

“Northwest Regional Knowledge Sharing Conference”



ORGANIZED BY

“NRNA WA Chapter” & “Science, Technology, and Innovation Committee NRN NCC-USA”

Connect, Learn, and Grow

Time and venue of the Event

10-4 pm, Saturday, January 19, 2019
Microsoft Head Office, Building 30/1083-1085-1087
3910 163rd Ave NE, Redmond, WA 98052



Dear Participants,

We feel privileged to welcome you to this special event, '*Northwest Regional Knowledge Sharing Conference*', and to beautiful Seattle (for many of you). Recalling that a regional conference, "Forum of Nepalese in West Americas" was held on September 4, 2016 in Portland, this event is organized now in our region in a unique way. This would not have been possible without your support and participation of everyone, whether that be through submitting abstracts to the event with a very short notice, willingness to work with us in developing the program and spreading the word, taking time to prepare and present your seminars or through attending the event to listen what fellow Nepali (and friends of Nepal) have to share, and to participate in fruitful discussions and interactions. We can not thank you more for being here and making this event a great success.

Our *long term goal* in organizing this event is to '*connect, learn and grow*' together through sharing our collective knowledge and experiences in the widest aspects of life, culture, society, struggle,

survival, growth, innovation, and entrepreneurship while also exploring ideas how we could give back and contribute (in a meaningful way) to the betterment of fellow countrymen of one of the most beautify countries in the World, Nepal. We have tried hard in creating the ambience, content and schedule for this event such that, we hope, you will enjoy the presentations, be able to participate in discussions, get time to interact with each other during breaks and lunch hour, and connect, build and expand your network with fellow Non-Resident Nepali (and friends of Nepal) in North America. We believe the networks we will build today will be lasting ones, bonded by not only common professional interests but also by friendship and a larger common goal of holistic growth and development of our motherland. We expect this event will be the beginning of a course for many of us to build the teams to contribute to this cause.

Together, we can grow more successful professionally and personally; but as or even more importantly, together, we will continue to build a happy, healthy and diverse Nepali community in diaspora; a community with a purpose to help each other and a community that can thrive in the countries we reside by contributing to help these countries move forward with wider understanding, acceptance and respect of differences among individuals and their faith, values, culture, and languages. Together, we will be able to spread brotherhood and harmony in diversity, where each of us can value the values of others. We hope, this event will provide one more opportunity for us to renew and reinvigorate our partnership in continuing this crucial journey to contribute to the peace, progress and prosperity in North America and around the world.

Once again, we really appreciate your contribution in making this event a success and wish you a joyful day here at Microsoft Campus with fellow Nepali (and friends of Nepal) from different parts of the continent and from different walks of lives.

Sincerely,

Meeting Organizing Committee



Manoj Karkee



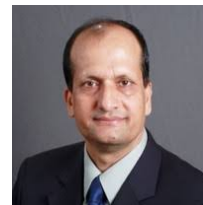
Nabin Khanal



Pashupati Pandey



Drona Rasali



Tara Sigdel

Northwest Regional Knowledge Sharing Conference, Seattle, WA, USA

January 19, 2019

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Session I: Development Policies & Programs, and NRN Relations with Nepal – Session Chair: Tara Sigdel, PhD

1. Topic: Policies for inclusive growth and economic development in Nepal

Author/Presenter: Umesh Ghimire, Vancouver, Life Member, NRN Canada

E-mail: umeshghimire9@yahoo.com

Inclusive growth is sustained development with equal access to opportunities among groups of people with the purpose of reducing disparities in all aspects of life. Nepal's average GDP per capita (US \$ 728 per year in 2017) is already one of the lowest in Asia. Besides, there is a significant disparity of per capita income among people of different backgrounds in terms of ethnicity, locations and geography. Political leaders have a great responsibility to play role in order to minimize these disparities by formulating effective policies at national level. A significant gap in leader's ability to envision positive changes is a greatest hindrance. Leaders are basically guided by their fixed mindsets thus resisting to revolutionize century old socio cultural beliefs that do not fit into modern day demands. Issues of socio-cultural mindsets are the most discouraging factors for entrepreneurial development in Nepal. As a result, large number of out-migration of potential human resources prevails. This way, country is facing huge depletion of skilled resources at all levels. On the other hand, the current economic scenario has created basically four types of household economy status. The first category includes households who have good means of living and retain ability to assist others in time of need. The second category includes households who have enough resources to live for them only. The third category includes households who can make their living possible only with assistance from others. The fourth category that is the most vulnerable ones who cannot make their living even with assistance in a normal situation. The last two categories make up largest number of population of Nepal.

The paper recommends the following approaches to address the pertinent issues.

Leaders' mindset change for good governance.

Within this approach, selected influential leaders need intensive trainings with mostly closed door sessions to transform fixed mindset into growth mindset. This training should be of at least four weeks with observation tours in a setup of developed country.

Injecting concept of entrepreneurship in people's mind through policy formulation

Leaders' active involvement in creating awareness in developing a culture of hard work through appropriate incentives and awareness initiatives. These Incentives and awareness activities include formation of entrepreneurship package. This package is expected to include sector based project management trainings and availability of financial support and incentives. Government needs to partner with business development institutions for frequent and free knowledge transfer workshops for general public. Government should strictly implement regulatory and quality monitoring system for already running business.

Government's Anti-discrimination Actions

Any sorts of discriminatory acts in society must be discouraged with use of punishing policies with strict implementation. Education and awareness must be promulgated through digital means for efficient and impactful communication.

