



Nepali Academics in America (NACA)



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2023 NACA Conference

Confronting Complexities, Transforming Possibilities

April 14-15, 2023

Phoenix, Arizona | Virtual (Online)

We gratefully acknowledge the sponsorship and logistical support of



Community Partners

NEPALESE STUDENT ASSOCIATION
AT ARIZONA STATE UNIVERSITY



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About the Conference

The main objective of this 2023 NACA conference is to provide a scholarly platform for those interested in and are committed to Nepal and Nepali diaspora communities. This conference will have a hybrid format, allowing the participants to attend the conference either in-person or online (virtually). The in-person sessions will be held in Phoenix, Arizona, (at Arizona State University, Downtown Campus) and the virtual sessions will take place fully online in the morning hours of the conference dates.

The theme of this year's conference, ***Confronting Complexities, Transforming Possibilities***, encourages a more informed dialogue on the growing socio-ecological changes and complexities around us, including but not limited to, food insecurity, distressed economy, urbanization, migration, geopolitics, water crisis, COVID-19 and public health, global climate change, disaster risks, and inequality and social justice. Confronted by these complexities, new innovative ideas and possibilities are also emerging, in which we see the tremendous value of interdisciplinary and collaborative scholarship.

This conference explores how those conversations have directly and indirectly influenced our scholarship related to Nepal. Some of these challenges and their solutions are also uniquely linked to Nepal or the broader Himalayan context. The conference provides a scholarly forum to engage in these important conversations while reconnecting with friends and colleagues and adding some new connections in your professional network.

We invite scholars, scientists, artists, and practitioners to submit proposals for panels, roundtable discussions, and individual papers on the conference theme or closely related topics. Potential topics include, but are not limited to:

- Poverty, inequality, distressed economy, and other systemic factors
- Scientific advances in biotechnology and medical sciences
- COVID-19 and public health concerns
- Climate change, vulnerability, and disaster risks
- Migration, remittances, and livelihood diversification
- Agriculture and food production systems and new innovations
- New issues and challenges in tourism and other service-based economy
- Environmental (mis)-management (e.g., water, forestry) and governance issues
- Energy systems, innovations, and equity issues
- Geopolitics, infrastructures, and transborder issues
- Advocacy, equity, and social justice in education



2023 NACA Conference logo art by
Milan Shrestha

This logo depicts the unprecedented socio-ecological changes and uncertainties faced by the Phoenix Metropolitan Area—a desert city and the home city of our conference—and the US Southwest. These changes, mainly rapid urbanization, water scarcity, loss of biodiversity, public health concerns, and climate change, are also shared by Nepal and the wider Himalayan region, and we seek informed dialogues on these uncertainties.

Message from NACA President

As we seek to host our third NACA Annual Conference on April 14-16, 2023 (in person in Phoenix, Arizona, and online), we hope you are as excited as we are about the opportunity to meet and interact with members and friends of this evolving organization. We would like to thank you for your continuing support of this “non-profit and non-partisan network established to enhance collaboration among Nepali academics and other scholars affiliated with higher education and research institutions based in the United States of America and beyond.” We recognize the need for some of us to participate in this global event remotely and encourage those of us with an ability to participate in-person to do so and optimize our experience and networking benefits. We would like to thank the Program Committee co-chairs and members for their hard work on planning and making this event a success.

As we gear up for this momentous event, the Executive Council is excited to announce our third General Assembly (business meeting) to take place on April 15, 2023 (afternoon) per NACA Constitution and Bylaws (Article 5). This will be on the second day of this year’s annual conference hosted in a hybrid format. While remote (online) participation will be allowed, we encourage attending the General Assembly in person if at all possible.

We would also like to remind you that our biennial election to the Executive Council is to take place at or prior to this Assembly where every registered member will be expected to vote and, as appropriate, nominate appropriate candidates (including self-nomination) for different positions of the Executive Council as well as for voluntary membership to the three standing committees and Newsflash Team. Our organization depends on your enthusiasm, support, and participation for our collective interest and so we expect you to participate and take charge of different activities, initiatives, and bodies of the organization.

The Executive Council is currently working on the specific process of this election and nomination with the Membership and Member-Support Committee.

Please stay tuned for more details coming out very soon.

Udaya R. Wagle, Ph.D.

Founding President
On behalf of NACA Executive Council

Acknowledgements

Indigenous Land Acknowledgement

NACA acknowledges that the main venue of our 2023 NACA conference--Arizona State University--is situated on the ancestral lands of Indigenous people past, present, and future. We thank and honor the Native American tribes and sovereign nations of the Salt River Valley—including the Akimel O'odham, Onk Akimel O'odham and Piipaash nations—whose stewardship of the land and waterways allows us to be here now. In addition, we honor their continued and many contributions today.

Conference Co-Chairs

Gyan Nyaupane (*Arizona State University, Phoenix*)
Milan Shrestha (*Arizona State University, Tempe*)

Conference Program Committee

Listed alphabetically by last names

Ananta Acharya (*Corteva, USA*)
Sushil Adhikari (*Auburn University*)
Buddhi R Gyawali (*Kentucky State University*)
Omkar Joshi (*Oklahoma State University*)
Arun KC (*Save the Children USA*)
Madhukar KC (*Graduate Student Representative, Arizona State University*)
Prajwal Panday (*Nichols College*)
Soni Pradhanang (*University of Rhode Island*)
Amir Sapkota (*University of Maryland*)

Organizing Committee

Maheshwor Kafle (*Phoenix Children's Hospital*)
Madhukar KC (*Graduate Student, Arizona State University*)
Shasta Shakya (*Arizona State University, Tempe*)
Samridhi Shrestha (*Grand Canyon University*)
Avinaya Tripathi (*Graduate Student Representative, Arizona State University*)

Sponsorship Support

Arizona State University - Watts College of Public Service and Community Solutions

