

Day 1: Monday, 12th December, 2022

Parallel Session-A

Shuklaphanta Hall

Theme: A1. Engineering (Panel 1)

Vernacular Architecture and Settlements

Chair: Mohan Moorti Pant

**Transformation of Built Environment in Karnali and Far Western Himalayan Region
(KAFHR): A Study of Settlements from Chandannath-Jumla and Martadi-Bajura**

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The rural-urban transformation in Nepal took a momentary shift along with the local institutions. Of the 753 local governments, 293 are designated as municipalities and 460 as rural municipalities. The share of the urban population was 17.07% in 2011 and reached 66.08% in 2021. Karnali and Far Western Himalayan Region (KAFHR) encompassed unique traditional rural settlements having unique settlement patterns, house forms, roof structures, building materials, and spaces. In the upper Karnali region, buildings are constructed with flat mud roofs called 'Thada' and are connected at the roof level called 'Bada' forming a public place to host communal gatherings. Whereas in the Far Western region, buildings are constructed with slope roofs covered with slates and are connected through a courtyard, narrow passage, and public spaces. With the recent road access and ever-increasing population influx, not only their role as market centers transformed but also their patterns and features. The new political and administrative power of municipalities has changed the way these settlements govern themselves. Unfortunately, these are still at a higher risk of multiple disasters including landslides and earthquakes. These factors are shaping the settlement patterns, forms, features, inclusivity, and sustainability. Hence, it is crucial to analyze the trajectory of the transformation of these settlements. This paper analyses the transformations in two settlements, Chandannath-Jumla and Martadi-Bajura, by using a mixed-method approach based on secondary data from literature reviews, spatial analysis, and open street maps using a QGIS-based application. It combines the citizens' knowledge through key informants and develop a trajectory of settlement transformation from 2000 to 2020. It has identified number of different drivers in socio-cultural, ecological-environmental, economic, and political domains and their dynamics. By collecting, organizing, and analyzing the both primary and secondary information, the paper has addressed the knowledge gap of transformation in KAFHR.

Vernacular Architecture of a Rural Magar Settlement of Nepal: A case of Taka, Putha Uttarganga Rural Municipality, East Rukum.

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Vernacular settlements of the Magar community in the Taka village of East Rukum are still lively and represent the society, culture and history of the place, which reflects the sustainable living pattern of a rural community. A detailed study of Taka village clearly defines the geography, settlement pattern, community groups, settlement cluster, social structure and rituals. Further, it identifies the dwelling types and their construction technology based on three features: 1. representation of each community, 2. representation of each locality, and 3. representation of variation in house form. The dwelling and lifestyle of the residents are illustrated in a way to represent the characteristics of social structure and sharing of open spaces. The study also analyzes the spatial configuration of the dwellings. The dwelling form, building materials and construction technology blend with the terrain profile and climate creating a harmonious settlement pattern with nature and society. There is also community awareness on the conservation of Taka rural settlement heritage which is a positive sign of maintaining the identity of the community and place.

Keywords: Vernacular architecture, Rural livelihood, Settlements, Indigeneous community, Uttarganga Rural Municipality

Vernacular Architecture: Exploring the Changes in Rana Tharu Settlements of Far Western Nepal

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Vernacular architecture and settlements are considered culturally meaningful, socially acceptable, locally harmonized, and ecologically sustainable. The traditional buildings seem to be more connected to the local places, environment, culture, indigenous technology and people. However, with the development of new technologies along with the increase in population, the replacement of these vernacular buildings and settlements has become a regular phenomenon in many of the nations including Nepal. In this regard, considering the case of vernacular buildings and settlements of Rana Tharu from the far western region, this paper aims to (i) examine the settlement pattern, house form, construction technology, materials and spaces in Rana Tharu settlements; and (ii) identify the changes and explore crucial factors behind the acceleration of such changes. The paper applies a qualitative approach through explanatory

qualitative analysis for exploring the transformation in architectural style, settlement patterns, house forms, construction techniques, use of spaces, and community livelihoods in the Rana Tharu settlements. Field observations, key informant interviews and informal discussions with locals were carried out. This research contributes to understanding the factors causing changes in traditional Rana Tharu buildings and settlements. It also highlights the significance of vernacular architecture and suggests strategies to make the settlements and buildings more resilient and sustainable.

Keywords: Vernacular architecture, Settlements, Rana Tharu, Far Western Nepal

Medieval Architecture in West and Far-West Nepal: New Insights into its Origins and Developments from the 8th to the 17th Century

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The medieval architecture of west Nepal as a whole has yet retained little attention in academic literature. The basin of the Karnali River is notably known as being the centre of the Khaśa Malla empire, which lasted from the 12th to the 14th century. Hence it is naturally that the few authors who have investigated west Nepal's archaeology have interpreted the śikhara temples (locally known as deval) and other standing monuments (mainly water architecture) as manifestations of the economic and political success of the Khaśa Malla emperors. Nevertheless, these considerations rest on important methodological issues, amongst which are the absence of a typo-chronological approach and the lack of comparisons with similar monuments from the neighbouring Mahakali River area (far-west Nepal and Uttarakhand). To rectify these lacunas, the presentation will explore the origins and regional developments of stone monuments from western and far-western Nepal. Likewise, the vocation of śikhara temples and their posterity outside of western Nepal will be addressed. By mobilising field data, the presentation will demonstrate that these monuments did not appear ex nihilo during the Khaśa Malla period. It will be demonstrated that they are in fact the results of centuries of a continuous development that involved travelling architects from various parts of India as well as local artists.

Parallel Session-B

Api-Saipal Hall

Theme B1: Social Science (Panel 1)

Dalit Search for Dignity and Freedom

Chair: Krishna P. Adhikari

Continuity and Altering Modes of Rithi Bhagya System of Far West Province

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The *Rithi Bhagya* system has been practised in the Far Western region of Nepal for ages. Under the system low-caste families come to share a relationship with high caste families, wherein the two serve each other's needs by exchanging products and services provided by the former with benefits like, share in harvest, given in return by the latter. In other words, high-caste landowner patrons, called *rithi* fulfill the necessary needs of low-caste, landless dependents called *bhagya*. The ages old socio-economic system though still in practice, has with the passing of time, started showing signs of change. Changes in traditional occupations and social relationships of low-caste people are being witnessed. This may be a major cause behind the alteration in the practice. This study aims to explore the continuity and alteration of the *rithi bhagya* system of Far West Province of Nepal. A field research has been conducted among Dalits of Dogadakedar-8, Kalagau village, Baitadi district. The key methods of information collection are key informant interviews, case studies and focus group discussions. The finding of the study shows a huge change in the *Rithi bhagya* system. The nature of livelihood of low-caste members of the society has transformed from tilling the landowner's land as permanent labourers for generations into foreign employment, agriculture wage labour, sewing clothes, playing musical instruments, service and business leading to the gradual shifting of *Dalit* modes of subsistence to a modern independent lifestyle.

Keywords: *Rithi Bhagya* system, Far Western Nepal, Nature of livelihood, Continuity, Alteration

The Emergence of Nepali Dalit Sahitya

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The Hindi word dalit, whose dictionary definition is 'broken', or 'oppressed', is the term most commonly used in contemporary South Asian discourse to denote members of a range of largely artisanal castes who have embarked upon a struggle against historic oppression and discrimination. Dalits number approximately 3.5 million in Nepal, constituting 13.22% of the total population, according to the 2011 census (Gellner et al. 2020). Despite huge social and political change over the past 60 years or so, Dalits remain at the very bottom of Nepali society in terms of all key development indicators and continue to face discrimination, exclusion and violence, both direct and structural. The under-representation of Dalits in Nepali-language

literature until the late 20th century—both as the subjects of texts and the authors of texts—is very striking, and a category of Nepali-language writing labelled dalit sahitya only began to emerge after 1990. In my paper I will report on the research I have conducted on this issue to date. First, I will introduce a selection of Nepali-language texts produced by non-Dalits in which Dalit characters and Dalit-related issues have been portrayed. Most of these were published before Dalits began to author such texts themselves; a few are of more recent origin. I will then present a preliminary thematic summary of the Dalit-authored literature that has appeared in more recent years, and a summary of the debate that has arisen about the definition of Dalit sahitya and the authoritative representation of Dalit issues. This will draw upon research conducted in Kathmandu in May-June and, I hope, also upon research conducted in western Nepal in the weeks running up to the conference.

The Unbounded Haliya: The Search for Dignity and Social Transformation in FW Nepal

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The first antislavery affirmative action in Nepal was initiated by then Rana Premier Chandra Shumser in 1925 AD by freeing 59,000 slaves from different parts of the country. In 2000, the democratic government of Nepal abolished the ‘Kamaiya System’, a form of bonded labour. In 2008, the government of Nepal announced the abolition of the ‘Haliya System’, ‘freeing’ a total of 20,000 Haliyas from their moneylenders and landlords. Haliyas are agricultural labourers who plough the arable land of their master/moneylenders. It is a kind of bonded labour. The root cause of the origin of Haliya system was the debt trap. Once in debt Haliya lose all control over their condition; expensive interest rates and other charges make them unable to pay off their debts. Therefore, many of them work for years and sometimes generations to repay their loan and remain Haliya. Haliyas are from socially and economically deprived communities, almost 90 percent of them are Dalits. The Haliya system prevailed in nine Far Western and three Karnali provincial districts of Nepal consisting of Kanchanpur, Dadeldhura, Baitadi, Darchula, Kailali, Doti, Achham, Bajhang, Bajura Humla, Jajarkot, and Surkhet. Haliya movement was strengthened after 2002, and the Federation of National Haliya Liberation Society was formed and worked to accelerate the Haliya movement through raising the 11-point demand with the government. A five-point agreement between the government of Nepal and the Federation of National Haliya Liberation Society was signed in September 2008 officially abolishing the Haliya system. The present paper is an attempt to illustrate the brief history of the Haliya movement in western Nepal. Attempts are made to analyse the effect of the national programme for Haliya abolition. The author hopes to illustrate the implementation strategy, mobilization, consciousness, and identity of Haliya at the local level. Despite the Corona pandemic, a two-week-long field visit was made during March-April 2021 to Kailali, Dadeldhura, and Bajhang. Data was collected through observation, interviews and combined with secondary sources.

Promoting Shared Accountability: Local People's Participation to Assess Policy Impacts

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Although research has a long history of assessing accountability, local people's meaningful participation has always been a challenge cumulated by multiple issues, such as time-consuming, pricey, inadequate local capacity, and meager research quality. However, these claims undermine the local capacity and maintain the status-quo of core-periphery relations in social research processes. To bring experimental evidence, operational research started in late 2019 and ended in early 2021 by enhancing the local capacity for participatory research to develop an understanding about the situation of the bonded agriculture laborers (Haliyas) and their families in Nepal. The Government of Nepal liberated the Haliyas in 2008 and launched its rehabilitation program in 2013. The research was conducted by a group of freed Haliya or their family members who were trained on the use of participatory research tools along with research ethics. The researchers, with the help of participatory tools, collected a detailed account of data of over 7,500 families from 103 villages in Nepal and uncovered the situation of the freed bonded laborers and the benefits that they received from the government's rehabilitation policy and subsequent program. The research finds that about two-thirds of freed bonded labor families were excluded from the rehabilitation process and denied their rights to land and home, which was assured in the government's policy. This paper argues that local people's meaningful participation in research is effective in enhancing in-depth understanding, collecting qualitative and quantitative data, enabling local people to improve their advocacy, and addressing the challenges of shared measurement of accountability.

Keywords: Participatory research, shared leadership, impact measurement, policy & accountability

Parallel Session-C

Khaptad Hall

Theme C1: Education (Panel 1)

Language, Ethnicity and Education

Chair: Dharma Raj Upadhyay

Analysing Changing Patterns of Education as a Marker of Freedom within Kamaiya Communities in the Sudurpaschim

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After more than 20 years of being officially 'freed' from the Kamaiya system of bonded labour in July 2000, this paper analyses the lived experience of freedom for Kamaiya, former bonded labourers in the Sudurpaschim province of Nepal. The Kamaiya constitute part of the wider, diverse Tharu ethnic group who have a particular experience of socio-economic exploitation

within the Sudurpaschim province. The paper considers the symbolic and material significance of formal education in the post-bondage era within Kamaiya communities. The focus on formal education for this group of former bonded labourers who were previously largely unable to attend school and university-level education enables analysis of the ways in which education facilitates new performances of gender and masculinity within the Kamaiya community. Additionally, attending formal education provides opportunities for Kamaiya communities to diversify income streams and the types of work that are possible for former Kamaiya to be engaged with. Ultimately, this paper argues that formal education has become an important marker of freedom for the Kamaiya, a marker that requires ongoing analysis and reflection as experiences of formal education have a greater resonance within Kamaiya communities. More widely this paper provides insights into the formal education in the Sudurpaschim province from the perspective of the Kamaiya community, with Kamaiya perspectives necessarily privileged within this paper.

Indigenizing Education: Reclaiming Languages/ Cultures of Sudurpaschim

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Sudurpaschim has been the home to Nepal's indigenous languages and cultures. Its immense linguistic diversity seems to have been eroded due to the importation of ideologies as well as pedagogies. A shift in focus from instrumentality of language and culture to the human interest is critical to regain the glory of Sudurpaschim. Nepal as a state-nation appears to have replicated the British Raj colonial model of education to spread its monolingual/ monocultural wings across Sudurpaschim and beyond. The Sudurpaschim Province has yet to develop a framework for recognition, protection and service provisions for the indigenous languages. Giving priority to status planning, corpus planning and acquisition planning, together with prestige planning, is fundamental for developing sustainable language policy in the province. Indigenizing education can be a local-level response to reshaping Sudurpaschim's linguistic destiny. It becomes imminent for the provincial and local governments to reclaim indigenous knowledge and recognize place pedagogies to provide a firm foundation for transformation of the people(s) in the province. The Far Western University can play a catalytic role in the pursuit of restoring and reclaiming local languages by emphasizing indigeneity in education with a particular focus on curricular reconceptualization and pedagogical reconstruction for learners' transformation across the Sudurpaschim province.