2. Topic: Return to Nepal Initiative: A global campaign to bring Nepalese diaspora committed to return home in a common platform and to help in smooth transition back home

Authors/Presenter: **Rajendra Pangeni**, Dibakar Sigdel, Gyanendra Bohara

Email: nepalfarkaun@gmail.com

Return to Nepal Initiative is a non-political global campaign initiated in early November 2018 in order to bring Nepalese diaspora committed to return home from all over the world in a common network. The major goal of this campaign is to build a platform that brings like-minded people together, promote discussion, create network with successful returnees and help in preparing to move back home. Through the initial two months of this campaign, several dozen

Nepalese individuals from different parts of the world who are extremely committed to return to Nepal have joined together and have started rigorous discussions on their tentative return date, plans, preparations and other various challenging factors back home. Currently, the individuals who have joined this network are building websites and database dedicated to this campaign and developing other projects/models in order to create a platform to invest or/and to get involved after their return.

3. Topic: NEPAL-OREGON RELATION & DIASPORA ISSUE

Author/Presenter: Daya Shakya
VP NRNA Oregon Chapter, Senior VP WNO, Portland, OREGON
[Email:drasha@aol.com](mailto:drasha@aol.com)

In view of past activities on Nepal and Oregon relationship, it would be beneficial in spreading the facts on new generation of Nepalese origin living in the Northwest region of USA as NRNs. By virtue of historical events, it was adopted as '*Gair Aawaasiya Nepali*' (*Gai-Aa-Ne*) in the ordinances of Nepal Government's plans and policies. Officially, we became NRNs with a tag as foreigners raised or born as Nepalese people in abroad (*Saat Samudra Paar*). There were many pros and cons in the movement but now it has been winning spaces in many countries and states.

After going through various barriers and huddles gradually the movement has been started rooting in heart and souls of diversified Nepalese nationalities. To elaborate more in this subject, conferences, workshops and seminars are highly appreciative to us in creating mutual understanding on 'who we are now'. This paper intends to throw light on Nepal Oregon relationship and contribution made by Nepalese Oregonian in northwest belt of USA for nearly two decades as well as in Nepal for a half of century. Beside, it also deals with recently abrupt issues of *Diasporik Nepali Abhiyaan (DNA)* in the US and its developmental impact in scope of future NRNs.

4. Topic: Do American NRNs have the skills set for Nepal's modernization?

Author/Presenter: Arjun Banjade, Ph.D.
Board of Director, NRNA NCC USA
[E-mail: Arjun.Banjade@gmail.com](mailto:Arjun.Banjade@gmail.com)

The constitution of Non-Resident Nepali Association International Coordinating Council (NRNA ICC) states one of its objectives as to invest NRNs' human capital in Nepal for her overall development ("NRNA Constitution," 2017). Furthermore, "NRNA Vision 2020 and Beyond" states the organization's vision as to mobilize all the resources – including knowledge, skills, & capital within its disposal for the socio economic development and modernization of Nepal ("NRNA Vision 2020 and Beyond," 2017). However, there has been little or no research in identifying the skills set of NRNs in America. It is imperative to understand the strength of NRNs in terms of number and their skills set that can be mobilized towards Nepal's modernization. Do NRNs in America have the skills set that Nepal needs for her modernization? This paper analyzes the professional background of NRNs in America using various sources including the U.S. Department of Homeland Security data about naturalized citizens and permanent residents of Nepali origin.

The number of Americans of Nepali Origin (ANOs) is increasing mainly because the number of individuals with legal permanent resident status is growing and a higher number of such residents are becoming eligible for naturalization. And, the number of children born in the U.S. to Nepali parents is also increasing.

There were not many People of Nepali Origin (PNOs) obtaining permanent resident (PR) status prior to 1986. Only 86 PNOs were granted PR status in 1986 and 11,610 in 2017 (with the peak number 13,046 during the fiscal year 2013). A total of 121,610 PNOs received PR status by the end of fiscal year 2017 (U.S. Department of Homeland Security, 2018).

The number of people naturalized to become U.S. citizens increased steadily – from only 43 in 1991 to 4,509 during the fiscal year 2017 (with the peak 5,004 in 2016). A total of 32,485 people born in Nepal

became the U.S. citizens since 1991 until the end of 2017 fiscal year (U.S. Department of Homeland Security, 2018).

There are many NRNs in the U.S. highly skilled with innovative ideas. It is in the interest of Nepal utilizing their skills set for her development. This paper examines the occupation of NRNs using a survey research as well as analyzing the occupation of ANOs and PNOs using the U.S. Department of Homeland Security data from 2003 to 2017 and will present the findings and recommendations.

5. Topic: An Overview of Education Program of Nepali Association of Oregon

Author/Presenter: Bharat Banskota
President, Nepali Association of Oregon,
Email: bharat.banskota@yahoo.com

Nepali Association of Oregon (NAO) has realized that education is a fundamental thing that can bring change to society. Therefore, the executive committee decided to award \$500 NAO Scholarship every year to a college bound high school student of the Nepali community in Oregon. The scholarship name changed to \$500 NAO High School Excellence Award in 2013. A total of 9 students from the NAO community have received this award over the last nine years. This award is considered a prestigious achievement in the Oregon Nepali community for a college bound high school student.

NAO also started to provide Nepal scholarship to high school students in Nepal in 2011. Three students were awarded this scholarship in 2011 from grade 8, 9 and 10 each. The scholarship amount was \$300 for 10th grade student, \$250 for 9th grade student and \$200 for 8th grade student. Once the scholarship was awarded to a student, the scholarship was good for additional two years. NAO expanded the number of scholarship in consequent years but reduced the scholarship amount to \$100 for each student. A total of 21 students in various schools in Nepal are receiving this scholarship this year.