Arizona State University - School of Sustainability

Oklahoma State University - School of Hospitality and Tourism Management

University of Maryland School of Public Health

Western Michigan University - School of Public Affairs and Administration

The University of Tennessee, Knoxville - School of Natural Resources

Virginia Tech - Pamplin College of Business Management

The University of New Mexico - Nepal Study Center

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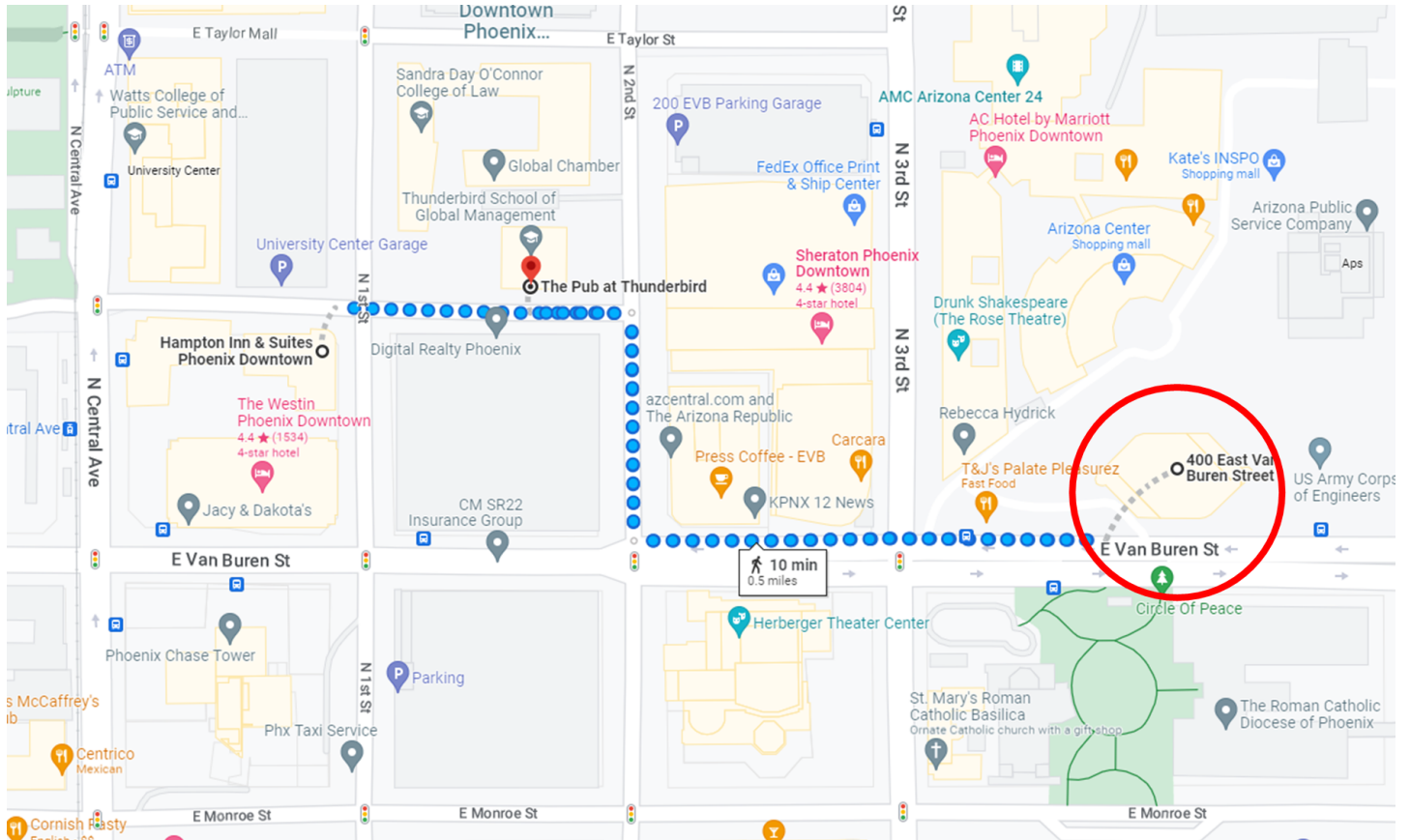
Center for Colorectal Disease of Arizona

Nepalis and Friends Association (NAFA)

Map

Conference Venue: Room 730 and 706 at the Arizona Center 7th Floor
Address: 400 E Van Buren St, Phoenix, AZ 85004

Reception Hall: The Pub at Thunderbird
Address: 401 N 1st St, Phoenix, AZ 85004



Conference At-A-Glance

Conference will take place in the Arizona Center (7th Floor) of the ASU Downtown Campus (400 E Van Buren Street, Phoenix AZ 85004)

FRIDAY, APRIL 14

Room # 730		Room # 706
07:00 - 08:45	Registration and Light Breakfast	
Online 07:30 - 08:45	Online Feature Roundtable 1 Political Economy & Geopolitics of Infrastructure Building in Nepal Biswo Poudel (Former VC of the NPC), Prabin Khadka (University of Essex), Krishna Gyawali (Former Secretary, GoN) Moderator: Gaurab Aryal (WUSTL)	
Keynote I 09:00 - 10:30	Keynote Speech Intersection of Climate Change, Urbanization, Water Security and Public Health: Emerging Challenges Kumud Acharya (Desert Research Institute)	
10:30 - 10:45	Tea Break	
Session 1 10:45 - 12:15	Confronting Complexities in Forest Management and Protected Areas	Online: Solid Waste Management and Bioengineering
12:15 - 13:30	Lunch Break	
Session 2 13:30 - 15:00	Workshop 1 Research Grants and Collaborations	Online: Agricultural Value Chain, Poverty and Food Systems
15:00 - 15:15	Tea Break	
Session 3 15:15 - 16:45	Online: Nepali Diaspora Academics: Our Contributions & Challenges	Emerging Socio-economic and Environmental Issues
Reception 17:30 - 19:30	<u>The Pub</u> , The Thunderbird School of Global Management, 401 North 1st Street, Phoenix	

SATURDAY, APRIL 15

Room # 730

Room # 706

07:00 - 08:45 Light Breakfast

Online
07:30 - 08:45 Online Feature Roundtable 2 | **Dengue Epidemics in Nepal: Reflections on the Lessons and Challenges for the Healthcare System** | Anup Subedee (Kirtipur Hospital), TBA, Moderator: Sadeep Shrestha

Keynote I
09:00 - 10:30 Keynote Speech 2 | **Awkward But Fitting In: Complexities, Adaptations, and Opportunities as a Foreign Disaster Researcher and Ally in Nepal**
Jeremy Spoon (Portland State University)

10:30 - 10:45 Tea Break

Session 4
10:45 - 12:15 Workshop 2 | Book and Journal Editorship Online: Himalayan Environments and Climate Change

12:15 - 13:30 Lunch Break

Plenary
13:30 - 15:00 **NACA Business Meeting**
President's updates and annual reports; General Assembly; New Executive Council

15:00 - 15:15 Tea Break

Session 5
15:15 - 16:45 Workshop 3 | Academic Enterprise & Administration: Reflections and Lessons Online: Climate Change Policies, Care Economy, and Environmental Issues

Closing
17:00 - 18:00 Room # 730 and online

DAY 1 - APRIL 14 (FRIDAY) Times are in Arizona Time USA

07:00 - 08:30 REGISTRATION AND LIGHT BREAKFAST

07:30 - 08:45 ONLINE FEATURE ROUNDTABLE 1

Zoom link: TBA and ROOM 730

POLITICAL ECONOMY & GEOPOLITICS OF INFRASTRUCTURE BUILDING IN NEPAL

Moderator: **Gaurab Aryal** (Washington University, St Louis)

Panelists: **Biswo Poudel** (Former Vice Chair the National Planning Commission, Nepal);

Prabin B Khadka (University of Essex); Krishna Gyawali (Former Secretary, GoN)

09:00 - 10:30 KEYNOTE SPEECH 1

ROOM 730 and Zoom link: TBA

WELCOME REMARKS, **Udaya R Wagle** (President, NACA)

INTRODUCTION, **Gyan Nyaupane** (Arizona State University)

KEYNOTE SPEECH, **Kumud Acharya** (Desert Research Institute), *Intersections of Climate Change, Urbanization, Water Security and Public Health: Emerging Challenges*

10:30 - 10:45 TEA BREAK

10:45 - 12:15 SESSION 1

ROOM 730

CONFRONTING COMPLEXITIES IN FOREST MANAGEMENT AND PROTECTED AREAS

Moderator: **Gyan Nyaupane** (Arizona State University)

- *Can Bufferzone Programs Contribute Positively in Management of Protected Areas?*
Neelam C Poudyal (University of Tennessee), Thakur Silwal (Institute of Forestry, Nepal), Sweta Dixit (University of Tennessee), Omkar Joshi (Oklahoma State University)
- *Landowner willingness to accept compensation for planting trees on open lands*
Ram K Adhikari (University of Tennessee) & Neelam C Poudyal (University of Tennessee)
- *Understanding Factors Affecting Perceived Climate Change Vulnerabilities in High Mountains of Nepal*
Omkar Joshi (Oklahoma State University) & Neelam C. Poudyal (University of Tennessee)
- *The COVID-19 Pandemic, Migrant Returnees, and the Forest Dependent Rural Livelihood in Mid-Hills of Nepal*
Rajan Parajuli (North Carolina State University), B Prabin (North Carolina State University)

ROOM 706 and Zoom link: TBA**SOLID WASTE MANAGEMENT AND BIOENGINEERING**

Moderator: **Sushil Adhikari** (Auburn University)

- *Challenges and Opportunities to Manage Municipal Solid Waste in Cities of Nepal*
Sushil Adhikari (Auburn University)
- *Recovery of Energy and Nutrients as a Sustainable way for Management of Solid waste in Nepal*
Bishnu Acharya (University of Saskatchewan)
- *Management Problems in Municipalities of Nepal: Key Issues and the Way Forward for Sustainability*
Dhundi R. Pathak (Engineering Study & Research Centre, Nepal)
- *Converting Organic Waste into Bio-methane and Fertilizer in Nepal: Experience from Gandaki Urja*
Kushal Gurung (WindPower Nepal Pvt. Ltd., Nepal)