Challenges of Multilingual Classroom in Basic Level Education

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This study covers the area of multi-lingualism in the classroom. The vivid picture of people from different culture and language living together can be noticed in the classroom. As a result the medium of instruction has become a challenge for the teacher and students to understand the content. This study is based on qualitative research method with purposive sampling procedure to understand the situation of multilingualism and its impact on classroom teaching and learning. The study area was Bedkot Municipality of Kanchanpur district. This Municipality has one of the diverse societies with people from multi-ethnic and multilingual communities. For analyzing the challenges of multilingual classroom in basic level education, six respondents from Tharu community including three girls selected from a school of Bedkot Municipality. Direct Interview with selected students and KII with subject teachers and principal was carried out for getting information. For better understanding the situations in classroom, three FGDs was carried out in each class of six, seven and eight.

In the case of students from Tharu community, it was found that though they perform well in the activities with their friends in their own mother-tongue, they remain less active in the classroom, and feel less confident to express themselves because they lack knowledge of Nepali or English. This causes them to lag behind in almost all the aspects in comparison to other students. Teaching and learning become effective only when all students in the classroom participate actively in the classroom activities. However, a single teacher cannot have command on the mother tongue of all students. As a result, it is a challenge to help students understand the content, and make them active in the classroom. Overall, the lack of local language teacher, teaching learning materials, script, books, and strategic plans to teach in the multilingual classroom pose many challenges in the multi-lingual classroom.

Keywords: Multilingualism, Challenges in Classroom, Basic Level Education, Educational Policy, Tharu Community

Intercultural Communication for Promoting English Language Teaching in Far Western Region

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Language and culture are interrelated. Culture finds its expression in language; so, learning a new language without familiarity with its culture remains incomplete. English speakers at present have dual challenges: one to be able to adapt to world cultures and to promote their local culture in comparison to other cultures. So the goal of English language teaching has undergone changes from imitating native speakers" to becoming an intercultural communicator

though pedagogical implementations have not been fully realized in classrooms, especially the ones that enable students to communicate globally while at the same time helping them maintain their native / traditional languages and cultures. (Zheng& Gao 2019). The main purpose of this study is to explore lived experiences of Campus Level English teachers regarding the use of intercultural communication in ELT classes. The research has designed a research question: how do the campus-level English teachers narrate their lived experiences regarding the use of intercultural communication in ELT classes? To explore the issue the researcher has used sociocultural theory and the intercultural competence model for the observation of intercultural communication in ELT classes. The researcher has applied the interpretive paradigm as the research design and phenomenology as the research method. Six English language teachers from different campuses of Far Western University are the informants for the study. As the data collection tools, in-depth interview and personal narratives have been used. The participants are found positive in the use of intercultural communication for promoting English language teaching as well as in promoting their local cultures.

Keywords: Intercultural Communication, ELT, Sociocultural theory, intercultural competence, Far Western Region

Parallel Session-A

Shuklaphanta Hall

Theme: A2. Engineering (Panel 2)

Construction Materials and Technology

Chair: Tek Raj Gyawali

Precast and Prestressed Concrete for the Future Construction of Sudurpaschim

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Concrete is regarded as the second most consumed material on the earth after water. While concrete has been used for more than 2000 years, widespread use of precast elements has emerged as the latest concrete technology for the quality of construction. Precast concrete follows a modular construction approach which is sometimes classified as one of the top ten construction innovations. The widespread application of precast concrete was augmented by the invention of prestressed concrete as a revolutionary technology in concrete. Concrete is strong in compression and weak in tension, but prestressing brings concrete under compression thereby preventing cracks. The resulting concrete section becomes stronger and more durable. Concrete sections can become slimmer and hence cheaper. Because concrete components are cast and cured off-site, construction duration at the project site as well as the entire project duration can be significantly shortened. Compared to cast-in-situ concrete, superior quality can be achieved in precast concrete.

This study provides an overview of precast and prestressed concrete technology. It highlights the benefits of concrete in boosting the national economy by utilizing domestic resources and in realizing sustainable development through durable construction. A brief context of Sudurpaschim province is discussed. Recent applications of precast and prestressed concrete in Nepal are highlighted, with examples from various structures including building, river training, hydropower and tunnel projects. Research and development of precast and prestressed concrete products in Nepal are highlighted by illustrating the findings from experimental studies and academic research. Even though Nepal is in the early stage of application of precast and prestressed concrete technology, the initial applications indicate a huge potential and great benefit of the application of such products for faster, cost-effective and durable construction in various parts of Nepal including Sudurpaschim.

Study of Common Construction Practices and Structural Defects in RC Buildings in Darchula District, Far-Western Nepal

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This paper presents the common construction and structural deficiencies noticed in Mahakali municipality Darchula. Darchula is a Himalayan district, which means it is a seismically active zone. The RC building constructions are common in the Darchula district. The main objective of this study is to find existing structural and construction mistakes in RC buildings. Field observations, interviews with engineers, technical people, local house owners, photographs, reviews of works of literature, byelaws, buildings code, etc. are taken to fulfil the objective of this study. This paper examines the cause and effects of faulty construction practices and structural defects. Structural defects are present in the RC buildings due to improper construction methods, economic factors, poor use of byelaws and codes, poor workmanship, lack of consultation with professionals, corruption, and lack of training etc. The results show that these structural defects and faulty constructions practice may lead to serious failures of structures during strong earthquakes. This study provides relevant information on building collapse in a recent earthquake (Gorkha, 2015) and the major cause of the failure of RC buildings to compare the defects present in existing RC buildings in the Darchula district. This study shows that learning from past incidents building constructions should be proper in accordance with building codes and byelaws. The study strongly recommends that to prevent future hazards, the construction of buildings should follow the building laws and codes, and this should be ensured by the municipality and other government bodies. Similarly, the government should be monitoring construction sites and also provide training for the construction of buildings, earthquake effects and construction material. To improve the existing structures, it is important to increase the strength capacity and ductility of the joint by providing a suitable retrofitting process or maintenance process.

An Evaluation of Challenges of Rural Road Construction Management in Budhinanda Municipality

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There is a history of over one hundred years of road network expansion and construction in Nepal though facing serious challenges to its sustainability. It is envisaged that the outcome of this study would be helpful at the decision-making level for rural road planning; decision-making from higher-level government authorities, reviewing the policies, and improving strategy for rural road planning and implementation. The overall objective of the study was to evaluate the management-related challenges in upgrading and maintenance of rural roads and to find causes of road construction on an impromptu basis in Budhinandha Municipality, Bajura. Thirty-five management challenges and sixteen causes of road construction on an ad-hoc basis were identified from the literature review and listed. Questionnaires were developed on a five-point Likert Scale and ranked by Relative Importance Indices (RII). Fifteen respondents from the Client's team and 15 respondents from the Contractor and User Committee were selected purposively for the questionnaire survey. This study revealed that five top-ranked management challenges were found to be the disputes related to alignment selection, improper water management, the release of the budget at end of the fiscal year, land acquisition problems during track opening and widening, lack of clear technical specifications, and weak geology. And five top-ranked causes of road construction on an ad-hoc basis were budget allocation at end of the fiscal year, political and committee interference during the selection of road alignment, lack of preparation of Transportation Master Plan (TMP), lack of sufficient technical staff and lack of proper project monitoring by a responsible team of Municipality. The high amount of repair and maintenance costs, and environmental protection due to the haphazard use of dozers on road construction, could significantly be reduced if government authority enforces to follow design standards with a better understanding of the community values, and implementation of bioengineering approach during road construction.

Evaluation of Nepali Aggregates for Alkali Silica Reactivity Using Accelerated Mortar Bar Test Method

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Alkali-Silica Reaction (ASR) is a harmful distress mechanism affecting the durability and serviceability of concrete infrastructure all over the world. Many large structures including

dams and bridges needed to be replaced by new structures because treatment of ASR was not feasible. Availability of amorphous or poorly crystalline silica is a necessary condition for ASR and it has been a common problem in several countries located in cold geographical regions. Some Nepali rocks also comprise amorphous silica as detected in Sanjen Hydropower and Tanahu Hydropower during examination of aggregate through various tests. Furthermore, ASR kinetics and the resulting expansion is observed to be enhanced with an increase in temperature and humidity. Accordingly, the risk of ASR is expected to be prominent in Nepal where temperature and humidity is relatively high. However, a systematic research on ASR in Nepal is scarce and the possibility of ASR is little known. This paper determines the reactivity of potential aggregate sources considered for some large infrastructures of Nepal. Accelerated mortar bar test based on the guidelines of ASTM C1260 is performed on aggregate specimens collected from Kotre area and Tanahu Hydropower project area in Tanahu, and Sanjen hydropower project area in Rasuwa. This study demonstrates that Nepal may have many sources of aggregates that are reactive. Considering the nature and scale of ASR consequences abroad, infrastructure construction in Nepal should pay utmost attention to prevent or mitigate ASR in Nepali infrastructure. A site-specific screening procedure of aggregate prior to the construction of concrete structures should be a state of practice in Nepal.

Keywords: Aggregates, Alkali-Silika Reaction (ASR), Infrastructure, Nepal

Parallel Session-B

Api-Saipal Hall

Theme B2: Social Science (Panel 2)

DSD Panel: Local Social Organization and Affirmative Action

Convener: Krishna Adhikari & David Gellner

Chair: Michael Hutt

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The socio-cultural diversity of Nepal is a well-known and much-studied subject, as is, latterly, the issue of the uneven socio-economic outcomes experienced by different groups of people, based on region, gender, caste-ethnicity, and so on. As a result, since the 2000s, Nepal has started recognising and managing diversity in a more pronounced and productive way. One of the major policy innovations adopted in this period is affirmative action, which aims to create a level playing field and to empower marginalised sections of society. The idea of federalism enshrined in the 2015 Constitution of Nepal has to be seen as a way of addressing these inbuilt inequalities. Sudurpaschim Province and the neighbouring territories of the erstwhile mid-western region are remote, relatively neglected, and 'backward' in development. Dalits are present in significant number in these regions and are a prime target of these reservation and

welfare policies. However, despite increasing interest and policy relevance, there exists rather limited ground-level knowledge about the extent to which these national policies implemented for well over a decade now have been effective. Have grassroots communities been able to reap the benefits intended? How far have they been able to participate in the development processes affecting their lives through the local governments, NGOs and other community-based institutions? How do social organisations and institutions that link communities function in the new federal dispensation? Based on three separate empirical investigations in 2021-22 in Kailali, Banke, and Surkhet districts, and covering both Dalits and non-Dalits, from both Pahadi and Madhesi backgrounds, the panel aims to share some fresh findings and thereby to provide material for discussion, which, it is expected, should be useful and relevant to policy and practice at different levels.

The Impact of Reservation Policies at the Local Level

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In order to rectify historical exclusions and imbalances experienced by Dalits and other marginal groups, Nepal has practised reservations for the past one and half decades. While the outcomes of these policies have started to emerge, the subject remains controversial and its future remains uncertain. There is very limited research to understand the outcomes of the reservation policies so far, and how the policies are (un)working on ground, particularly at the rural villages. Based on the empirical research carried out in the mid-west of Nepal, this paper analyses the policy provisions, particularly the principle of proportional inclusion enshrined in the Article 40 (1) of the constitution, and thereby identifies gaps in the policy and practices. Applying a qualitative interview method, the research was carried out in Banke (Nepalgunj and Khajura) and Surkhet (Birendranagar and Taal Baraha) districts. Altogether about 60 people were included in the interview including both the Pahadi and Tarai Dalits, and elected ward representatives. The study shows that the Dalit community seems to have benefited from the reservation policy as so far implemented in Nepal. The opportunity to enter government jobs and be represented in the political arena is a considerable achievement. However, the more backward caste groups within the Dalit community, particularly from rural areas do not seem to have benefited from this policy. Moreover, at the community level, the reservation policy seems to have had little effect because of a lack of adequate knowledge, and the inability of the state to implement its own policies. A more targeted approach to include and enable hard to reach grassroot groups and most marginalised Dalit communities is needed in order to materialise the policy objectives.

Cooperatives and Political Participation: How Far do Women and Dalits Get Involved?

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The prosperity of poor people through the cooperative model is perceived as one of the best tools for development. There are so many cooperatives working in Nepal for a long period of time with the main mission of poor people's inclusion in the mainstream of development. Similarly, there are many governmental and non-governmental organizations working for poverty reduction and leadership development of marginalized people. In this context, this study highlights the leadership status of Dalit people and their access to opportunities provided by the local government as well as development agencies. In addition, this study examines the governance practices in local municipalities, and cooperatives and NGOs. Interviews were conducted with hill and Madhesi Dalits, local representatives, government officials, and political leaders covering 20 municipalities of three districts (Kailali, Banke and Surkhet) in the far and mid-western Terai. The study revealed the fact that despite recent development and provision for reservations at the local level, and despite some progresses made in recent years, Dalit's access to (leadership) opportunities in political parties, local governments and in development organization is still challenging. In addition, the study showed that Dalits are largely unaware of the budget and programme of the local government. Generally, they neither enquire about the budget programmes, nor do the local governments inform them about these. Surprisingly, Dalit women representatives themselves reported not to be fully updated themselves about the budget and programmes and their voice is often ignored. Moreover, political biasedness and exclusion of Dalits in local power exercises, leader's monopoly, and lack of awareness Dalit communities are some important factors that create obstacles to Dalits' participation in and access to local developmental, political and economic activities affecting their lives.

