Commitment to Excellence

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KIST Newsletter

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• December 2018

Doing What Works

KIST does its best each day – This is how and why the College prepares its cherished student community for an excellent tomorrow. Our values and goals further define us as we are an ethical set-up with a professional approach and a clear social conscience. Distinctive, trustworthy, and committed are three words that speak much about us and what we do. Surely, the KIST Fair is the correct platform for this purpose. Perhaps, an institution is no more, nor less, than what it does.

Institutionally, KIST's priority has always been its students – a prized set of top-notchers drawn from different parts of the Valley, and the country. Student engagement defines KIST in action. Our students invariably like what they do here, and that's what makes them happy. They're always free to do the right thing. Regular ECA or CCA activities such as fairs, competitions, and projects lead to positive thinking, productive involvement, and refreshing entertainment. Students are nurtured to become competent, self-reliant, decisive leaders with a global perspective in a challenging corporate world. This KIST Fair is no exception to our pursuit of excellence in action leading to visible youth empowerment.

KIST FAIR 2075
Fostering Talent
SCIENCE • IT • MANAGEMENT
22 Mangsir 2075, Kathmandu

Another feature is our community togetherness – that of stakeholders, managers, faculty & staff, students, and parents or guardians. This bonding strengthens intra-college relationships and inter-links the widespread well-wishers of the College and its illustrious alumni wherever. The advantage of our oneness is assured progress for all. We aren't insular: Society, at large, is our extended community. Consequently, our sense of community extends to actual collaboration with other schools and colleges in exciting, enriching doings like Imagineering or Art & Craft in KIST Fairs. Widening our outreach, we now invite school students in the Valley for contests to enrich the lives of both the visitors and the participants!

Creative education – relevant to students' lives – is what we value and what our scholars do. Although we focus on the valued triad in today's knowledge economy – science, IT & Management – to be aware of the soft-power of blended learning, and to manage goals, we forever invite innovative ideas or methods into our well-defined curricula. We insist on our bright, hard-working students getting topmost positions in Board or University examinations. Academic results matter deeply for us, so does deep learning with intellectual stimulation. The projects in this Fair are likely to reveal extraordinary talent and evident promise offering much-needed solutions to local issue-based needs.

Organizational upgrading – In a world ever on the move, we ensure that we keep abreast of most educational innovations or the latest practices worldwide. Ours is an institution modernized and made efficient through a competitive process, be it e-technology or classroom pedagogy to mention a few improvements. Unquestionably, growth is a non-negotiable objective for any reputed establishment; success has no meaning without solid growth. Notwithstanding changes, we continue to serve as an exclusive bridge in Kathmandu between Secondary and Tertiary education.

Galore are the professional opportunities provided which introduce young intellectuals to systemic learning of higher calibre. Sound understanding of subject knowledge is enriched through the collaborative approach of intra-college and inter-college initiatives especially team project work. Scholastic gains harvest rewards – scholarships or certificates – and also form the basis for long-term professionalism.

Career advancement is perennially kept in mind while handling the passage of every student at KIST. Whether this means doing business themselves, or managing business houses, or joining technical teams, our students eventually end up in upscale positions or jobs. We encourage entrepreneurship but don't discount the importance of professional livelihoods. Placements and scholarships grace the profiles of our alumni, and they admit that their alma mater plays a vital role in their ongoing achievements.

Summing up, actions speak louder than words . . . Accomplishment is a logical corollary to committed service. Excellence for us is no longer a struggle: It is the way of life at the College. We have, undeniably, because of a sound work ethos become a powerful admixture for individual, social, and national development.

All that we do at KIST is to do more than expected!

In this issue

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Emergence of Vector-Borne Diseases in Nepal

Kishor Pandey, PhD

Vector-Borne Diseases (VBDs) are illnesses caused by pathogens and parasites in the human populations due to bites of infected arthropod species. Vectors are living organisms that transmit infectious diseases from humans to animals, and vice-versa. Vectors are normally bloodsucking insects that ingest diseases producing micro-organisms (viruses, bacteria, and parasites) during blood meals from infected hosts (human or animal), and transmit them to new hosts (human or animal) during their next blood meals. The most important vectors found in Nepal are mosquitoes, sandflies, mites, bugs, and ticks (Figure 1). They cause serious and fatal diseases: five major VBDs namely malaria, kala-azar, lymphatic filariasis, dengue, and Japanese encephalitis in Nepal (Table 1). There are also other VBDs which are unfamiliar to us. They include chikungunya virus, zika virus, and scrub typhus which have been recently introduced to Nepal. Zika virus is one of the most recently reported VBDs in Nepal's neighboring countries. These VBDs are emerging, re-emerging, and finally spreading to new areas of Nepal.

It is believed that these vectors spread to different parts of Nepal due to changes in climate, land-use patterns, and the rapid movement of people. Environmental changes are also causing an increase in the number, and the spread of, many vectors in different areas of Nepal. During the monsoon and post-monsoon, there is an increasing threat of VBDs in Nepal. These VBDs affect both urban and rural areas including the capital city of Nepal, Kathmandu. The vectors mainly flourish in areas with poor living conditions. Malnourished and weakened people with low immunity are most vulnerable to these diseases. VBDs play a negative role in poverty reduction and the economic development of Nepal. The important VBDs in Nepal are briefly introduced in the following paragraphs.

Table 1. Characteristics of Vector-Borne Diseases in Nepal.