12:15 - 13:30 LUNCH BREAK

13:30 - 15:00 SESSION 2

ROOM 730**WORKSHOP 1 | RESEARCH GRANTS AND COLLABORATIONS**

Moderator: **Omkar Joshi** (Oklahoma State University)

Panelists: **Amir Sapkota** (University of Maryland School of Public Health);

Buddhi R. Gyawali (Kentucky State University); **Neelam C Poudyal** (University of Tennessee)

ROOM 706 and Zoom link: TBA**AGRICULTURAL VALUE CHAIN, POVERTY AND FOOD SYSTEMS**

Moderator: **Krishna P Paudel** (USDA ERS)

- *Pay it Forward: A Mechanism for Achieving Scale in Anti-Poverty Programs*
Nicholas Magnan (University of Georgia, Athens)
- *Frequent vs. Lumpy: Impact of Remittance Patterns on Consumption and Poverty*
Shankar Ghimire (Western Illinois University), **Kul Kapri** (Rowan University),
Maroula Khraiche (University of Texas Rio Grande Valley)
- *Decomposing the Impacts of an Agricultural Value Chain Development Project by Ethnicity and Gender in Nepal*
Tisorn Songsermsawas (IFAD Italy), **Kashi Kafle** (Texas A&M University),
Paul Winters (University of Notre Dame)
- *Food Related Concerns, Awareness on Safety, and Illness at Home: Examining Consumer Households in Nepal*
Aditya R Khanal (Tennessee State University)

15:00 - 15:15 TEA BREAK

15:15 - 16:45 SESSION 3

ROOM 730 and Online**NEPALI DIASPORA ACADEMICS: OUR CONTRIBUTIONS AND CHALLENGES**

Moderator: **Dinesh Paudel** (Appalachian State University)

Panelists: **Hemanta Ojha** (University of Canberra)& **Tara Sigdel** (University of California, San Francisco)

ROOM 706**EMERGING SOCIO-ECONOMIC AND ENVIRONMENTAL ISSUES**

Moderator: **Buddhi R Gyawali** (Kentucky State University)

- *Management of Health Information of Nepalese Labor Migrants*
Rajendra Karkee (BPKIHS, Dharan)
- *Exploring Translanguaging Practices of Multilingual Nepali Immigrant Families in the US* **Madhukar KC** (Arizona State University)
- *Power Tradeoff Across Scales in Nepal's Multi-Level Climate Governance System*
Suman Acharya (University of Maine)
- *To be or Not To Be? A Case Study of Tourism-based Livelihood Diversification in Upper Mustang, Nepal*
Tashi Gurung (Arizona State University)

17:30 - 19:30 **THE PUB** (ASU Thunderbird School, 401 North 1st Street, Phoenix)

DAY 2 - APRIL 15 (SATURDAY)

07:00 - 08:30 LIGHT BREAKFAST

07:30 - 08:45 ONLINE FEATURE ROUNDTABLE 2

Zoom link: TBA and **ROOM 730**

DENGUE EPIDEMICS IN NEPAL: REFLECTIONS ON THE LESSONS AND CHALLENGES FOR THE HEALTHCARE SYSTEM

Moderator: **Sadeep Shrestha** (University of Alabama at Birmingham)

Participants: **Anup Subedee** (Kirtipur Hospital) & **Reshma Tuladhar** (Tribhuvan University)

BREAK (15 MINUTES)

09:00 - 10:30 KEYNOTE SPEECH 2

ROOM 730 and Zoom link: TBA

INTRODUCTION: **Milan Shrestha** (Arizona State University)

KEYNOTE SPEECH 2: **Jeremy Spoon** (Portland State University) *Awkward But Fitting In: Complexities, Adaptations, and Opportunities as a Foreign Disaster Researcher and Ally in Nepal*

10:30 - 10:45 TEA BREAK

10:45 - 12:15 SESSION 4

ROOM 730

WORKSHOP 2 | BOOK AND JOURNAL EDITORSHIP

Moderator: **Gyan Nyaupane** (Arizona State University)

Panelists: **Samir Khanal** (University of Hawai'i), **Udaya R Wagle** (Western Michigan University), & **Sadeep Shrestha** (University of Alabama at Birmingham)

ROOM 706 and Zoom Link: TBA

HIMALAYAN ENVIRONMENTS AND CLIMATE CHANGE

Moderator: **Milan Shrestha** (Arizona State University)

- *Botanical Diversity in Eastern Nepal's Alpine Zone*
Elizabeth Byers (Independent Scholar)
- *The Changing Ecology of a High Himalayan Valley: The Case of The Kanchenjunga Conservation Area, Nepal*
Alton Byers (University of Colorado at Boulder)
- *Streamflow and Water Availability in the Context of Climate Change*

Soni Pradhanang (University of Rhode Island), **Tirtha Adhikari** (Tribhuvan University), **Rocky Talchabhadel** (Texas A&M University), **Sanjib Sharma** (Howard University), and **Dibit Aryal** (Chinese Academy of Sciences)

- *Labor Migration Triggered by COVID-19 and Its Impact on Climate Change Adaptation of Producers in Sunsari District, Nepal*

Amrit Shrestha (University of Tennessee), **Sreedhar Upendram** (University of Tennessee), **Seong-Hoon Cho** (University of Tennessee), and **Neelam C Poudyal** (University of Tennessee)

12:15 - 13:30 LUNCH BREAK

13:30 - 15:00 PLENARY

ROOM 730 and Zoom Link: TBA

NACA BUSINESS MEETING - ONLY NACA MEMBERS

- PRESIDENT'S UPDATES
Udaya R Wagle (Western Michigan University)
- SECRETARY'S REPORT
Milan Shrestha (Arizona State University)
- TREASURER'S REPORT
Krishna P Paudel (USDA ERS)
- CLOSED SESSION - ELECTION OF NEW EXECUTIVE COUNCIL
Election team: **Devi Gnyawali** (Virginia Tech), **Brijesh Thapa** (Oklahoma State University), and **Dinesh Paudel** (Appalachian State University)
- TRANSFER OF LEADERSHIP

15:00 - 15:15 TEA BREAK

15:15 - 16:45 SESSION 5

ROOM 730

WORKSHOP 3 | ACADEMIC ENTERPRISE & ADMINISTRATION: REFLECTIONS & LESSONS

Moderator: **Brijesh Thapa** (Oklahoma State University)

Panelists: **Devi Gnyawali** (Virginia Tech), **Alok Bohara** (University of New Mexico), and **Shanta Pandey** (Boston College)

ROOM 706 and Zoom Link: TBA

CLIMATE CHANGE POLICIES, CARE ECONOMY, AND ENVIRONMENTAL HEALTH ISSUES

Moderator: **Ram Acharya** (New Mexico State University)

-
- *Measures of Racial Participation Rates in USDA Direct Payment Programs*
Anil K. Giri (USDA ERS), Dipak Subedi (USDA ERS), and Kathleen Kassel (USDA ERS)
 - *Does Crop Insurance Influence Crop Yield Impacts of Warming Temperatures? A Farm-level Analysis*
Madhav Regmi (New Mexico State University)
 - *Why Care for the Care Economy: Empirical Evidence from Nepal*
Aashima Sinha (University of Utah) and **Ashish Kumar Sedai** (University of Texas, Arlington)
 - *Increasing NO₂ Risk for Asthma in Louisiana: 2005-2020*
Keshav Bhattarai (University of Central Missouri), Madhu Gyawali (San Jacinto College), Lok Lamsal (University of Maryland Baltimore County), and John Yeager (University of Central Missouri)

17:00 - 18:00 CLOSING AND NETWORKING

Abstracts

Friday, Feature Roundtable 1

Room # 730 and Zoom Link:

Political Economy & Geopolitics of Infrastructure Building in Nepal

Moderator: Gaurab Aryal (Washington University, St Louis)

Panelists: Biswo Poudel (Kathmandu University, Former Vice Chair the National Planning Commission, Nepal); Prabin B Khadka (University of Essex), Krishna Gyawali (Former Secretary, GoN)

Keynote Speech

Room # 730

Intersection of Climate Change, Urbanization, Water Security and Public Health: Emerging Challenges

Kumud Acharya (Desert Research Institute)

Water resources sustainability has become a major problem for many regions of the world. This is due to numerous interacting factors including climate change, urbanization, changing land use, limited water resources, and other factors. Rising global temperature and the fast economic development have put a particularly severe pressure on potable water resources, both because of increasing point source and non-point source discharges to surface and groundwater, but also because of increasing per capita consumption of water in the growing urban centers. Water quantity and quality are crucial for daily life and sustainable economic development. Therefore, ensuring the water quantity and quality for current populations and protecting it from future contamination is of great concern to the society as a whole.