Keywords: Cooperatives, Dalit, leadership local government, Women

Social Organizations and Caste Relations in a Western Tarai Village

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Tarai Dalits, who remain one of the most marginalized and excluded groups, have attracted very limited research. A large corpus of literature has grown up on social organization and caste relations in India's villages, across the southern border, but there is very limited systematic study of Nepal's Tarai, and even less on the Tarai in the light of recent political uprisings (Maoist movement, 1996-2005, and Madhes movement, 2007-2016). This paper, based on a holistic village study conducted between 2020 and 2021, combining ethnography with surveys, attempts to address the gap to some extent. Data were collected from a set of five villages in Banke district, covering the following caste groups: non-Dalits (Yadav, Barma,

Loniya, Godiya), Dalits (Dhobi, Khatik, Chamar), and Muslims. The study site also offered an opportunity to observe Pahadi–Madhesi interrelations thanks to the internal migrations in the past three decades. The preliminary findings show some continuity and some changes of the village organization (in terms of settlements, land ownership, occupation, Jajamani system, and caste commensalities). Muslims, who are treated almost on a par with Dalits, are well integrated in the village caste system so that occasional the Hindu-Muslim conflicts that erupt in Nepalganj town seemingly have ‘no visible effect’ on the local social fabric. The Jajmani system is largely abandoned thanks to the new economic opportunities brought in by urbanization and new infrastructural development. Unlike the general trend elsewhere in Nepal, there is very limited international labour migration from the ‘core’ Madhesi households. There is an increased awareness of Madhesi identity. Though there is subtle Madhesi-Pahadi feeling, Pahadi migration is regarded as a positive force for development and change. Despite both groups observing a set of caste-based taboos, each group was found treating Dalits from the other group with some leniency and acceptability. Though changes in recent years on caste-based untouchability, especially commensality in public, is visible, caste rules are strictly imposed when it comes marriage. The caste-class stratification is very much at work even today.

Parallel Session-C

Khaptad Hall

Theme C2: Education (Panel 2)

Higher Education, Research and Areas Studies

Chair: Matt Maycock

The Invisible Himalaya: Nepal in South Asian Area Studies

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South Asia lends itself, more than some other multi-nation regions of the world, to the concept of area studies, because British colonial rule bequeathed to all of its contemporary states (save Nepal) shared political, juridical and administrative institutions, as well as a common language, English. Although South Asia lends itself to comparative investigation, the curiosity of researchers goes no further than the national boundary of their country of study. I discuss this with reference to the ethnography of Nepal and its relation to broader scholarship on South Asia, where, for scholars of India, the Indian state is treated as being synonymous with South Asia. National boundaries are implicitly reified as demarcating the field of inquiry, certainly in the United States, with which this paper is concerned. Thus, a scholar working in a particular region of India may draw on scholarship about India’s other regions to illuminate the problems that concern them, while failing to consider relevant work in adjacent South Asian countries, like Nepal. Most strikingly, this is seen in the failure of works on kingship and caste to take note of the Muluki Ain of 1854, despite ubiquitous references to it in the scholarly literature on Nepal—evidence that that literature is not being read by scholars of India. My argument is

that the architecture of area studies, including research conferences, libraries and the practices of research funding, which are organized on the basis of national political boundaries, encourages this marginalization.

Area Studies in Nepal: Prospects and Pedagogical Implications

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Area Studies primarily aspired to understand and explain the other. For the Western academia, programs on Indic Studies or Middle East Studies or China Studies were very effective ways of accessing the mysterious, lying beyond the rational explanation of the existing discourses of the time. For one thing, such programs also possessed the military concerns after the World War II; for the other, the interaction of such programs functioned as a way of establishing the relationship at the bottom of the society. Although the regional studies depends much on the pedagogical implications of the original practices of area studies in the contemporary times, such attempts must rewrite the basic premises to reinvigorate the spirit of the discipline. In the age of globalization, the national or subnational cultures require themselves to present in international marketplace by going into the core values as manifest in multiple dimensions of society. However, the immanent perspective also points at the possible dangers lurking in itself in that the immanent perspectives can go about trumpeting the cultural ego by justifying the weakness as one's uniqueness. In this context, the pedagogue of area studies and/or regional studies at national and subnational levels must take into consideration the pitfalls of promoting one's own culture through programs like Nepal Studies, Sudurpaschim Studies, or Newar Studies. In this paper, I examine pedagogical implications of such programs and propose how one could rewrite the original premises of the area studies to found new domains of knowledge production and dissemination in academia.

Keywords: Area Studies, Nepal Studies, Modernity Studies, Sudurpaschim Studies, Pedagogy, Higher Academia

Parallel Session-A

Shuklaphanta Hall

Theme: A3. Public Health (Panel 1)

Politics and Knowledge of Menstruation in Nepal

Chair: Aruna Upreti

Comparative study on Knowledge of Menstrual hygiene among adolescent girls

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Menstruation is a biological process that ensures the beginning of a fertile age group in girls, but in our Nepali society, it is associated with restrictions and, superstition. Menstrual hygiene is necessary for every woman to be prevented from infection in the reproductive and urinary tracts. The study was carried out to compare the level of awareness of menstrual hygiene among school-going girls in rural and urban areas. A cross-sectional research design was used for the study. The study was carried out on the small village of Shukalaphata Municipality ward No 11 and an urban area of the Dhangadhi sub-metropolitan city. For this study, 60 respondents were selected as the sample size among which 30 were from rural and 30 were from urban areas. The respondents of the age group 13-17 years were selected purposively. An interview technique was used to collect the required information regarding knowledge of menstrual hygiene. The finding of the study showed that the knowledge about menstrual hygiene among girls from rural areas is less in comparison to the girls from urban areas. It also shows that despite being educated also, rural area girls are unable to have proper hygiene due to different aspects (family pressure to follow restrictions). The girls in urban areas are found to have quite good knowledge of sanitary pads and have access to drinking water, toilet and other facilities. It is not only necessary to make menstruating girls aware of menstruation and menstrual hygiene, but it is very urgent to make each and everyone aware of it. The administration or policymakers should not only make laws or policies regarding menstruation but should increase their efforts to make people in rural areas aware of menstrual hygiene and should provide menstrual products.

Keywords: Menstrual hygiene, Adolescent girls, Government policy, Sudurpaschim province, Menstrual products

The Menstrual Impurity of Women and Girls: Chhaupadi Practices and Resistance

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The practices and beliefs attached to menstruation in different parts of the world vary across time and space and have been shaped by various factors such as gender, religion, society and culture. Even though menstruation is a natural biological phenomenon, the social taboos and stigma attached to it isolate women and girls from their everyday lifestyle. Officially, Nepal is a secular country, but due to its traditional norms and values, menstruating girls and women continue to suffer. Women, particularly in rural areas continue to be restricted from touching men, children, cattle, living plants, public taps, and fruit-bearing trees, to enter temples and even their houses. To observe these taboos, in some regions and places, seclusion is practiced during menstruation by keeping girls and women in typical Chhau Goth (menstruation hut). This paper examines how menstruation is socially constructed although it is a biological phenomenon. The shared norms, values and traditions associated with these practices put an individual's life at risk. The study uses both a secondary literature review and a primary data collection method. The fieldwork was conducted in Bajhang, Accham and Doti of Karnali Province in April 2020 through a rapid and intensive case study and focus group discussion. The major findings of the research are that, though some people actively engage to eliminate the Chhaupadi practice to secure their lives and maintain the dignity of women and girls, others believe that their dignity has been undermined by the government's attempts to restrict the practice of this tradition.

Menstruation in Far Western Nepal: Negotiating Sacred and Profane Space Through Practice and Authority, Insights from Dignity without Danger

Rajya Laxmi Gurung and Stefanie Lotter with Madhusudan Subedi and Sara Parker

Dignity Without Danger, SOAS, TU and LJMU

Nearly all women and girls throughout Nepal practice at least one menstrual tradition, which can, in some cases, prevent women and girls from fully participating in economic and social life, and can negatively impact school attendance and employment. The dominant narrative portrayed in the media of menstruation in Nepal focuses on the extreme form of *Chhaupadi* and menstrual exclusion to the 'cow shed'. Dignity Without Danger is a British Academy Global Challenge Research funded research project that research project menstrual stigmas and taboos throughout Nepal utilizing creative research methods and rapid ethnography to explore the complexity of menstrual practices in Nepal. This study investigates how the social production of sacred and profane spaces influences the lifeworld's of menstruators during their periods. The study asks two questions. First, what options do women and girls have to avoid blame and religious misconduct. And secondly, how can the social production of spaces in the continuum between sacred and profane be positively influenced in order to expand the lifeworld's of menstruators.

The study results are twofold. When women and girls are societally forced to occupy a subaltern position in their response, they can either comply with religious rules, manipulate their bodies or hide their menstrual status. Society as a whole can take a different role, it can redefine the boundaries in the continuum between sacred and profane spaces to expand the lifeworld of menstruators. The paper highlights the importance of challenging dominant narratives, the importance of undertaking research that includes religious leaders and that we cannot generalise and talk about the 'Far West' as a homogenous region. It suggests education, both formal and non-formal with the wider community is essential to break the silence that surrounds menstruation and work towards dignified menstruation that respects people's agency.

Parallel Session-B

Api-Saipal Hall

Theme B3: Social Science (Panel 3)

Art and Culture

Convener: Krishna Adhikari & David Gellner

Chair: David Gellner

The Memory of Performance: From Content to Context of Selected Tharu Folk Dances

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The major objective of this paper is to analyze the historical context of the Dangaura Tharu folk dances of Nepal. The study discusses the Tharu subjectivity by assessing the performance as an agency. The primary discussion is based on the issue of Kamaiyahood in the songs narrated during the dance of the community. Dangaura Tharu ethnicity resides across five Tarai districts of Nepal: Dang, Banke, Bardiya and Kanchanpur. This study is to identify and evaluate the role of memory in the folk performance of the community. It concludes by justifying the abundance of Kamaiyahood, spatial memory and empathy for nature in the community's folk performance. To study this aspect of the performance, Richard Schechner's idea of performance as a fortitude for identity has been applied critically. In addition, Alan Dundes's concept of folklore as the identity has also been considered. Thus, the study finds the memory of displacement inherent in the Tharu folk dance. The spatial memory and the Kamaiyahood appear as the dominant motifs in Dangaura Tharu folk performance. Since the dance of the community comprises the songs, and thus to reflect the symbols and meanings of the dance, the songs for each dance have been critically analyzed.

Keywords: Folk dance, performance, ritual, memory, Kamaiyahood, subjectivity

What Artefacts May Tell and Hide about Power: A Reading of the Pillars at Ningalasaini Temple, Dehimandu (Western Nepal)

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The temple of Ningla devi, the Bamboo Goddess (Baitadi district), displays a complex arrangement of power-related artifacts. The temple, itself supported by massive inner wooden pillars, carved with patterns, is surrounded by a forest of pillars of varied sizes and shapes. The inner pillars are associated with the local eminent clans, holders of power and position within the temple (two functions which overlap in this context), while all the patrilineages worshipping the goddess may mark their presence by erecting a pillar outside the temple. These are personalized, yet all are carved away from the locality, by specialized craftsmen residing in the Terai. These artefacts are regularly revived by their owners, at the time of sacrifices when they are repainted and decorated with banners. This complex and changing configuration contrasts with the concentrated image of power found in the ancient Chaubisi kingdoms of central and western Nepal, represented by a single sacrificial pole, closely associated with the sovereign, or, in a village context, with his representative, the village chief. By contrast, Ningalasaini's pillars do not provide a transparent picture of the power relations. Indeed, the most prominent, "mul khamba" or "main pillar", which receives the sacrifice first, is hidden among the others, anonymous to the outside eye, and belongs to an untouchable clan. The artefact suggests that the politico-religious relations which organize the local community of Kshatriyas is anchored in a power from below. This group is indeed located halfway between royalty and untouchability with regard to the goddess: its male members occupy the function of "kings", rajbar, of the temple, while its access is forbidden to its female members, but open to the untouchables, men and women.

After Death Rituals: Changes in Core Religious Values. A Case Study of Kriya Basnu/Garnu in Pashupatinath and Kanchanpur

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Kearney (1995), Lewellen (2002) and Jonathan (2003) have argued that globalization is also the spread of culture including commodities. In Nepal, globalization has commodified cultural practices. After-death rituals (Kriya Basnu) is considered a core and complex religious practice in Nepal which has been changed and commodified. I observed a number of Kriya Basnu/Garnu in Pashupatinath and in Kanchanpur over the years by attending rituals and staying as Kuruwa. I did semi-structured interviews and discussions with actors engaged in rituals that enriched ethnographic research. I observed traditional communication system in Kriya Basnu has been displaced with new techniques. Previously, people around villages were informed by whistling 'Sankha' in different tune which has now been displaced by social

media and mobile including Kriya Putri and Kuruwa's are managing all stuffs by using these. During 13 days "kriya basne," the priest is followed by social media for arrival time and getting instructions. Kriya Putri Bhawana in Pashupatinath delivers necessary materials to Kriya Putris using emails and virtual requests. The usage of materials has also changed. In past, most of the things used in the rituals used to be homemade and nothing from outside was allowed. But now, Chinese apples with plastics cover, plastic plates and spoons, drinking water from jars, rented clothes, and rented bathroom stuffs are used. Homemade and religious plates Duna Tapari are not easily available as plastics do. Thus, values that carry the essence of 'Dos and Don'ts' have been displaced by market stuffs and technology. Observing Kriya Basne in Kanchanpur, Kriya putris are not allowed to watch television for entertainment but Kriya Putri Bhawan in Pashupatinath is equipped with televisions and internet. Old Jajman-Brahmin relation has also changed. Brahmins are now providing customized services for 13 days.

