NewsLetter January 2011 Computer Association of Nepal-USA

WHEN THE QUAKE HITS KATHMANDU…..

A Special Interview Report with Dr. David CALLAWAY M.D. Co-Founder, The Operational Medicine Institute (OMI) At Harvard Medical Faculty Physicians

Overview:
The collision of the Indo-Australian Plate with the Eurasian Plate continues to thrust the Himalayas higher at a rate of 5mm a year. Nepal's precarious position atop the convergence of these two plates makes Kathmandu one of the world's most earthquake vulnerable cities. On April 13, 2010, a 6.9 magnitude earthquake struck the remote and sparsely populated Chinese province Qinghai, resulting in 500 dead and 8000 wounded. An earthquake of similar magnitude in Kathmandu, which houses approximately 950,000 permanent citizens, would cause massive destruction to infrastructure and a large loss of life. At a recent meeting of US and Asian disaster response personnel, experts projected that between 400,000 and 500,000 people would die, hundreds of thousands of citizens would be injured and a million people would be displaced in the event of an 8.0 magnitude earthquake in the Kathmandu Valley. Historically, the Kathmandu Valley suffers one devastating earthquake every 75 years- it has been 76 years since the last major quake.

CAN-USA:
How is the disaster scenario likely to play out in Kathmandu once the great earthquake hits?

CALLAWAY:
Most disasters progress in relatively predictable general patterns. There will likely be large scale destruction of infrastructure and building collapse in Kathmandu. The local population will conduct the majority of the immediate search and rescue operations. This ad hoc response will be limited by access issues and lack of training. Mortality from crush injuries and entrapment increases dramatically after 24 hours. Therefore, the likelihood of any valuable international search and rescue (SAR) support will be limited.

Hospitals and clinics, if not destroyed, will become quickly overwhelmed. The lack of a formal ambulance and first response system in Kathmandu will mean that most people will self- present by foot, hastily formed extraction tool (e.g. wheel barrel) or vehicle if roads are passable. The lack of a strong triage, treatment and transfer plan will result in local facilities being *immediately* overwhelmed by the walking wounded, jeopardizing their ability to treat the more seriously ill.

An immediate and potentially prolonged loss of cellular coverage should be expected. The existing system will certainly be overwhelmed by the volume of calls from the local populace seeking information on the injured or killed. This may lead to difficulty with coordination of Nepalese first response efforts and will undoubtedly hamper the initial international response.

There will be immediate and immense international pressure given the large expatriate and international tourist population in the city center and Thamel region. Calls for action will prompt the Nepalese government officials to take action, any action. The flood of international calls to hotels, embassies, and businesses will place additional stress on the crippled communication infrastructure.

Within days, scores of affiliated and unaffiliated volunteers will pour in on ground via India or direct flights to Kathmandu. These volunteers will create their own stress on the system in terms of housing, food, generation of false economies, security and transportation. They will work in ad hoc facilities, rely on local contacts, and attempt to integrate into existing facilities.

Security will be a critical issue. Looting should be expected. The only realistic response agencies will be the Nepalese military, the police, and, potentially, the Maoist opposition. The political consequences of any large scale mobilization by either the military or the Maoists must be considered and planned for prior to a disaster.

CAN-USA:
What would happen to the population and the key facilities?

CALLAWAY:
I would expect a very high case fatality rate in the city. The city is densely populated, has narrow roads that will impede response efforts, and has a noticeable lack of uniform building codes − buildings without rebar or reinforced concrete are very susceptible to collapse. It appears that despite the passage of a law about 10 years ago to promote the construction of earthquake resistant buildings, very few buildings adhere to these requirements.

Hospitals in Kathmandu Valley are extremely vulnerable.[i] It is unclear what formal action has been taken in the past eight years to harden local infrastructure. In December 2008, the National Society for Earthquake Technology (NSET) stated that, "most of the hospitals in Kathmandu would be so badly damaged that medical services would be virtually impossible for months."[ii]

The OMI has no visibility on the construction of key facilities. However, given the public information regarding construction in general in Kathmandu, it is reasonable to assume at least 50-75% destruction with a significant (i.e. greater than 7.0 magnitude) earthquake. Electricity will be disrupted- even if the power plants survive, water will bescarce, fuel will be nearly impossible to find. As a result, government agencies, hospitals and response agencies will find it difficult to operate.

CAN-USA:
From your brief visit to Nepal last year, what is your understanding about the most immediate acute needs Nepal would face following an earthquake?

CALLAWAY:
Evacuation of Kathmandu will be the most immediate challenge given the high population density, poor building structure and tight roads. This will be followed by rescue and recovery efforts, creation of temporary shelter sites outside of the city (ideally at pre-designated sites with suitable road access and helicopter landing zones), identification of a reliable water source, and creation of mobile medical units. Perhaps one of the most overlooked, but most complex, problems in Nepal will be the rapid establishment of a mortuary services unit that can quickly dispose of the deceased in a manner that is culturally and religiously acceptable.

Needs common to most large scale disasters will include clean water (or a mechanism for obtaining/ purifying water) at a volume of 15L/person/day, food, vaccinations (especially against measles), temporary shelter, and security.

CAN-USA:
Nepal is landlocked and has only one international airport with limited resources. The access roads to Kathmandu are challenging, which makes the situation similar to Haiti's. What can be done to overcome the bottlenecks?

CALLAWAY:
The logistics plan for a Kathmandu response plan would be complex and rely heavily on international partners. There are several planning steps that could help this problem.

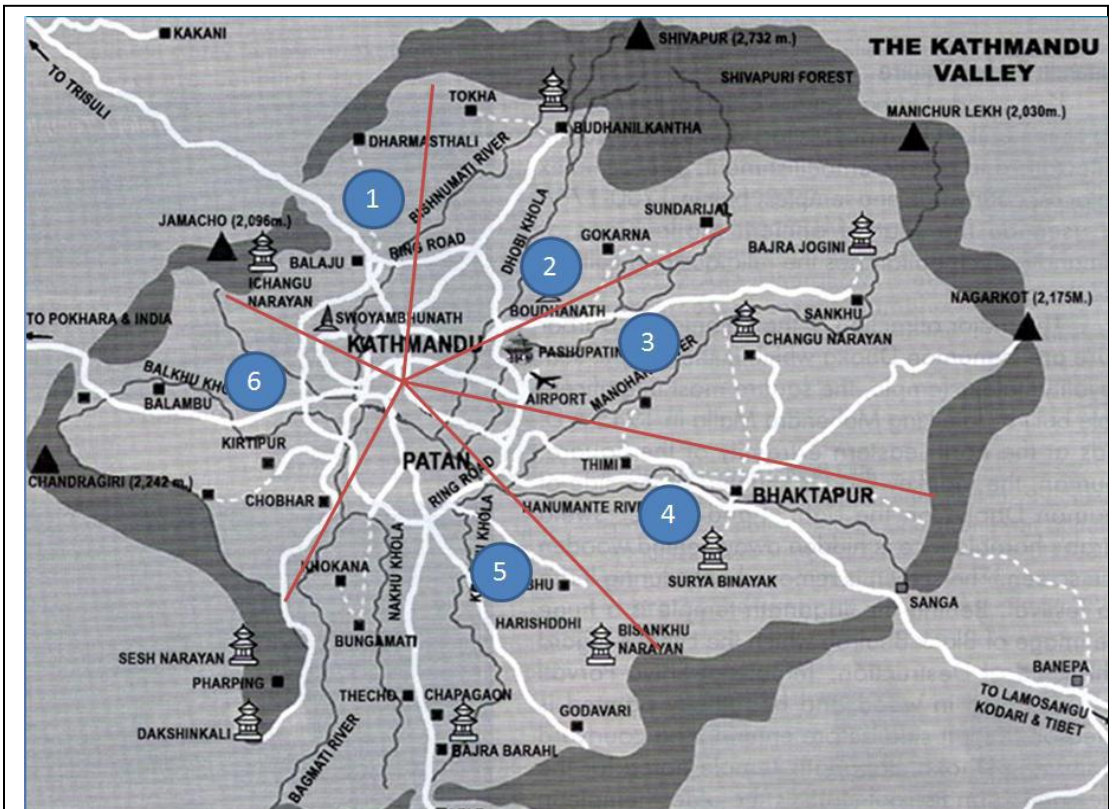
<u>International Access:</u> Generally, access will either be by air or by ground. Air access will be either via fixed wing and rotary platforms to the Kathmandu International Airport, or by rotary platform to pre-designated landing zones (LZ). Ground access will likely be from northern India and rely heavily on private shipping companies, the Indian and Nepalese military, and private vehicles.