Session 1

Room 730

Confronting Complexities in Forest Management and Protected Areas

Moderator: Gyan Nyaupane (Arizona State University)

While there is a debate on the concept of Half-Earth - a call to protect half of the land and sea to reverse the species extinction crisis and ensure the long-term health of the planet in the context of climate change - many countries have made commitments to protect forests and increase protected areas. However, the old model of governance and management of forests and protected areas have often failed, and there is a need for more innovative, adaptive, people-centric, bottom-up, and collaborative approaches. This panel presents three empirical studies conducted in Nepal and one conducted in the US. These papers cover a range of topics, including the assessment of the buffer zone program in Nepal, the adoption of agroforestry in the Terai region of Nepal, landowners' willingness to plant trees in the US, and the impacts of climate change on risk, vulnerability, and overall quality of life of mountain communities in Nepal

Can Bufferzone Programs Contribute Positively in Management of Protected Areas?

Neelam C Poudyal (University of Tennessee), Thakur Silwal (Institute of Forestry, Nepal), Sweta Dixit (University of Tennessee), Omkar Joshi (Oklahoma State University)

Securing local support for wildlife conservation has been a major issue in protected area management around the world. The traditional “fences and fines” approach of park management fell short of securing cooperation from local communities that impact or are impacted by wildlife. Those measures also failed to operationalize the flow of benefits from protected areas to the local communities. While several countries have adopted different models of sharing park benefits with the local communities, Nepal’s bufferzone program is distinctive and most aggressive in channeling park revenue to the fringe communities to invest in conservation education, development, generating alternative energy and livelihood options for people that depend on park resources. However, little is known about the impact of such a program on changing public attitudes towards parks and improving park-people relationships. In this presentation, we will highlight the key findings from a recent assessment of the extent to which this program has promoted conservation and contributed in improving park-people relationships in Nepal. Implications regarding the adoptability of this policy approach to other countries as well

as challenges and possible future strategies to improve its effectiveness in Nepal in particular, will also be discussed."

The Status and Determinants of Agroforestry Adoption in the Terai Region of Nepal

Rajan Parajuli (North Carolina State University) & **Prabin Bhusal** (North Carolina State University)

While agroforestry has been widely recognized for its influential role and benefits in integrated resource management in the global south, its adoption in forest-rich countries with existing community conflict situations is under explored. This study examined patterns and factors influencing agroforestry adoption and promotion in farmlands and public lands in the Terai region of southern Nepal. Using participatory research and adaptive learning approach, we employed focus group discussions (n=6), key informant interviews (n=10), and structured questionnaire surveys (n=200) to collect information on the socio-economic and natural resource use context, issues, challenges, and practices adopted by agroforestry users. We found that most households commonly used traditional farmland agroforestry practices such as boundary plantation, home gardens, and scattered tree systems. Results suggested that local people highly depended upon farming and forests on private farms, emphasizing a need for more effective and widespread agroforestry development, promotion, and implementation in this region. The key determinants of agroforestry adoption on private land were found to be accessibility, land tenure, and land size. For public land, however, adoption was negatively related with economic well-being, highlighting the importance of agroforestry practices on public lands to the poor community. Strong integration, coordination, and cooperation between agroforestry initiatives and local institutions such as forest user groups and local governments is warranted for widespread agroforestry adoption in the similar resource-use conflict regions

Landowner Willingness To Accept Compensation for Planting Trees on Open Lands

Ram K Adhikari (University of Tennessee) & **Neelam C Poudyal** (University of Tennessee)

Restoration of forest cover is a promising and cost-effective option for climate mitigation. Plantation or natural regeneration on natural areas, agricultural lands or other open spaces help improve forest cover and capture additional carbon from the atmosphere. This study estimated landowner willingness to accept (WTA) compensation for planting trees on the open lands using a contingent valuation method. This study involved a mail survey of landowners in 47 counties of 8 different U.S. states. Of 805 landowners, only 8% were interested in enrolling their open lands in a hypothetical tree planting program,

while 68% rejected the enrollment offer and 24% landowners were unsure whether to enroll or not on a given payment level and contract length. The median WTA compensation was \$ 292 per acre and its 95% confidence interval ranged from \$100 per acre to \$484 per acre. Landowner willingness to enroll in a tree planting program was positively related to payment level, contract period, and size of wooded land they owned. However, landowners who owned private land for livestock production were less likely to enroll in the tree planting program than landowners with other land ownership objectives. Findings will help develop an effective reforestation strategy on open lands such as pasture and hayfields

Understanding Factors Affecting Perceived Climate Change Vulnerabilities in High Mountains of Nepal

Omkar Joshi (Oklahoma State University) & ***Neelam C. Poudyal*** (University of Tennessee)

While climate change is projected to impact human and natural systems, communities living in the mountain ecosystems are poised to suffer higher consequences than other regions. The Himalayan Mountains, known for their richness in biodiversity and the cultural heritage, have witnessed significant alterations in the climatic patterns over the past few decades. Therefore, it is imperative to understand the existing risk perceptions, perceived vulnerabilities caused by climate change and its impact on overall life quality and the sense of happiness among mountain communities. To understand these dynamics, we administered a household survey of long-term residents in five Sherpa communities in subalpine Khumbu region of eastern Nepal. A structural equation model was designed to understand the relationship between perceived risks of climate change, perceived costs of mitigation mechanisms, climate change mitigation, perceived vulnerabilities coming from future climate change and their impact on quality of life and overall happiness. Study results suggest that while perceived risk of climate change had a statistically significant negative effect on quality of life, perceived vulnerabilities did not show a statistically significant relationship. Study results suggest that mountain communities need to be educated on adaptation strategies that can help them cope with negative impacts of climate change

Room 706

Solid Waste Management And Bioengineering

Moderator: **Sushil Adhikari** (Auburn University)

Challenges and Opportunities to Manage Municipal Solid Waste in Cities of Nepal

Sushil Adhikari (Auburn University)

Municipal solid waste (MSW) has not only become an environmental nuisance in major cities of Nepal but has also been a constant confrontational issue among political parties, bureaucrats, and the public in general. Although managing MSW can be a challenge for major cities, both in developed and developing countries, it is not common to see MSW piling at the corner of streets in large cities of developed nations. Many companies see this MSW as a negative feedstock for converting it into fuels, chemicals, and energy. MSW consists of precious materials such as aluminum, ferrous metals, and some plastics, but its composition is usually heterogeneous. In this presentation, the author will discuss the composition of MSW from some of the major cities in Nepal and the US and the possibilities of managing it for energy production. The presentation will also include data from his ongoing projects on MSW for producing hydrogen and hydrocarbon-based liquid fuels. The presentation will highlight some challenges in managing MSW for energy production.

Recovery of Energy and Nutrients as a Sustainable way for Management of Solid waste in Nepal

Bishnu Acharya (University of Saskatchewan)

The common approach of waste management in Nepal has been landfilling, that has adversely impacted the society and the environment. A transformation in solid waste management strategy with focus on value recovery is required to effectively address the issue. As per the Asian Development Bank report, the solid waste consists of primarily the decomposable organic waste that can be converted into energy and/or nutrients. Thermochemical and biological conversion technologies such as torrefaction/hydrothermal carbonization and anaerobic digestion could be considered in transforming the waste to value-added products. The presentation will discuss these prospects of turning the solid waste to energy and nutrients.