Parallel Session-C

Khaptad Hall

Theme: C3. Management (Panel 1)

Managing Management

Chair: Rajendra Bir Chand

Perceived Benefits and Challenges of Management Graduates of Far Western University Towards the Entrepreneurship Intention

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Entrepreneurs are contributing a lot for the economic and social development of each country of world. The aim of this study is to explore perceived benefits and challenges of management graduates of Far Western University towards the entrepreneurial intention. Data were collected from 107 students who are currently studying M. phil., MBA and MBS in central campus Far Western University. A set of questionnaire was designed as the main instrument of data collection which consist the 17 questions related to perceived strength, weakness, opportunities and threats (SWOT) of the respondents. Out of the 17 questions, first four are related to the opportunities, second five are related to challenges, third four are related to strength and last four are related to weakness. The instrument for data collection comprised of 6 point Likert type scale. To explore the perceived benefits and challenges of entrepreneurship intentions of management graduates of Far Western university descriptive statistics has been used. Data were processed by using computer software SPSS. The result indicates that ongoing rapid urbanization has perceived a great opportunity or highly motivates the students to start up business, its mean value is 1.77 with standard of 0.65 and financial problem is perceived as main obstacles to be an entrepreneur, its mean value is 1.81 with standard deviation of 0.91.

Keywords: Entrepreneurship, Entrepreneur intention, opportunity, threat, strength and weakness

Perspectives of HRM Leaders on Diversity, Equity and Inclusion in Nepal

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Diversity Management has not yet been a significant part of now much discussed topic HRM in Nepal although the concepts of Diversity Management (DM) emerged in the USA, Canada in 1980s. Most of the developed countries in European Union have been the flagship of diversity management. There are handful of renowned organizations today either catering HRM services or implementing full-fledged HRM discipline in their own organizations. College text books and, seminars and dialogues conducted by development sectors have indicated that the emergence of concepts of Diversity, Equity and Inclusion (DEI) is pertinent in today's context. In developed countries, both profit making and non-profit making organizations have been emphasizing the concepts of DEI and focusing on those in organizations. It's a thought-provoking idea to learn the perspectives of current organization leaders in Nepal about their views on DEI. The article has been prepared based on findings of in-depth interviews taken with leaders and/or senior HR managers of reputed companies those are promoting HRM in Nepal. It attempts to provide an exploratory review seeking to shed light on their perspectives of regarding DEI in their pre-established HRM domain. The article explores the opinions, experiences and competencies and the initiatives taken by HRM leaders. The article also discusses the challenges faced by the HRM leaders in the pursuit of promoting the diversity management.

Keywords: Diversity Management, Diversity, Equity, Inclusion Perspectives, Competencies

Cooperative Program's Contribution and Challenges for Poverty Reduction in Bhimdatt Municipality, Kanchanpur

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Cooperatives are generally defined as community organizations that are owned, managed, and controlled by members. The Government of Nepal has recognized the cooperative sectors as one of the pillars of the economy, realizing their power and new prospects to contribute to poverty reduction, service delivery, gender equality, financial strength and good governance. The main objective of the study was to examine the role of management in cooperative program among cooperative organizations, its contribution and challenges to poverty reduction in Kanchanpur district. It analyzed the application of management tools practiced in cooperative organizations for planning, control, decision making and evaluation of cooperative index for poverty reduction in Kanchanpur district. The paper adopted a descriptive survey design. The study was conducted in Bhimdatt Municipality, Kanchanpur District, Nepal. The totality of the

study was 150 respondents from three cooperatives. This study was a quantitative research method which included semi-structured interview, formal discussion, data collection from contiguous areas bounded by Bhimdat Municipality. This study focused on dependent and independent variables. It was evaluated using analytical methods, and resource mobilization was studied using simple analytical tools. The main finding of the study is expected to contribute to sustainable poverty reduction, improved socio-economic development, strengthening of people-to-people cooperation, increased entrepreneurship, business awareness, improved income and savings activities in Kanchanpur.

Keywords: Management of cooperative, Contribution to poverty reduction, Socio-economic development

Parallel Session-A

Shuklaphanta Hall

Theme: A4. Engineering (Panel 3)

Water Resources, Climate and Communities

Chair: Bishnu Prasad Gautam

The Community Centric Flood Early Warning System: Approaches, Tools and Technologies Used to Reduce Hydro-Meteorological Disaster in Nepal

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Nepal is exposed to multiple hazards, including, floods, landslides, debris flows, droughts, thunderbolts, heat waves, cold waves, avalanche, hail, snowstorms, and windstorms. The intensity and severity of hydro-meteorological hazards has been increasing and has led to loss of lives, properties, and public and private infrastructures. This has had a huge impact on the national GDP. Growing climatic risk is expected to increase the frequency of extreme hydro-meteorological events, which in turn will increase the risk and vulnerability of people's lives and livelihoods. The database maintained in the Ministry of Home Affairs (MOHA) of Nepal revealed that from January 2000 to February 2022 approximately 29,310 disaster events occurred, which took lives of 14,645 people, 28,092 livestock, and caused the loss and damage of 800,000 physical infrastructure including bridges, roads, hospitals, hydropower plants, and school buildings. The total estimated loss caused in 22 years is NPR 41,000,000,000 (US\$347 million) (MoHA, 2022) due to all types of disaster in Nepal. Addressing these growing risk and vulnerabilities, early warning system has proven to be effective technology in reducing risks of hydro-meteorological hazards. Both physical science and citizen science approaches can play a crucial role in making an early warning system effective. Physical science generates information about flood risk and triggers warnings, while citizen science approaches contribute to dissemination and communication of EWS messages.

The paper highlights the community-centric approach to flood early warning system, which comprises of 1) risk knowledge, 2) risk monitoring, 3) risk information communication and dissemination, and 4) building the response capacity of communities and stakeholders. Our field observations, and studies conducted in between 2018-2022, revealed the crucial role of communities and local stakeholders in communicating and disseminating early warning messages among the wider community and facilitating response, especially those who are the most vulnerable, before the flood reaches them. For an EWS to be truly effective, a holistic and people-centred approach is to be taken to ensure that timely, accurate, reliable, and understandable information reaches everyone in the right way in order for them to act. These community-centric approaches to flood early warning system also contribute to reduced loss and damage of assets, agricultural commodities, and saving the lives of people and livestock.

The Implementation of Indicator Based Approach for Sub-Watershed Prioritization

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Watershed prioritization is a process of identifying environmentally stressed watersheds based on several biophysical and socioeconomic indicators considering water and soil conservation and natural resource management. It is the first step towards integrated watershed management scientifically. Among different approaches developed to prioritize the sub-watersheds, the indicator-based approach can be suitable for Nepalese terrain. We have modified the watershed prioritization approach developed by the Department of Soil Conservation and Watershed Management (DSCWM), Government of Nepal in 2016 by making it more quantifiable and scientific. Thuligaad watershed located in Badikedar Rural Municipality, Doti district of the Sudurpaschim Province, Nepal was selected for the study. Both primary and secondary source data were used for the study. Thuligaad watershed was considered a third order river and its direct tributary as the second order river was considered a sub-watershed for the study. Altogether five sub-watersheds- Chaud Khola, Binsen Khola, Paneri Khola, God Khola and Kapadigaad were delineated for prioritization. Seven indicators were used to obtain the priority value under four main components- water, demography, land use/land cover and climatic and biophysical hazard. A questionnaire survey of 200 households, at least 30 households in each ward, was conducted to provide weightage to the indicators along with secondary data and expert judgement. Based on analysis of the indicator values, the prominent indicators were in the order of agricultural aspect water quality and ecology > disaster vulnerability > water availability > urban settlement/infrastructure > forest aspect > population and socioeconomics. And the indicator values of each sub-watersheds were averaged, and amongst them, the highest average value was 0.524 for Kapadigaad. The selected Kapadigaad sub-watershed indicated a decline in agricultural products, deteriorating water quality, higher density of the population and frequent hazards. This indicator-based approach can be a sensible approach for

prioritization of sub-watersheds, it is flexible for providing weightage on the components and it can be scaled up.

Characterization of Hydro-Meteorological Drought in Nepal Himalaya: A Case of Karnali River Basin

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The Himalayan River basin is marked by a complex topography with limited observational data. In the context of increasing extreme events, this study aims to characterize drought events in the Karnali River Basin (KRB). Firstly, historical data for 34 years (1981–2014) from ten different stations were analyzed to compute the following drought indices: Standardized Precipitation Index (SPI), Standardized Precipitation Evapotranspiration Index (SPEI), Reconnaissance Drought Index (RDI), Self-Calibrated Palmer Drought Severity Index (sc-PDSI), Standardized Streamflow Index (SFI), and Palmer Hydrological Drought Severity Index (PHDI). Among them, SPI is able to capture the drought duration and intensity fairly well with the others. Secondly, SPI was used to analyse the drought of the entire basin. The SPI analysis showed the occurrence of major drought events in recent years: 1984–85, 1987–88, 1992–93, 1994–95, 2004–09, and 2012. The winter drought of 1999, 2006, and 2008–09 was widespread and the monsoon drought is increasing its frequency. No particular pattern of the drought was observed from the historical data; however, the yield sensitivity index revealed that precipitation pattern and anomaly is influencing crop yield in the area. Being the first study revealing the prevalence of the drought in KRB, it can provide a basis for prioritizing interventions focused on drought management in the region.

Parallel Session-C

Khaptad Hall

Theme: C4. Education (Panel 3)

Panel Discussion: Education for Rural Development in Seti Zone: Reflections from the 1980s

Convener: Anna Robinson-Pant & Uttam Prasad Upadhyay

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Chair : Lava Deo Awasthi

Panellist 1: Dharma Upadhyay

Panellist 2: Uttam Prasad Upadhyay

Panellist 3: Bishnu Devkota

Panellist 4: Kusum Shrestha

The Seti project was launched in 1981, designed to ‘convert the educational system into a powerful force for rural development’ (UNDP, 1981: 1). At this time, no girls at all were enrolled at secondary level in Bajura and the regional female literacy rate was only 1.9% (ibid). As one of the most ‘backward’ areas in the country with poor communication facilities and limited infrastructure, Seti zone was selected for the pilot project of an innovative integrated educational approach which was to be developed for the whole country. A central aim was to narrow the gap existing between the school and the community through positioning the teacher as a ‘change agent’, developing a curriculum that responded to students’ real-life experiences and producing teaching-learning materials from local resources. The motto was to teach new skills and knowledge on the riverbank or in the fields, rather than lecturing about health and sanitation in the classroom or showing cauliflower seeds on the blackboard. Through its structures and practices, the project also set out to challenge directly gender and caste discrimination and model a new approach to community development. Forty years on, a team of former Seti project staff, headteachers and teachers has come together to reflect on their experiences of engaging in this unusual process of educational change. Based on analysis of field reports, project documents and autoethnographic accounts, this presentation will explore the administrative, pedagogical and social practices introduced by the Seti project – ranging from the nonformal cheli beti programme for out-of-school girls to the teacher training centre established in Dipayal and new systems of school construction, teacher supervision and community learning. Our objective is to share an often-forgotten history of education in the Sudarpaschim province and to highlight the relevance for Nepal’s education sector today – in particular, the current policy directive for palikas to produce localised curricula promoting local cultures/languages and to develop community hubs for lifelong learning. We propose a roundtable event to maximise informal discussion and sharing of reflections on the recent history of education in the Seti Zone. The team of 15 people named above will offer short presentations around various aspects of their work on the Seti project – including teacher training, curriculum development, school construction, girls’ nonformal education, adult literacy and an overview of key educational policy issues in the 1980s. The session would then facilitate comparative discussion of present policy challenges and initiatives in this region today. Participants at the roundtable will be encouraged to share their educational experiences in the Far Western region, both past and present, with a view to discussing ideas for future policy directions and enhancing educational practice in the region.

Day 2: Tuesday, 13th December, 2022

Parallel Session-A

Parallel Session-B

Parallel Session-C

Plenary 1: Shuklaphanta Hall and online

Keynote Lecture: The Oneness of the Geo-ecology, Communities and Cultures Along the Kali/Mahakali River

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Chair: David Gellner

Geography changes over millions of years and ecology over centuries but territorial supremacy only in a shorter time. Territoriality is connected with the border issues of nation-states. Trans-boundary relations are natural to newly emerged nations. The commonality of communities, cultures and identities compels the neighbouring nations to respect each other. Even after the birth of the new nations, human relations across borders remain intact. The Indo-Nepal border issue tells us that the same community and culture can live in two nations. The issue started with the coming of the East India Company to north India with the Indo-Nepal war. After the treaty of Sugauli (1815-16) Kali River became the borderline between Nepal and Kumaon from Lipulekh-Kalapani to Tanakpur-Banbasa. It was done at a time when the British East India Company knew very little about this region. The company did not have past records as no English or European traveler ever walked along Kali River as per available records. In this way without knowing the river system, settlement pattern and road connectivity of this region the winner decided to make the Kali/Mahakali River the borderline between British Kumaon and Nepal. Making rivers as the border line was also experimented with in the Eastern border of Nepal with Sikkim (Mehi river) under the treaty of Titalya (1817) and in the Western border (Mandakini and Alaknanda rivers) of occupied Kumaon with the newly created Tehri state. The mountains of this region have been standing, rising, eroding, weathering and flowing down for the last many million years. Human cultures reached here at the far end of the last slice of gone time. Kali is the lifeline of this region and both sides of the river developed a common culture. Kali divides the two nations but connects the people on both sides. Kali as a natural entity never divided the biodiversity and pastoral-agro ecosystems of the valley. The same is the case with communities and their cultures. In this presentation interdependence of the communities (Tharus, Brahmin, Thakur, Shilpkar, Banraji and Bhotia/Rang/Byansee) along Kali/Mahakali River will be understood and analyzed. This Himalayan corner tells us many aspects of mutuality and oneness among the people living in a common border area divided by a mighty river and two nation-states. The nation-states cannot destroy the shared ethnic-socio-cultural and economic heritage of communities living along two sides of this river.