School infrastructure building has been one of the major agendas for NAO. In total, NAO fundraised \$63,000.00 for earthquake relief. NAO used about 50%

of this fund for school reconstruction projects in Nuwakot, Dhading, and Sindhupalchok districts. NAO supported one school to build a girl's hostel in Solukhumbu district. NAO has also provided 15 computers to a school in Balaju, Kathmandu to set up computer class. Beginning from 2018, NAO has brought new a concept "Nepal school support micro-projects." NAO supported six schools under this program in 2018 and has planned to continue in 2019.

Ample financial resources are very important to run such projects sustainably. NAO started to collect fund for NAO education program since 2010. NAO received \$500 from a Japanese-American citizen in early 2010 as the seed money for the education fund. Then, NAO massively started to raise fund from the community members in the following years. NAO has \$22,000 reserve fund for the scholarships it provides. **NAO has made a tacit understanding with Intel employees Julie and steward to raise fund and support Nepal school micro-projects for 2018 and 2019.** The scholarship amount will be constant, but infrastructure building/construction micro-projects will be periodic and depends the commitment received from the donors. Intel's employee volunteers and volunteer match from Intel and other similar companies have been regular sources of finance NAO education programs. NAO has used over \$70,000 of its fund for education program during the last 9 years.

6. Topic: Agriculture, health and education: A triad approach to 'One Knowledge'

Author/Presenter: Dr. Drona P. Rasali, DVM, PhD, FACE*
Director, Population and Public Health, BC Provincial Health Services Authority (Canada)
Email: Drona.rasali2@gmail.com

Agriculture, the universal source of our food, is the basic means of modern livelihoods of the people from time immemorial. Health, in broader sense, allows the people to live and work with happiness, wellbeing and prosperity. Education has been the universal gateway to knowledge and innovation for societal advancement. These three disciplinary fields, without which people's livelihood has never been possible in the history of mankind, make a unique but natural 'triad' of knowledge development contributing to

“One Knowledge”. I have had some exposure to these three disciplines through my academic, research and professional practice. The purpose of my talk is to share with everyone my lived experiences as they relate to “One Knowledge”

US land-grant styled Universities had long realized research, teaching (education) and extension (practice) as three integral components of agriculture. Adding human health to the land-grant scheme would nicely fit together for the knowledge development relevant to fulfilling the everyday needs of the people. The concept of ‘One Health’ between humans and animals is well established, though greater emphasis is given to the area of ‘zoonotic diseases’ transmitted between human and animal subjects. Indeed, there is no dividing line between the knowledge of what is well-known as ‘One Health’ and other life sciences and humanities. In 1970s, Nepal tried to bring agriculture and education together by introducing agricultural college for teachers. Looking back from my own education attainment, teaching, research and practice experiences in the multidisciplinary fields encompassing, especially- agriculture, health sciences and education, some common grounds emerge for synergy across these fields. Some examples: In mid 1980s, I was part of a team studying osteoporosis in goats resulting in ‘torticollis’, whereas more recently I got involved in osteoporosis research in older women who have high fall injury occurrence. The analyses of cattle genetics, composite breeds of sheep in the world, mortality patterns in broiler chickens during my doctoral studies involved bio-medical and statistical knowledge, which proved to be transferable knowledge for my epidemiological studies in public health later. Genomic bioinformatic methods, as I experienced, were just common to all life sciences, including animal, crop agriculture and human health. Food security in the broader context, an area of my current interest, is very much home to both agriculture and health. All these combined can be viewed as a part of “One Knowledge”.

In the context of Nepal, where resources are limited to serve the vast population, a logical approach to knowledge development for mass adoption would necessitate an operational system of the agriculture-health-education ‘triad’ relationship, across

institutions at all levels, for efficiency and productivity for livelihoods of the people. Opening an integrated learning system such as a community college dedicated to agriculture, health and education would be an efficient way to knowledge development for the rural revitalization program of newly formed provinces. At the local level, an integrated service center equipped with common classrooms, libraries, diagnostic laboratories, primary care clinics, etc., can fulfill the triad-based needs of the people through agriculture, adult education and primary health services.

7. Science, Technology, Innovation and Knowledge Transfer (STIKT) committee of NRNA NCC USA initiates experts’ databank, mentoring and internship opportunities with other sustainable short term and long terms projects

Author/Presenter: Pashupati Pandey
PACCAR Inc, Chair of Science, Technology, and
Innovation Committee, NRNA-NCC, USA
[Email: pashupati7@gmail.com](mailto:pashupati7@gmail.com)

Non-resident Nepalese Association (NRNA) undoubtedly serves as the biggest community organization and networks for Non -resident Nepalese around the world. In order to transfer essential knowledge and innovation related to science and technology for nation’s development, NRNA National Coordination Council USA (NRNA-NCC formed a Science, Technology, Innovation and Knowledge transfer (STIKT) committee bringing professionals from Nepalese diaspora with diverse fields. At present, STIKT is building experts’ databank in NRNA NCC web portal by gathering information using surveys, and other online methods. The data bank will be a common platform for mentoring services to needy Nepalese individuals around the world for building networks, exchanging ideas and collaborating among Nepalese professionals globally as well as bridging Nepal government, other non-government agencies and experts in various fields. Similarly, STIKT has decided to coordinate with Nepalese professionals in US and Nepal to provide young students with internship opportunities in academic/research institutions and industries in various fields. In addition, other sustainable short- and long-term projects include networking with Nepalese community

organizations in US to grasp talents and human resources, supporting local government in Nepal for good governance, coordinating with National planning commissions on various projects with NRN-NCCA's expert support, as well as collaboration with academic institutions and Universities in Nepal to provide young students with internship opportunities. The STIKTC plans to organize annual science, technology and innovation conference in US to bring researchers, academicians and technologists in a single venue in order to create a platform at NRNA, USA to transfer knowledge and innovations to Nepal. STIKTC now is working with its goals and is further identifying potential areas where STIKTC could provide experts' opinion through NRNA, USA. STIKTC is also working on the area of environment and biotechnology project in Nepal.