The Kathmandu International Airport will become a hub for disaster response. A local or contracted organization should conduct a needs assessment of the airport to assess for vulnerability to an earthquake. This plan should be

utilized to target international partners who can address identified weaknesses and engage in potential mitigation strategies. It is likely that the United States or other Governmental partner will offer to assume control of flight logistics as they did in Haiti. A plan should be drafted that identifies the events that would trigger this request from the Nepalese government. Further, this plan should delineate the operational rules that govern the agreement, identify the local staff that will serve as liaisons with the incoming experts, and create a training plan for "surging" flight capacity. The plan must also include a logistics plan for off-loading equipment, rapidly transporting equipment and supplies from the airport to designated secure storage areas, and increased security at the airport. A maintenance and fueling plan will also be required.

Governmental and military response will rely heavily on rotary wing platforms (i.e. helicopters). It is critical to evaluate potential landing zones (LZ) in proximity to camps and storage facilities in the Kathmandu valley. I would engage an active duty or retired air officer to create a list of mandatory LZ requirements (e.g. GPS coordinates, square footage, identification of vertical hazards, etc). These requirements can then be deployed with site assessors across the valley to identify primary and secondary LZ. I would engage a group with civil military contacts to assist with this process.

<u>Organization:</u> I would divide the Kathmandu valley into specific geographic zones (The number doesn't matter, let's say six). In each zone, I would identify a primary and secondary evacuation site that can securely house a given number of evacuees (for example 20,000), has space for a portable warehouse, can accommodate a medical facility and has clear ground transportation routes. The site should also have space for the largest expected rotary wing platform (i.e. helicopter). The diagram below illustrates the concept, but does not represent actual suggested locations for camps and zone division- this process must be conducted in concert with the local authorities.



Partnerships: The next step is to identify governmental and nongovernmental organizations (NGO) that will be called upon to provide logistical support in the event of an earthquake. Governmental partners will likely include the Nepalese military, the United States, India and potentially China. The prime international NGO with logistics expertise is the World Food Program (WFP). An alternative option is to identify key members of the Nepalese Diaspora who work for transportation companies, airlines, or management consulting firms who can be called upon in the event of an emergency.

CAN-USA:
We at CAN-USA have been concerned about disaster telecommunications preparedness in Nepal. From your broad experience which includes telecommunications, and your first-hand observations in Haiti immediately following the 2010 earthquake, how would you characterize the telecommunication needs immediately following an earthquake of such magnitude?

CALLAWAY:
The telecommunications in a post disaster setting are immense. Communication in the post disaster setting has five major components: non-emergency usage by the general public, emergency usage by the general public, coordination between official first responders, utilization by volunteer response groups, and communication from the government to the local population. As you remember, there was no official communication from the Haitian government for several days post earthquake. It required a member of the US Armed Forces identifying a government official and physically handing him a satellite phone.

The increased prevalence of cellular communication modalities is both a blessing and a curse. Cellular communication is extremely vulnerable post earthquake. The cell towers are relatively susceptible to damage in an earthquake. Likewise, cellular service capacity is rapidly overwhelmed by local populace seeking information on injured or missing loved ones. These two factors make first responder reliance on cellular communication difficult. However, cellular service can be rapidly restored with mobile towers and the deployment of rapid IT emergency response teams such as the CISCO Tactical Operations team.

Current government plans probably rely on land lines, then cell lines, then radio communication, then satellite phones. It is unlikely that all responders in Kathmandu will have access to radios or satellite phones. So, expect major short term communication gaps.

CAN-USA can play an important role in mitigating this risk by performing a gap analysis of the existing system, identifying national, regional and international partners to mobilize in the event of an earthquake, and developing a prioritized interventional strategy. Further, by mobilizing the CAN-USA training network, the organization can improve preparedness, strengthen resiliency through education and improve existing IT frameworks.

CAN-USA:
Many metropolitan areas, the city of San Francisco for example, have annual

mock emergency drills for their disaster telecommunication systems between all first responders and other participants. Is this something that the city of Kathmandu should think about?

CALLAWAY:
Planning and preparedness are critical components of full spectrum disaster management and risk mitigation. However, training and drills cost money and take time. I would first work to establish a local emergency response committee (LERC) that includes the local government, the national government, local businesses, private ambulance companies, tour companies, telecommunications and hospitals. I would conduct a Hazard Vulnerability Assessment (HVA) to prioritize your earthquake related threats. Based on the HVA you can create a tiered training program that allows partial task training, small scale interoperability drills and the establishment of trust. When you build momentum, you can work on a large scale drill.

Examples of large scale drills include the national drill called TOPOFF (http://www.dhs.gov/files/training/gc_1179350946764.shtm) and Urban Shield (www.urbanshield.org). Potential funding sources include USAID, UN OCHA, Gates Foundation, Ford Foundation, private donations, corporate partnerships.

CAN-USA:
The need for medical services following the earthquake would be immense. From your experience, what sorts of challenges will doctors and hospitals face following a major earthquake in Kathmandu? What specific steps can they take now to mitigate some of the challenges?

CALLAWAY:
The medical consequences of earthquakes have been well documented (See Schultz et al. NEJM Col 334 (7). Feb 1996). The medical conditions can be broken into three categories: exacerbation of existing conditions, earthquake related (Minor) and earthquake related (Major). A comprehensive medical strategy is required to address these issues.

First, there is generally an early presentation of a large volume of minor earthquake related injuries (e.g. lacerations, contusions, abrasions). Frequently, within 30-90 minutes, patients with minor injuries will present to local health facilities. A triage, observation and treatment strategy is required to quickly evaluate these patients and move them to areas where providers can perform nonacute medical care and secondary assessments. Without this system, any surviving health care facility will become quickly overwhelmed. Second, seismic events can cause exacerbations of underlying health problems such as acute myocardial infarction, asthma or chronic obstructive pulmonary disease. The shock can even prompt the premature induction of childbirth. These patients frequently require significant resources. Finally, major earthquake related injuries will strain the system. In general, there is a huge need for comprehensive orthopedic care including amputations, external fixation, complex wound management, prosthesis fitting and management, and short term rehabilitation. In addition, the large volume of crush injuries and

compartment syndrome creates an often overwhelming need for dialysis (either hemodialysis or peritoneal dialysis). Without immediate restoration of basic water and sanitation, infectious disease becomes a major medium and long term challenge, as seen with the cholera outbreak in Haiti. Given the endemic cholera in Nepal, the likelihood of a cholera epidemic with significant mortality is exceedingly high.

Continuity of care is a major challenge as international volunteers transiently flood the scene. The destruction of health care infrastructure, the loss of existing records, the need to integrate medical volunteers with language barriers and high patient mobility creates unique documentation and tracking issues. Tens of thousands of volunteers responded in Haiti, but the average length of stay was less than 10 days. This creates issues when implementing care plans for complex, multidisciplinary problems. Systems need to be created to incorporate these international volunteers and local leaders must be trained to manage this influx of personnel.

CAN-USA could assist the development of a comprehensive medical plan in several ways. First, the organization could help to create an online training module detailing the expected medical consequences of an earthquake, management of common post-earthquake medical conditions, and strategies for medical operations in disaster. Second, CAN-USA could help to facilitate the development of an electronic medical record system in Kathmandu. This system could/ should be a basic repository for patient data that could be limited to demographics, past medical history, and relevant conditions. Finally, CAN-USA could help to build redundant communications and information technology infrastructure in designated health care facilities in Kathmandu. This project would leverage the CAN-USA expertise, and if successful, could serve as a model for broader implementation.

CAN-USA:
What is your understanding of the role that the United States Government would play in any efforts immediately following a catastrophic earthquake in Nepal?

CALLAWAY:
The Center for Excellence in Disaster Preparedness and leaders from the US Pacific Command (PACOM) have visited Kathmandu to discuss joint disaster response operations. In July, 2010 the US government facilitated a table top exercise with the Nepalese disaster response community that simulated an 8.0 magnitude earthquake in Kathmandu Valley. The US Ambassador to Nepal has expressed a commitment to joint preparedness and response efforts.[iii]

In practice, the USG will likely have a tiered response. First, the Department of Defense will likely provide direct action support in the form of provision of water, food, shelter, fuel and security. The Department of State will likely offer diplomatic support via the United Nations and calls for international commitments of aid. USAID will likely serve as the coordinating agency funding and advice to the USG. The DOD response will be in hours to days. Real, tangible DOS/USAID assistance will be measured in weeks.

CAN-USA:
What advice would you give Nepali policy makers about specific steps with minimal effort that could be taken which will have an impact in saving lives later?

CALLAWAY:
1. Conduct an all hazards HVA and gap analysis.
2. Pass the legal authority to allow for effective, multiagency emergency response.
3. Identify primary and secondary evacuation sites in Kathmandu Valley.
4. Create standard partnering agreement for international aid organizations.
5. Work with international organizations to prestage emergency supplies including medications, equipment and non perishable foodstuffs.
6. Initiate a local education program in preparedness utilizing multimedia tools such as television, radio, public broadcast, elementary schools and private industry.
7. Create partnership agreement with local private trek guide companies to enlist their staff as first responders in the case of an earthquake. Build this into a formal program through incentives such as tax breaks, free education, provision of supplies, etc.
8. Draft comprehensive planning, preparedness and response plan.
9. Allocate funding for all purpose disaster preparedness.

