where its mineralization seems to have stratigraphic control. The limestone band observed at the Chape Khola section and uphill towards north along the spurs are moderate to steeply dipping (40^0 to 60^0) towards northeast to southeast (Photograph 2). The map shows the geological condition of the study area. The limestone bands are surrounded by metasandstone beds in its lower and upper part and shows concordant relations with each other. Three prominent limestone bands observed in the study area are categorized into Band 1, Band 2 and Band 3 (Figure 2.b and 2.c). The study area is densely covered by vegetation and constitutes section of limestone band has varying thickness. Average thickness of Band 1 and Band 3 is about 30 m and has monotonous succession of limestone beds while the thickness of Band 2 of limestone is about 12 m which is siliceous in nature and the frequent intercalation of limestone and metasandstone can be observed in the outcrop

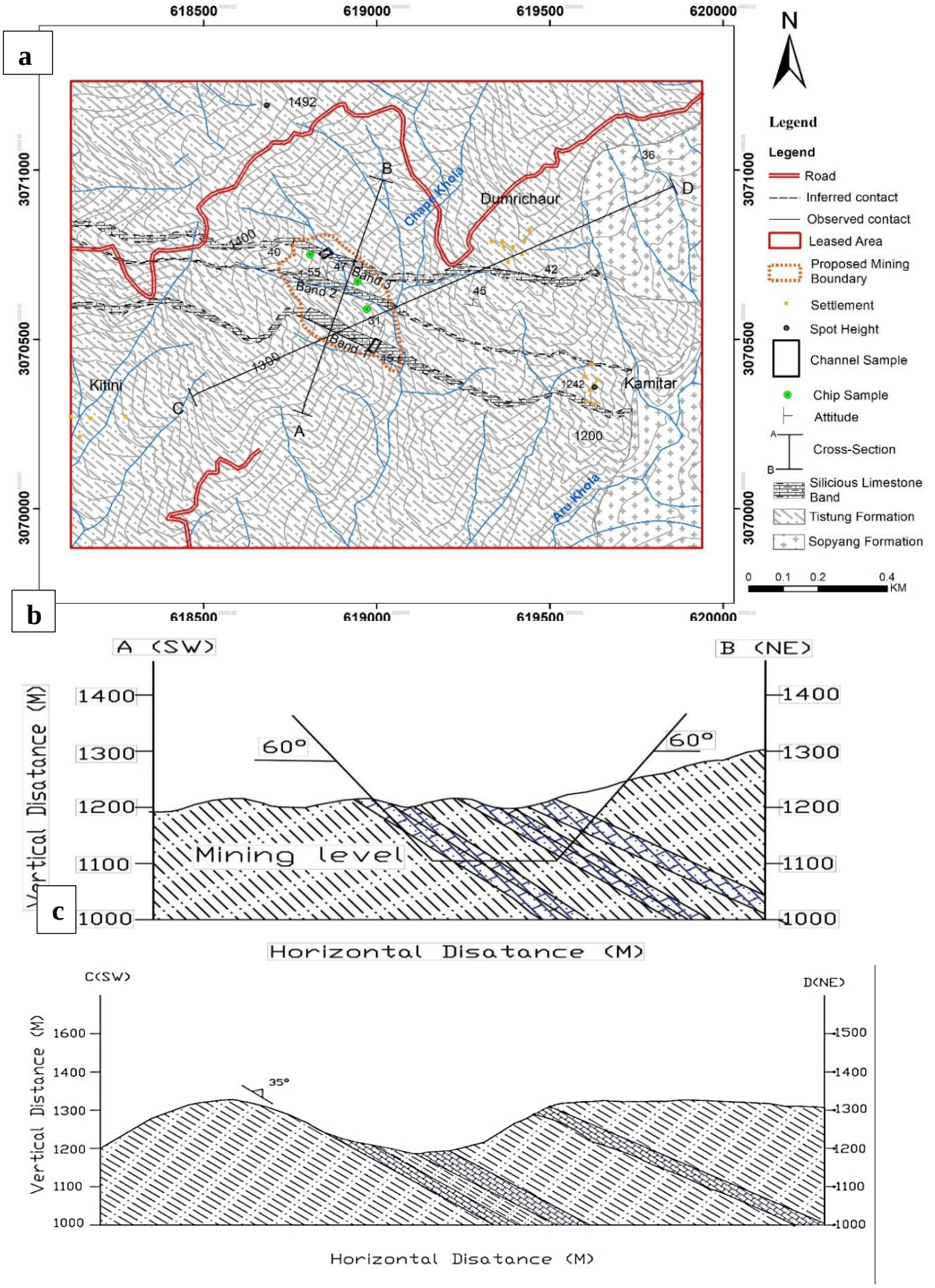


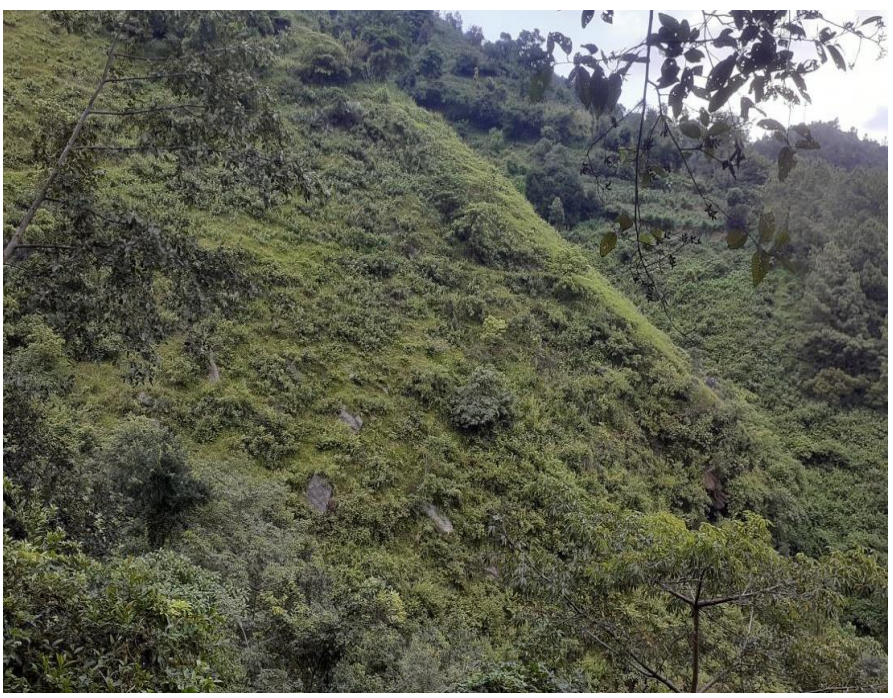
Figure 2: a) Geological Map of Chape Khola Section, Dhading district. b) Geological cross section along the line AB in geological map c) Geological cross-section along the line CD in geological map.

GRADE (ASSAY) OF LIMESTONE:

To calculate the grade of limestone, first, the chemical analysis of grab sample was made whose data are presented in Table 1. On averaging the obtained data, the CaO content is found to be 43.025% and MgO content is found to be 1.47%. The obtained data gives indication of good quality of limestone that can be utilized as cement grade limestone. So, the chemical analysis of channel and chip samples were carried out and the weighted average of CaO and MgO content has been calculated which is shown in Table 2 and Table 3. The CaO and MgO contents obtained from channel and chip samples are averaged in Table 4 and calculated as 45.54% of CaO and 1.18% of MgO.