Keywords: *NRNA STIKTC, Experts' databank, Networks, Collaboration, Innovation*

Session II: Science, Technology and Skills Transfer – Session Chair: Manoj Karkee, PhD

8. Topic: Harnessing Expertise from Diaspora and “Big Data” Resources in Biomedicine for Training Youth in Nepal

Author/Presenter: Tara Sigdel, PhD, Asst. Professor, University of California San Francisco

Email: tsigdel@gmail.com

Background: Recent access to education, communication, and technologies have contributed in training of thousands of Nepali professionals in biomedical fields in the US and other countries. These fields include molecular biology and biochemistry, immunology, cell biology, biotechnology, genetics, pharmacology and many others. This pool of expertise is working in equal footage with other international counterparts. This tremendous resource has remained mostly untapped in the benefit of Nepal. Most of the expertise remains isolated and a need of an organization was felt that would facilitate communication among the biomedical scientists across the globe and Nepali government (institutions). With spontaneous effort of individuals involved in the field, International Nepali Biomedical Society

(INBS) was founded in 2006. INBS aims to provide a platform for all Nepali biomedical scientists, to foster an effective communication between Nepali and foreign biomedical scientists, and to promote biomedical/biotechnology education and research in Nepal.

Objective: My presentation will highlight use of publicly available “big data” in health and medicine in training Nepali youth. With rapid evolution of computational power and sophistication in genomic data generation, research in biomedical field has taken an unprecedented leap that could be utilized by Nepal. Such publicly available data available through NIH GEO database can be used in meta-analysis by Nepali researchers without having to go abroad. Trained mentors from diaspora and Nepal could provide mentorship to Nepali young generation to generate research papers that will be published in international reputed journals. This has two fundamental benefits. (1) This data could be used to provide preliminary data to apply for grant money from organizations such as NIH, Bill and Melinda Gates

Foundation and Chan Zuckerberg Initiative (CZI). These grants will be used to train more Nepali youth in biomedicine and research that will produce data that will further more research in Nepal. (2) This initiative will revolutionize concept of research in Nepal and will boost morale of Nepali scientists and Nepali youth in that they will be able to publish in international high impact journals, present in international meetings and feel they are equally talented and productive as the scientists in the first or second world. This is in particular very promising as both Bill and Melinda Gates Foundation and Chan Zuckerberg Initiative (CZI) are looking for opportunities to train scientists who are working on third world issues.

Data: Data will be presented how a high school student as a summer intern was trained to carry out research in interrogating the role of proteases in kidney transplantation outcome. This will be discussed in the context of training university students in Nepal.

9. Topic: Idea to Innovation: Software Entrepreneurship

Author/Presenter: Ashaya Sharma
CTO and Co-Founder, Honeycomb.ai
Email: ashayasharma@gmail.com

With the advent of automation in many industries, it is becoming increasingly important to be able to create and innovate to stay competitive in the economy. It also becomes a great opportunity for developing countries like Nepal, which lack major global industries to create software service industries of value. Software allows for a platform where, given a unique idea, anyone can create something of value and distribute it widely to the masses. In this presentation, I summarize my findings about how I went about starting my own software company at 21 and how one can go about converting a software idea to a business. Finding a unique problem that can be solved with software and has a market to sell to are key requirements. The techniques I used were data-driven development, applications of artificial intelligence and a strong consideration of sales methodologies. It was observed that not many substantial resources apart from time and a laptop were needed to create a business reaching hundreds of clients and thousands of monthly active users, allowing even small firms in Nepal to be able to generate a cash-flow business. Increased local software companies could generate an influx of foreign consumption and reduce the current Nepal government's reliance on foreign aid. Our overall approach as a company was to use an idea meritocracy and develop versions of software based on whoever on the team had the best idea, tested with data. While conventional wisdom dictates that the waterfall model is antiquated, and that software needs to be built agile, I found that the converse can sometimes be beneficial. One of the biggest advantages of waterfall is its fixed structure which makes management easier. One reason often cited for not starting a business is the lack of a business background. For software start-up founders who are engineers or scientists with a limited business and managerial background, the more rigid waterfall model was found to be beneficial as it avoids errors

resulting from mismanaged resources. Using tools such as *TensorFlow*, *Azure*, *AWS ML Services* allows small companies and start-ups to leverage data without the need for immediate advanced skills, equipment or training. Using these tools and techniques and following a rigid management style hopefully helps make value in the software services industry easier for anyone wishing to start a company, including budding entrepreneurs in Nepal.