CAN-USA:
The Nepali Diaspora in the US is keenly concerned about the impending earthquake. In what ways can we help to prepare for this event?

CALLAWAY:
There are several areas the CAN-USA could serve to improve earthquake preparedness in Kathmandu. CAN-USA's knowledge, experience and connections in the information technology field offer several advantages, specifically in the areas of education, infrastructure, and advocacy. CAN-USA can utilize its online training framework to create professional development programs related to disaster preparedness, system redundancy, and infrastructure hardening. The organization can work to improve basic understanding of technology and computer literacy in Nepal. Improved literacy will increase the volume of indigenous knowledge workers who can be mobilized in the event of a disaster.
CAN-USA can also work with the Nepalese government and local businesses to establish Public- Private partnerships to link information technology development with disaster preparedness. Specific projects can include working with local cellular phone companies to identify strategies for prompt infrastructure repair, surging service in event of earthquake, and identifying private funding mechanisms to mobile in the immediate aftermath of an earthquake.
The CAN-USA members in the United States can also begin preparing logistics, staffing, financial and response plans to facilitate the rapid mobilization of US volunteers in response to a disaster in Kathmandu. This administrative preparation will dramatically speed response efforts and can be maintained on the CAN-USA server. Finally, CAN-USA should ensure that they have a

robust and transparent system to handle a large surge in donations in the event of an earthquake.

Additional Resources

1. Disaster Reduction Hyperbase (http://drh.edm.bosai.go.jp/links)
2. National Society for Earthquake Technology- Nepal (NSET) (http://www.nset.org.np/nset/php/CELC_facilities.php)
3. The Operational Medicine Institute (www.opmedinstitute.org)
4. Sample Earthquake preparedness checklist (http://www.redcross.org/www-files/Documents/pdf/Preparedness/checklists/Earthquake.pdf)

i A structural vulnerability assessment of hospitals in Kathmandu Valley. World Health Organization. 2002. Available at http://www.preventionweb.net/files/1944_VL206301.pdf. Accessed January 4, 2010.

ii Nepal: Kathmandu hospitals could collapse in an earthquake - experts warn. Available at http://www.preventionweb.net/english/professional/news/v.php?id=7652. Accessed January 5, 2010

iii Scott DeLisi, US Ambassador to Nepal. Available at http://nepal.usembassy.gov/sp-07-23-2010.html. Accessed January 4, 2010.

Dr. David Callaway is a Board Certified Emergency Medicine physician who practices at Carolinas Medical Center in Charlotte, NC. He served three years as an expeditionary physician, supporting the United States Marine Corps before completing training in Emergency Medicine at the Harvard Affiliated Emergency Medicine Residency, Beth Israel Deaconess Medical Center in Boston. While serving as Chief Resident, Dr. Callaway helped found The Operational Medicine Institute (OMI) at Harvard Medical Faculty Physicians. He is a former Zuckerman Fellow at the Harvard Kennedy School Center for Public Leadership and current Harvard Humanitarian Initiative affiliate faculty member. He has published extensively on disaster response, disaster diplomacy, trauma care and prehospital trauma management. He was recently selected as a Truman Security Fellow and is recognized as an expert in reconstruction and stabilization.

NSET's Effort towards Earthquake Safety

By NSET Staff

The National Society of Earthquake Technology – Nepal (NSET) was born out of the ruins resulting from the Udayapur Earthquake of southeastern Nepal. The impact due to the 6.6 magnitude earthquake with the epicenter depth of 60km was exceptionally high largely because of destruction of non-engineered houses and the total lack of knowledge on earthquake safety and preparedness even at academic and administrative levels. It was apparent that a fundamental paradigm shift was necessary to mobilize factors for greater use of the available scientific and engineering knowledge on earthquakes; the knowledge should be brought to the vulnerable community, and environment should be created for effective implementation of effective earthquake risk reduction measures! A group of dedicated Nepalese professionals took this challenge and started implementing initiatives on earthquake awareness.

Formal establishment of NSET took place in 1993-1994, when conceptual support to such initiative started being received from such international initiatives as the International Decade for Natural Disaster Reduction (IDNDR) and the World Seismic Safety Initiative (WSSI), an undertaking of the International Association for Earthquake Engineering.

NSET is a Non- Government Organization (NGO) focused on Earthquake Risk Management (ERM). Its founding vision has been to help communities in Nepal make themselves safer against earthquake by 2020 AD, and it deeply believes that earthquake protection of greater mass of people even in developing countries in the seismic belts can be achieved by enhancing earthquake awareness of the communities, helping them to understand the seismic risk and advising simple solutions in non – technical language so that it can be easily internalized by local communities. NSET understands the cost effective and simple solutions are better than high tech solutions that might work better, but are outside the reach of the common man of Nepal and the region. To accomplish its vision, NSET is working with local communities to educate them on earthquake risk and helping them to mitigate this risk through community level programs such as earthquake awareness, school earthquake safety program, and community based emergency preparedness program etc. These initiatives combine with policy advocacy and provision of assistance to academic institution for institutionalization of capacities for disaster risk management. Such combination of top- down and bottom-up approaches employed in a mix of formal and informal processes of education has resulted in ample opportunities for co- learning and confidence-building and design and implementation of successful methodologies of earthquake risk reduction that have not only been able to bring complex concepts of earthquake risk management to the "last mile" but also have demonstrated social, economic, cultural as well as technical feasibilities of earthquake vulnerability reduction even in a weak economy country like Nepal.

Innovative Initiatives of NSET

Recent Initiatives:

- Assessment on the Economics of Disaster Risk Reduction (EDRR)
- Developing A Strategy for Improving the Seismic Safety of Schools in Nepal
- Risk Mapping and Shelter Response Planning Program
- Municipal Disaster Risk Reduction Program in Nepal (MDRIP)
- Comprehensive Risk Assessment and Action Planning in Ward no. 2 and 5 of Triyuga Municipality, Nepal
- Earthquake Vulnerability Reduction and Preparedness Program (EVRP) in Muzaffarabad and Mansehra Municipalities –Pakistan
- NSET is working with United Nations Development Program (UNDP) Pakistan for providing
- Comprehensive Disaster Management Program – Bangladesh
- Thimpu Valley Earthquake Risk Management Project
- Up-streaming Community Based Approaches for Promoting Safer Building Construction in Lorestan, Iran
- Program for Strengthening Capacities for Disaster Risk Management in Iran :
- Community Based Disaster Management Program in Kathmandu Valley :
- Collaborative Research and Development on Network of Research Institutes in Earthquake Prone Countries
- School Earthquake Preparedness Program in Jhapa, Rautahat and Kathmandu Valley
- Capacity Building and Knowledge Management: Institutionalization of Earthquake Preparedness in School of Earthquake Affected Areas of Pakistan (CBKMP)
- National Strategy on Disaster Risk Management for Nepal (NSDRM)
- Disaster Preparedness and Response Plan for Safe Drinking Water in the Kathmandu Valley, Lalitpur Sub-Metropolitan City (DPRP)
- Nepal Earthquake Risk Management Program (NERMP)
- Program for Enhancement of Emergency Response (PEER)
- Technical Support for Earthquake Resistant Housing Construction in Pakistan
- Community-Based Disaster Management Project (CBDMP)
- Disaster Risk Inventory/Information Management System

Completed major projects:

- Shake Table Demonstration of PP Band Technique in Pakistan:
- Capacity Building for Reconstruction of Earthquake-Affected Areas of Pakistan (Bagh and Muzaffarabad)
- Kathmandu Valley Earthquake Risk Management Action Plan Implementation Project (APIP)
- Kathmandu Valley Earthquake Preparedness Initiative (KVEPI)
- Disaster Inventory/ Information Management System in Nepal (DIMS)
- Seismic Vulnerability Assessment of Major Hospitals of Nepal.

- Seismic Vulnerability Assessment of Drinking Water Supply Network of Kathmandu Valley
- Municipal Earthquake Risk Management Projects (MERMP)
- Earthquake Risk Assessment of Kathmandu using RADIUS Tool (UNESCO-CCT Programme)
- Project for Pre-Positioning of Emergency Rescue Stores (PPERS)
- Kathmandu Valley Earthquake Risk Management Project (KVERMP)
- Environmental Mapping Projects
- Nepal Gujarat Mason Exchange and Training Program (NGMET)
- Solid Waste Management Project in Dharan Municipality

Ongoing Programs:

- **School Earthquake Safety Program (SESP)**
- **Training Programs on Earthquake-**resistant Construction for Masons and other Stakeholders of Building Industry
- **Public Awareness Program-** Almost all activities of NSET consist of public awareness-raising components. Some important stand-alone public awareness programs are:

Earthquake Safety Day:

Nepal celebrates Magh 2 of Nepali Calendar as National Earthquake Safety Day in commemoration of the Great Bihar-Nepal Earthquake of 1934. The National Society for Earthquake Technology - Nepal (NSET) observes the Day by organizing many activities with the purpose of raising awareness on earthquake risk and reduction issues. This national program is coordinated by the ESD National Committee, chaired by Honorable Minister for Home Affairs, Government of Nepal. NSET has successfully organized ten Earthquake Safety Days since January 1999 with encouraging participation by individuals and institutions from Nepal, India, Pakistan, Thailand, Indonesia, Japan, USA etc. The ESD program typically runs for a week.