Management Problems in Municipalities of Nepal: Key Issues and the Way Forward for Sustainability

Dhundi R. Pathak (*Engineering Study & Research Centre, Nepal*)

Solid waste management (SWM) is one of the main challenges for municipalities of Nepal, including Kathmandu Valley. The main problems include haphazard urbanization, the absence of basic facilities for integrated solid waste management (ISWM) and deeply rooted misperceptions about waste management. About 19 million people in 293 municipalities of Nepal generate nearly 6 thousand tons of municipal solid waste (MSW) daily. Kathmandu Valley only generates 25% of the total MSW. Most of it is ending up in landfills, dumped in the open, and/or burnt either at sources or disposal sites. Nowadays, waste management strategies are globally shifting from waste disposal to resource recovery and are considering MSW as resources with great potential for materials and energy recovery. Therefore, this paper aims to provide reference data on MSW generation, characterization for the selection of appropriate technologies, to identify the key issues and recommend a sustainable solution in municipalities of Nepal. The waste quantity, characteristics, calorific value of waste, and other factors affect the selection of technology. The customization in technology and site-specific solutions to address local issues only gives a sustainable solution. The decentralized solution will be appropriate for the small and less urbanized city however; the centralized solution will be an appropriate solution for the more urbanized and highly populated cities where the availability of land for ISWM facilities is very crucial. For example, large-scale composting to produce fertilizer can also be a potential option considering the huge demand for organic fertilizer and the potential for import substitution. As an alternative to recovering the resources from organic waste in big cities, which is a major culprit of the municipalities, waste to energy (biogas plant) can be a solution, which generates energy in the form of methane gas and also produces quality fertilizers. Co-digestion is a beneficial pathway to manage several types of bio-wastes and to enhance the quality of products such as biogas and compost fertilizers. For non-degradable dry waste, increasing the recycling rate is the most preferred option but this requires more investment into waste sorting, processing, and recycling infrastructure. Investment-friendly policies are essential to attract the private sector to this business with a focus on resource recovery and establishing recycling facilities. Extended producer responsibility (EPR) laws should be introduced to make manufacturers responsible for managing single-use and low-grade plastics wastes since they are either expensive to recycle or can't be recycled at all. Overall, the essential step to make the city clean and optimum recovery of resources from waste includes extending collection to the whole municipalities of developing countries and implementing both waste management hierarchies (5R-refuse, reduce, reuse, recycle, and recovery) and planned transformation of open dump to the engineered landfill site.

Converting Organic Waste into Bio-methane and Fertilizer in Nepal: Experience from Gandaki Urja

Kushal Gurung (*WindPower Nepal Pvt. Ltd., Nepal*)

Nepal generates a significant amount of organic waste, mainly from municipal waste, poultry and cow farms. Organic waste is a natural resource to generate biogas and organic fertilizer that could be used for thermal application and agriculture respectively. As Nepal imports LPG and chemical fertilizer, converting organic waste to biogas and organic fertilizer would not only help improve the environment, but would also boost the economy. Alternative Energy Promotion Center (AEPC), of Government of Nepal, is currently supporting to set up commercial biogas and Municipal Waste to Energy projects. Gandaki Urja pvt ltd, located in Pokhara, also received support from AEPC. It has been in operation since July 2019. It has a 4200 m³ anaerobic digester that can process up to 45 tonnes of organic waste daily to produce 1600 m³ of bio-methane and 5 tonnes of organic fertilizer daily. Commercial Biogas being a new industry, it has faced operational challenges mainly regarding unavailability of spare parts inside Nepal and lack of skilled human resources for repair and maintenance. However, with 20 such projects already being approved by AEPC, the issue with poor supply chain should get resolved eventually. If Nepal could only convert 20 percent of its organic waste, then it could easily substitute more than 30% of its LPG imports and become a net exporter of organic fertilizer as well.

Session 2

Room 730

Workshop 1 | Research Grants And Collaborations

Moderator: **Omkar Joshi** (Oklahoma State University)

Panelists: **Amir Sapkota** (University of Maryland School of Public Health);
Buddhi R. Gyawali (Kentucky State University), and **Neelam C Poudyal** (University of Tennessee)

Due to a significant decrease in research funding opportunities, writing a compelling grant proposal has become essential for sustaining research productivity in academia. Our panel, consisting of three distinguished scientists with excellent track records in grantsmanship, will discuss their career trajectories, how they have overcome challenges, and what they believe is crucial in securing competitive grants. The panelists have interdisciplinary research focuses, and they bring a wealth of experience in securing grants from highly competitive federal agencies such as National Science Foundation (NSF), United States Department of Agriculture (USDA), and National Institute of Health (NIH).

Dr. Amir Sapkota, Professor and Chair at the University of Maryland School of Public Health, specializes in researching the intersection of climate change and human health at the regional and global scales. Dr. Buddi R. Gyawali, a professor of Geospatial Technology Applications at Kentucky State University, has extensive experience in developing, securing, and managing multidisciplinary competitive grants funded through NSF and USDA. Finally, Dr. Neelam C. Poudyal, a professor of Natural Resource Policy and Economics at the School of Natural Resources at the University of Tennessee, focuses on the economics and social science aspects of natural resources. He has several years of experience in building cross-disciplinary networks and securing external funding from competitive federal agencies such as USDA and NSF.

ROOM 706 and Zoom link: TBA

Agricultural Value Chain, Poverty and Food Systems

Moderator: *Krishna P Paudel* (USDA ERS)

Pay it Forward: A Mechanism for Achieving Scale in Anti-Poverty Programs

Nicholas Magnan (University of Georgia, Athens)

We evaluate the impact of an anti-poverty program in Nepal using a randomized control trial. The program employs a “pay it forward” mechanism to achieve impacts at scale. The study includes two respondent types: targeted and non-targeted, and three treatments: (1) livestock and training, (2) livestock, training, and pay it forward, and (3) training with pay it forward (no livestock). After 4 years, targeted households have larger herds, higher goat profits, adopt improved technologies, reduced debt, save more, and women exert more control over goat enterprise decisions. Pay it forward increases impacts for non-targeted households, but impacts are similar with or without a livestock transfer.

Frequent vs. Lumpy: Impact of Remittance Patterns on Consumption and Poverty

Shankar Ghimire (Western Illinois University), *Kul Kapri* (Rowan University),

Maroula Khraiche (University of Texas Rio Grande Valley)

This paper examines the relationship between remittance patterns and household-level economic outcomes. Remittance patterns vary with some households receiving remittance in bulky less-frequent sums while others receiving smaller amounts in a more frequent manner. High frequency transfers in the presence of high transaction costs mean that both the senders and receivers value the importance of remittances on a more regular basis. Simple economic intuition derived from the permanent income hypothesis suggests that a higher likelihood of receiving frequent remittances over their lifetime leads households to increase present consumption. In other words, receiving remittances in a regular manner signals to households that migrants will continue to send remittances in the future, therefore, households increase their consumption accordingly. Using a rich dataset from a nationally representative household survey from Nepal, we document the effect of remittance frequency on household decisions. Controlling for the total value of remittances received by a household, we find that more frequent remittances indeed increase consumption. We also find that households who receive more frequent remittances are less likely to be below the poverty line. To address potential endogeneity issues in our estimation, we use women migrants as an exogenous instrument to isolate the causal influence of frequency of the remitted funds on households’ consumption

outcomes. Women tend to remit more frequently due to familial and social constraints and they tend to be more altruistic and attached to their families back home. Therefore, women's remittances tend to be regular and driven by factors exogenous to the economic outcomes, but also our instrument passes statistical tests for validity. Regardless of the motive of migrants for frequent remittances, in our work, we document the impact of this pattern on stayers' consumption.