Parallel Session-A

Shuklaphanta Hall

Theme A5: Engineering (Panel 4)

Water Resources, Climate and Communities (II)

Chair: Dipak Gyawali

Generation of Long-Term Flow and Assessment of Impact of Future Land Use Change on Flow Using SWAT Model: A Case of Betan Catchment, Western Nepal

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In this study, the Betan Catchment was divided into 23 sub-basins, which in turn were divided into 40 HRUs, based on their slope, land use and soil type. Simulations were run for time steps of 1995 – 2002 for the calibration period and 2003 – 2006 for validation. By comparing the simulated stream flow with the measured stream flow of the Asaraghat. After that long-term discharge was calculated for the ungauged Betan Catchment. Historical changes in the land use were analyzed using ICIMOD land use maps and future scenarios were created by projecting the historical land use change in the study catchment. In this study, SWAT-CUP (calibration and uncertainty programs) was used for the sensitivity analysis, calibration, validation and uncertainty analysis of the model runs which includes hydrology. SWAT-CUP is a public domain complicated program linking the SUFI-2 (Sequential Uncertainty Fitting, version. 2) procedure to SWAT. The NSE obtained for the Calibration period was 84 %, R² was 85 % and PBIAS was 5.7%, for the validation period the NSE was 84 %, R² was 85 % and PBIAS was 3.0 %. The long-term average run-off coefficient of the Betan catchment was calculated to be 0.73. The land use scenario changes showed that an increase in barren land increases the runoff whereas the increase in forest land increases the base flow during the dry period. The increase in flow during scenario -1 and scenario - 2 ranges from 3.20 to 13.20 % for post-monsoon and winter periods. The increase in flow during scenario -3 and scenario - 4 ranges from 13.76 to 39.29 % for pre-monsoon and monsoon periods. The same approach can be applied in other ungauged catchments as well because the results showed strong reliability in terms of statistical parameters provided that necessary data are available.

Keywords: Betan Catchment, Long-term flow, Land use change, SWAT Model

Spring Water Assessment for Quality and Suitability for Various Uses: The Case of Thuligaad Watershed, Western Nepal

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Springs supply water for drinking and livelihood for a vast majority of the rural population in Nepal. Haphazard development activities are affecting springs adversely in the hills and mountains of Nepal. This study aims to map springs, characterize their status from visual inspection and local/indigenous knowledge, characterize water quality, and then evaluate their suitability for drinking and irrigation in the Thuligaad watershed, Western Nepal. Analysis of 160 springs mapped within four wards in the Jorajal Rural Municipality in the Thuligaad watershed indicated that most of the springs are perennial (95%), located less than 1,200 meters or within 1,400 – 1,600 meters above the sea level elevation (70.6%), and have discharge less than 5 liters per minutes (80% during pre-monsoon season). Multiple tools such as Gibb's diagram, Piper's diagram, and principal component analysis were used to characterize water quality. Forty springs selected for spring water quality analysis indicated that it is dominated by Ca^{2+} Mg^{2+} Na^{+} K^{+} and HCO_3^{-} Cl^{-} SO_4^{2-} water types, thus revealing rock-water interaction as the dominant process controlling the spring water quality. Furthermore, water chemistry is dominantly Ca-HCO₃ (52% in pre-monsoon) and Mixed Ca-Mg-Cl (28% in pre-monsoon) types. Finally, suitability analysis revealed that spring water quality is of excellent quality for drinking and the concentration of various parameters comply with national and World Health Organization's standard for drinking water quality. Similarly, the water is safe against various hazards for use in irrigation. The results of this first study in the study area provided valuable baseline information for spring water source protection and management.

Keywords: Local knowledge, Springs, Suitability mapping, Thuligaad, Water quality

Climate Change Impact Assessment on Water Sufficiency for Water Resources Development Planning in Tila Watershed, Northwestern Nepal

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A thorough understanding of present and future water resources availability, water demands, and water sufficiency are necessary for sound water resources development planning. Translating such information to the local government level (i.e., Palikas) would help mainstream this agenda in development planning. However, many mountainous watersheds in Nepal are yet to be examined from that angle. In this regard, the Tila watershed in the Karnali river basin is taken as a case study for an in-depth analysis of water demand, availability, and sufficiency at both the watershed and Palikas levels taking climate change into account. This

study has projected future climate for three future time frames: Near-future (NF: 2021-2045), Mid-future (MF: 2046-2070) and Far-future (FF: 2071-2095) using a set of CMIP6 global climate models (GCMs) under two shared socio-economic pathways (SSPs) scenarios (SSP245 and SSP585) bias corrected by using quantile mapping method; developed a hydrological model in Soil and Water Assessment Tool (SWAT) for water availability assessment; estimated various types of water demands (Domestic, Livestock, Institutional, Irrigation, Industrial and Losses); and computed water sufficiency based on three indicators i.e. water sufficiency ratio (WSR), water stress index (WSI) and water withdrawal to water resources (WWR) for evaluating the impact of climate change on water sufficiency. Results showed water sufficiency for both present and future periods under the impact of climate change at both watershed and Palikas levels as indicated by all three indicators. Among the Palikas, Mahawai has the highest WSR and Kanakasundari has the least WSR in both present and future periods. These estimates of present and future water sufficiency can assist in the development and implementation of water demand management, climate change mitigation, and water resource conservation strategies in the Tila watershed.

Keywords: Climate change, Water resources, Planning, Watershed, SWAT

Projected Changes in Future Water Availability in the Chamelia – Implications for Policy and Planning

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Western Nepal has lots of potential to contribute to the national economy. However, it's always presented as a region with "remoteness and under-developed." Further, climate change may bring both challenges as well as opportunities, though their extent depends upon the characteristics of the hydrological system. This paper argues for a need to re-phrase the context of Western Nepal in a more positive way and then analyses how projected change in climate may impact on water availability of the region in the case of Chamelia watershed. A hydrological model in SWAT (Soil and Water Assessment Tool) environment was developed for the purpose. Future climate is projected using a set of five Regional Circulation Models (RCMs) under representative concentration pathway (RCP) scenarios. The response of streamflow to the projected change in climate is assessed. Results show the SWAT model performance is adequate to represent the hydrological characteristics of the watershed. The future is projected to be warmer (high model consensus) and slightly wetter (more uncertainty), with winter and pre-monsoon seasons receiving more rainfall. Under the projected future changes, simulated streamflow is projected to change across future periods and seasons. The results are expected to be useful for future water resource and water infrastructure planning in the area.

Parallel Session-B

Api-Saipal Hall

Theme B5: Social Science (Panel 4)

Nepal-India Migration

Chair: Vishwo Kalyan Parajuli

Friendly Nations and Open Borders: Mobility and Spatiality at the India-Nepal Border in Uttarakhand

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Studies of borderlands mostly describe the work of borders in othering land and people. As goods and people move through borders with different degrees of regulation, our attention is usually focused on the differences that a border is architected to generate - whether it is the difference in citizenship, in the value of goods and commodities or in the regime of law and governance across it. This paper attends to the ways in which a border can produce and maintain sameness, particularly among the people moving through it and across the landscape where it is marked. Through an observation of the daily mobilities and spatiality at the India (Kumaon)-Nepal (Farwest) border at two check points in Pithoragarh (Jhulaghat & Dharchula) in the Himalayan state of Uttarakhand, this paper studies how the caste-gendered righteousness of the mobile bodies and the popular Hindu iconography of sacredness is reproduced and managed at an open border between 'friendly' nations. While the postcolonial legacy of India's borderlands is a legacy of othering, particularly as the religious other, the India-Nepal border negotiates the sameness of religion by managing the refractions of caste and gender. The friendliness at such a border, this paper argues, rests on the evaluation of the gendered righteousness of those crossing it made acutely visible in alleged instances of elopement, marital infidelity and trafficking and in the reproduction of the sacredness of the landscape through the circulation of icons, myths and pilgrims.

From Far West to Neglected North: Intra-Himalayan Migration from Sudurpaschim Province to Uttarakhand

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The present-day state of Uttarakhand, India, and Sudurpaschim Province of Nepal have historically shared close socio-economic, cultural, and political ties with each other. While demarcation of international borders under the Treaty of Sugauli, 1816, transformed territoriality and political landscape for the two regions, migration continues to be a strong

connecting link between the people and their economy. Today, approximately 90% of male migrants (mostly seasonal) from Nepal's Sudurpaschim province travel to the Indian Himalayan states of Uttarakhand and Himachal Pradesh, constituting an important part of the states' informal economy. Yet, this migration corridor continues to remain neglected and understudied, despite its significance to both the nations.

This paper, thus attempts to look at the specific vulnerabilities of migrants from Sudurpaschim to the Indian Himalayan state of Uttarakhand, which itself is facing a mass outmigration "crisis" as people migrate from rural hill regions to urban pockets in the Himalayan foothills and beyond. The study combines existing evidence from literature and data (National Census, Nepal and Census of India), with qualitative studies (longform interviews) undertaken by the authors. In doing so, it makes a case for migrants from Sudurpaschim in Uttarakhand as a distinct subset of Nepalese migrants in India, who come from a specific socio-economic position in their source country, and have a seasonal migration cycle - migrating from one geographically marginalised region to another at destination. In doing so, the paper attempts to answer: how does mobility unfold itself in the Himalayas when workers move from one marginality to another across borders?

Going Up and Down the Mahakali: Cross-border Movements in Nepal's Western Borderland

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The paper – which is also part of research of the doctoral thesis "Movements in the Mahakali Triangle(s): state making and livelihoods in Nepal's Western Borderland" – for the Geography Department of the South Asia Institute, Heidelberg University, is investigating the lived and legal geographies of a peripheral border region in Far West Nepal and their significance for the livelihoods of the local population as well as for historical state making processes. The research project is divided into theoretical-conceptual, methodological and concrete-empirical components, with the aim of developing a multivocal biography of a border region. With peripheries having been set as the focus of research, the conceptual component considers in combination and posits relationships between border theories and different categories within geography and other social sciences, namely agency, state making, and boundary narratives and practices. Following the conceptual centring of the margin, the project develops a methodology for facilitating an alternative perspective on the marginal border regions in Far West Nepal. It combines three complementary approaches: an intensive and critical evaluation of historical travel reports and maps, an analysis of Nepalese historical documents, and empirical field studies during various periods of the year (to get a clear idea about agriculture, festivals, snow-free passes for trade etc.) and in multiple localities in Far West Nepal. This methodology combines an integrative, multiperspective with a microhistorical approach,

interwoven with an empirically grounded geopolitical analysis. The case study looks into the socio-economic and administrative integration of what is the north-western border region of present-day Nepal into the Gorkha kingdom; the (discursive) significance of the region for the making of the Nepalese state (and vice versa); and the strategies employed by the local population when dealing with changing (geo)political influences and actors at various levels and engaging in horizontal and vertical trade in local, regional, and transnational networks.

Working Environment and Benefit Differences in Indo-Nepal Labour Migration

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The open border between Nepal and India has encouraged people to migrate across the border for better livelihood opportunities. People from Sudurpaschim Province are disproportionately attracted to India for four important reasons: close distance, low travel cost, access to jobs and network. Likewise, people from India particularly from the bordering towns of Indian states like Bihar, Uttar Pradesh, Uttarakhand and West Bengal usually come to Nepal in search of employment and/or better opportunities. The burgeoning migration research in Nepal often ignores migration from Nepali to India, and there has been little research on Indian migration to Nepal. This paper attempts to make a comparative study of Indo-Nepal migration, focusing on the working environment, i.e. nature of work, working conditions, and their benefits such as income, and welfare benefits of both migrant groups. Bhimdatt Municipality of Kanchanpur District was selected as the study area. A mixed methodology was used for this study. For quantitative data collection, a sample survey was conducted with 650 (370 Nepali-labour migrants to India and 270 Indian labour migrants to Nepal). Using ISCO/08, ILO (2012) skills classification framework, this paper shows Nepali migrant workers lack technical skills (91% working at the basic skill level jobs, as menial workers) as opposed to the Indian migrants, the majority of whom have some moderate level technical skills, such as operating machines (54.3% Indian workers vs. 7.3% Nepali workers). This has a reflection on their earning and welfare benefits and condition of work and living. Indian migrants earn an average of NRs. 40,635.5 per month, compared to NRs. 19,061.6 earned by Nepali migrants. On the contrary, Nepali labour migrants who work in established companies, and business houses get benefits such as allowances, overtime facilities, and medical insurance. However, such benefits are not available in the case of Indian labour migrants working in different technical sectors in Nepal. Policymakers need to work on promoting the skills of migrant workers to enable them to take up better paid jobs migration destinations.

Keywords: Labour migration, Nature of jobs, Working environment, Benefit difference, Destination

Parallel Session-C

Khaptad Hall

Theme C5: Education (Panel 4)

Teaching Practices and Performances

Chair: Anuradha Rokaya

Exploring the Practices of Secondary Level Mathematics Teachers in Developing Higher Order Thinking Skills

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Developing higher-order thinking skills (HOTS) in students is one of the important aspects of a school mathematics education. However, past studies show that some teachers got confused about the concept and applications of HOTS (Thompson, 2008), and most of the teachers surveyed by Acharya (2021) in Nepal used less appropriate methods to develop HOTS in mathematics. But there is a provision to ask questions that need higher order thinking skills in SEE. Therefore, to make students successful in assessments and to make students able to link mathematics with their daily life, teachers need to focus on developing HOTS in mathematics. However, none of the past studies have explored approaches to teaching HOTS in mathematics using qualitative methods. In this context, this study was conducted to explore the narratives of mathematics teachers teaching in 10th grade regarding their practices of teaching to develop HOTS in students. Social constructivism was taken as a theoretical framework for the study. This is a qualitative study under an interpretive paradigm. The research site is Bhimdatt Municipality of Kanchanpur district. Narrative interviews were conducted with six teachers teaching mathematics in the 10th grade. Interview transcripts were coded, categories were formed, and then themes were generated. Themes were interpreted using the selected framework. Important and in-depth findings regarding practices for developing HOTS were obtained. The findings of the study might be useful for secondary school mathematics teachers, textbook writers, writers of the teacher's guide, and students of the secondary level.