Other awareness programs include:

- Earthquake Safety Radio Program: a collaborative weekly program of NSET with Radio Sagarmatha (Kathmandu) and Annapurna FM of Pokhara on earthquake safety.
- Orientation Lectures: given to diplomatic community, rotary clubs, government and other non-government organizations. It's a regular program of NSET
- House owners Consultation Program: This is a weekly program for new house-owners to construct in compliance with the National Building Code. Consultation is provided free of cost.
- Mobile Earthquake Clinics. This is a program for providing consultation on earthquake-resistant construction right at construction sites in Kathmandu.
- Earthquake Vulnerability Tours
- Shaking Table Demonstration
- Community Based Disaster Risk Management Program

The innovative approaches of NSET received wider national, regional as well as international endorsement. UN ISDR awarded NSET with Sasakawa Award (Letter of Merit) in 2002, and the "Shaking Table" of NSET, an improvised awareness- raising tool, received the "Tech Award" (Education Category) in 2004. The approaches of NSET was recognized useful in many countries of the region, and so, NSET started getting invitation and opportunities of assisting communities outside Nepal in implementing aspects of earthquake risk management. Thus NSET has put tremendous efforts at wider knowledge sharing and effective management towards a better understanding of earthquake risk, for reducing the risk factors and assisting communities for better preparedness.

A Welcome Letter from the President of CAN-USA

By Nabin Khanal

On behalf of the Computer Association of Nepal-USA (CAN-USA), I would like to welcome all delegates, participants and observers of Info-Tech 2011. We are delighted to present the CAN-USA Newsletter. On this occasion, I would like to take the opportunity to appreciate and recognize the efforts of our founding president, Mr. Bineet Sharma, who has been instrumental in driving the leadership team of the CAN-USA 2008-2010 term to success.

CAN-USA was born on July 29th, 2007, on the campus of the University of California at Berkeley under the leadership of our founding president Mr. Bineet Sharma. Since then, CAN-USA has officially become a non-profit US organization that aims to promote the professional development of its members and the community at large-- not only in the area of Information and Communication Technologies, (ICT), but in other areas as well. CAN-USA has been working closely with the Computer Association of Nepal (CAN)

CAN-USA consists of members representing different regions of the United States, not just limited to IT professionals. We have affiliations with many other organizations within United States like ANA and ANMA. CAN-USA welcomes any interested persons who would like to promote the development of ICT as well as those who would like to help any other sectors to join the association and benefit from what it offers for its members' professional development.

Since its establishment in 1992, the Computer Association of Nepal (CAN) has grown to be a significant association, impacting the development of the ICT sector in Nepal, gradually becoming an international organization. Its footprints are growing on a global scale, with many branches within Nepal's different cities as well as different affiliates worldwide. CAN-USA is proud to be associated with CAN, an organization that has been instrumental in ICT promotion, including but not limited to legislating ICT policy, promoting ICT professionalism, and showcasing ICT and the like in Nepal and elsewhere.

While working with CAN in Nepal, we wish to set up some goals that can enhance our collaboration to help the people of Nepal. We are currently available to provide professional advice in ICT sectors if desired by any entities in Nepal. CAN-USA believes that a key to the development of Nepal's economy lies in the development of industries based on ICT. Industries based on ICT do not face many of the traditional hurdles of requiring huge capital, slow return on investment, lack of physical infrastructures such as roads, trains, etc. In many developing countries, we can see that the development in ICT sectors has stimulated exponential growth in other industries.

CAN-USA has been providing a platform for people to translate their passion into results. From our establishment, we have organized numerous events to help our community, while coordinating with other organizations as well. Some of these include partnering in efforts to link remote villages to the internet, holding professional networking meetings, and teaching courses in real time by teachers in the US to students attending the lectures in Kathmandu. We also sponsor the annual US-Nepal Technology Development Conference to find innovative ways to use technology to address the real-world challenges faced by people in the developing world. Presently, we are working with the American Society of Nepali Engineers (ASNEngr) and the America Nepal Medical Foundation (ANMF) to research ways in which the Nepali Diaspora can be proactive in anticipating the great earthquake that will visit Kathmandu. CAN-USA also publically recognizes volunteers on an annual basis who go above and beyond their call of duty to serve our community.

One opportunity we see is a program of "knowledge sharing" in Nepal from the US while collaborating with CAN in Nepal especially on topics like how to apply for higher studies, how to write a good resume, or how to prepare for an interview, as well as providing information for telemedicine or information regarding disaster preparedness. In this information age, sharing knowledge is easy and we can reach out to many people with little effort. We must enhance communication between CAN-USA and other local organizations and participate in local events. While attending these events, we must convey the message & goal of CAN-USA as well as understand their need to see where CAN-USA could help.

Nepal has already made significant strides in laying the foundation for the ICT sector. ICT development in Nepal, especially by private sectors, has been proven by the success of CAN InfoTech every year. It is very important to keep this momentum going by working together and getting commitments from all political parties for a common goal: investment into IT infrastructure. For any country, one of the keys to stability and peace is economic growth; the ICT sector in Nepal can be one of those leading industries. This can be established and sustained by Nepal's own resources. The future of ICT development in Nepal is bright.

CAN-USA is ready and willing to help in any way we can. We CAN work together and make a positive impact for the development of Nepal.

Bayalpata Hospital, Achham, Nepal
Operated by Nyaya Health

Nyaya Health is a non profit organization established by medical students at Yale School of Medicine in the United States. It works with the Nepali Government to provide health services in the remote and impoverished district of Achham in the Far Western Region. It currently runs the Bayalpata Hospital, a 15-bed healthcare facility with about 30 staff members and oversees a community health program with about 35 community health workers. It has brought much needed services to an area where previously, there was only one government doctor for a population of 250,000. The current services at Bayalpata Hospital include an outpatient clinic, 24 hours emergency services, delivery, safe abortion, antenatal checkup, HIV/AIDS and TB treatment, Ultrasound services, X-ray service, a diagnostic lab, an in-house pharmacy and 24 hour ambulance service. The next steps for the hospital are building a surgical theater and installing solar power. You can learn more about Nyaya Health's work at www.nyayahealth.org

CAN-USA's 2007-2010 Journey
By Bineet Sharma, Founding President

I am honored and privileged to report the amazing journey of Computer Association of Nepal-USA (CAN-USA) through 2010. It is the journey of a passionate and dedicated team of professionals, who have always thought of doing something to help the "Homeland' as a notion of giving back to the place of one's origin in a substantive and meaningful way. During this short period, CAN-USA has delivered many important projects, provided numerous networking opportunities, established important relationships and helped members and affiliates to grow professionally. This report could be voluminous, but I have tried to summarize important events. Many of these reports have been written by CAN-USA affiliates and published in different media outlets.

Born on July 29th, 2007: The dream of these professionals turned into reality on July 29th, 2007 on the campus of UC Berkeley, CA. CAN-USA was born that day in presence of Mr. Rajan Raj Pant (then general secretary of Computer Association of Nepal – CAN). It was officially registered as a non-profit US organization in California on May 12, 2008. CAN-USA was declared exempt from Federal income tax under section 501 © (3) of the Internal Revenue Code on September 18th, 2009 and exempt from California franchise or income tax under the California Revenue and Taxation Code section 237Dld on October 22nd, 2009.

Our Activities: Since then, CAN-USA has dedicated itself to the professional development of its members and technological progress of Nepal. CAN-USA's members include Nepali and non-Nepali professionals from many disciplines, including, but not limited to: information technologies, the medical, finance, and legal professions, students in institutions throughout the United States, and members from a diverse variety of communities.

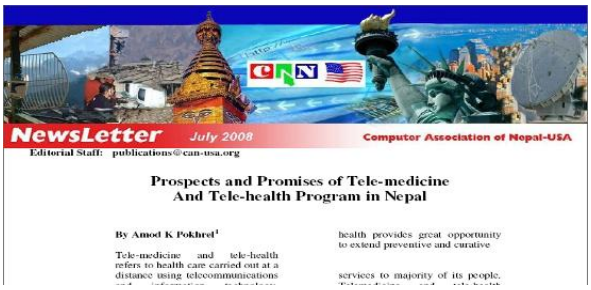
CAN-USA provides a professional support platform that allows its members and supporters to take ideas and turn them into meaningful outcomes. Within a short period of time, this organization has demonstrated this in many ways. We have established meaningful relationships with many organizations and government agencies in Nepal, e.g., High Level Commission of IT (HLCIT), Ministry of Science and Technology (MOST), Planning Commission, USAID, ICIMOD, UNDP. CAN-USA has provided opportunities for its members to grow professionally in the form of regular networking opportunities, publishing technical newsletters, supporting ongoing research and projects and hosting annual technological development conferences. We have also provided significant support to numerous individuals who have left the United States to do development in Nepal.