Decomposing the Impacts of an Agricultural Value Chain Development Project by Ethnicity and Gender in Nepal

*Tisorn Songsermsawas (IFAD Italy), Kashi Kafle (Texas A&M University),
Paul Winters (University of Notre Dame)*

This paper estimates the impacts of an inclusive agricultural value chain development project on agricultural productivity and decomposes the project impacts by gender and ethnicity of producers. The intervention sought to reduce small-scale producers' vulnerability by increasing agricultural productivity and lowering transaction costs. It also specifically targeted minority and female producers to ensure inclusivity. We use primary survey data from over 2,500 households in rural Nepal. We estimate the project impacts on agricultural productivity by employing a treatment effect estimator and decompose them by gender and ethnicity using the Kitagawa-Oaxaca-Blinder (KOB) decomposition method. We find that the project has positive impacts on agricultural productivity, but the project impacts are higher for non-minority and male-headed households than for minority and female-headed households, respectively. The ethnicity productivity gap is smaller in the treatment group than in the comparison group. Even though male-headed households have consistently higher productivity, the gender gap in agricultural productivity is smaller in the treatment group compared to the comparison group. KOB decomposition shows that the ethnicity- and gender- specific differential impacts are mainly driven by differential endowment effects, primarily land and labor endowments. Results suggest that the project reduced the ethnicity- and gender-specific productivity gaps, although it did not eliminate them entirely. These findings highlight the need for targeted support to vulnerable producers including ethnic minority and female producers. Specifically, targeted labor-saving technologies and land tenure security programs can ensure that vulnerable producers can harness benefits in a manner which could help narrow productivity differences.

Food Related Concerns, Awareness on Safety, and Illness at Home: Examining Consumer Households in Nepal

Aditya R Khanal (*Tennessee State University*)

Hunger and malnutrition are critical challenges for developing countries. Access to a sufficient amount of safe and nutritious food is the key element in addressing food security, health, and nutritional goals. On one hand, food safety issues are not emphasized enough as the primary concern in the food systems in developing countries like Nepal. While on the other hand, hunger problems are yet to be fully solved. In that, the supply of unsafe and poor-quality food could adversely affect the intended nutritional and food security goals, rather have potential to create incidences of foodborne illnesses on larger scales. Evidently, there have been increased reports on microbial and chemical contamination outbreaks—affecting individual and public health in Nepal (Govt of Nepal, 2022; Yadav 2017; Bhandari et al 2019).

Food availability is a necessary but insufficient condition to ensure food security and facilitate food utilization. With new and existing trends on eating and food intake behavior, market context, and set of challenges triggered from global and local phenomena, it is interesting to examine Nepali consumers and their food and nutritional outlook. We used empirical survey data generated from a two-year research project implemented in Nepal to understand this baseline information. Based on the sample survey data of consumer households in five large metropolitan areas of Nepal, we assessed the level of awareness and understanding of different dimensions of food security and safety, as well as incidences of foodborne illness and nutritional outlook of children and adults. Using 607 sample households, our survey emphasized on representing urban consumer households of Nepal. We administered stratified random sampling in multiple stages: randomly selected wards 3 in metropolitan municipalities, and then randomly selected clusters in wards in the selected metropolitan areas.

Our preliminary findings show that awareness on food safety is significantly low, even among urban consumers. However, the concern on microbial and chemical contaminated food consumption has been significantly expressed. Additionally, we found that higher food borne illness incidences on the household are significantly linked with the awareness on fresh produce safety and water use.

Session 3

Room 730

Roundtable Discussions

Nepali Diaspora Academics: Our Contributions And Challenges

Moderator: **Dinesh Paudel** (*Appalachian State University*)

Panelists: **Hemanta Ojha** (*University of Canberra*); **Tara Sigdel** (*University of California, San Francisco*)

Nepal is one of the main countries to send young intellectuals and professionals abroad especially to the Western world for academic pursuits. Many of them settle abroad and take academic and professional positions with various achievements at every level. Nepali academic communities around the world also maintain some kind of linkages to Nepal. There are hundreds of professors, researchers, professionals and high-ranking intellectuals of Nepali origin around the world. They have not only high-level intellectual backgrounds but also enormous potential for research, funding and many forms of collaboration. This session aims to highlight some of the potentials, opportunities and limitations of diasporic academic communities in advancing intellectual development in Nepal.

Room 706

Emerging Socio-Economic And Environmental Issues

Moderator: **Buddhi R Gyawali** (*Kentucky State University*)

Management of Health Information of Nepalese Labor Migrants

Rajendra Karkee (*BPKIHS, Dharan*)

The monitoring and improvement of the health of labor migrants (LMs) require sufficient health data to be recorded and managed. In this context, this study was conducted to explore the management of health information of Nepalese Labour Migrants (NLMs). This is an explorative qualitative study. Stakeholders involved directly or indirectly in maintaining the health profile of NLMs were first mapped, physically visited, and any documents or information were collected. Then, sixteen key informant interviews were conducted among these stakeholders related to labor migrants' health information management and challenges. A checklist extracted information from the interviews, and a

thematic analysis was carried out to summarize the challenges. Government agencies, non-governmental organizations, and government approved private medical centers are involved in generating and maintaining the health data of NLMs. The Foreign Employment Board (FEB) records deaths and disabilities of NLMs while at work abroad and maintains an online portal of the Foreign Employment Information Management System (FEIMS) to collect and report migration-related data. Health assessment of NLMs is a mandatory procedure before departure, which is done through the government-approved pre-departure private medical assessment centers. The health records from these assessment centers are first recorded in paper-based form and then entered into an online electronic form to be stored by the Department of Foreign Employment (DoFE). The filled-up paper forms are sent to District Health Offices, which further report the data to the Department of Health Services (DoHS), Ministry of Health and Population (MoHP) and associated governmental infectious diseases centers. However, there is no formal health assessment of NLMs upon arrival to Nepal. Key informants raised various issues and concerns in maintaining health records of NLMs, which were grouped into three themes: lack of interest to develop a unified online system; need of competent human resources and equipment; and developing a set of health indicators for migrant health assessment. The FEB and government-approved private assessment centers are the main stakeholders in keeping the health records of NLMs. Health records of NLMs have not been systematically kept in one database and shared with governmental health agencies. It is necessary to keep health records electronically in one database with relevant health indicators on departing and arriving NLMs.

Exploring Translanguaging Practices of Multilingual Nepali Immigrant Families in the US

Madhukar KC (Arizona State University)

This qualitative case study attempts to investigate the languaging practices of bi/multilingual Nepali immigrant parents and their children using their dynamic linguistic and semiotic repertoires in meaning making—referred to as an act of translanguaging (Garcia & Wei, 2014; Wei, 2018) in their new homeland in the US. It will examine how linguistically, culturally, and ethnically diverse Nepali immigrant parents and their children practice their linguistic and cultural repertoires in everyday communicative practices, interaction, and negotiations within the home spaces. Utilizing a multi-layered approach to data collection through in-depth interviews, observations, including “high-quality” field notes (Yin, 2013; Duff, 2014; Sah & Li, 2020; Lareau, 2021), the presentation will shed light in understanding the ways translanguaging practices take place in Nepali immigrant families among parents and children and what such practices mean for parents and their children from linguistically and culturally diverse backgrounds. During the session, the presenter will share the findings to the research questions: 1) What is the nature of

translanguaging practices in Nepali immigrant families in the US?; 2) How do they engage in translanguaging practices within the home space?; and furthermore, How does the home serve as a translanguaging space for translanguaging practices for/of bi/multilingual families? Furthermore, it will shed light on the implications of the study on family language policy, heritage language maintenance, and Nepali diasporic communities in the US before a brief Q&A with the audience.