10. Topic: Can We Increase the Economic Impact of an Acre of Apple Farm in Nepal by TEN FOLD?

Author/Presenter: Manoj Karkee, PhD
Associate Professor
Center for Precision and Automated Agricultural Systems, Washington State University
Email: manoj.karkee@gmail.com

Apple growing regions in Eastern Washington and mountains of Nepal have similar weather conditions, both producing, arguably, some of the best quality apples in the world. Yet, apples produced in 1 acre of land in Washington (~0.4 hectare, ~8 ropanis, ~0.6 Bigah), for an average variety fruit, can be sold in the grocery stores, on average, for way over \$100,000 whereas the apples grown in the same amount of land in Nepal is being sold for as little as \$3,000. This is a difference of more than 30 fold in economic value of the same unit of apple farm between two apple growing regions. Where is this remarkable difference coming from when the quality of apple is arguably very similar? This presentation will explore various aspects of apple production and supplies including site selection, planting, canopy management, crop management, harvesting, storage, distribution and marketing that potentially make a difference in getting the best out of each unit of precious farm land. Various automation and robotics technologies being developed by the author for tree fruit production will also be introduced as they relate to various field operations used in apple farming including tree training, pruning, thinning, and fruit harvesting. These technologies are expected to further improve the yield and quality of fruit crops while minimizing the use of scarce farming resources such as water, fertilizer, pest control chemicals and labor. The author hypothesizes that with some level knowledge and technology transfer and some initial investment, economic value of each unit area of apple farming in Nepal could be

increased by up to 10 folds in the short term. If the country focuses on research, extension and marketing activities including development (breeding) of apple varieties suitable for the local farming environment (defined by weather and soil, for example), the economic impact of each unit of farm land could potentially be increased more remarkably in the long term. During the presentation, the author will try to identify various aspects of the apple farming industry where established knowledge and technology could be transferred or adopted so that the economic value of apple farms in Nepal could be increased substantially.

11. Topic: The Kirana Analogy

Author/Presenter: Gaurab Raj Upadhaya

Principal at Amazon Web Services.

Email: gaurab@lahai.com

Retail commerce in Nepal is dominated by the 'kirana-pasal', or the corner shop, or the mom-and-pop shop. They are omni-present across the country. Every city, town, villages, neighborhood down to small lanes have one. It is a quick easy supplier of daily essentials, but there is no scaling up. The most a Kirana rises up is to become a neighborhood mart. This situation is representative of the broader business environment in Nepal. Most sectors reaches a limit in the 'kirana' model and then stagnates. It also has downstream effects in the society. The psych is used to the small scale convenience. Kids grow up with the ability to walk down the street and get their afternoon snack (say a pack of WaiWai), and then being the shopkeeper becomes their aspiration. The economies of scale never develops. Compare it with more developed economies - where Kids likely grow up with the convenience of Costco, along with those of GE, Toyota, etc. A culture where companies don't have to be individually owned and provide for the 'convenience', so that kids and by extension the society can think of bigger things.

Looking into the Information Technology (IT) sector, there are large numbers of SMEs - in hardware supply, training and software. The hardware business is focused on trading, and training centers are a vanishing breed. The software, ISPs, and integrated

business have risen to become the neighborhood mart. But they are not able to grow beyond. All of these businesses are driven by their owner/founder/entrepreneur. When they reach a certain size, they stop growing. Most often the owners don't want to cede/share control resulting in the more entrepreneurial staff starting their own 'kirana' or going abroad. For the few founders, who are happy to share and delegate, they can't find mid-level management because those that are capable already happy with their own 'kirana' or are already abroad.

The cycle continues, the challenge for those who can share experience is to show that a piece of a big roti can be bigger than an entirety of a smaller roti. The presentation will follow with open discussion for how we go beyond.

12. Topic: Creating a smoke-free kitchen community: A case-study from Panchkhal and Mandandepur municipalities of Kavrepalanchok district, Nepal

Author/Presenter- Amod K. Pokhrel

School of Public Health, University of California, Berkeley

Email: amodpokhrel@gmail.com

In support of the Nepal government's efforts, the UN Foundation & Clean Cooking Alliance have launched a comprehensive set of activities, including research, to promote smoke-free kitchen communities in Panchkhal and Mandandepur municipalities of Kavrepalanchok (Kavre) district. One such activity is to create a demonstration site to showcase the environmental and health benefits from the use of clean cooking fuel—gas and electricity, in the community. The ongoing research is evaluating the impact of behavior change on the sustained use of clean fuel (LPG, biogas, & electricity), potential improvements in household and outdoor air pollution, and personal exposures to air pollution. In this presentation, we will explain how the behavior change communications approach is enabling the uptake and sustained use of gas and electricity-based cookstoves in Panchkhal and Mandandepur municipalities. We will also explain, how the monitoring and evaluation activities are being conducted to measure the

progress of sustained use of modern cookstoves and improvements in household and outdoor air pollution and health in these communities.

13. Topic: The Future of Climate Change Adaptation in Nepal

Author/Presenter: Pasang Yangjee Sherpa, Ph.D.

Affiliate Faculty, University of Washington

Email: pysherpa@gmail.com

On the theme of “connect, learn and grow,” this paper presents how the government of Nepal envisions future climate change adaptation through its climate policies. This presentation focuses on the National Adaptation Plan (NAP) and various climate policies that lay the foundation for how the country plans on addressing climate change. This presentation builds on on-the-ground data collected from rural mountain communities over the past 10 years that show how Nepalis have been observing and experiencing climate change. Adverse impacts of climate change, especially devastating extreme events, are examined in light of shared need for effective engagement recognized by stakeholders across multiple levels. The objective of this presentation is to promote informed dialogue about climate change impact and vulnerability among Nepali diaspora communities for the wellbeing of Nepalis and sustainable future of Nepal.