Diseases	Pathogen	Reservoir	Principal Vector
Malaria	*Plasmodium falciparum* *P. vivax*	Human	*Anopheles fluviatilis* *An. maculatus* complex
Kala-azar	*Leishmania donovani*	Mammals	*Phlebotomous argentipus*
Lymphatic filariasis	*Wuchereria bancrofti*	Humans	*Culex quinquefasciatus*
Dengue	Dengue virus (Flaviviridae)	Humans	*Aedes agepti* *Ae. albopticus*
Japanese encephalitis	Japanese encephalitis virus (Flaviviridae)	Pigs, birds	*Culex tritaeniorhynchus*
Chikungunya	Chikungunya virus (Togaviridae)	Mammals	*Aedes agepti* *Ae. albopticus*
Zika	Zika virus	Mammals, birds	*Aedes agepti* *Ae. albopticus*
Scrub typhus	*Orientia tsutsugamushi*	Mammals	*Leptotrombidium deliense*

Important Vector-Borne Parasitic Diseases in Nepal

Malaria

Previously malaria was endemic in the inner Terai and the hilly regions but now it is endemic in 65 out of the 75 districts of Nepal. In the last decade, malaria cases decreased significantly. But sporadic cases in new areas and imported cases are still increasing. Malaria is caused by Plasmodium parasites transmitted from one person to the other by the bites of infected female Anopheles mosquitoes, which are active mainly between dusk and dawn. Five parasite species cause malaria in humans and Plasmodium falciparum and P. vivax are the most common. P. falciparum causes very severe malaria which can lead to death if timely treatment is not done. The most common symptoms of malaria are high fever, chills, headache, fatigue, muscle and joint pain, nausea, vomiting, and neurological complains. Early diagnosis and prompt treatment of malaria is a key factor in controlling this disease. There is no vaccine against malaria.

Kala-azar (Visceral leishmaniasis)

Kala-azar was first reported in the Terai region of Nepal in the 1980s. Until 2003, it was endemic in only 13 districts of lowland Terai areas of the eastern and central region of Nepal that border India's state of Bihar. Despite a declining trend of kala-azar incidence in Nepal after 2003, it is now increasingly reported from non-endemic districts including hilly and mountain regions of Nepal. Our team molecularly confirmed kala-azar for the first time from the mountain region of Nepal. Kala-azar is a vector-borne disease caused by the protozoan parasite Leishmania donovani. It is transmitted by the bite of an infected female sandfly, namely Phlebotomus argentipes. The disease is characterized by fever for more than two weeks with an enlargement of the spleen and liver, anemia, progressive weight loss, and darkening of the skin. The disease is fatal if not treated in time. Till now there is no vaccine for this disease.

Lymphatic filariasis

Lymphatic filariasis (LF) is a public health problem in Nepal. It was first recorded in Nepal in 1956. It is endemic in 61 out of 75 districts of Nepal. LF is also known as elephantiasis transmitted through the bite of an infected female Culex mosquito. It is spread from infected persons to uninfected persons by infected mosquitoes that release large numbers of small worm larvae (microfilariae), which circulate in an infected person's bloodstream. The worms grow and live in an infected person's lymph vessels for about 7 years and divide in the lymphatic system. This causes inflammation and eventually blocks the lymphatic system and causes a disfiguration. It causes significant morbidity and disability, impeding socio-economic development. The Government of Nepal started mass drug administration to eliminate LF from Nepal.

Important Vector-Borne Viral Diseases in Nepal

Dengue

Dengue is an emerging viral disease in Nepal since the first case reported in 2004. It was initially reported from the lowland Terai region of Nepal but now it is rapidly spreading to hilly districts including Kathmandu valley. Dengue is a VBD transmitted by the bite of a mosquito infected with the dengue virus. The Aedes aegypti and Ae. albopticus mosquito are the primary vectors of dengue in Nepal. These mosquitoes live in urban habitats and breed mostly in man-