Power Tradeoff Across Scales in Nepal's Multi-Level Climate Governance System

Suman Acharya (*University of Maine*)

Global climate change presents extreme challenges to both social and ecological systems. Adaptation strategies are inevitable tools to cope with the impacts of climate change. However, most studies on adaptation to date are highly focused on biophysical changes such that ignoring the social, political, or economic determinants of adaptation. Moreover, questions about how power and politics shape adaptation policy, who participates in planning and decision-making, to whom the adaptation actions are targeted, and who might accept or resist adaptation programs across scales remain poorly answered. This paper is based on 10 months long ethnographic study and draws upon the political nature of climate change adaptation in the multi-level governance system of Nepal. Employing qualitative data collection methods, this paper results that the planning, decision-making, and implementation of adaptation-based policies and programs are almost handled by the federal government where the involvement of provincial and local governments is practically null. Multiple forms of resources including knowledge, finance, physical infrastructures, skilled-human power, etc. are centrally captured whereas the provincial and local governments still depend on the federal government for these resources despite Nepal entering into federalism in 2015 building a decentralized multi-level governance structure with constitutionally mandated legislative, executive and judicial functions for the local government units. The existence of a provincial government has become another critical question. These issues have created a high level of conflicts based on power, authority, and responsibility among political bodies and bureaucracy across scales, diluting adaptation policies implementation through effective programs. I argue that the climate change issue should be transformed into a political agenda and the power to plan, decide, and implement programs should be equal rights of lower-scale governments to confront adaptation challenges.

To be or Not To Be? A Case Study of Tourism-based Livelihood Diversification in Upper Mustang, Nepal

Tashi Gurung (*Arizona State University*)

The unprecedented expansion of tourism has created a plethora of opportunities for households and businesses. Globally, households in regions with high levels of tourism are rapidly diversifying their livelihoods to tourism-based ones. While the tourism literature has heavily focused on the fundamental decisions and decision-making process of tourism consumers, the decision-making processes of households in tourism destinations are poorly understood. Additionally, the role of power relations in tourism dynamics have been implicit or poorly theorized. As a geo-politically sensitive border region, only opened to foreigners in 1992, Upper Mustang, Nepal, is an ideal region to explore these dynamics. Using Sustainable Livelihood Framework (SFL), this paper examines why the people of Upper Mustang diversify by adopting tourism-based livelihood strategies and how does agency vs structure influence their decisions to diversify. We employed a mixed method approach inclusive of a survey questionnaire with open-ended follow up questions and participant observations. Additionally, a temporal census data of hotels from 1992 to 2021 emphasizes how the caste system intersects with history and tourism development to generate and maintain an uneven playing field for tourism people in Upper Mustang. We argue that understanding the livelihood diversification dynamic requires examinations of power and interrelationships among stakeholders.

Saturday, Feature Roundtable 2

Room # 730 and Zoom Link:

Dengue Epidemics in Nepal: Reflections on The Lessons and Challenges for the Healthcare System

Moderator: **Sadeep Shrestha** (*University of Alabama at Birmingham*)

Participants: **Anup Subedee** (*Kirtipur Hospital*); **Reshma Tuladhar** (*Tribhuvan University*)

Dengue (break-bone fever) is a viral infection that spreads from mosquitoes to people. Dengue has been endemic since 2004 in Nepal. Recently, between January and 28 September 2022, a total of 28109 suspected and confirmed cases of dengue fever were reported including 38 confirmed deaths. These numbers might be underestimated as there is no active surveillance. This outbreak has provided several lessons and challenges for Nepal including early and accurate case detection, improved active surveillance, vector detection and control, and case management. The panelists will provide their expertise in these issues and insights on public health and healthcare responses and preparation for future outbreaks of Dengue or other similar emerging infectious diseases.

Keynote Speech 2

Room # 730 and Zoom Link: TBA

Awkward But Fitting In: Complexities, Adaptations, and Opportunities as a Foreign Disaster Researcher and Ally in Nepal

Speaker: **Jeremy Spoon** (*Portland State University*)

Research by non-Nepali academics and practitioners varies greatly across Nepal—from the topics explored and methodologies employed to the return and application of findings with participants and institutions. Research practice also adapts and evolves depending on context. This keynote presentation engages questions on the positioning and approaches of Western researchers in developing countries like Nepal. As a Jewish-American environmental anthropologist, my twenty years of research in the Khumbu (Mount Everest) region and locations highly impacted by the 2015 catastrophic

earthquakes have shaped my applied research practice. Featured here is our current team social science research on the complexities of household vulnerabilities and adaptive capacities over the short and long-term in rural compound disaster recoveries. We use collaborative and mixed quantitative and qualitative methods that adapted and evolved to fit the time and place. Results were also returned to and informed by participants as well as integrated into different awareness raising and capacity building efforts. To date, we found that short-term rural disaster recoveries were heterogenous and changing. Some communities that were further from the road with less access to aid were recovering faster in certain situations than communities near the road with more aid. These communities further from the road utilized social capital to recover rather than waiting for external aid to help them. We affiliated with Tribhuvan University and non-governmental organizations, which included collaborating on research and writing with faculty and practitioners, hiring students and alumni as staff, and carrying out multiple presentations and workshops. These outcomes created opportunities for information sharing, networking, and the identification for potential points of synergy and future collaboration.

Session 4

Room 730

Workshop 2 | Book And Journal Editorship

Moderator: **Gyan Nyaupane** (Arizona State University)

Panelists: **Samir Khanal** (University of Hawai'i), **Udaya R Wagle** (Western Michigan University), and **Sadeep Shrestha** (University of Alabama at Birmingham)

Many scholars aspire to become successful book and journal editors. This role comes with a significant responsibility of shaping the scholarly direction of their field. However, book and journal editors face numerous challenges, given the changing landscape of publication. In this panel, the invited panelists will share their experiences of publishing edited books and peer-reviewed journals. This discussion will be valuable for both emerging and established scholars, as they can gain insights into the manuscript review process and learn how to become successful book and journal editors. The panel comprises experts from diverse disciplines, including public health, bioengineering, public administration, and tourism.

Room 706 and Zoom Link: TBA

Himalayan Environments and Climate Change

Moderator: **Milan Shrestha** (Arizona State University)

The Himalayan region has often been portrayed negatively as a site of population growth induced environmental degradation, although this population-centered thinking has been disproven. Nevertheless, the region has undergone significant changes in socio-ecological-technological systems, and climate change may add more complexities and uncertainties. Changes range from household livelihoods and outmigration patterns to regional vegetation changes, infrastructure developments, and land systems. The region's diversity and complexity necessitate empirical field-based studies for better understanding. This panel presents three such empirical studies conducted in Nepal, showcasing the value of interdisciplinary collaborative research for the Himalayan region.

Botanical Diversity in Eastern Nepal's Alpine Zone

Elizabeth Byers (*Independent Scholar*)

Eastern Nepal's mountain protected areas are home to globally significant biodiversity, with vegetation zones ranging from the subtropical to the alpine. Climate change is shrinking alpine habitats as warming temperatures push ecosystems higher up ever-narrowing mountain slopes. The recently observed "greening of the alpine" stands in contrast to the very real threats to most alpine plants.

Eastern Nepal's alpine zone provides ideal conditions for specialist plants adapted to extreme cold. These alpine plants grow very slowly, hugging the ground to avoid wind-chill, investing in deep root systems, and producing a remarkable pharmacopoeia of flavonoids, terpenes, and other metabolites. Their showy flowers work hard to attract scarce pollinators, with heady fragrances, extra protein in their pollen, and some surprising symbiotic relationships.

The subalpine and alpine flora of Sagarmatha National Park, including special adaptations and local lore, has been recently documented in mobile app format as an illustrated field guide. This project was a partnership between the author and the Flora of Nepal Project, the Nepal Department of National Parks and Wildlife Conservation, and High County Apps. Next up is the "Flowers of Kanchenjunga", an illustrated book underway in partnership with the National Herbarium and Plant Laboratories in Godavari.

The Changing Ecology of a High Himalayan Valley: The Case of The Kanchenjunga Conservation Area, Nepal

Alton Byers (*University of Colorado at Boulder*)

Alpine ecosystems in the Kanchenjunga Conservation Area (KCA) of eastern Nepal provide critical environmental services for millions of people living downstream, primarily in the form of increasingly scarce freshwater supplies. They are also the ultimate destination of nearly all international climbing and adventure tourism groups who visit the region--whether as gateways to the higher summits, or while trekking to a famous base camp, adventure tourists have long been drawn to these magical high-altitude landscapes. Yet in spite of their economic and environmental importance, alpine ecosystems within the KCA have been under increasing attack from a range of poorly understood and under-documented stressors during the past two decades. They include the impacts of a decade-long civil war, outmigration, societal change, globalization, poorly planned road building, climate change, and the illegal wildlife/medicinal plant trade. The objectives of

the project were thus to (a) document and quantify contemporary threats to the KCA's alpine ecosystems, (b) develop a portfolio of sustainable alpine ecosystem management strategies that address each identified threat, and (c) develop new mechanisms with local stakeholders that enhance the region's nature-based economic development opportunities, particularly in anticipation of the post-COVID 19 return of tourism.