According to the Government of Nepal (2016), between 1975 and 2005, there has been an annual rise in temperature of 0.06°C. The total estimated ice reserve in high mountain regions were found to decrease by 29% (129 km³) between 1977 and 2010. Climate change scenarios project that mean annual temperature will increase between 1.3-3.8°C by the 2060s and 1.8-5.8°C by the 2090s (GoN 2016). The mean rainfall has decreased on an average of 3.7 mm (-3.2%) per month per decade with an annual precipitation projected to reduce in the range of 10% to 20% across the country.

With support from the Green Climate Fund, the NAP aims to reduce the country’s vulnerability to climate change and to facilitate the integration of climate change adaptation in policies, programs, and activities across sectors and levels. It highlights the opportunities and challenges associated with

governance and the overarching development vision of the country. It identifies context-specific future adaptation needs recognizing the nation’s particular climatic and geographic characteristics. In formulating the NAP, Nepal identifies four unique features. These are: 1) a process that will ‘leave no one behind’; 2) integrated approach; 3) emphasis on stakeholder engagement; and 4) an informed process. The NAP considers the ongoing restructuring of the government, where the role of sub-national actors and the creation of strategic linkages between national and sub-national adaptation planning that need to be clarified, as the main challenge to future adaptation programming.

On the energy front, the Intended Nationally Determined Contributions (INDC) of Nepal states that: 1) it plans on reducing its dependency on fossil fuels by 50%; 2) it plans on maintaining 40% of the total area of the country under forest cover and increase forest productivity through sustainable management of forests; 3) it will emphasize enhancing carbon sequestration, forest carbon storage, and improving forest governance; 4) it will strive to decrease the rate of air pollution through proper monitoring of sources of air pollutants like wastes, old and unmaintained vehicles and industries by 2025; 5) by 2040, It plans on developing electrical (hydro-powered) rail network to support mass transportation of goods and public commuting; and 6) it aims to achieve 80% electrification through renewable energy sources by 2050.

14. TOPIC: EARTHQUAKE HAZARDS AND INFRASTRUCTURE DEVELOPMENT

AUTHOR/PRESENTER: MADAN KARKEE, PHD, PE. PENG

HART CROWSER, INC

Email: madankarkee@yahoo.com

The spectacular Nepal Himalayas owe their origin to the mechanism of the continental collision along the India-Eurasia plate boundary, referred to by seismologists as *plate tectonics*. This mechanism is also responsible for creating numerous fissure planes in the ground called *faults* which can be identified and mapped by seismologists, but are not visible like the grand Himalayas are. Great magnitude 8+ earthquakes are generated when slippage occurs in these fault planes as a result of the tremendous stress that

continues to build along such fault planes with the passage of time. As such, numerous great earthquakes have been generated throughout the history of the region, most recent one being the magnitude 7.8 Gorkha earthquake of April 25, 2015 that originated along the fault identified as the Main Himalayan Thrust (MHT). This segment of the MHT has experienced several damaging earthquakes (1833, 1866, 1988) and is adjacent to segments to the southeast that ruptured in the 1934 Nepal-Bihar M8.1 earthquake. It is well established that Nepal is located in one of the seismically active area of the world, and seismic design considerations are an inherent part of the infrastructure development for the country.

Starting with a brief description the current understanding of the regional and global seismicity, this presentation will provide an overview of the earthquake hazard and seismic design considered critical to infrastructure development and maintenance in Nepal. Relevant aspects of seismic design and construction practices in the western United States and Japan will be presented to provide examples of the state of the art and practice and how Nepal can learn from that knowledge and experience. Aspects of the development of new infrastructure as well as the recovery after earthquake disasters will be discussed and highlighted.

Session III: Socio-culture Issues: Health, Wellbeing, Empowerment, Music- **Session Chair: Maya Magarati, PhD**

Topic: RITIKA KHANAL: A personal story

Author/Presenter: Ritika Khanal

Student, Mountlake Terrace High School, Washington

Email: ritikakhanal@gmail.com

My name is ritika, I am 15 years old, and as you can tell, I am no engineer or doctor. However, I am a visually impaired student, was born in Nepal, and was brought to the United States by my parents so that I might have a better education here. This alone says a lot about our society and stigmas of Nepal, and I want to talk about what it's like to be a young person in our Nepali community today.

Back when I was in Nepal, there was only one school that would accept me, and it was a boarding school a couple of hours away from our area. Over the years, I'd like to think that there has been a societal shift in the way we see people with disabilities, but even today, there is a stigma associated with being "different." A couple of months ago, I got a chance to visit a Nepali school with blind students. Seeing the major differences in my lifestyle verses there made me cringe. Since coming to the United States, I have had access to the world. Today, I use abrailenote (will be shown) I use an iPhone just like anyone else using the built in accessibility feature voice-over, and I go to public school with the support I need to do what I want to do.

My fellow brethren have access to no such thing. They don't even have access to textbooks of

their own and have to rely on listening to the teacher. Their exams are transcribed by lowerclassmen.

However, it's not just people with disabilities affected by our education system in Nepal. I don't think that all parts of our system are bad. The rigger and common core standards of Nepal are great, and it still bothers me that having education in Nepal means nothing in other countries.

However, all of this is only good if students are expected to not ever need extra support. Sure, there is tutoring available, but we must keep in mind that not all can afford that. The support that a student needs to be successful needs to be given in the school, and it needs to be okay to ask for help. Those of us who are fortunate enough to study here should never forget what our native country is lacking. It is our generation that can make a difference now, and we must never forget that.