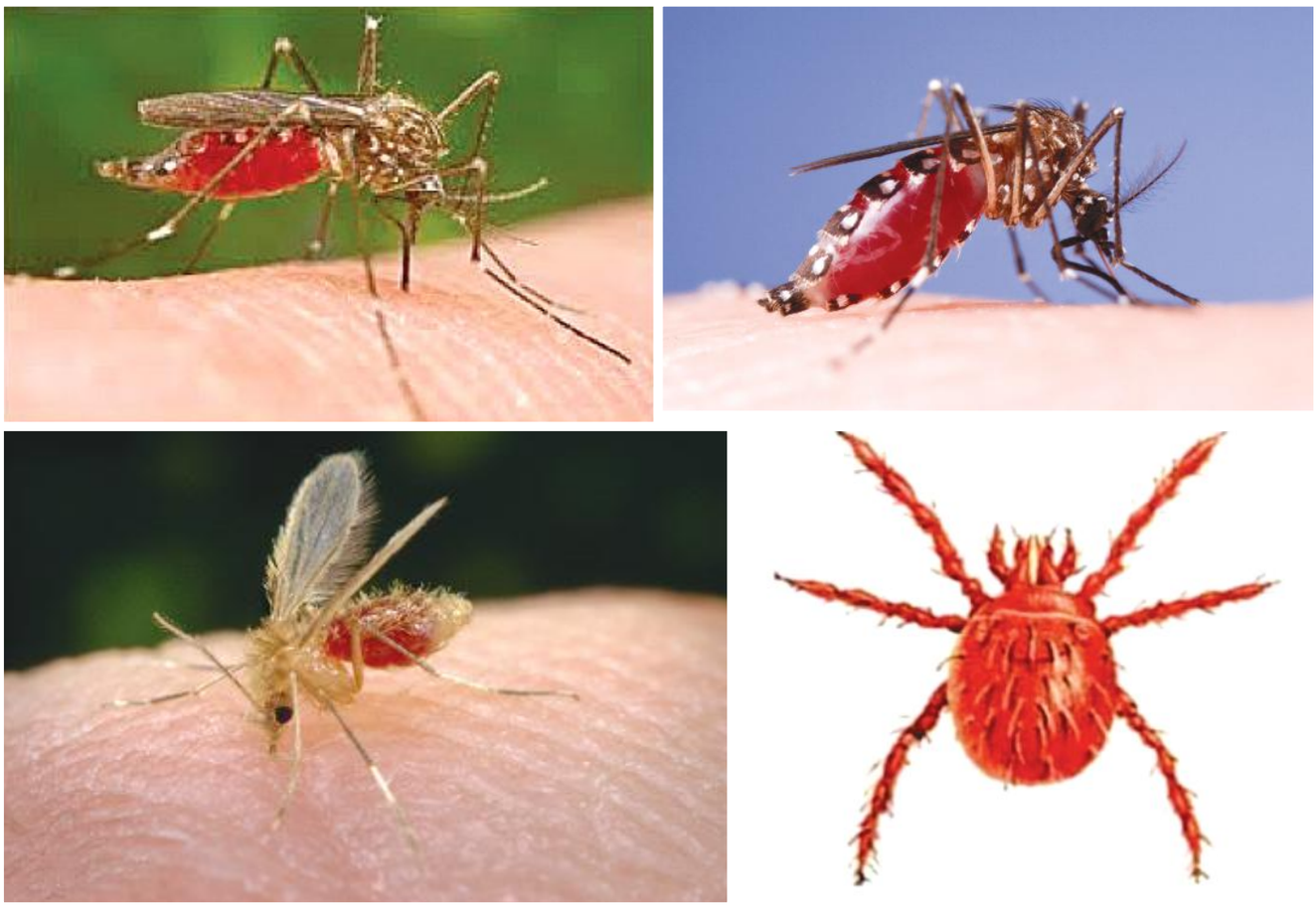

Figure 1. Vector of important vector-borne diseases of Nepal. Top left, *Anopheles* (vector of malaria); top right, *Aedes* (vector of dengue, chikungunya and zika virus); bottom left, *Phlebotomous* (vector of kala-azar); bottom right, mite (vector of scrub typhus)

made containers. Unlike other mosquitoes, these mosquitoes are day-time feeders. Their peak biting periods are early in the morning and in the evening before dusk. Dengue is a severe, flu-like illness. People suffering from dengue have symptoms like high-grade fever, severe headache, muscle and joint pains, nausea, vomiting, swollen glands, or rashes. Severe dengue is potentially a deadly complication due to plasma leaking, fluid accumulation, respiratory distress, severe bleeding, or organ impairment. Dengue itself is rarely fatal, but severe dengue is potentially fatal, with symptoms including low temperature, severe abdominal pains, rapid breathing, bleeding gums, and blood in vomit. No effective antiviral medications exist for the treatment for dengue infection. In cases of severe dengue, it is critical to maintain the patient's body fluid volume. No commercial vaccine against dengue is available yet.

Chikungunya

In 2015, our team for the first time molecularly confirmed the presence of chikungunya virus in Nepal. It is one of the important emerging VBDs in Nepal. There is a similarity in the signs and symptoms of chikungunya and dengue which increases the risks for misdiagnosis and underreporting of chikungunya virus infection in the dengue-endemic areas of Nepal. Chikungunya virus is transmitted by the bite of infected female Aedes agypti and Ae. albopictus mosquitoes which also transmit dengue virus. It generally causes mild illness but sometimes can lead to severe and life-threatening complications. The most common symptoms of chikungunya infection are fever, chills, headache, nausea, vomiting, joint pain with or without swelling, low back pain, and skin rash. Specific treatment is not available while the vaccine is under development.

Japanese Encephalitis

Infections with the Japanese encephalitis (JE) virus moved northward in India and began to be seen in Nepal in the late 1970s when epidemics occurred in lowland districts bordering India (in western and eastern Nepal) in 1978. Mostly, JE cases in Nepal are confined to the low-land plains of the Terai but reporting of JE cases from the non-endemic hill region of Kathmandu valley is evidence that JE virus can cause the encephalitis even in hilly districts. Although most reported JE cases in Nepal were initially confined to 24 districts in the lowland Terai, JE virus transmission is now established in hill and mountain districts of Nepal, including those in Kathmandu valley, which were previously considered non-endemic for this disease. There are reports of a spatial cluster of JE incidence with a shift from the Terai lowlands to hill and mountain regions after 2005. JE is an important virus transmitted by the bite of infected Culex mosquitoes. It is a zoonotic disease. The pig acts as a reservoir host to this virus. The virus is further transmitted to humans when bitten by mosquitoes who have already bitten host pigs. The virus attacks the central nervous system of humans, causing encephalitis: an infection of the brain. The patient starts vomiting, suffers a severe headache and fever, gradually becomes unconscious, and nears death due to brain swelling. Even if the patient survives, he or she remains with a lot of deficit, both physical and intellectual. Such a dangerous disease which is so widespread in Nepal has no treatment. There is a vaccine for JE virus, which the government is trying to make available in mass.

Zika Virus

Zika virus continues to spread to new territories worldwide. It was first noticed as a cause of microcephaly in newborn babies in Brazil in 2015. It is transmitted by the Aedes agypti mosquito that also spreads dengue and chikungunya viruses in Nepal. Till now there is no report about the presence of this disease in Nepal. It is possible that Zika might also be present and may spread in Nepal during dengue epidemic time. It is predicted that the zika virus is already circulating in Nepal but not yet confirmed. It is difficult to detect Zika because symptoms are mild, and patients may not seek treatment in time. The main symptoms include mild fever, skin rashes, red eyes, and joint pain, while some persons may develop muscle pain and headache which is similar to dengue.

Important Vector-Borne Bacterial Disease in Nepal

Scrub Typhus

Scrub typhus is an emerging VBD of Nepal, and it is recently spreading in different parts of Nepal. It occurs during the rainy season, although it was widely reported in the post-monsoon season too. Scrub typhus in VBDs is transmitted by the bite of an infected mite known as "Chigger". The mite gets infected by feeding on the body fluid of mammals mainly the mouse or rat, and passes on the infection to humans. Symptoms generally appear between five to 20 days after the bite of an infected mite. A sudden onset of fever with chills, severe headache, red eyes, and rashes on the trunk are common symptoms of Scrub typhus. It also causes severe pneumonia and acute respiratory distress syndrome.