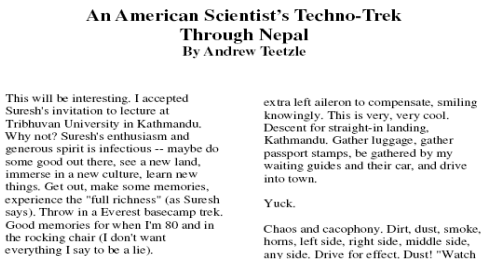
<u>Kurakani with Mahabir Pun in UC Berkeley, CA on December 27th, 2007:</u> On the invitation of Computer Association of Nepal-USA, Mr. Pun visited the Bay Area and spoke at the University of California Berkeley about his projects, difficulties, and success stories. He has made tremendous efforts to create new opportunities and bring Wi-Fi technology into the Himalayan region of Nepal. **Mr. Mahabir Pun** is among seven individuals from Asia, who has won this year's Ramon Magsaysay Award (considered as a Nobel Prize in Asia). Mr. Pun has received this award for community leadership and for his innovative application of wireless computer technology (Wi-Fi) and bringing progress to remote mountain areas by connecting his village to the global village. Professor Alexander von Rospatt, Chair of the Department of South and Southeast Asian Studies - UC Berkeley chaired the program.

First Technological Conference in 2008: CAN-USA successfully completed the Inaugural US-Nepal Technology Development Conference, held on July 12-13, 2008 at the University of California at Berkeley. The conference assembled leading world researchers, members of private industry, and the Nepali Diaspora on the topics of: telemedicine, rural connectivity, e-governance, and emergency telecommunications infrastructure pertinent to challenges faced by Nepal. The conference assessed the present state of Nepal's technological development, promoted successful efforts, and provided networking opportunities.

His Excellency, Ambassador of the Republic of Nepal to the United States, Dr. Suresh Chalise, provided the opening remarks for this conference.

Newsletter: CAN-USA publishes bi-annual technical newsletters, covering subject matters relevant to the professional growth of our members and technological progress of Nepal. This is the sixth publication of CAN-USA.




An American Scientist's Techno-Trek
Through Nepal
By Andrew Teetzle

This will be interesting. I accepted Suresh's invitation to lecture at Tribhuvan University in Kathmandu. Why not? Suresh's enthusiasm and generous spirit is infectious -- maybe do some good out there, see a new land, immerse in a new culture, learn new things. Get out, make some memories, experience the "full richness" (as Suresh says). Throw in a Everest basecamp trek. Good memories for when I'm 80 and in the rocking chair (I don't want everything I say to be a lie).

extra left aileron to compensate, smiling knowingly. This is very, very cool. Descent for straight-in landing, Kathmandu. Gather luggage, gather passport stamps, be gathered by my waiting guides and their car, and drive into town.

Yuck.

Chaos and cacophony. Dirt, dust, smoke, horns, left side, right side, middle side, any side. Drive for effect. Dust! "Watch

Educational Tourism: We promote educational tourism by providing networking opportunities for those traveling to Nepal or US and ask if they could spare a few hours of their time during the trip to talk to our members and stake holders in their areas of expertise.

Knowledge Sharing: Knowledge, in the fields of technology and development, is widely available in the United States. The need for such knowledge in this information age is critical in Nepal. However, the availability is either limited or prohibitively expensive. Transfer of Knowledge (TofK) Initiative attempts to bridge this gap by leveraging the knowledge and experience of technologists in the United States. At the same time, the knowledge of challenges and opportunities in Nepal is largely contained in Nepal. TofK aims to create a two-way knowledge exchanged mechanism, bringing principal and pertinent facets of technology, society and business to one knowledgebase aiming long-term development of Nepal.

Professional Networking April, 2009: Today, professional networking among the Nepali diasporas is generally confined to friends and is mostly at a social level. CAN-USA aims to bring these professionals together so that we can help each other in our own fields. At the same time, some can employ CAN-USA's platform towards ICT development projects in Nepal. Such a platform will also serve as a key resource to students and recent college graduates to advance in their career paths. CAN-USA commences a series of professional networking sessions, where individuals come to share their ideas and experiences in an informal setting. Silicon Valley professionals meet every third Thursday of the month in an informal setting to network and brain storm with business ideas.

Second Technological Conference in July, 2009: CAN-USA held its second annual US-Nepal Technology Development Conference in Oakland, California. The conference focused on several critical issues facing developing regions of the world. Both Nepal and India have undergone massive transformations in the last ten years. However in both nations, many people continue to live in several different centuries simultaneously, making the subject matter in this year's conference especially timely.

The topics ranged from: the state of technology in Nepal, the transfer of technology to Nepal, the Green Enterprise, remote education, career management for beginning engineers, and skills of the Diaspora in addressing the technological needs of Nepal.

Earthquake Disaster Preparedness Initiative, March 2010: An in-depth review and analysis of various relief efforts undertaken in response to past earthquake disasters worldwide can provide valuable lessons in identifying areas of strength as well as areas for further improvement in Nepal's disaster preparations. The Nepali diaspora, having broad expertise and a sincere concern for Nepal, is in a position to provide expert advice and relevant resources to aid Nepal in disaster preparedness. By collaborating with concerned authorities in Nepal on targeted preparation efforts, the Nepali diaspora can have a meaningful impact in saving lives and properties in such disasters.

This initiative, jointly led by the America Nepal Medical Foundation (ANMF), the American Society of Nepalese Engineers (ASNEngr), and the Computer Association of Nepal-USA (CAN-USA), will serve as a basis for a general strategy to investigate areas needing improvement in Nepal's earthquake preparedness and to identify interested and willing local partners to assist in implementing targeted solutions.

The initiative is supported by Association of Nepalis in Americas (ANA), Association of Nepalese in Mid-West America (ANMA), Nepalese Association in Southeast America (NASeA), Non-Resident Nepali National Coordination Council (NRN-NCC) of USA and twelve other local organizations.

Joint Panel Discussion on Earthquake Disaster Preparedness May, 2010: A joint panel discussion on earthquake disaster preparedness for Nepal was organized by ANMF/ASNEngr/CAN-USA in Houston, TX during the 4th regional conference of NRN.

Prabudhda Dahal (V.P, CAN-USA) explained the possibility of complete failure of communication and transportation infrastructure during an earthquake and stressed on the need for alternate communication mediums such as walkie-talkie or satellite phones to build a back-up communication system. He also underscored the need for effective use of technologies such as Geographic Information System (GIS) before, during and after a major disaster. For such a massive task, he stressed on the need for cooperation between the three agencies and urged the audience to get involved through membership or by volunteering time.

A General Meeting On Joint Disaster preparedness initiative in Kathmandu in June, 2010: During the meeting, Ms. Nisha Thapa (executive com member CAN-USA, President of Shayeta.org, Vital Member of the Joint Nepal Earthquake preparedness task force) gave presentation on "ANMF/ASNEngr/CAN-USA Initiative on Earthquake Preparedness and Disaster Relief in Nepal". Later, Nisha wrote in her remarks: "Bringing together some of the best minds and organizations of Nepal in this historic precedent for establishing a functional disaster relief infrastructure has already made strides in the

effort. For the agencies such as the Nepal Society of Earthquake Technology (NSET), who have been doing this work for years, a new platform has been established to prop up the importance of their work. Joint initiatives between organizations such as the Computer Association of Nepal (CAN) - USA, the American Society of Nepalese Engineers (ASNEngr) and the American Nepal Medical Foundation (ANMF) have been forged to develop disaster response plans. Various organizations that attended the meeting were hopeful that this joint initiative led by U.S Diaspora would bolster their ongoing efforts by integrating technology with disaster preparedness."

Third Technological Conference in July, 2010: Computer Association of Nepal-USA (CAN-USA) joined hands with American Society of Nepalese Engineers (ASNEngr) and held their very First Joint Annual Conference in Boston, MA. For both organizations, this was their 3rd annual conference. The theme of this conference was "*Engineering and Science for Sustainability, Clean-Technology and Disaster Preparedness*". The conference provided a common venue for the engineers, scientists, and related professionals to discuss on relevant topics like Earthquake Disaster Preparedness and Clean Technology while promoting further collaborative efforts. The conference included three technical sessions.