Table 1: Chemical analysis of grab samples

S. N.	Sample Number	CaO %	MgO %
1	L-1	42.46	1.64
2	L-2	44.82	0.82
3	L-3	43.79	1.39
4	L-4	39.78	1.63
5	L-5	42.84	1.84
6	L-6	44.46	1.5



Photograph 2: Limestone and metasandstone exposure covered with vegetation and topsoil.

Table 2: Chemical analysis of chip samples

S. N.	Sample Number	Channel Length (L) (m)	CaO %	MgO %	L*CaO %	L*MgO %
1	C-CP-1	1.6	47.88	2.43	76.608	3.888
2	C-CP-2	2	47.21	2.45	94.42	4.9
3	C-CP-3	2.1	49.6	0.19	104.16	0.399

4	C-CP-4	1.9	44.56	0.4	84.664	0.76
5	C-CP-5	1.95	47.43	0.6	92.4885	1.17
6	C-CP-6	1.94	44.94	0.84	87.1836	1.6296
7	C-CP-7	1.93	45.34	0.8	87.5062	1.544
8	C-CP-8	1.92	45.88	2.51	88.0896	4.8192
9	C-CP-9	1.91	46.42	1.58	88.6622	3.0178
10	C-CP-10	1.9	47.24	2.12	89.756	4.028
11	C-CP-11	1.89	46.84	0.86	88.5276	1.6254
12	C-CP-12	1.88	42.18	1.24	79.2984	2.3312
13	C-CP-13	1.87	43.24	1.3	80.8588	2.431
14	C-CP-14	1.86	46.2	0.94	85.932	1.7484
Total		26.65			1228.155	34.2916
Weighted Average					**46.08461**	**1.286739**

Table 3: chemical analysis of channel samples

S. N.	**Sample Number**	**Channel Length (L) (m)**	**CaO %**	**MgO %**	**L*CaO %**	**L*MgO %**
1	C-CH-1	1.1	45.83	1.36	50.413	1.496
2	C-CH-2	0.7	44.46	1.41	31.122	0.987
3	C-CH-3	0.9	43.14	0.61	38.826	0.549
4	C-CH-4	1.1	43.04	0.39	47.344	0.429
5	C-CH-5	1	43.22	0.19	43.22	0.19
6	C-CH-6	0.8	47.24	0.42	37.792	0.336
7	C-CH-7	1.4	46.84	0.61	65.576	0.854
8	C-CH-8	0.6	42.18	1.36	25.308	0.816
9	C-CH-9	1	43.24	2.12	43.24	2.12
10	C-CH-10	0.9	39.98	1.84	35.982	1.656
11	C-CH-11	0.7	44.24	0.92	30.968	0.644
12	C-CH-12	1	46.12	0.42	46.12	0.42
13	C-CH-13	0.9	43.24	1.2	38.916	1.08
14	C-CH-14	0.7	45.12	1.28	31.584	0.896
Total		12.8			566.411	12.473
Weighted Average					**44.25086**	**0.974453**

Table 4: Averaging of grade of limestone obtained from channel and chip samples.