Strategies to Prevent and Control Vector-Borne Diseases

Vector-borne diseases are increasing every year in Nepal. Most of the VBDs have no vaccines, and drug resistance is an increasing problem. Most of the VBDs are transmitted by the bite of infected mosquitoes or sandflies. To avoid VBD infection, the following measures should be adopted:

- Early diagnosis and complete treatment of vector-borne diseases
- Using long-lasting insecticide-treated bednets
- Indoor residual spraying with insecticides every 3-6 months
- Spraying outer surfaces of domestic animal shelters, and other damp places
- Using insect repellants
- Improving environmental management
  - Reducing breeding habitats of insects
  - Improving waste management
  - Removing stagnant water
  - Using biological control for insects
- Modification of house conditions
- Personal protection against insect bites
- Staying inside the house during peak biting hours.
- Wearing trousers/pants and long-sleeved shirts inside the house
- Integrated vector management
- Effective disease surveillance: This can be done by active, passive or sentinel case finding.

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Cryptography

A Brief Introduction

Shital Thapaliya

Cryptography is derived from the ancient Greek word kryptós (hidden secret) and graphein (to write). It is the art of converting a message into something unintelligible so that unwanted parties cannot read it. Only the authorized party having a key is able to read the content. The process of converting a message into one which is unintelligible is called encryption, and the process of converting the unintelligible message back to the original message is called decryption. Furthermore, various uses of cryptographic tools enable professionals to maintain the integrity and availability of data.

For a long period of time cryptography was a concern only for governments, academia, and the military. Old carvings on tombs of Egypt around 1900 BCE show the concept of hiding messages. Some transposition methods in which one letter is transposed to another were popular as classical cryptographic methods. Ancient Romans and Greeks used transposition to convey their secret messages.

Research and analysis of cryptographic tools increased during the 1st and 2nd World Wars. The Germans developed a machine named Enigma which was said to be Unbreakable. The English scientist Allan Turing developed a machine which could decrypt a message encrypted by Enigma without having the exact key. After the end of World War II, the digital age started, and the era of modern digital cryptography began.

In our digital world, data are stored and transmitted digitally. Among few early digital cryptographic algorithms, DES (Data Encryption Standard) was the most popular one. It was developed by IBM, and used as a federal standard encryption algorithm till 2001. AES (Advanced Encryption Standard) which is faster and more secure has replaced the DES algorithm.

Every digital thing issuing from or coming to our smart phones, personal computers, bank accounts, credit cards, cloud storage, crypto-currencies, or block chains relies on the use of cryptographic tools. Thanks to cryptography we can maintain the confidentiality, integrity, and availability of data.

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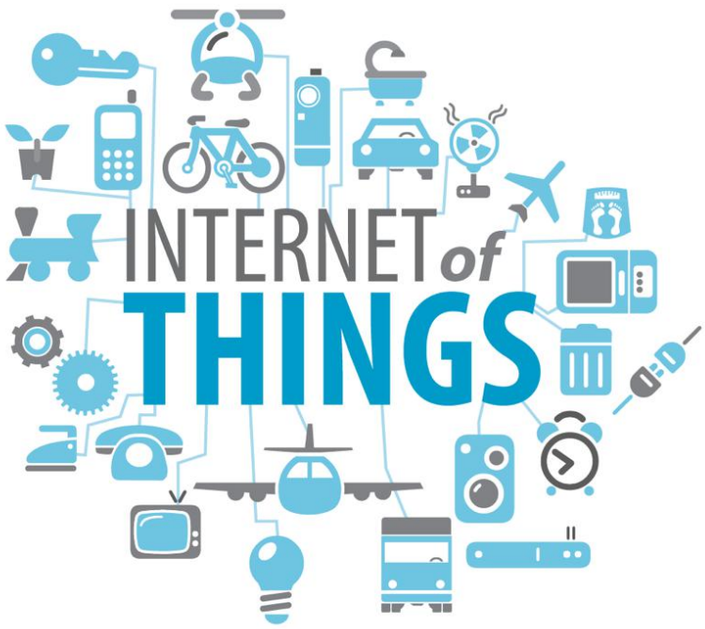
IoT: The Future is Now

Er Prakash Gautam

In the present world, wherever we go we hear the term Internet of Things (IoT). IoT is one of the technologies which creates a buzz in groups of ever-emerging technologies. IoT is seen as a technology that will change our daily lifestyle in ways we didn't imagine before.

But Internet of Things is a commonly misunderstood phrase. Whenever people talk about IoT, they think it refers to things like an app for you to turn your lights on or heat your water kettle. In reality, however, IoT is a world-vision of interconnected devices, vehicles, buildings, and other appliances. It is a technological utopian future where all these devices communicate and interact with each other and perform independent actions without the need for human intervention. IoT is not only the turning of a home heating system on and off remotely but also the system being able to use a real time weather forecast and adjust its temperature accordingly.



"Devices communicate and perform independent actions without the need for human intervention."

IoT is a blanket term that is used to refer to various technologies, appliances, and devices that are connected to the Internet. The term "Internet of Things" was coined by Kevin Ashton who worked for Procter & Gamble, and considered remote access as essential to IoT as it which would allow computers to manage all individual things.

The IoT devices connect and communicate to each other via a hub device. The world of IoT runs on what are called sensors and actuators. Sensors are systems that sense the world around them and actuators are physical machines that do things. So, the sensors take in information and the actuators respond to it by making changes to the world and environment around them.

The list of connected devices is no more limited to laptops and smartphones; it is expanding to include connected cars, smart homes, connected wearables, smart cities, and connected healthcare. The number of connected devices across all technologies is expected to reach 100 billion by 2020 creating a huge impact on the world economy. As per the Cisco report, IoT will generate $14.4 trillion in value across all industries in the next decade!

The IoT is not a hype anymore; it has already arrived. IoT is now being used across all spectrums of our lives. IoT in conjunction with machine learning and neural networks has been developed that helps us to take precise and informed decisions.