Streamflow and Water Availability in the Context of Climate Change

Soni Pradhanang (*University of Rhode Island*), **Tirtha Adhikari** (*Tribhuvan University*), **Rocky Talchabhadel** (*Texas A&M University*), **Sanjib Sharma** (*Howard University*), and **Dibit Aryal** (*Chinese Academy of Sciences*)

There is strong observational evidence of diverse hydrometeorological processes affecting hydrologic response in the Himalayan river basin. A sound understanding of the hydrologic response to climate change is critical to inform water resources management across different sectors, including hydropower generation, reservoir operation, and water supply. In this study, we developed an integrated modeling framework to assess the near- and long-term hydrologic response to climate change. Under altered precipitation patterns projected by climate models, there could be a shift of intense rainfall month from August to September. The result showed that Modi Khola, Nepal's future streamflow, will increase for the far future (2075-2099) time slice relative to mid and near-future time slices. Flow duration curves provide crucial information for water resource planners, particularly hydropower, to predict the likely effects of hydropower potential under the threat of climate change in the Himalayan river basin.

Labor Migration Triggered by COVID-19 and Its Impact on Climate Change Adaptation of Producers in Sunsari District, Nepal

Amrit Shrestha (*University of Tennessee*), **Sreedhar Upendram** (*University of Tennessee*), **Seong-Hoon Cho** (*University of Tennessee*), and **Neelam C Poudyal** (*University of Tennessee*)

Due to COVID-19, many temporary labor workers who had worked in foreign countries lost their job and had to return to their native countries. These laborers are involved in daily household tasks and decision-making processes. This study investigates the role of labor migrants who returned to their households due to COVID-19 on adoption of climate change adaptation. 443 smallholder farmers were selected randomly from Sunsari district, Nepal for a face-to-face interview. Ordered logistic regression analysis shows a positive and significant impact of labor return on the adoption of climate change adaptation. Access to Extension, subsidy, and internet were identified as key factors that

promote the adoption of climate change adaptation practices. Increasing access to institutional factors in the post-pandemic labor scenario, especially to Extension services and subsidies, is crucial for promoting the adoption of climate change adaptation among farmers. Access to Extension services is prioritized over access to subsidies due to its higher impact on the adoption of climate change adaptation practices. The findings of this study provide valuable insights into the role of labor migrants in promoting climate change adaptation in rural areas and highlight the need for institutional support to build resilience against the impacts of climate change.

Session 5

Room 730

Conversation | Academic Enterprise & Administration: Reflections & Lessons

Moderator: **Brijesh Thapa** (*Oklahoma State University*)

Panelists: **Devi Gnyawali** (*Virginia Tech*), **Alok Bohara** (*University of New Mexico*), and **Shanta Pandey** (*Boston College*)

Room 706 and Zoom Link: TBA

Climate Change Policies, Care Economy, and Environmental Issues

Moderator: **Ram Acharya** (*New Mexico State University*)

Measures of Racial Participation Rates in USDA Direct Payment Programs

Anil K. Giri (*USDA ERS*), **Dipak Subedi** (*USDA ERS*), and **Kathleen Kassel** (*USDA ERS*)

Direct government payments were a record high \$45.7 billion in 2020 to the U.S. farm sector. The COVID-19-related assistance from the Coronavirus Food Assistance Program (CFAP) of the United States Department of Agriculture (USDA) contributed the lion's share of the payments. However, initially, the U.S. Secretary of Agriculture stated only a very small share of CFAP payments were going to the minority producers, especially African American Producers. This presentation examines the payments made to minority producers, focused on African American producers, from the COVID-19 program, Coronavirus Food Assistance Program and compares it with one of the other more recent ad hoc program payments, the Market Facilitation Program (MFP). The two rounds of the CFAP made direct payments of \$31.0 billion (\$11.8 billion from CFAP 1 and \$19.2 billion from CFAP 2) starting in 2020. The MFP made a total payment of \$23.5 billion (in two rounds, MFP 2018, and MFP 2019) to producers affected by the retaliatory tariffs placed on US producers by trade partners across multiple years. CFAP made almost \$600 million in direct payments to minority producers, including Black or African American producers. Black or African American only producers received more than \$52 million in CFAP payments. CFAP payments were proportional to the value of agricultural commodity sold for most minority producers. The 2017 Census of Agriculture showed that most minority producers, including African American producers but excluding Asian producers, raised livestock. CFAP made the highest payments to livestock minority producers. The CFAP

payment distribution pattern shows that payments reached minority producers who often did not receive Government payments. CFAP made more payments and as a share of total program outlays to minority producers compared to MFP. However, for Black or African American only producers, even though the magnitude increased (because CFAP disbursed more funds compared to MFP), the share of payment received did not increase.

Does Crop Insurance Influence Crop Yield Impacts of Warming Temperatures? A Farm-level Analysis

Madhav Regmi (New Mexico State University)

Warming temperatures have been documented as a major concern for producers as they seek out adaptation strategies for climate change. There is limited knowledge on the potential effects on crop yields due to extreme weather in the presence of crop insurance. This research examines the effects of the federal crop insurance program on crop production under extreme heat using farm-level data from Kansas. Here we combine farm-level data for Kansas corn and wheat producers spanning 643 farms and 22 years with historical weather data to estimate the effect of warming temperatures on yields. We find that insured dryland corn is 38% more sensitive to extreme heat than uninsured dryland corn. Results also suggest that a uniform +1°C warming scenario leads to yield reductions of 16.7% (11.8%) for insured (uninsured) corn production; and 6.0% (4.4%) for insured (uninsured) wheat production. This divergence in warming impacts suggests that federal crop insurance may be creating disincentives for adaptation to extreme heat, however, our empirical approach does not fully account for the potential endogeneity of insurance participation.

Why Care for the Care Economy: Empirical Evidence from Nepal

Aashima Sinha (University of Utah) and ***Ashish Kumar Sedai*** (University of Texas, Arlington)

Using data from the Nepal Living Standards Survey (NLSS)-III-2010/11, we examine the effect of unpaid care work on the capability of care providers to earn a living. The conceptual framework, motivated by the Capability Approach, delineates contemporaneous and compounding effects of undertaking unpaid care work on the caregiver and its wider intergenerational and societal effects. Using an instrumental variables approach, the empirical analysis identifies adverse gender differentiated causal impact of time devoted to caregiving: While women and men experience commensurate declines in their weekly employment hours; the likelihood of being employed decreases only for women. The study is one of the few least developed-country studies that use time-use survey data to provide evidence on the impact of unpaid work and the first study

for Nepal. This research has important policy implications as it focuses on a prevalent aspect of households' livelihood in Nepal: the provisioning of care and its effects on individual well-being and on broader development outcomes for Nepal. The paper draws the attention of policymakers to the need for greater public investment in care infrastructure and services along with community-based initiatives.

Increasing NO₂ Risk for Asthma in Louisiana: 2005-2020

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This research analyzes the relationships between the vertical column level concentration of Nitrogen Oxide (NO_x) pollutants and asthma cases in Louisiana for 2005-2020. It utilizes vertical column level data captured by Ozone Measuring Instrument (OMI). Asthma cases at Census Tract levels were obtained from the Louisiana Health Department. Results indicate a correlation between diagnosed asthma cases and concentration of Nitrogen di-oxides levels. Asthma cases are very high among the settlements that are proximities to highways, factories, and petrochemical plants. These areas have a diverse population with the majority of colored populations. The study highlights the disproportionate impact of NO_x pollution on communities of color. Effective reduction of NO_x emissions is crucial for improving air quality and mitigating the adverse health effects on these communities.