Keywords: Higher order thinking skills; Social constructivism; Teaching approaches; Bloom's taxonomy; Authentic tasks

Teaching Profession in Sudurpaschim Province: Attitude and Job Satisfaction of Teachers

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Quality education is the key factor for the overall development of an individual and nation. Quality of education is directly related to the competency and dedication of the teacher, as the teacher is the main implementor of the educational program. This study investigates the attitude of teachers towards the teaching profession and the level of their job satisfaction. Quantitative research design over a sample of randomly selected 200 teachers was used in this study. A Likert-type attitude scale was prepared and standardized by the researcher on a sample of 374 school teachers from five districts of Nepal and India. Job satisfaction level was measured by Job Satisfaction Scale (JSST-DM) published by National Psychological Corporation, Agra, India. A normative survey method was used to collect the required data. Maslow's theory of motivation based on the needs hierarchy system was used to interpret the findings of this study. The result was interpreted by using z-score norms based on seven categories, which explored that 20.50 percent of the teachers were favourable towards their profession, 46 percent were unfavourable and 33.50 percent were neutral towards the teaching profession. Similarly, the percentage of teachers found above Average Satisfied on their job was 37 percent, below Average Satisfied was 40 percent and the percent of Average Satisfied teachers was 23. Out of which, nine percent of school-teachers were extremely satisfied and 13 percent were extremely dissatisfied. Teachers cannot do well in the teaching profession unless they have a positive attitude towards their profession and are not satisfied with it. This study revealed that a significant number of teachers are not satisfied with their profession and do not have a positive attitude toward it. It is imperative that the concerned authorities review the policies regarding salary, facilities and position in the national protocol for teachers in order to bring a positive change in the situation.

Keywords: Quantitative design, Teaching profession, Attitude, Job satisfaction, Far Western Province

Impact of Using ICT in Teaching English at Secondary Level Model School of Darchula

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In this age of science and technology, new technologies particularly computers, multimedia, mobile phone, the internet and social networks offer possibilities for overcoming geographical and cost barriers in teaching and learning. This study attempts to trace the use of technology in

teaching English at secondary-level model schools in Darchula district. It also focuses on the impact of using technology in teaching and learning English. Four teachers and 30 students from the secondary level model school of Darchula were selected to survey the use of technology in teaching English subjects at secondary level model schools of Darchula. The researchers employed mixed methods research to carry out the study where two sets of questionnaires for the teachers and the students and a semi-structured interview only for the teachers were used to collect data. The findings showed that using technology in teaching has both positive and negative impacts. Teachers like to use technology in their classrooms but limited time and lack of training and technical support from the authority hamper the mode of teaching. The students also feel comfortable in technology-affiliated classrooms, but sometimes they fail to catch the concept clearly as they become inattentive due to the lack of proper engagement of the teachers in the classroom.

Keywords: ICT, Teaching English, Classroom, Impact, Proper Engagement

Impacts of Mahakali River Flood on Academic Performance: A Case Study of Bhimdatt Municipality

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Flood is the most common disaster in the Terai region of Nepal during the peak of the rainy season (June-September). An increase in flood intensity poses the threat to human health, livelihood, and infrastructures including academia. Between November to December 2021, a study based on a mixed research design was conducted in seven selected schools of Bhimdatt Municipality of Kanchanpur district. The data from students, Headmasters/Principals, and teachers were collected through interviews using structured questionnaires. The qualitative information was collected through Key Informant Interviews and Focus Group Discussions. A total of 210 students, 7 Headmasters/Principals, and 40 teachers were purposively selected. The Digital Elevation Model (DEM) data were downloaded from the United States Geological Survey (USGS) website. A descriptive analysis of data was performed. Data visualization was done on the map and plotted using Arc GIS 10.1 and HAC RAS software. We found that the Mahakali River flood has an increasingly adverse impact on the education sector of Bhimdatt municipality. Flood vulnerability reduces the quality of education that disturbs the access to the right of the students. The highest impact was found in five wards. In September 2021, about 16.18 square kilometer area of the Bhimdatt Municipality was affected by the flood. Academia is demanding support from governmental and non-governmental organizations for the reduction of impacts from floods and other disasters.

Keywords: Mahakali River flood, threats, impact on education, Academic performance, Bhimdatt Municipality

Parallel Session-A

Shuklaphanta Hall

Theme A6: ICIMOD Panel

Resource Management and Communities

Chair: Ganga Ram Dahal

Finding Common Grounds: Resources Sharing Between Transhumant Herders and CFUG in Bajhang, Nepal

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Adapting to a harsh climate, fragile ecosystems, and remoteness, transhumant herders in Nepal seasonally migrate at different altitudinal ranges to graze their animals. In winter, they migrate to access forest areas at lower elevations; however, the community forest user groups exclude them from accessing the forests they had been using for generations. This resulted in decrease in grazing area for their animals and increase in incidences of conflicts between herders and sedentary communities, mainly community forest user groups. The prolonging conflicts between forest users have been reported to undermine livelihood of conflicting parties as well as escalated forest degradation. In this context, this study analyses perspectives of the conflicting parties, their existing strategies and policies relating to transhumance pastoralism for resolving the conflict. The study was conducted in Bajhang district, focusing on transhumant herders of Saipal Rural Municipality. For data collection, focus group discussions and interviews were conducted with herders and a community forest user group. Inadequate availability of fodder, disruption of traditional reciprocal relationship, damages to crops by herders' animals, and theft and physical attacks by locals to herders were major causes of conflicts. Despite restrictions for grazing livestock in community forests, herders have been accessing forests by paying to locals without receiving any receipts. An incentive-based mechanism, engaging herders, community forest users and other stakeholders, is essential to ensure sustainable flow of ecosystem services as well as fair and equitable access of the services to the users.

Building Resilient Agroecosystem with Simple, Proven and Scalable Solutions

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The climate change impacts are globally evident predominantly affecting agriculture sector with too much or too less water increasing food insecurity. Mountain communities particularly living in the Hindu Kush Himalaya (HKH) region are affected the most as they are “double exposed” to disproportionate impacts of climate change with elevation-dependent warming and the rapidly changing socioeconomic context with high male outmigration resulting to agriculture feminization. Climate projections in this region suggest temperature increase of 1–2 °C by 2050 and precipitation patterns changing with longer and erratic monsoon and less frequent but more intense rainfall events.

In current climate change discourse, there is a need of increased investments to scale adaptation and resilience building solutions for sustainable mountain development. To absorb, adapt and transform from the impacts of climate and other socioecological changes in the mountains, it is crucial to build upon existing traditional knowledge and practices as well as bring science-based evidence to co-create simple, affordable and gender responsive solutions that can be scaled locally, regionally and even globally with customization as per the local context.

For mountain lives and ecosystems, resilience is defined as the ability of socio-ecological systems to prepare for shocks (anticipate), recover from shocks (bounce back), and create a transformative change (bounce forward). We have successfully piloted integrated resilient solution approach to build resilience of agroecosystem that focuses on three dimensions of resilience, namely a) climate resilience, b) socio-economic resilience and c) future resilience (see figure 1). There is no one solution fit for all, hence we offer a package of customized solutions suitable as per the local context to absorb, adapt and anticipate the shocks



and uncertainties to build resilient agroecosystem. ICIMOD under Green Resilient Agricultural Productive Ecosystem (GRAPE) project aim to promote climate-resilient agricultural practices within Sudurpaschim, and Karnali provinces. The climate resilient agriculture solutions will be tested, demonstrated and knowledge co-created for wider adoption and use. So, a scaling strategy will be put on place while co-creating and piloting the solutions to speed up scaling with sufficient resource mobilization including capacity building. Scaling can happen through close and continuous engagements and collaboration from the very beginning with a) governments at all levels by embedding into their policy, plans and programmes, b) cooperatives and private sectors by co-designing and developing business plans, c) practitioners from development sectors and, d) academia through teaching and awareness.

Keywords: Sustainable Mountain development, Adaptation, Climate change, Solutions

Potential Climate Resilient Agriculture Technologies and Practices for Sudurpaschim Province

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Climate change (CC) is one of the global problems which has a negative impact in agriculture sector all over the world. Climate change is increasingly becoming a threat in agricultural production in Nepal which is mainly associated with the variability in temperature, erratic rainfall, prolonged drought, floods and landslides, and occurrence of pests and diseases that ultimately lead to failure of agriculture production. Sudurpashchim Province is one of the most vulnerable provinces in Nepal to climate change. As climate change is unavoidable problems in agriculture sector, the good agriculture planning and use of appropriate adaptation practices/technologies will help to minimize the crop loss caused by climate change induced disaster. So, different climate resilient agriculture technologies and practices are required to be identified and promoted to cope with the adverse climatic condition.

With this background, LI-BIRD has been implementing two field of actions (FA 2: action research and FA3: Roll-out) of the ‘Green Resilient Agriculture Productive Ecosystems (GRAPE)’ project, funded by European Union, BMZ and MFA Finland through GIZ and ICIMOD, especially for the FA2. The project aims to identify and demonstrate new CRA technologies and practices and to roll out the proven CRA technologies and practices to address the climatic risks of the selected 10 municipalities of Sudurpashchim Province. The project will establish climate smart villages (CSVs) in each municipality by promoting the different climate resilient agriculture technologies and practices based on smartness criteria such as weather/knowledge smart, water smart, nutrient/carbon smart, seed/breed smart and institution/market smart. Some of the proven CRA technologies and practices to be promoted by the project in Sudurpashchim Provinces are solar based irrigation, plastic tunnel with drip irrigation and plastic mulching, Jholmal, trichovermicompost, different traps and lures, climate resilient crop varieties, digital advisory services, crop insurance, etc. Ultimately, these interventions contribute to food and nutrition security and enhance livelihood by minimizing the crop loss even in adverse environmental conditions.

Keywords: Climate change, disaster risk, climate resilient agriculture, GRAPE

Parallel Session-B

Api-Saipal Hall

Theme B6: Social Science (Panel 5)

Life and Identity in the Northern Far-Western Border

Chair: Vashuda Pande

On ‘Social Organization’ of the Rang in Byans, Far Western Nepal

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In this presentation, I try to shed a new light on the “social organization” of the Rangs from Byans, Darchula District, Far Western Nepal. I discuss only the cases of Rangs in Chhangru and Tinkar, the two villages uncontroversially located in former Byans Gaun Vikas Samiti (current Byans Gaunpalika Ward no. 1), though Rangs have lived on both the east and west sides of the Mahakali River, and there are several other villages inhabited by Rangs in Darchula District. In 1976, Andrew Manzardo, Dilli Ram Dahal, and Navin Kumar Rai wrote in their seminal ethnographic article on “Byanshis” in Darchula district, Far Western Nepal, “The Byanshi social organization is somewhat confusing” (95). The first purpose of this presentation is to provide a more coherent explanation of Rang ‘social organization’, by focusing on the discrepancy between several Rang overt social categories, like ‘song’ (village), ‘sora’ (roughly ‘clan’), and ‘khu’ (family) on the one hand, and exogamous unit as well as several ritual units that are not categorized by a single noun on the other. Then I would like to show ethnographically how the Rangs in Nepali Byans have lived their lives with such overt and covert categories while their social world has drastically changed and almost globally expanded, by analysing various usages of these categories as well as several kinship terms which connote their multi-layered relatedness and belonging. This presentation is largely based on my fieldwork in Darchula district, Kathmandu valley, and elsewhere from 1993 onward. First, let us summarize how Manzardo, Dahal, and Rai (1976) understood the social organization of ‘Byanshis’. What they pointed out first is the existence of the two different views of clan structure, from Chhangru and Tinkar. According to them, villagers of Chhangru think that the village has three clans (Aitawal, Bohara, and Lala in Nepali). Moreover, marriage among these three clans is prohibited, as they are considered to be ‘sister clans.’ Thus, the village of Chhangru is exogamous, and they consider the people of Tinkar the fourth clan in Nepali Byans, to which they can intermarry.

Of Salt and Rice: Life and Trade of the Bhote Khampa in Far West Nepal

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In 1976/77, I spent one year of field research among the Humli Khyampa (today Bhote Khampa, as referred to in the text) in Far West Nepal. As the first social anthropologist, I documented, together with my assistant Chakka Bahadur Lama (today a Member of Parliament), the life on the move of the migrant traders, the yearly cycle of the barter trade between Purang in TAR and Dhangadhi, the etymology of the words “Khyampa/Khampa”, aspects of the historical context, social rules and relations, traditional right, gender work and rituals. In my recently published illustrated ethnography, including personal life stories of the Bhote Khampa, I present the findings of the then-field research. In the Epilogue of the book, I discuss the results of both follow-up research in 2010 and 2015 when I revisited the Bhote Khampa. Since the 1990s, China has implemented new border regulations in Far West Nepal, ending the ancient barter trade for the Bhote Khampa. That asked for a complete reorientation of how to make a living: settled agriculturalists, transporters with mules, shop owners, herb traders, and a combination of all and more – living dispersed in various valleys from northern Bajura down to southern Achham. I also address the far-reaching and radical social changes in having access to the money economy (overturning the traditional hierarchy, positively affecting women’s lives), and the challenges to social cohesion since the younger generation enjoys school education (questioning authority). I also address the significant changes due to the inclusion of non-Hindu minorities during the democratization in the 1990s. From being migrants without land and no rights in the previous generation, the Bhote Khampa turned into full citizens with a right to vote. NEFIN enables today a few outspoken Bhote Khampa women and men to engage in Bajura’s district politics. Hanna Rauber: *Of Salt and Rice. Life and Trade of the Bhote Khampa in Far West Nepal*. Völkerkundemuseum at Zurich University 2022, 192 pages, 112 colour and 22 black and white photographs, 8 maps, ISBN 978 3 909 76 2.