One of the major and most visible usage of IoT has been in the development of the Smart Home system where it is being used for various home automation tasks and surveillance. IoT has also seen its implementation in the creation of Smart Cities where efforts are being made to incorporate technology for infrastructural requirements and some vital concerns like traffic management, waste management, water distribution, electricity management, and surveillance. The use of IoT has also allowed for sensing of soil moisture and nutrients, controlling water usage for plant growth, and determining customized fertilization so as to increase agricultural yield. Companies like Google, Uber and Porsche have been using IoT and machine learning to create self-driven cars. IoT has also seen extensive use in healthcare: A common example of this is where the elderly wear IoT-enabled slippers that can detect when a person falls and automatically call an ambulance.

But the IoT future is not all that rosy: it has the potential to change from a technological utopia to a technological dystopia…

One of the defining characteristics of IoT is that these interconnected devices can be controlled and accessed from anywhere. When everything is accessible from anywhere, it is also hackable from everywhere. According to Symantec, IoT attacks increased 600% between 2016 and 2017. In a world where IoT is used in all aspects of our lives, we should really weigh the risks against the reward.

"When everything is accessible from anywhere, it is also hackable from everywhere."

The smart home system which includes cameras that capture videos 24/7 (voice enabled devices listening to us at all times) invade our privacy inside the four concrete walls of our own rooms which become 'glass' walls transparent to the makers of smart home products and hackers. The use of IoT in healthcare is also not without its risks. Implantable cardiac devices such as pacemakers and defibrillators have been found to have vulnerabilities that could allow a hacker to access a device. Once a hacker is connected, he/she could deplete the battery or administer incorrect pacing or give shocks. There was a news story of US Vice President Dick Cheney's pacemaker's wireless connectivity being disabled by doctors to avoid any hacking attempts. IoT enabled vehicles have also been shown to be vulnerable to attacks. On Fiat vehicles, researchers were able to take control of the entertainment systems, wind-shield wipers, and were even able to disable the accelerators, all wirelessly. In response, Fiat announced a recall impacting 1.4 million vehicles.

So, are you excited about IoT or scared?

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Energy Demand versus Energy Supply and Energy Savings

A Necessity to Model Energy Systems with Advanced Optimization Techniques and Policy Mechanics

Er Shree Krishna Khadka

Introduction

The burgeoning population and the corresponding economy has brought an increase in energy demand which has, in turn, resulted in an expansion of fossil fuel-based power plants in the energy mix worldwide. Nonetheless, CO2 free experiences have also been proposed in order to fight climate change and mitigate the contribution of the energy sector. Energy efficiency improvement and renewables have been proposed as the best no-regret option for these tasks. It is now necessary to focus on the interaction between energy efficiency measures and additional renewable energy supply to fulfill the energy demand. Specifically, this helps to investigate the trade-offs between savings and supply when analyzing future energy scenarios. These analogies can be performed with advance optimization tools and an energy system model, which will be very useful to identify optimal weighting of savings in future renewable energy scenarios thus shaping the future dynamic energy system towards a configuration that could experience a wide use of energy in a balanced way. At the same time, such models can be used to examine the energy policy critically which can assist ambitious targets for energy savings that are important for reducing CO_2-emissions and the dependency on fossil fuels. Large saving potentials exist, however, excluding the properties of energy supply with regard to marginal fuels and marginal capital costs. This may lead to optimal socio-economic solutions. That is, it is necessary to develop methods and models to address both energy saving and energy supply to ensure optimality in investments on both sides simultaneously. For this, dynamic aspects of costs curves and the energy system modelling will be essential.

Objectives

1. Identify and quantify technical, economic, and social barriers for potential energy savings
2. Analyze implementation strategies, evaluate incentive schemes, and find optimal trade-offs between efficiency improvements and additional renewable energy supply
3. Evaluate macro-economic effects of efficiency improvements and alternative incentive schemes
4. Contribute to the development of methods and theory in the intersection of energy systems, behavioral economics, energy economics, and stochastic programming

Expected Outcomes

The outcomes can be presented according to the scientific and social fields respectively. The main anticipated scientific results will be:

1. A method for aggregating technical saving potentials and the construction of dynamic cost curves
2. Contribution of real option theory and stochastic programming in explaining how uncertainty is affecting energy saving investments in industries
3. An extended energy systems' model integrating investments in energy savings
4. Analyses of incentives, barriers, and policy instruments for energy savings
5. Development of a small macro-economic energy model describing energy saving investment behavior in both industry and households

On the other hand, the main anticipated results for society will be:

1. A decision support tool for implementing energy savings
2. Assessment of barriers for investments in energy savings, evaluation of policy instruments, evaluation of investments in savings versus increased renewable supply, and for energy savings suppliers improved targeting of end-users likely to implement savings

Procedural Approach

1. **Clarify the value of different kind of energy savings:** The goal of energy savings is to optimize the use of energy available. This implies the reduction of energy demand, CO2 emissions, and the dependency on fossil fuels. Energy savings can be addressed differently, according to the end-user considered. Thus, the use of energy from different customers will be investigated in order to address/propose correct energy savings.
2. **Tool to compare saving cost curves with supply cost curves:** The marginal costs curves are often used to find the least cost combination of savings and renewables while aiming at certain environmental targets. Cost curves for individual technologies give a static picture of the costs related to savings and supply technologies. Cost curves for heat savings in buildings, savings in processing energy, and electricity savings will be created. Furthermore, a tool will be developed for comparing saving cost curves with supply cost curves to find trade-off between certain renewables and energy efficiency targets.
3. **Extend the energy system optimization model:** The proposed tools will be translated in mathematical terms and implemented in optimization software. The energy systems optimization model will be extended in order to consider the new end-use sectors (households, industry, or others) and a detailed description of the building mass. Energy-savings investments will be also included.
4. **Analyze different policy scenarios:** Once the optimization tool will be extended, simulations that consider analyses and policy scenarios will be performed to find an economic optimal mix of savings and supply while meeting GHG reduction targets. The outputs from the simulations aim at giving a guidance on how to optimize energy saving initiatives to exploit peer effects through social networks.

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Oops!!!

Suresh Giri

You may be thinking this exclamatory heading is related to a paradigm used in the programming field, i.e. the Object-Oriented Programming System, that maps programming to the real world. Yet, your assumption is mistaken; I'm going to talk about the other meaning of this exclamation. “Oops there is a problem in our internet connection”, I thought with my temperis towards ISP (Internet Service Provider). Now you may think that this is just a problem of mine, again you are wrong this one is a generalized hazard that every youngster face in daily life.