I am lucky to have an incredibly supportive family who never lets me forget our culture, our values, and our language. It is very easy to get caught up in the culture of another country, but I'm very grateful that my family makes an effort to never divert from our native culture.

I'd like to conclude my presentation today by encouraging you to do two things. Firstly, try never to

assume, and secondly, parents, please keep your kids engaged in Nepali culture.

16. Topic: Mental Health and Wellbeing

Presenter/Author: Sunita Pun
Senior Support Worker
Fraserside Community Services Society
Email: pun@unbc.ca

We live in the comfortable generation due to technologies and other scientific inventions. Despite all the comfort, we cannot say that we are happy generation because more and more we hear about addiction, mental illness, and new diseases. While we are running in this fast pace world trying to satisfy ourselves by fulfilling all the materialistic components of our life, we are left with more and more voids in our hearts. How can we say that we are happy and comfortable when we try to fill emptiness of our heart with different types of addictions such drugs, alcohol, sex, workaholism, eating disorder etc.

More than ever before we are becoming a slave of materialistic things because we believe that achieving them will make us happy. If pursuing that career that everyone respects, earning that salary everyone aims of, or becoming popular that everyone dreams to be is not bringing us all that happiness we thought we would if we achieved them than there must be some issue within ourselves that needs attention. While we are too busy fixing our outer world, our inner world gets messed up. We try to ignore the signs of our inner being screaming for help by feeding it with more material components that gives us short term relief. We are not even aware that short term fixing will not help us because the problem will build up and one day it will explode. We do not want to wait until that day when our life slaps us in the face and we feel defeated. But sadly, many of us are unaware of the consequences and some of us even ignore the knowledge.

We get messages from our parents, teachers, and everyone we encounter in our life about how our life should be, what we should be doing, and how we should see the world. We believe those messages and in time we forget who we really are. While trying to

meet society's expectation we have put ourselves down, while trying to fit in with others we have dimmed our own shine, and while collecting materialistic things in pursuit of happiness we are creating more sufferings.

Whether in the western world like North America, or in developing country like Nepal, people are not prioritizing their mental health because they are too busy either making a living or striving to meet society's standard. It is about time to turn inward-to ourselves. If we learn and fix ourselves then only, we can see what is happening to us and around us clearly.

17. Topic: Women Empowerment

Presenter/Author: Sujata Lama
Master of Management
UBC Sauder School of Business
Email: suzataa.lama@gmail.com

This paper attempts to assimilate the topic that addresses on a sensitive yet critical issue of today's generation i.e. Women Empowerment. Although UN Women has set a global goal initiating a campaign of attaining equal rights to both men and women by 2030; given the current scenario; it doesn't pledge much of a hope. Unequal rights have been a chronic disease that through eons of lives, prevailing from the most under developed to the most advanced nations of the world. Be it in as bite-sized matter such as family decisions to the extent of national politics,

women have been the second-class citizen in every aspect. Exemplifying my own experiences until date, I would like to convey a message to the audience that empowering women and girls not only in Nepal or US, but also on a global scale is key to positive development, growth, stability and transformation. Addressing the issues of Nepal, the text and my presentation focuses on women violence, harassment, their probable causes of such happenstance and possible solutions i.e. empowering women that may create awareness among the audience. At present, words like "empowerment", "equal rights", "equity", "feminism" has been somewhat commercialised and stereotyped in such a way that as soon as we hear these words, we either entirely brag about it or try to

avoid it as much as possible. The important claim is to understand its essence. My motivation to speak on this issue is this very need; a need to have a basic understanding of what a gender equal society is like, what it means to have everyone on board equally, to visualize the audience that a simple tweak in how you look at things make such big differences in women's as well as their own lives. There is no common definition of women empowerment, neither it has an exact interpretation to accept. Furthermore, most of the affairs arises around women equality, economic development, girls' education and political participation. But we all know it's a process and it's an ongoing process. It is high time especially for countries like Nepal to aware, educate and empower both men and women so that appropriate strategies and actions could be formulated to build a better and safe society. Leading the change is crucial and realizing the struggle women face every day is the first step towards it.

It is hoped that this paper will be acknowledged and perceived as a draft of what I wish to address about. I would not be able to provide a recommendation or an exact solution per se for this specific subject as this a broad area of interest, however would like to stimulate insights on what it means to be empowered; a blueprint of women leading families or possible revolution the world could witness with women enjoying their fundamental right. Realizing the fact that there's a distinction between being a biological female and gender as a role is the first awareness towards equity

Let women write their own destinies.

18. Topic: Fusion & conFusion: Changing Musical Scenes in Nepal

Author/Presenter: Subhash Ram Prajapati
Ph.D., University of Washington
Email: subhash@nepalmandal.com

Since the mid 2000s, a new form of instrumental folk music has evolved in Nepal that primarily targets the youth urban culture. It is a second wave of musical genres developed after the mixed Nepalese folk pop genre *lok pop*. Many instrumental bands appeared with inspiration from the popularity of the folk instrumental band Kutumba, which was formed in

2004. Currently, there are dozens of these kinds of bands. The bands primarily perform instrumental folk tunes comprised from the various ethnic groups within Nepal, as well as a distinct blend of new compositions and western beats. These bands also occasionally perform folk/pop fusion songs, collaborating with different singers and musicians. Some have also started poetry recitation with the music. The bands play many different traditional and folk musical instruments, such as *sārangī*, *tungnā*, *mādal*, *dhimay*, *dhāḥ*, *nāykhin*, *daphā khin*, *nagarā*, and others. These groups are also touring different parts of Nepal and abroad; but the reception is not uniformly positive.