Career Development Workshop on September 26th, 2010: Computer Association of Nepal-USA (CAN-USA) in collaboration with Nepal Ko Yuwa (NKY) organized a successful workshop on ways to start and succeed in small business enterprises in the United States. Held in the heart of the Silicon Valley, innovation hub of the world, this engaging workshop was geared to provide expert advice and guidance to the Nepali Diaspora seeking to jump-start or switch their careers to the small business world. Experts from ANewAmerica organization provided insights and strategic tools to start and expand a small business while University of California - Santa Cruz Extension program coordinator shared information on relevant training certifications pertaining to business and technology. This highly interactive program also featured successful entrepreneurs from the Nepali community who shared their inspiring stories and meaningful experiences. Please click here to watch video and the presentations. **Nepal Visit, December 2010:** I had the opportunity to meet with Dr. Amod Mani Dixit, Executive Director of NSET, and his senior staffs in NSET head quarter at Bhaisepati. We held a strategies session on our approach on disaster mitigation. Special focus was given on how professional organizations like CAN-USA, ASNEngr, and ANMF will work together with NSET going forward and bring goodwill of Nepali diaspora and the international organizations in the planning. The NSET headquarter is equipped with telecommunication infrastructure to withstand major earthquake and will be instrumental in serving as a command center in case of a major earthquake hits the valley.

Mercantile CEO Mr. Sanjib Raj Bhandari was gracious to give me a tour of the newly constructed Mercantile Data Center building near Narayan Hiti. This building is constructed to withstand 8.5 Richter scale earthquakes and equipped with shear wall which is designed to resist the lateral force (shear) which causes the bulk of damage in an earthquake. All the openings in the wall are closed with metal sheet with proper exhaust and fire proof partitions. There are four redundant fiber optic cables reaching the building with adequate UPS for the servers. The building itself is powered by two generators with a three month's supply of diesel in the building. In addition to the two redundant land connections through fiber to the outside world through different ISPs, this building also has VSAT on top of the roof connecting to Singapore ISP. It definitely gave me a better feeling about the ability to restore communications infrastructure in case of a disaster.

I also had the opportunity to meet with Dean of the Institute of Engineering (IOE) in Pulchowk, Dr. Bharat R Pahari, Asst. Dean of Academic Administration Dr. Subarna Shakya, Deputy Head of Department of Electronics and Computer Engineering, Dr. Surendra Shrestha, Dr. Nanda Bikram Adhikari of RF and Microwave Research Lab and many other faculty. We had a brainstorming session to implement knowledge sharing. Some of the projects on the immediate horizon are to start a Career Management and Mentorship class for third and fourth year students and joint research guidance of student with the US counterpart. I was especially delighted to visit the Radio Frequency and Microwave lab which was founded few years back, with a big effort by CAN-USA executive member Mr. Suresh Ojha.

The meeting with CAN executive members was equally fruitful. We discussed our mutual projects and discussed ways to implement them in a most effective manner. Regular video conferencing for exchange of ideas, providing networking and ways to promote Nepal ICT industry were discussed. Passionate discussion also ensued on whether CAN-USA should or should not change its brand name.

CAN-USA election for 2010-2012 terms: As per the by-laws of CAN-USA, the board of directors were elected and duly instituted on September 26th, 2010 by the election commissioners, Mr. Dorji Lama (lead), Mr. Amod Pokhrel, and Ms. Samana Ghimire. The board is led by Mr. Nabin Khanal as the President.

Last but not least, I am very excited to report that CAN-USA, during its short existence, has been able to provide high impact projects to the community, and it is because of the professionalism of its members. It was absolute joy for me to lead this phenomenal group of smart personalities in converting their passion into the meaningful results.

AMERICA NEPAL MEDICAL FOUNDATION

3309 Robbins Road, PMB #302 ◆ Springfield, IL 62704
email: anmfinfo@anmf.net ◆ *web:* www.anmf.net

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America Nepal Medical Foundation is a non-profit organization founded in the United States. Given North America's leading role in medical science today, a unique opportunity exists for professional and academic cooperation between Nepal and North America. Considering these aspects, a concerned group of Nepalese and North American physicians and other like-minded professionals took the initiative to establish ANMF in 1996.

The mission of ANMF is to help Nepal strengthen its existing medical capabilities through fostering academic and professional cooperation between Nepal and North America in the areas of medical care, education and research

ANMF's counter part in Kathmandu, America Nepal Chikitsa Pratisthan (ANMF/Nepal) initiates and oversees projects in country supported by ANMF. Canada Nepal Medical Society is our second sister organization.

Since its inception, ANMF has provided numerous continuing medical education programs partnering with medical institutions in Nepal in areas such as internal medicine, cardiology, infectious disease, and pulmonology.

Examples of past projects include renal histopathology training for Bir Hospital, training for speech therapist to aid in rural Nepali children after cleft palate surgery, supporting a pilot project for uterine prolapse surgery in remote areas, hospice education and training program, providing anesthesia machine for the Disabled Children's Hospital in Banepa, supported training for Nepal's first electrophysiologist in a cardiology program in Singapore, pediatric optholmology training at BPKIHS in Dharan, and provided education and training seminars in snakebite management in Chitwan.

Current programs include continued support for Nyaya Health Project that provides high quality care for the poorest districts in western Nepal, for a corneal transplant project at the Lumbini Eye Institute, support for a rural oral health education program and training and educational support for a state-of-the-art pediatric and neonatal ICU at Patan Hospital.

ANMF is currently collaborating with ASNEngr and CAN-USA on a project for disaster preparedness for Nepal in the event of a major earthquake. This is an important opportunity to bring together different professional Nepali organizations to focus on the goal of mitigating the effects of an impending disaster.

About American Society of Nepalese Engineers (ASNEngr)

By
Rajendra K. Shrestha, Ph.D., Vice President and
Ramesh B. Malla, Ph.D., President
American Society of Nepalese Engineers (ASNEngr)

This article intends to provide a succinct overview of the American Society of Nepalese Engineers (ASNEngr) about its history, objectives, and some of the activities and accomplishments to date, since its inception in 2007.

Introduction:
The American Society of Nepalese Engineers (ASNEngr) is a non-profit organization of engineers, scientists, and technologists with the main objective of bringing Nepalese engineers, and related scientific and technological professionals together on a common platform to support each other, exchange ideas, and promote engineering, scientific and technological services to the benefit of humanity in Nepal and across the globe.

ASNEngr was officially launched at the General Organizing Meeting on Sept. 2, 2007 at the joint Annual Convention of Nepalese Association of Southeast America (NASeA) and Nepalese in Mid-West America (ANMA) in Atlanta, Georgia. ASNEngr was incorporated in the State of South Carolina, U.S.A. on Sept. 24, 2007 and received the tax-exempt status from the U.S. Federal Government's Internal Revenue Service's effective June 22, 2010. ASNEngr bylaws were approved and adopted effective January 1, 2008. Since then, its bylaws have been amended three times; the third amendment was adopted on June 16, 2010.

Membership to ASNEngr is open to all qualified individuals with Nepalese origin/descent/heritage and friends of Nepal in the following grades: Member, Senior Member, Fellow, and Student Member.

The Society's website "www.ASNEngr.org," in operation since July 2007, is a treasure trove of information about ASNEngr and its activities, and offers the facility for on-line application for its membership.

Purposes and Objectives:
The main purposes and objectives of ASNEngr are as follows:

- To bring together people of Nepalese heritage and culture and other interested individuals who are engaged in the profession of engineering, or closely related scientific and technical areas for exchange and sharing of research, educational and practice related knowledge and experience, professional interaction, and collaborative activities, and provide opportunities to enhance their technical and professional competence.
- To collect, disseminate, and exchange technical knowledge through publications, conferences, seminars and workshops.
- To promote engineering, scientific, and technological advancement in Nepal.

Management:
The ASNEngr Executive Committee is constituted of six (6) officers including President, Vice President, General Secretary, Joint Secretary, Information Secretary and Treasurer, and five (5) At-Large Members. In addition, it has a Board of Directors with a maximum number of thirty (30) At-Large members, six (6) officers and the Immediate Past President.

ASNEngr is served by twelve (12) Standing Committees with different functionalities to accomplish its specific purpose or activity.

Activities and Accomplishments:
ASNEngr has been actively engaged in various activities ranging from organizing annual meetings to technical conferences to panel discussions to informal meetings with the Nepali Community to conducting charitable programs. Some of them are as noted below:

Annual Meetings and Technical Conferences: On July 4-5, 2008 in Baltimore, Maryland; on July 3-4; 2009 in Oakland, California; and on July 3-4, 2010 in Boston, Massachusetts. The last Technical Conference in Boston was jointly organized with Computer Association of Nepal-USA (CAN-USA) with the theme "Engineering and Science Sustainability, Clean-Technology and Disaster Preparedness."