Hard to believe? Let’s demonstrate it, I reached my apartment after office, unfortunately there was Oops in my internet connection, although this was a usual one. This time it worries me more. Since I was about to top up my cellphone using mobile banking, there was no balance and I am sure that now you already know why I cannot use e-banking. The world is trending in new technology with an artificial intelligence and I was confined in my apartment surrounded by technological boundaries built by myself. Oops! Apparently, I remembered that one of my relatives from a foreign country was coming to my apartment. Now you cannot even guess the real problem: we haven’t shared our current contact number because we were connected through Facebook messenger only. He somehow manages to meet me through the help of one of my friends.

Fortunately, my smart television was working, and was playing an advertisement of Google Home, a virtual assistance for smart home appliance. Later on, I realize the wistfulness of my relative’s facial gesture. Oops! It was due to artificial intelligence: yes, seriously, the reason was artificial intelligence. Now you may ask how, the company he was employed fired him from the position of operation supervisor as the company decided to use robots in the production process and robots don’t need supervision. Virtualization, Artificial Intelligence and Smart Devices are the massive upsurge topics in recent years. However, can the sympathy for my relative in his pain can be compensated by these modern technologies? You may now be wondering why not? I can make this judgement as you already saw Sophia (a social humanoid robot) with various natural emotions. Nonetheless, I take an opposite opinion; you may call me an old fashioned person or by saying this you can categorize me into a tech contrary person.

My smart phone wakes me up by alarm, but not as my mother does with a cup of tea in her hand. My Google Assistant searches everything for me within seconds, but not like my grandmother's stories from her imagination. GPS location and Maps help me a lot while exploring new places, but as not my father used to do by holding my hand and carrying me on his back. Weather apps suggest various weather changes, but don’t care as my sister did by knitting a warm sweater in every winter. Oops! I was lost in memories; technology changed the world and living simultaneously though there are some aspects of life I think that cannot be compared and will not a replaced.

Hey! Where were you lost? Tomorrow is the deadline of this project and you are stuck in the same error? The Project Manager was focusing his eyes on me and the computer monitor was displaying: “Oops! Something went wrong. We couldn’t process your request.” I was lost somewhere inside eternity and the word. Oops! Made me nostalgic. I wish I could change these feelings and display the message saying: 'Success! You successfully restored your memory and you are a human with emotions.'

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Foreign Employment

Benefits, Opportunities and Challenges Ahead

Chetan Acharya

Background

In the present era, the world is being turned into a small village due to revolutionary innovation, development, and the expansion of technology. The budding wave of Globalization and Liberalism in the world in post-1960s inputted socio-economic freethinking in the country, and has opened new opportunities of international trade, investment, and capital movement including foreign employment opportunities abroad.

Employment opportunities beyond the sovereign territory of a nation can be understood as foreign employment. It is not a new issue to Nepal because for around two hundred years, Nepalese males (and to a lesser extent women) have been leaving their homes to seek employment and live abroad. After the end of the war between Nepal and British, the Lahure tradition that began immediately after the Treaty of Sugauli in 1815, because of the Gorkhas bravery, sincerity, and discipline made a deep impression on the British and they established a Gorkha Battalion to recruit the Nepalese through this Gorkha Recruit Centre in Lahore, then a part of India. The British request to establish a recruit centre in Nepal, however, was denied by the then Prime Minister, Jung Bahadur Rana (Bista, 2008). Since then, the Lahure Tradition has flourished in Nepalese society, and this marks the start of formal historical recording of foreign employment in Nepal. Besides working as British Gurkhas, Nepalese migrants have been found working in the tea estates of Darjeeling and the forests of Assam during the 19th century (Samriddhi, 2011). Foreign employment as a traditional Lahure pattern in Nepal has been observed for around two hundred years till date. (Lahure is a Nepali term referring to those people who go abroad for employment). Long before the recruitment in the British and Indian armies, the Nepalese have been found to migrate to neighboring countries to evade excessive taxation and exploitation from state agencies. (ILO, 2004)

Issues of Out-flowing Labor

Nepalese laborers are attracted to foreign employment due to the scarcity of adequate employment opportunities in the country. Economic liberation and globalization has provided an access for Nepalese workers in the international market. Inflow and outflow of labour then has been a natural matter in the present era. As a consequence, the traditional Lahure culture is one reason for the present outflow of Nepalese youth. Besides, the most important fact for the outflow of youth is the existing political scenario. Because of the long-term political instability and an adverse environment for investment, the nation has failed to create enough new employment opportunities and thus, Nepalese workers are being compelled to go abroad for employment even for very risky jobs and very low salaries. Conflicts in the nation for long periods of time have increased self-motivation towards entering the international labor market.

Nepal is an agricultural country and about 68% of the people are supposedly engaged in this sector. About 27.6% of the GDP is contributed by this sector (Economic Survey, 2018). However, this is a very subsistence type of lifestyle. Seasonal unemployment prevails in this sector. Commercialization of this sector has not been realized yet. The figures in the outflow of labour is dominated by rural people most of whom are illiterate, unskilled, and without technical knowledge. So, Nepalese workers are compelled to accept inferior and low-waged job in the international labour market.

International Labour Market for the Nepalese

At present, the outflow of skilled, semi-skilled, and unskilled labour for foreign employment has been growing significantly and is found diversifying and thus encouraging. Various records show that Saudi Arabia, Malaysia, Dubai, Kuwait and Korea are the main destinations for Nepalese workers. Besides, Nepalese workers are also working in some advanced countries like the USA, UK, Japan, Australia, and in European nations. A large number of Nepalese job-seekers are attracted to foreign employment due to the dearth of adequate employment opportunities in the country. The trend of this outflow of Nepalese labour is increasing significantly every year. Various study reports show that a large number of Nepalese workers have gone abroad for employment without even securing government permission.