These artists and bands have challenged many traditional conventions and boundaries generating tension between an aspiration for traditional/folk music and an inclination towards the modern world. These artists and bands claim that they have promoted the music and expanded an audience base for traditional music, but are also blamed by some, especially older musicians, for polluting the traditions by creating "conFusion" music instead. In this paper, I examine the development of new musical trends and controversies inspired by the fusion artists and bands in Nepal. Through the lens of eclecticism, appropriation, and indigenization I explore their music and performances to analyze contemporary Nepalese society in general. I argue that fusion bands are promoting an "alternative modernity" which attempts to incorporate both western technology and native culture.

19. Topic: What it takes to make Nepali Language "4 Credit" course in the State of Washington.

Author/Presenter: Mohan Gurung
Commissioner CAPAA, www.capaa.wa.gov
Founding President NSS, Co-Founder NGTUSA
Email: mbirgurung@hotmail.com

Brief Description: Sharing the best practices and steps taken, lesson learnt to make 4 Credit Course in the State of Washington.

20. Topic: Transformative Sanitation Technologies: A New Path To Safe Sanitation For All

Author/Presenter: Roshan Shrestha PhD; Lead Urban Sanitation Market; Water, Sanitation Hygiene; Bill & Melinda Gates Foundation. Seattle

Email: Roshan.shrestha@gatesfoundation.org

Unsafe sanitation is widely accepted as a chief contributor to waterborne and soil-transmitted diseases, which harm the health of adults and children. Sanitation-related diseases, including diarrhea, cholera, and typhoid, kill nearly 500,000 children under the age of five, each year—more than AIDS, measles, and tuberculosis combined.

Global costs related to unsafe sanitation, including increased healthcare costs and losses in productivity and income, were estimated to equal \$223 billion in 2015. In India alone, annual sanitation-related losses were projected to be more than \$100 billion—equivalent to 5.2 percent of the nation’s GDP.⁴ But India is not an outlier; every year poor sanitation costs the equivalent of 2.4 percent of GDP in Bangladesh, 3.2 percent in Laos, 2.7 percent in Niger, and 3 percent in Pakistan.

Emerging global trends, from climate change to demographic shifts, could make the sanitation crisis even worse. The United Nations estimates that by 2050, 68 percent of the world’s population will live in urban areas (a growth of around 2.7 billion people). This will put increasing strain on already-inadequate city-level sanitation systems and infrastructure. Around 70 percent of that growth (1.9 billion people) will occur in low-income and lower-middle-income countries in Asia and Africa, where water scarcity trends are likely to hit the hardest, causing further stress on valuable natural resources. Currently, 1.9 billion people live in potential “severe” water-scarce areas, such as Cape Town, South Africa, where daily

rationing of drinking and household water use has already become a reality for citizens. By 2050, as much as 30 percent of the global population (2.7 to 3.2 billion people) will be living in conditions of severe water scarcity, annually.

Recently, the World Health Organization and UNICEF reported that over the last five years, sanitation rated as “safe for people” increased by only 3 percent worldwide. This rate is insufficient to achieve progress toward global water and sanitation standards outlined in the United Nations’ Sustainable Development Goals (SDG 6) and urgently needed by people and communities around the world.

Over the last seven years, the Bill & Melinda Gates Foundation has partnered with engineering and technical partners to develop three core groups of technologies that we believe hold the greatest potential as solutions for the urban poor. These include the reinvented toilet, the omni-processor, and the omni-ingestor.

The Reinvented Toilet: To develop innovative solutions that would provide an equally aspirational user experience and degree of safety as sewer-connected flush toilets, without the need for sewers and wastewater treatment plants, the foundation introduced the Reinvent the Toilet Challenge. Through this program, launched in 2011, the foundation has worked with leading engineers and scientists to design low-cost toilets that do not require connections to the electrical grid, water supply, or sewers and that fully process human waste. These no-sewer toilets don’t require drains, pipes, continuous electricity, or treatment plants. Instead, they are self-contained units that treat a household, building, or community toilet’s sewage on-site, at a low cost to users.

The Omni-Processor: Our partners are also developing what might be called the 21st-century eatment plant: machines called “omni-processors” that process waste, kill pathogens, and convert the resulting materials into products that can be sold, such as clean water, electricity, or fertilizer. Omni-processors can be used to augment existing sanitation services within a

city, as part of a fecal sludge treatment plant or complementing a waste-water treatment plant, while potentially providing new revenue streams.

The Omni-Ingestor: While some families are currently able to get their septic tanks and pit latrines emptied by vacuum trucks, many others cannot—because the pits and tanks are too far from a road or too hard to access in a narrow alley, or because their contents are too dry for traditional vacuum pumps to empty them. Our partners are designing a new generation of technologies known as “omni-ingestors” to help address these challenges. These innovations use mobile units to first extract waste from the pits safely for the operator, and then either treat the waste on-site or reduce it in volume so that transportation to a final treatment stage is more efficient.

A huge business opportunity

New sanitation technologies aren't just about doing what's right for human health and the environment—they represent a huge business opportunity for companies that are willing to bring them to market. Estimates show that non-sewered toilets alone potentially present a \$6 billion-per-year global market opportunity in the combined consumer and municipal sectors by 2030, with over half of that coming from emerging economies like India, China, and countries across Africa. Developed countries with well-established sanitation systems and commercial forces that support green building and innovative building practices have much to gain as well: the market opportunity for the U.S. and Europe is an estimated \$1.7 billion.