Parallel Session-C

Khaptad Hall

Theme C6: Natural Sciences (Panel 1)

Materials

Chair: Anup Bist

Comparison of background radiation levels of bazaar (urban) and some rural areas of Kanchanpur district, Nepal

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There are radiations everywhere around us which may affect life. We have reported the background radiation of urban and some other rural places of Kanchanpur district, Nepal. A portable GM counter was used to measure the background radiation. We have reported data at different forty seven places (including rural and urban). The average of mean background radiation level of bazaar and the rural areas are approximately similar. The average background radiation count at the bazaar areas was 25.66 ± 1.80 CPM, while that of the rural areas was 26.11 ± 3.18 CPM. Within the bazaar areas, a little bit higher counts of 32.26 ± 1.86 CPM were observed at Mahakali zonal hospital (now provincial hospital). This is due to use of equipment (like x-ray machine) and other waste materials. Among the rural areas, the maximum counts of 31.3 ± 1.16 CPM, 33.93 ± 1.16 CPM and 31.4 ± 2.23 CPM were observed at 'Gha' gaun (Punarbas -05), Mahakali Adarsh Secondary school (Dodhara) and Bhanu Multiple Campus (Mahakali -04), respectively. From this study, we have found that there is a small fluctuation in radiation within the rural areas. From the data record, it is concluded that the survey district is below the radiation risk level (referred above 100 CPM).

Keywords: Radiation, Risk level, Rural and urban area, x-ray machine, Waste material

First Principle Study on Structural, Electronic and Vibrational Properties of Proline

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Many heterocyclic compounds with their structure activity relations have great importance. Proline, having a five-membered pyrrolidine ring, is one of the nitrogen heterocycles containing one carboxylic group. The pyrrolidine and its derivatives are widely used for the treatment of human diseases. In this work, we have studied on structural, electronic and vibrational properties of Proline using density functional theory (DFT) at B3LYP/6-311++G (d,p) level of theory by using Gaussian 09 program. Optimizing equilibrium geometry, we have calculated vibrational spectra and analyzed on the basis of the potential energy distribution

(PED). The time-dependent density functional theory (TD-DFT) has been employed to elucidate electronic properties in terms of HOMO-LUMO in terms of calculate energies, oscillator strengths of electronic transitions, and absorption wavelengths. Graphical representation of HOMO and LUMO orbitals provides valuable insight about the nature of structure-activity relations on the molecular basis.

Keywords: Proline, DFT, HOMO-LUMO, Vibrational Spectroscopy

Parallel Session-A

Shuklaphanta Hall

Theme A7: Public Health (II)

Public Health in Nepal

Chair: Madhusudan Subedi

Impact of Federalisation in Maternal and Neonatal Quality of Care in Nepal: A Mixed Method Study

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The Ministry of Health and Population (MoHP) was responsible for meeting the health needs of people in Nepal before the federalisation. However, after the federalisation, the authority and the responsibility have been shifted to the local authorities which will have an impact on the delivery of health services at all levels. Hence, this study aimed to identify the impact of federalisation on maternal and neonatal quality of care in Nepal. This study used the explanatory sequential mixed method consisting of survey and semi-structured interviews. Census method and purposive sampling were used for the survey (N=31) and semi-structured interviews with health service users (N=15), health service providers (N=16) and health managers/policy makers (N=17) in Nepal, respectively. All the health facilities were well in terms of infrastructure however, stock out of essential medicine and supplies was common in most of the health facilities. Very few HFs allowed women to have a companion of their choice during childbirth. The health service providers did not face any challenges in seeking health care services from the health facilities due to federalisation, rather they found the health workers' availability has improved after the federalisation. Health managers/policy makers and health service providers felt that there is a need for a context-focused health system and a need for policy revision. Some of the opportunities due to the federalisation were improvement in co-ordination, staff availability in health facilities and motivated political leaders while the challenges were in implementation and limited or no training availability.

Keywords: Federalism, impact on maternal and neonatal care, Health policy, Mixed method

Injury-Related Illnesses for Visiting Health Facilities in Sudurpaschim: Analysis of IHIMS Records

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According to the estimates produced by the World Health Organization (WHO), Injuries comprised 10% of Nepal's disease burden in terms of Disability Adjusted Life Years (DALYs) lost in the years 2019. This proportion is also true for the estimate produced by the Institute of Health Metrics and Evaluation (IHME) for the Global Burden of Disease Study. The lack or absence of a national record-keeping system is a general criticism for not having locally available quality data on the burden of injuries. Integrated Health Information Management System (IHIMS) provides Out-Patient Department (OPD) visit data for 233 individual morbidity causes. Method: We analysed the situation of OPD data for all 9 districts of Sudurpaschim and describe the situation of injury-related morbidity in the region. Results: Of the total 23,277,335 OPD visits 2,389,475 (10.3%) were from Sudurpaschim and "Fall fractures and injuries" comprise 125,000 (11.9%) of total OPD visits is the 5th single cause of all causes. The IHIMS recorded 37,800 OPD visits for the causes: Road Traffic Accidents (9893), Burns & Scalds (8507), Dog Bite (7056), Traumatic Eye Disease (3901), Foreign Body in Ear Cases (3533), Insect/Wasp Bite (3303), Other Rabies Susceptible Animal Bite (559), Foreign Body in Nose Cases (551), Foreign Body in Throat Cases (238), Snake Bites (147), and Toxic Effect (133). Sudurpaschim ranks 4th out of 7 provinces for Dog Bite and Traumatic Eye Disease and Ranks 5th for Road Traffic Accidents, Foreign Body in Ear, Other Rabies Susceptible Animal Bites and "Falls/Injuries/Fractures." OPD visits for Road Accidents in Sudurpaschim are more than in Karnali and Gandaki provinces. Conclusion: OPD visits records depend upon the number of patients as well as available facilities in Health Facilities. On average 6,550 OPD visits only for injury-related treatment in Sudurpaschim indicates the magnitude of the problem and action needed for prevention.

Analysis of Transmission Dynamics of Communicable Diseases with Yoga Using Mathematical Modelling

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A mathematical model is developed which describes the dynamics of communicable diseases under the assumption that Yoga Pranayama produce immunity power. A six-dimensional compartmental mathematical model is formed. System of modelling equations are formulated and analyzed. A distinction is made between infection in naive individuals and infection in Yoga Sadhaka individuals. It is assumed that immune system has been primed by Yoga Pranayama. The association between prevalence of infection and immunity induced by Yoga

Pranayama is analyzed. The model shows that prevention of diseases depends on parameters we have developed and yoga pranayama is one of the control strategies of communicable disease.

Parallel Session-B

Api-Saipal Hall

Theme B7: Social Science (Panel 6)

Bio-diversity Conservation and Cultural Ecology

Chair: Arjun Guneratne

Being a Naturalist Guide in Bardiya, Nepal: Evolution and Retrospective Analysis

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Established between the years 1988 and 1989, Bardiya National Park hosts very little anthropological work (Krauskopff, 1987), (Normose, 2002), (Bhatt, 2006). It is more, via the National Trust for Nature Conservation (NTNC), the object of research from the natural sciences (Jnawali, 1989), (Baral & Heinen, 2007), or development studies (Bhattarai & Fischer, 2014), (Leystra, 2019), (Leclercq et al., 2019). The PhD I am currently pursuing in political and social sciences between Paris in France and Liège in Belgium is based on a first field study of three months in 2019 as part of a master's degree in anthropology and a first thesis fieldwork of six months from August 2021 to the end of January 2022. It aims to understand how humans adapt psycho-corporeally to the proximity of the Park's animals. I am working with participant observation, semi-directive interviews with the professions most in contact with the animals of the Park, direct and indirect observations of encounters, etc. In the context of these conferences, I would like to present an article (Vouiller, 2022) recently published in *Studies in Nepali History and Society (SINHAS)* Kathmandu, which deals with the profession of guiding in Bardiya National Park, highlighting these 2019 data with those of 2021-2022. While I present the guide profession as being in the 'in-between', between a more traditional and a more modern society, a clever adaptation, I would like to accentuate the role of social networks, the process of "heroisation" that takes place, but also the importance of the senses and the reading of signs in the practice of the profession, notably via the concept of *Umwelt* (Uexküll, 1965) or via the work of Eduardo Kohn (2017) on the anthropology of the sensible. This presentation will be based on a total of more than twenty interviews and about ten excursions into the forest, in or around the Bardiya National Park.

The Khaptad National Park and its Cultural Ascriptions

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Khaptad National Park, which is probably the most unknown and least investigated protected area in Nepal, was established in 1984 in the Far-Western Development Region. A mixture of grazing grounds and forests shapes the landscape on the high plateau at 3'000m. The park is surrounded by a 'buffer zone', from which the local population is allowed to use several resources of the park. International Tourism in the park remains negligible so far; but domestic pilgrimage tourism is important. Cultural values seem to have been of great importance for the establishment of Khaptad National Park. It was established basically on the initiative of Khaptad Baba, who lived for 50 years in Khaptad. A 'sacred zone' in the core of the park encompasses important holy places and the ashram of the Khaptad Baba.

In this presentation I would like to document the peculiarities of this National Park and grasp the small and large religious traditions that manifest themselves in this landscape and in sanctuaries. It is based on my group's exploratory fieldwork in and around the national park several years ago and on update information of persons, who are currently active in the park. Further, I want (finally) analyse an interview I conducted in 2000 with a great supporter of Khaptad Baba, a general and close confidant of the royal family. First, I will present the National Park and its history and second, I will elaborate the different religious practices and representations of the local population and the elite of Nepal within the National Park.

Parallel Session-C

Khaptad Hall

Theme C7: Natural Sciences (Panel 2)

Experiments and Investigations

Chair: Bhawani Datt Joshi

Fabrication of Pomegranate Based Dye-Sensitized Solar Cell by Incorporating the Two Different Counter Electrodes for Sustainable Photovoltaic

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The Dye-Sensitized Solar Cell (DSSC) is one of the trustworthy clean and green energy generation process with the help of inorganic and organic dyes. In solar energy, silicon wafer based cell are prominent and having highest successful in commercial scale. DSSCs are having

ease fabrication process and cost effective despite less efficiency and life expectancy. Among DSSC naturally occurring dye based solar can also hold less efficiency but they are nontoxic, environmentally benign, cost effective. The dye can be extracted from different portion of plants (seed, peel, bark, flower, etc.) then fabricated easily and quickly. The purpose of this study is to fabricate pomegranate based DSSC with the help of two different CEs. The first cell was prepared with the help of fluorine doped tin oxide (FTO) based counter electrode (CE) and another is coated copper on glass substrate (transparent conducting glass) with the help of DC magnetron sputtering. Although for this study TiO₂ nanoparticles as semiconductor, Iodine tri-iodide as an electrolyte, FTO as photoanode and the FTO and transparent conducting glass as CE are used. The absorbance of sensitizer and semiconductor characterized by UV-spectrophotometry which confirms the interaction between TiO₂ and dye. Anthocyanin is the major light harvesting pigment present in pomegranate juice, which interacts with semiconductor due to the presence of anchoring groups in its chemical structure. Overall, this device has exposed less efficiency it may be due to the improper interaction between dye and TiO₂, dye and electrolyte, and electrolyte and CE. These are the major interfaces restrict the flow of electrons and may have reduced the overall solar parameters. This device was illuminated under 1 sun intensity at 1000w/m² or 100mW/cm² at AM 1.5 has given 130mV open circuit voltage (Voc), 0.00213 mA.cm⁻² short circuit current density (Jsc), 30 fill factor (%), and 0.0083 efficiency (%).

Keywords: fabrication, photovoltaic, electrodes, Dye-sensitized solar cell (DSSC)

Investigating the Nature of Plasma Oscillations in Cold Plasma

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Research in the field of plasma oscillation has a long history. Our research work aims to investigate various possible forms of electron plasma oscillation inside the cold plasma. The wave-breaking condition for number density will be found both analytically and numerically. The fluid equations were solved for electrons and the analytical solution for the number density, electric field and velocity are determined and analysed for different perturbation levels. The results obtained are compared with the previous results by R.C. Davidson and P.P. Schram [Nucl. Fusion 8, 183 (1968)]. Different modes of oscillation are obtained and analysed for the various possibilities. The waveforms for number density, electric field and velocity are obtained and discussed. We found different perturbation value leads to changes in the pattern and behaviours of the waveforms.

Keywords: Cold Plasma, Plasma Oscillation, Wave breaking

Parallel Session-A

Shuklaphanta Hall

Theme A8: Agriculture and Livestock (Panel I)

Planting Methods and Crop Yields

Chair: Lal Prasad Amgain

Performance of Different Organic Materials on Wheat yield at Tikapur, Kailali

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A field experiment was carried out to investigate the effect of different organic materials alone and in combination on the growth and yield of wheat var. Aditya during November 2021- April 2022 in the Agronomy Field of Far Western University, Tikapur, Kailali. The study was carried out with 7 treatments viz. Farm yard manure (FYM), Vermicompost (V), Trichoderma viridae (T), FYM + V (FV), FYM + T(FT), FYM + V + T(FVT) and Control (without any organic matter) laid out in Randomized Complete Block design with three replications. The results showed significant difference between the plot treated with organic materials and control in terms of yield attributing characters and yield. Combination of organic materials proved to be better than those applied single. Similarly, plots treated with FYM performed better than the plots treated with Vermicompost alone. All the treatments having FYM yielded greater amount of grains per unit area than the treatments without FYM. This study suggests further field experiments with similar organic materials for comprehending findings of this research.

Keywords: Farmyard manures, Trichoderma, Vermicompost, Yield

Effect of Planting Density and Time on the Growth and Yield of Spring Rice at Tikapur, Kailali

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A field experiment was conducted at Faculty of Agriculture farm, Tikapur during March – July 2022 to know the effect of different planting methods and density on yield of spring rice variety (chaite-4), when sown a month earlier than normal time. The research was laid out in randomized complete block design (RCBD) with seven treatments and three replications during the month of Feb-June, 2022. The treatments consisted of planting methods viz. early broadcasting (T1), early line sowing (T2) on the day of nursery bed (1st Feb), transplanting 20 hills m⁻²(T3), transplanting 30 hills m⁻² (T4), transplanting 40 hills m⁻² (T5), late broadcasting (T6) and late line sowing, (T7) on the day of transplanting (2nd Mar). The results showed that transplanting of rice significantly outperformed broadcasting method of rice planting in terms

of yield attributing traits and yield. Broadcasting method shows significant reduction in tiller number, biological yield and grain yield than line sowing both at the time of nursery bed preparation and at the time of transplanting. Similarly transplanting 30 hills m⁻² shows significant effect in early tiller formation followed by 20 hills-2 resulting in significant increase in grain yield of spring rice as compared to transplanting 40 hills m⁻². There was no difference in tiller number and biological yield between line sown rice either early or late. But transplanting 20 hills m⁻² at wider spacing performed significantly better in all the parameters observed except transplanting 30 hills m⁻². This study suggested further field experiments under similar condition at Kailali districts for comprehending the findings of this research.