According to the population composition of Nepal, about 500,000 persons enter the labour market every year. Due to the lack of employment opportunities in the country, the attraction of foreign employment is high. About 4.30 million young people have gone abroad for foreign employment through formal and informal ways. Out of the total foreign employment, skilled workers amount to 1.5 percent, semi-skilled workers 24 percent, and non-skilled workers 74.5 percent. Institutionally, 110 countries have been opened for foreign employment. However, more than 167 countries have been opened for the purpose of foreign employment by personal initiatives (Economic Survey 2018).

Remittance Inflow and Benefits

It is being witnessed that foreign employment has supported in improving socio-economic prosperity in rural Nepal and contributed to reducing the absolute poverty line. Foreign employment has supported in bringing economic prosperity to rural Nepal and in reducing poverty. The contribution of foreign employment to reducing unemployment and poverty, and enhancing the Nepalese economy should be considered significant. The volume of remittances per annum has become large so that per the NLSS 2010/11, 56 percent families in Nepal have received remittance incomes in one year. The average household remittance receipt is estimated at Rs 80,423 at current prices. The share of remittance in the total income of families is on the increase. The ratio of remittance to GDP that stood at 29.10 percent in the FY 2014/15 is estimated to reach 32.10 percent at the end of the current FY 2015/16. Remittance income that had registered a growth of 4.0 percent in the FY 2015/16 has grown by 15.20 percent reaching 472.27 billion in the first eight months of the current fiscal year (Economic Survey, 2016). In the FY 2016/17, the total number of people who had gone for foreign employment was 383,493 among which 363,304 were males and 20,189 were females. This number has reached 243,343 in the current FY (Economic Survey 2018). The number of workers getting work permits for foreign employment has decreased in the last few years.

There is an extreme demand for laborers in labor-intensive jobs worldwide. This entails huge benefits to Nepalese migrant workers. Nepal is rich in laborers who are willing to work in labor-intensive jobs. This is a tremendous opportunity at Nepal's disposal. India and China are two rapidly growing economies of the world with growth rates of 7.7% and 9.5% respectively. These rapidly growing economies have

failed to be the destination of Nepalese migrant workers despite Nepal being geographically situated between them. This is more so in the case of China. So there is a huge opportunity for Nepalese migrant workers to work in India and China in the coming days (Samriddi, 2011).

Household Behaviour

At a micro level, earning from foreign employment is the source of household income for creating household demand. The contribution of remittances in economic value is very high because it is proven that in Nepal the poverty line has been significantly decreased and the living standards of the rural people have risen. Consumption of nutritious food, housing conditions, clothing and investment on the education of their children has increased while their socio-economic level has also changed. The World Bank (2011) shows that in 2009 Nepal was one of the top ten remittance-recipient countries in the world with a share of 23 percent in the GDP. However, its impact on macro indicators has not been seen satisfactory. The consumption behaviour of the consumer is conspicuous and has suffered from the demonstration effect. The remittance money is almost always being used in the purchase of comfort and luxury items. The purchase of land, houses, jewelry, expensive TVs, or mobile phones has increased significantly, Unproductive use of remittance and resulting household behaviour are significant factors for the explosive rise in the present trade deficit of Nepal.

Challenges Ahead

Foreign employment has been contributing significantly to the Nepalese economy. However, the economy's dependency on foreign employment is continuously increasing every year following the legacy started in 1996, since the emergence of the Maoist's armed rebellion. In 2012 itself, 554,441 Nepalese joined foreign jobs. About 450,000 Nepalese young people enter the job market every year (THT Flash Back, 2012). Hardly one-fourth of such youngsters get jobs in the country. The government sector has failed to create enough jobs in the country due to political instability and many other reasons. Industrial development has slowed down due to the unfavorable situation of investment like increasing power crises, lack of security, troubled labour relations, or untimely budgets. The private sector has not been able to move ahead with new ventures due to such confusion, and the hampered capital expenditure of the government has failed to create new jobs in the country. All these scenarios point to the fact that dependency on foreign employment is increasing every year. This is the most challenging issue ahead.

The other complex challenge is to address the unproductive use of remittance. Remittance, being a source of household income for creating household demand and one cyclical flow of resources, ends with this household demand. For a continuing resource flow cycle, the resource should be channeled into productive areas and activities through certain government policies so that seasonal unemployment in agriculture could be addressed.

Similarly, the other burning challenges ahead are controlling fraud and illegal outflowing labour, low-paid work, insecurity in jobs, illegal foreign transfers, and deception by manpower/agents. The Foreign Employment Act, 2008, has already been issued and enacted for promoting the business of foreign employment while safeguarding the rights and interests of workers and foreign employment entrepreneurs by making it a safe, well managed, and dignified profession.

The government should play a managing role rather than a controlling one in the foreign employment sector. To facilitate this, the government has to offer benefits to job-seekers in the foreign job market through different motivation and incentive programs including skill training, soft loans, and social security plans.

The most complex and challenging issue ahead is how to alleviate poverty in the country amid the absence of clear policies and programs for resolving the ever-increasing unemployment problem. The country's development aspirations can never materialize until poverty is eradicated. Employment is an important medium for resolving this problem. There has been an increasing trend among the youth for going abroad for employment. Employment opportunities in the country are very low. The reliance on the agriculture sector alone cannot be a solution to this problem. In such a situation, foreign employment seems to be the only option, and it is very necessary to frame proper policies and action plans for foreign employment.

Concluding Remarks

The nation's aspirations of socio-economic upliftment can never materialize until poverty is eradicated. Employment is an important medium for achieving this, but employment opportunities in the nation are at a very low level. Unfortunately, due to long political instability, the issue of creating and expanding employment opportunities in the nation by encouraging domestic and foreign investments is undecided. In this situation, the outflow of labor is seen as a normal thing, and foreign employment and remittance have significantly been contributing to the Nepalese economy, at present, not only in the aspect of employment, foreign exchange, and income, but also for socio-economic transformation by reducing rural poverty. The income from remittances has helped to boost food security of a large majority of rural households. However, foreign employment for the Nepalese has been facing lots of challenges. The productive utilization of remittances, controlling illegal outflow of labor, cheating by manpower agents, illegal transfer of remittance, technical knowhow, work skills, minimum wage provisions, language problems, and poor job security are major troubles in foreign employment. So, the government of Nepal must address this burning issue by implementing proper policy tools so that this sector could be made more beneficial and disciplined.