Limestone prospect	**Length, L (m)**	**L*CaO**	**L*MgO**
Channel-C-CH series	12.8	566.411	12.473
Chip-C-CP series	26.65	1228.155	34.2916
Total	39.45	1794.566	46.7646
Overall weighted Average	**39.45**	**45.54**	**1.18**

GEOLOGICAL RESERVE OF CHAPE KHOLA LIMESTONE PROSPECT

The geological reserve estimated in this study is possible reserve where the quality and quantity of limestone deposits was estimated by the geological projection, where depth extension was assumed by projecting the attitude of bed measured in the surface. The extension of limestone bands and metasandstone bed are estimated by making the geological cross-section along the line (A-B) (Figure 2 b). The parameters were used to estimate the reserve is described in the following section.

Influence Length: The influence length is the summation of the length in between section lines on either side of a section line and is taken as 300m for deposit.

Mining level: The lower limit of the deposit taken for geological reserve calculation is assumed 1,150 m elevation above the mean sea level.

Sp. Gravity: The specific gravity of the in-situ limestone is considered 2.6, which is used as a tonnage factor.

Sectional Area: The sectional area is in the scale of 1:10,000, that is derived from geological map

The reserve estimation is calcualted in Table 5 and is found to be 4.018 Million Tons.

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Table 5 : Reserve Calculations for limestone and overburden lying in the Chape Khola section

Cross-section line	Cross-sectional area, m^2		Influence length, m			Volume, m^3	
	Overburden (metasandstone)	Limestone	NE	SW	Total	Overburden (metasandstone)	Limestone
A'-B'	7,826	7,359	150	150	300	2347800	2,207,700
Total overburden to be handled, m^3						2347800	
Total limestone deposit, m^3							2,207,700
Overburden ratio						1.063:1	
Density of limestone, ton/m^3						2.6	
Total possible reserve, million ton						5,740,020.00	
Mining loss, % (occurrence of metasandstone interlayering and low grade limestone)						30%	
Mineable possible reserve (Tons) (70 % of total reserve)						4,018,014.0	
Mineable possible reserve in million tons (MT)						**4.018**	

DISCUSSION AND CONCLUSIONS

The strata of limestone bands seem to be almost homogenous in the lateral extension in the study area which is in the zone of metasandstone dominated Tistung Formation of the Phulchauki Group. The limestone bands are observed and sandwiched between the layers of meta-sandstone unit. The mineralization seems to be stratigraphic control in local scale. The limestone bands in mineable scale are not reported in Tistung Formation in previous literature. The localization of limestone bands observed in this area might be due to concentration of limestone minerals during the deposition of sediment in the basin. Further investigation should be continued by extending the limestone bands of the study area laterally on either side to know its lateral extension limit.

The weighted average assay of the chip and channel samples of limestone prospect show 45.54% of CaO and 1.18% of MgO content in the limestone bed, which can be utilized for the cement production as per widely accepted practice. The geological reserve of limestone is calculated to be 4.018 million tons. The data of assay and limestone reserve indicates the possibility of sub-economic to economic limestone deposit. Before taking a decision on mining of this deposit, geophysical exploration followed by drilling is recommended. Utilizing the zero-waste concept, the metasandstone present in the large quantities can be utilized as a construction material after performing geotechnical and other relevant tests

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REFERENCE

Cement Manufacturers' Association. (2020). *List of cement industries.* Kathmandu

DMG (2017). *Mineral Resources of Nepal*, 2nd edition, Dept. of Mines and Geology, Kathmandu, 170 p.

MOICS. (2019). *Detailed study of cement manufacturing industry*. Kathmandu: Ministry of Industry, Commerce, and Supplies.

NRB (2021). *Foreign Direct Investment in Cement Industry in Nepal: A Study on Socio-economic Impact, Study report*. Kathmandu: [Online], Available: https://www.coursehero.com/file/129888908/20780125-Final-Draft-of-Cementpdf/ [Jan 4, 2022].

Stöcklin, J. (1980). Geology of Nepal and its regional frame: Thirty-third William Smith Lecture. *Journal of the Geological Society*, 137(1), 1-34.

Stöcklin, J., and Bhattarai, K. D. (1977). *Geology of Kathmandu area and Central Mahabharat Range, Nepal Himalaya*. Unpublished technical report, DMG/UNDP Mineral Exploration Project

TEPC. (2020). *Import Export data bank*. Retrieved from http://www. efourcore.com.np /tepcdatabank/, Trade and Export Promotion Center

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Busse, F.H. (1975) 'A model of the geodynamo', *Geophysical Journal International*, vol. 42, no. 2, August, pp. 437-459, doi: 10.1111/j.1365-246X.1975.tb05871.x

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