Panel Discussions: "Knowledge Sharing for Career Advancement," Oakland, California on July 3, 2009; and "Earthquake Preparedness and Disaster Relief in Nepal," Houston, Texas on May 28, 2010, Lexington, Kentucky on Sept. 4, 2010, and Boston, Massachusetts on July 3, 2010.

Also, a brief introduction about ASNEngr and its activities was presented at the 11th Annual Convention of Nepal Engineers Association (NEA) in Kathmandu, Nepal on May 14, 2009.

In addition, ASNEngr has organized various informal get-togethers such as picnics and lunch/dinner meetings with the Nepali communities in the U.S.A., and Canada to inform about its objectives and activities and attract their attention to its membership and activities. Such events were held in Chicago, Illinois (July 27, 2008 and January 31, 2009), Vancouver, Canada (September 9, 2008), Tempe, Arizona (April 11, 2009), Denver, Colorado (June 7, 2009), and the Greater Washington, D.C. Area that was well-attended by 160 Nepalis including Nepalese Ambassador His Excellency Dr. Shankar P. Sharma (November 20, 2010).

Personal Computers pre-owned by Siemens were obtained and refurbished by the ASNEngr members and distributed to the Bhutanese refugees of Nepalese descent in the Chicago area in 2009.

ASNEngr is planning to collaborate in various research, education and professional development activities with engineering, scientific professional societies, academic institutions and government agencies in Nepal.

ASNEngr is currently in the process of preparing the guidelines to launch the awards, grants and scholarships program and planning to start this program by awarding few scholarships to the engineering students in Nepal.

ANMF/ASNEngr/CAN-USA Joint Initiative on Earthquake Preparedness in Nepal:
Three voluntary Nepali professional organizations: America Nepal Medical Foundation (www.ANMF.net), American Society of Nepalese Engineers (www.ASNEngr.org), and Computer Association of Nepal-USA (www.CAN-USA.org) have joined hands in a joint proactive effort to unify the Nepali diaspora worldwide and combine their technical and professional knowledge and resources to strategically prepare for the devastation that will impact Nepal in case of an earthquake disaster. To this effect, ANMF/ASNEngr/CAN-USA Joint Initiative on "Earthquake Preparedness and Disaster Relief in Nepal" was launched on March 31, 2010. This initiative is widely supported by the National and Regional Nepali organizations such as Non-Resident Nepali National Coordination Council of USA (NRN NCC of USA), Association of Nepalis in Americas (ANA), Nepalese in Mid-West America (ANMA), and Nepalese Association of Southeast America (NASeA), as well as the local Nepali organizations across the U.S.A. A committee including the representatives from all the leading and supporting organizations has been set up and partnership with the National Society for Earthquake Technology - a non-government/non-profit organization based in Nepal – has been established to achieve its objectives. The following three articles related to the subject matter of earthquake and this joint initiative have been published by ASNEngr members:

-Kayastha, Kanhaiya and Malla, Ramesh B., "Role of Structural Engineers to Create Earthquake Resistant Buildings and Infrastructure in Nepal," Published in NRN Souvenir, May 2010 and in NepalNews.Com on June 06, 2010 (see http://www.nepalnews.com/main/index.php/component/content/article/13-top-column/6596-role-of-structural-engineers-to-create-earthquake-resistant-buildings-and-infrastructure-in-nepal.html).

-Malla, Ramesh B. "ANMA/ASNEngr/CAN-USA Joint Initiative to Prepare a Position Paper on Earthquake Preparedness and Disaster Relief for Nepal," Published in NRN Souvenir, May 2010.

-Shrestha, Rajendra K. "Necessity of Earthquake Preparedness in Nepal" Published in The Himalayan Times, April 15, 2010, Voice of Asia, April 16, 2010, Laskus, May 30, 2010, NRN Souvenir, May 2010 NepalNews.Com on July 24, 2010, Nepal Vision, Oct. 2010 (http://www.nepalnews.com/main/index.php/component/content/article/13-top-column/7933-necessity-of-earthquake-preparedness-in-nepal.html).

ASNEngr Officers, Executive Committee, and Board of Directors (2010-12):

Currently, the following individuals are serving as Officers and members of the Executive Committee and the Board of Directors of the Society.

Officers and Executive Committee:

President:	**Board of Directors:**	
Ramesh B. Malla, Ph.D. (CT)	*Ramesh B. Malla, Ph.D. (CT) -- Chair*	*Pradeep Khanal (CA)*
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Pradeep Khanal (CA)	*Yubaraj Budhathoki, P.E. (VA)*	*Bishnu Phuyal, Ph.D. (IL)*
Information Secretary:	*Komal Dutta (IL)*	*Pratibha C. Phuyal (IL)*
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Smarika Paudel Sitaula (IL)	*Samana Ghimire (CA)*	*Ankur Sharma (IL)*
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Upendra Karna, D.Engg., P.E. (NJ)	*Upendra Karna, D.Engg., P.E. (NJ)*	*Rajendra K. Shrestha, Ph.D. (TX)*
Sagar Onta, P.E. (TN)	*Kanhaiya Kayastha, S.E., P.E. (CA)*	*Smarika Paudel Sitaula (IL)*
Prakash Shrestha, P.E. (TX)	*Shyam KC, Ph.D. (D.C.)*	

More information on ASNEngr can be found on its website at http://www.ASNEngr.org.

Spotlight: Rubber Plantation Industry in Nepal

By: Tilak Bhandari
Senior Rubber Expert.
tilakbhandari@hotmail.com

Natural rubber is one of the most important raw materials in the world for transportation, defense and medical industries. It is used for the manufacture of more than 40,000 products including 400 medical items. It is largely produced from Hevea brasiliensis plantation in South Asia. It is a high value and green material crop. The world's rubber need is around 21 million tons per year.

Based on research conducted in 1989 by Gorakhkali Rubber Industry Ltd., as a joint venture with Sudha Falrus Pvt. Ltd, Jhapa, Hevea cultivation is commercially highly viable in the Eastern Terai districts of Jhapa, Morang, and Sunsari and lower parts of Ilam. The pioneer plantations have shown very encouraging results, yet Hevea plantation covers only 150 ha. in different locations such as Sanischare, Budhabare, Dhaijan, Surunga, and Prithvinagar Village Development Committees of Jhapa, The average yield is 1796 kg. per hectare, and 80 percent of production is attributable to small farmers. The current natural rubber price in the international market averages $5/kg.

In Nepal, the consumption of natural rubber has been increasing consistently over the last several decades. The production so far is 20 metric tons per year, while consumption is 12,000 metric tons (US $ 30 million per year). It has been estimated that by 2020 AD, the demand for natural rubber is expected to exceed 20,000 metric tons per year. In the Eastern Terai, deforestation or illegal cutting of trees is increasing, which makes it necessary to plan for the rubber plantation by the public and government.

We are encouraged by the expansion of rubber cultivation in the Eastern and North-Eastern States of India more or less under similar conditions. Eastern parts of the Terai region could be safely and confidently called suitable for commercial production of rubber. From a preliminary but detailed study, it can be concluded that 15,000 to 20,000 hectares of land in the districts of Jhapa, Morang, Sunsari and the low elevation areas of Ilam (less than 450 meters) could be brought under rubber cultivation. This will indeed meet the domestic requirements of natural rubber. Well-maintained plantations would yield an average of 2,000 kg of dry rubber per hectare per year valued at Rs. 5 lakhs ($7,150) at the current price. The trees yield rubber for about 26 years starting from the

seventh year of plantation. The cost of production is relatively low because of the availability of good land, infrastructure facilities, and reasonable cost of labor. The Ministry of Agriculture and Cooperatives should offer free research, training and extension services through the Rubber Board, Nepal, at all stages of production ranging from credit provision, site selection, nursery establishment, and bee-keeping to crop processing, grading, packing, manufacturing technology, and market access. The government will need to pay attention to all these elements of production for the success of small and large rubber plantations in the country. Small-holder plantations provide more flexibility and are considered more competitive than industrial plantations today. In addition, supporting planters and producers in forming cooperatives would also be necessary to maximize their involvement in the initial phase of development of the rubber sector in Nepal.

Bonus payment:

Scientists also recommend other ways of earning income from rubber plantation including timber, rubber seed, oil cake, honey, and orchids. For example, the average timber yield from a hectare of rubber plantation at the end of 33 years of its economic life is 250 cubic meters (Rs. 30 lakhs or about $40,000). Furthermore, natural rubber helps mitigate weather-related disasters that we see happening in all parts of the globe. Rubber is a very environment friendly tree, and helpful for the entire agricultural sector and the economy.

Internationally, markets now operate in carbon trading and carbon offsets. It is estimated that the amount of GHG (greenhouse gases) offset that 10 fast growing rubber trees can provide is equal to the yearly footprint (10 tons of carbon) of an average person living in the US and Europe. 500 plants per hectare will produce 500 tons of carbon generating $12,500 or NR 900,000 of direct benefit for rubber growers at the current price of $25-30 per ton.Rubber trees absorb atmospheric carbon, and through trade in carbon markets provide direct gains to growers.