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Humanity, Religious Beliefs and Politics in it

Monika Bohora

Is it okay if we mix humanity, religious beliefs, and politics together to succeed? Is it fair to take the lives of people believing in some novels or books written by persons like us making superheroes out of his characters in books? Are we doing the good right thing keeping aside a sense of humanity and running after everyone to prove that our religion is better than others?

Well, even I can't answer these questions as simply as I asked them. But, I sense we are letting –ism (words like Hinduism, Buddhism, Jainism, Sikhism, Judaism, Christianism, Baptism, Barbarism, Vulgarism) rule over our souls and destroy our sense of –ity (community, similarity, responsibility, availability, communicability, acceptability, computability, sentimentality, supportability, and hence humanity). Not blaming the suffixes for our deeds, neither for our history that was written a long time ago and is still remembered and followed, nor for the beliefs of our ancestors and now our beliefs but ourselves... Just the last few questions: Have we done the best thing in believing what our ancestors did? Are we ignoring the fact there has been a political strategy played in order to make our 'God'? Have we also forgotten the superhero, the unknown one, who created our 'God'? Most importantly, to make history, is success all that matters? Because we just remember our 'God' today since He succeeded…

Glancing at history, that we now take as religious beliefs and to which we have lost ourselves, fooled ourselves, and even killed our sense of humanity believing in that single concept strategically enacted... Yes, the history we have believed in without any questioning not mentioning our doubts on how politics started in the eras just gone by because history is now our holy grantha the Mahabharata… The Mahabharata; one of our holy grantha is a perfect example of politics.

Buried by his curses and history, and resurrected by his karma and truth; the untold hero Karna… He was hunted down when he was on his knees trying to pull out his chariot wheel when it got stuck in the battlefield. His bare hands were holding the wheel when he saw an arrow coming towards him. His head was chopped off by Arjuna. Only to hunt him down Krishna enacted several political tactics like letting His unbeatable arrow (reserved for Arjuna) be used on Ghatothkach (the warrior who sacrificed himself to keep Arjuna alive) and tricking Arjuna's foe to give up his armour (gifted from his father, the Sun) as donation. The armour was unbeatable whatever the weapon. Because Karna was known for his benevolence, he could not refuse to give the armour to Indra who appeared as a beggar and asked it. Arjuna was the kshatriya who killed the bravest and most talented warrior of the Mahabharata when he was defenceless. And this is how Arjuna established himself as the greatest warrior and archer of all time. Both Karna and Arjuna were equal in their powers. If Arjuna (one of our gods now) had fought fairly he might or might not have succeeded, nobody knows but Krishna made sure of Arjuna's success. Politics was used by Krishna to demolish the strength of Karna.

What matters the most to you: the politically-won titled of Arjuna as the bravest warrior of all time, or the failure of Karna benevolent in nature, cheated and thus defeated by Arjuna? Well, it's up to you to adjudge the politics played by Krishna as right or wrong. But, the questions is, will that respect for Arjuna be still the same in your eyes after knowing this less repeated story and wherein the political strategy played in Arjuna's win story is ignored?

This is just an example of how politics was used in our history that now we hold as a religious belief. An untold story of the holy grantha of Hindus spread the message Let's not believe in gods. Let's believe in superheroes. I pity ourselves how we don't read the stories of superheroes but those of gods, how we try to prove our religion is better than others, how we have lost our sense of humanity to religion, how insane we have become to kill human beings and soul in the name of religion. Let's not talk about the sins humans did which were turned into virtuous and just deeds merely because of their religious purpose.

Now, let's play one political strategy: To believe in our capacity to change these religious perspectives without any criticism, let's swap the places of humanity and religion in our lives, let's follow the religion of humanity. I imagine the world full of –isms except humanism will embrace for an –ity of time: eternity. Are we ready to play such politics together to imagine creating a new world?

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KIST FAIR 2074

Fostering Talent

SCIENCE • IT • MANAGEMENT

6 Magh 2074, Kathmandu

Creatively Yours

Welcome to a prestigious Art & Craft Competition at KIST College, Kathmandu, on Saturday, December 8, 2018!

- Our purpose is to encourage very young artists to find a platform downtown to put on show their talent through diverse artistic exhibits.
- Pupils from an array of schools – private, governmental, or charitable – across the Valley will take part.

Fascinatingly engaging, this inter-institutional event is likely to be a glorious experience for all of us!

As customary, the annual KIST Fair 2074 – a wonderful flurry of activities – held on 6 Magh was a treasured event attended by the best in the educational field. Significantly, the Inter-College SciTech Competition and Interschool Art & Craft Competition had keen participants from Kathmandu's finest schools and colleges. Notably, the Imagineering Competition was a resounding success with all the pragmatic creativity exhibited.

Similarly, this Fair – incorporating the soft-power of blended learning – on Saturday, December 8, 2018, should be another special entertainment gala for youngsters & budding professionals with scholastic zest & innovative skills. Forever widening our outreach, we have included numerous new items such as Inter-College Robotics Competition, KIST Datathon Competition, KIST FIFA Competition, KIST Counter-Strike Competition and KIST PUBG Mobile Competition for the joy of all who visit this great occasion.

Welcome one & all!

Events

- Inter-College Science & Technology Competition
- Inter-College Robotics Competition
- Interschool Art & Craft Competition
- Intra-College Science & Technology Competition
- Intra-College IT Project Competition
- Intra-College Management Project Competition
- Intra-College Imagineering Competition
- KIST Datathon Competition
- KIST FIFA Competition
- KIST Counter-Strike Competition
- KIST PUBG Mobile Competition

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