World scenario:

Natural rubber is a main raw material for vehicle tires. 73% of natural rubber produced in the world goes to manufacturing tire-related products and other vehicle components. In 2009, vehicles sales fell in the US and EU but increased steadily in Asia, particularly in China and India. New vehicle sales in China increased by around 2 million and in India by around one million whereas South America is estimated to demand about 5 million new vehicles per year. Natural rubber has an increasing role to play in helping to meet such growth in demand.

The International Rubber Study Group (IRSG) says there will be no decline in rubber prices until 2020. Rubber experts recommend rubber as a top plantation investment in the future.

Recent Developments:

We have gathered a team of highly accomplished professionals and experienced Nepali expatriates in diverse fields and have established the **Institute of Rubber and Jatropha**

Research−Nepal as a pioneer non-profit corporation for Nepal, registered in the State of Texas. We will soon have this Institute registered as a non-profit (501)(c)(3) organization. Our main goals are to conduct research in two high value cash crops (one industrial and one bio-diesel energy crop) in Nepal, and engage in outreach activities.

Without delay, the Nepal Government needs to implement a massive action plan for commercial rubber plantation with the help of World Bank, USAID, and other interested agencies such as Wal-Mart Foundation, and Bill Gates Foundation. Natural rubber is a crop that is economically profitable, socially beneficial and environmentally desirable.

About The Author: Tilak Bhandari is a current employee of WALMART, McKinney-5211, USA. He is a former certified natural rubber expert of Gorakhkali Rubber Industry Ltd / and Member Secretary, Rubber Board, Government of Nepal. He is a professionally active member of American Society of Horticultural Science and the Association for the Advancement of Industrial Crops USA. At present he is serving a State of Texas registered non-profit corporation as the Executive Director-of the Institute of Rubber and Jatropha Research-Nepal.

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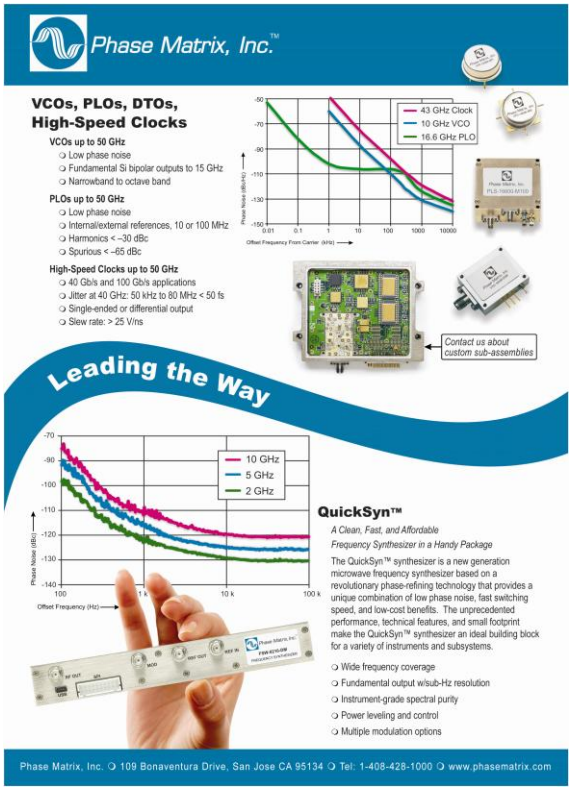

Telemedicine in Nepal and its Future

Samana Ghimire
nepsdg@gmail.com
Intuitival Surgical Inc.

Nepal, situated in the southern rim of the Great Himalayas, is well known as Sangri-La for her breath-taking natural beauty arising from the world's highest peak, the Mount Everest. However, this beauty comes with a price of its own. The rugged topography makes it very difficult to run roads and railway tracks along the sides of steep mountains and hills. Nepal is a landlocked country, with only 4,000 sq. km. of water area, including rivers with steep slopes, and thus very unlikely to have any waterways. Needless to say, other expensive means of transportation like air traffic do not seem practical either. All of this affects Nepal in many areas, one of which is health care.

With approximately 30 million people, over 85 percent residing in rural areas, Nepal is one of the most unhealthy countries on earth with least modern health care facilities and infrastructure. Death rates in Nepal are still high, with high rates of both curable diseases and personal injuries. Nepal has approximately 0.21 doctors per 100,000 people and 0.2 hospital beds per 1,000 people. Most of the doctors reside within the urban areas. Thus, the majority of people in rural areas have little to no access to modern health care facilities.

Nepal is not only behind in health care, but it also suffers from high unemployment. 42% of Nepalis are living below the poverty line and 47% are unemployed. The situation was exacerbated by the decade-long armed conflict that ended in 2006. Despite the sluggish economic growth and recent political turmoil, however, Nepal has made tremendous progress in the telecommunication sector. Just a few years ago, less than 2 percent of households had access to a telephone. There were 371,800 telephone lines and 80,000 internet users in 2002, but these numbers have grown significantly in recent years. Even though state-of-art technology is financially infeasible, learning about new technology is very much encouraged in Nepal. To combine proper health care throughout the country with emerging technology, there exists a new field called Telemedicine.

Telemedicine is the use of telecommunication technologies to deliver medical services to locations that are not easily accessible for health care professionals. This technology allows, for example, a doctor living in Kathmandu valley to see a patient living in a remote village in Lamjung, provided the necessary equipment is available. A basic tele-medical station needs video conferencing equipment such as a computer with internet access, a video camera, and few medical devices to start with. Each tele-medical station should be connected to a hospital from where it can get medical support in terms of medicines and manpower. Since more than 800,000 Nepali citizens are living outside of Nepal, "Skype", one of the video chatting applications, has received immense admiration for its ability to connect loved ones remotely. It is the same basic concept in telemedicine where instead of a family member, a medical doctor many kilometers away can see, talk to, and treat patients.

A person who is trained to use a computer and a video camera, and has some training in the medical field is able to run a tele-medical unit. Affordable medical devices such as a blood pressure machine, blood sugar monitoring device, electrocardiogram (EKG or ECG) monitoring device, stethoscope, etc. can be used. The use of tele-medical units looks promising for preventative and diagnostic purposes; sometimes for curing as well. The way a tele-medical unit works is, for example, a patient comes to the unit with a chest discomfort. The trained personnel (a medical technician) at the unit listens to his heart with a stethoscope, checks his blood pressure with a blood pressure machine, takes his temperature, records his EKG signal via EKG machine, and sends the information to a medical doctor in the hospital to which this particular unit is connected. The medical doctor at that hospital reads the report from the medical technician, then talks to the patient via a video camera and diagnoses him and advises him for any further follow-up procedures. A chest pain could be simply from strenuous exercise or it could be a sign of a serious medical problem. Another example could be where a patient comes to the unit with a rash on her body. The medical technician takes images of the infected area and sends them to the doctor at the remote hospital. The doctor then follows up with the patient via video conferencing. Seeing and talking with a doctor rather than just a technician will make the patient feel confident with her treatment without having to do days of traveling to go to a hospital.

Telemedicine opens doors to a wide area of health care. Different health areas can benefit from this concept; for example, transferring medical images like X-rays or images of skins for interpretations, microscopic images for pathology, remote ICU monitoring, ambulance monitoring, etc. Also, the computer that is used for video conferencing can be used to keep electronic health records, which makes it easier for doctors in different areas to see the patient's history. Since the tele-medical station will be the medical hub in the particular village, it will be relatively easy to get people together and talk about health issues that need to be addressed. Furthermore, videos on first aid and other simple medical procedures, guidelines to recognizing symptoms of deadly diseases like heart attack and stroke, nutritional information, and much more can be shared throughout the community. Informed individuals can take better care of themselves. Overall, there is great potential for preventive medicine in the country.

Information about the possibility of faster care is also spreading in Nepal through a few pilot telemedicine programs. Nepal Wireless Networking Project team has established telemedicine program between Nangi, Ramche, and Tikot villages, which are connected to Om hospital in Pokhara. Similarly, Kathmandu Model Hospital is being connected to Dolakha General Hospital and to other rural clinics in Makawanpur district. Doctors and patients have communicated in these units via video conferencing which seems to make these programs promising. In August 2010, Nepal Research and Education Network (NREN) hosted, jointly with Asian Institute of Technology (AIT), a two-day workshop on telemedicine. E-Network Research and Development (ENRD) is leading in one of the most important areas of telemedicine, viz., wireless communication.

In the US, companies like Cisco and Qualcomm are working on secure and reliable wireless communication protocols and companies like 3M, Intel, Philips, General Electric (GE), and Intuitive Surgical are working towards making tele-medical equipment. Because of the ease in technology transfer, once initiated, this field can migrate rather

quickly. The geographical layout, the growing population, and neglected rural areas call for help in Nepal. Telemedicine could be one promising avenue.

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