Holistic Approach to Livestock and Waste Management for Sustainability

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Environmental Convergence Opportunities in Chemical, Bioengineering, Environmental, and Transport Systems (ECO-CBET) Project at Penn State is evaluating the mechanisms and environmental benefits of using duckweed to capture nutrients from agricultural waste sources. The nutrient is fed back into the agriculture system either as animal feed or soil amendment. The study is conducted within the context of the nutrient-impaired Chesapeake Bay Watershed, in Northeast America. To show implication on a global scale the food water and energy nexus at Penn State collaborated with the Waste to energy (WTE) project located in far western Nepal to address three big problems that human mankind is facing towards achieving a circular economy: Waste management, access to energy and clean water while generating profitability and reducing the human impacts on the environment. Waste to energy under full operation is expected to handle 25% (30 ton of organic waste) generated from Dhangadi Sub metropolitan city and produce 2400m³ of biogas, 3 ton of fertilizer per day. To evaluate the economic, technical, and environmental relevance of the project life cycle assessment (cradle to gate) was analyzed which implicates impact on greenhouse gas emission, eutrophication potential and land use change from waste management. Alongside it, implementation of management intensive grazing (MIG) of forage is advocated for where approximately 50% of biomass is left for soil protection and soil health maintenance. The result of the study has indicated non-significant impact on bulk density, aggregate stability, water infiltration, active carbon, and total organic matter content. The study has developed a holistic approach to waste management that not only cater global sustainability needs by addressing local problems but enable local stake holder collaboration from far western region national alongside national and international institutional collaboration. The study demonstrate how systematic waste management can generate critical economic, social and environmental value when waste is returned to the system as energy, fertilizer, and nutrient-rich feed to the animals.

Keywords: Holistic approach, Waste management, Livestock, Sustainability, Biomass

Parallel Session-B

Api-Saipal Hall

Theme B8: Social Science (Panel 7)

Gender, Livelihood and Environment

Chair: Sara Parker

A Study of Women Involvement in Cross-border Transportation and Carrying [A case of Banabasa (Champawat, India) to Gaddachauki (Kanchanpur, Nepal)

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Nepal and India have unique relation in people's lives. Although the supply of goods and services is a necessity to both countries, the movement of people in border areas is very sensitive worldwide in the sense of security and human rights. Hundreds of the women are involved in transporting goods and services across the Nepal-India border, carrying goods every day from Banabasa to Gaddachauki. My research focuses on those women who transport and carry goods across the Nepal-India border from Banabasa (India- Champawat) to Ganddachauki (Nepal - Mahendranagar). The objective of my research is to analyze the actual social and cultural condition of women transporters and to find out the reason behind becoming involved in this socially and culturally insecure job of transportation and carrying goods across the Nepal-India border. The research is based on exploratory and descriptive type of research design. Interview, interaction, and observation are the tools to collect primary data. Secondary data is used as per need. Narrations of women and some economic and socio cultural data are analyzed descriptively and statistically. Socio cultural exclusion, economic deprivation, and politically non noticeable or non-recognition are the basic factors which force women to become involved in this type of job, although the job is very insecure for women socially, culturally and psychologically. Very few of women involved in transport are in average social cultural and economic condition. Most of them are marginal and live under poverty.

The Gendered Implication of Declining Spring Sources in the Rangun Watershed Area

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Rangun Khola watershed of Mahakali River Basin, located in Dadeldhura District in the mid-hill region of Sudurpaschim Nepal, is a representative watershed for climate change-related stresses in the region. Springs are the lifeline for human survival and ecosystems in such watersheds. However, the increasing natural and anthropogenic pressures on these springs lead

to implications for the distribution and flow of these support systems. The spring source assessment conducted in the watershed, mapping 1,122 springs spread over the area, has demonstrated the dire problem of drying spring sources. The significant increase in time to fill a 20-litre jar, where 127 springs could fill a 20-litre jar within 30 seconds 20 years ago, has now been reduced to less than 55 springs only. This is a clear indication less water is available for the community. This study also applied a survey of 232 households, nine focal group discussions, and five key informant interviews to explore the gender implications of declining spring sources in the watershed area. Women were found to play a central role as traditional water managers for household needs. The changing context of spring water dynamics and increasing climate change pressures indicate the growing task for water collection and associated challenges. Furthermore, with male seasonal migration being a prominent coping strategy within the household, women are increasingly involved in irrigation water management. This increased time for water collection is increasing time poverty among women thereby affecting their wellbeing as well as the wellbeing of the family. However, it was found that this segment of the population who is directly affected by climate change has limited participation in the local adaptation planning process. This study adds to evidence of the gendered impact of climate change and calls for promoting gender-responsive local adaptation planning in the water management sector.

Impact of Microfinance on Women Empowerment: A Study Based Upon Micro Finance Institutions (MFI's) of Kanchanpur District, Nepal.

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Rapid progress in the microfinance sector now has turned into an empowerment movement among women across the country and easy access to microcredit facilities has helped to overcome exploitation, and create confidence for economic self-reliance of the rural poor, particularly among women of Kanchanpur. The present study is carried out to analyse the contribution of women entrepreneurs in lifestyle change, evaluate the socio-economic activities and assess the effectiveness of microfinance on improving women's living standard in Kanchanpur district. This research study uses a descriptive survey research method adopting quantitative and qualitative research paradigms. All the 350 informants out of 5 microfinance institutions in Kanchanpur have been selected on the basis of a complex random sampling method. Schedules are used for collecting information along with two focus group discussions, scheduled interviews and field observation. Both primary and secondary data are used for the study. The study uses four criteria to examine the impact of microfinance access, creation and control over private resources; freedom of decision-making at home; self-confidence in socio-economic activities; and status in community and family. The study uses three logistic regression models and a women's empowerment index (WEIs) to analyse women's empowerment. The empirical findings of the study show that the provision of small loans stimulates the income-generating activities of rural women thereby improving their well-being

and socio-economic status in Kanchanpur. The study concludes that if a woman owns the loan and acts as a conduit of credit, it has a positive and significant impact on her ability to make decisions at home, and in a wider sense help to elevate the socio-economic status of women in Kanchanpur. Therefore, the government ought to focus on facilitating rural women through micro-credit schemes.

Keywords: microfinance, vulnerability, entrepreneurs, social capital, Women Empowerment Indices

Additional Evening Programme

Film Show: Dignity without Danger: Two Collaborative Films on Menstruation in Kanchanpur

Convener: Sara Parker

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Filmed by Women in Kanchanpur supported by Sara Parker, Sara Baumann, Sushma Bhatta and Laxmi Dhital from 'Dignity Without Danger'

The Dignity Without Danger team used the collaborative film making approach based on participatory methods to train a group of 13 women in Kanchanpur to create, analyze, and film their everyday experiences of menstruating. Between January 2020 and March 2021. The footage was edited into a short documentary entitled '8 days' giving the audience an intimate insight into the lived realities of women during their period. It takes the audience on an 8-day journey, and provides a detailed look into the lives of women's practices and traditions during each day of their menstrual cycle.

The women also wrote, performed and filmed a short drama to help explore the impacts of menstrual beliefs and taboos at the local level called 'Stay Away' and wrote performed and sang 5 songs related to menstruation. 'Stay Away' tells the story of a loved village grandmother who believes she has been cursed and fallen ill from being touched by a menstruating woman. In the story, the grandmother must navigate social pressure from family and neighbors, decide between using traditional and western medicine, and wrestle with the evolving belief system that is shifting over generations. The drama ends with a powerful message for those still following harmful menstrual practices from Nepali women themselves.

While the films offer rich, emic knowledge regarding menstrual experiences in Nepal, the films can also serve as authentic advocacy tools and community engagement tools. To better understand how community-created films impact decision making, we held a National-level and district-level film screening for policymakers and key decision makers working on menstruation and gender issues. Through surveys and discussions with policymakers, we generated a deeper understanding of the power of community-created films to be creatively harnessed for advocacy and systemic change at various policy levels.

Both of these films were premiered at the Kathmandu International Film Festival in 2020 KIMFF along with other Nepali produced films on the theme of menstruation. The filmmakers from Western Nepal joined a panel of filmmakers and activists under the theme of 'Breaking Code Red' to discuss their films and their impact to help break the silence that

surrounds the topic of menstruation. The films have also been shown at the local level and shared with a wider audience.

This event provides the DWD team and local film makers with an opportunity to gain further feedback and answer questions from the audience

Day 3: Wednesday, 14th December, 2022

Parallel Session-A
Plenary Session 2

Parallel Session-B

Parallel Session-C

Keynote Lecture 2: Education and Social Transformation: Towards an Alternative Paradigm

*Anna Robinson-Pant
Chair: Amma Raj Joshi*

Parallel Session-A

Shuklaphanta Hall

Theme A9: Agriculture and Livestock (Panel II)

Agriculture and Food Security

Chair: Tika Ram Thapa

Harnessing the Prosperity of Marginalized Farmers of Far Western Province through the Adoption of Innovative Agriculture Technologies

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The Far West Province (FWP), one of the seventh provinces in Nepal is the huge and potential domain of untapped natural resources covering flat Terai and high hills ecology with tremendous indigenous technical knowledge (ITK), but due to the lack of proper documentation and dissemination of the innovative technologies on the proper conservation, utilization and promotion of these precious resources, the prosperity of the **FWP is getting ruined**. A systematic and rigorous review work was planned, executed and accomplished to appraise the undergraduate-practicum assessment (UPA) study conducted in the multi-disciplinary subjects of agriculture at Gokuleshwor Agriculture and Animal Science College (GAASC), Baitadi during 2014/15-2020/21 under Tribhuvan University. Moreover, other available research results of the Faculty of Agriculture (FoA), Far Western University and Nepal Agriculture Research Council, Provincial Office Dipayal Doti were also reviewed.

About 110 UPA theses accomplished by 300 agriculture graduates were collected from the GAASC libraries, systematically arranged and categorized in chronological order based on subject disciplines and disciplinary themes. They were analyzed conscientiously and the research outputs are thereby recommended to scale up the prosperity of the farmers in the province. The research review revealed that the maximum number of research was found in the major production technology testing works in agronomical crops and vegetable production and their marketing and value-chain analysis followed by the control of insect pests and diseases in various standing crops and storage suggesting to follow the integrated pest management (IPM) to manage those pests. The value-chain analysis study of the low volume high price commodity products like Jumli Marshi rice, temperate vegetable seeds, and Yarsagumba (*Cordepsissinensis*) are the potential avenues to boost the economic prosperity of the province. The adoption of innovation in various agriculture technologies like crop-weather and yield forecasting, the introduction of farmer friendly agriculture machinery and value addition and marketing of the agriculture commodities developed in the region could be promoted in collaboration with the various agriculture-related national and international organizations along with the integration of academics, research and extension/ development for harnessing congenial **environment for** the prosperity of Far West Province.

Keywords: Adoption, GAASC, Innovative Agriculture Technologies, Marginal Farmers, Prosperity of FWP

Accelerated Transformation of Agri-Food Systems to Achieve Food and Nutrition Security and Overall Economic Development

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Far West province is one of the least developed provinces of Nepal. Limited awareness and technical know-how, limited industrial investments, poorly developed supply chains, lack of good governance and absence of enabling environment have adversely affected overall development. The challenges and opportunities for the Far West are to get on a path to accelerated but sustainable human and economic development with balanced development efforts between mountains and the terai. Agriculture is the backbone of the economy, but its productivity growth is lowest in Nepal. Small, fragmented, largely rainfed and uneconomical holdings do not support livelihoods. Such holdings are increasingly abandoned in the mountains while prime agricultural lands in the terai are used for urbanization both contributing to the import of huge quantities of food items. Agri-food systems are further challenged by deepening weather extremes and climate crises that have profound impacts on land, water and food systems and addressing these complex issues would need systematic and systemic approaches with collective actions. However, the province lacks research institutions, infrastructure and capacity to develop technologies, practices, knowledge and skills suitable to the region. Agricultural extension and advisory services are inadequate and ineffective.

Ironically all the important institutions and services are concentrated in two districts of the Terai and widening the gaps between the mountains and the terai with long-term serious implications. The long-term strategies for transforming the agri-food system need to be carefully developed and implemented by integrating agriculture with rural development and human settlement trends. Extreme weather patterns and the climate crisis in the next 50 years also need to be factored in. Balancing development efforts across the province is vital to develop a vibrant and harmonized economy. The ways forward for transforming agri-food systems for achieving food and nutrition security and dignified livelihood as well as to improve the economic growth rates and gross national income suggested.

Prevalence and Intensity of *Bothriocephalus Acheilognathi* in *Tor Putitora* in Mahakali River, Nepal

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Bothriocephalus acheilognathi is a predominant parasite of cyprinid fishes all over the world. In Nepal, comprehensive studies on helminth parasites of cyprinid and other fishes are still stay behind yet. So, this study, aimed to investigate the prevalence and mean intensity of Asian fish tapeworm (*Bothriocephalus acheilognathi*) in Mahseer (*Tor putitora*) in Mahakali River, Nepal, was conducted from October 2021 to May 2022. A total of 96 fish samples were collected from the four sites viz. Machheti- Khalla, Brahmdev, Sarada Barrage and Mahakali Suspension Bridge of the river using gill nets and hooks, and also purchased from the local markets of respective sites assuring the fishes were from the Mahakali River. Collected fishes, after their morpho- metric measurements, were dissected and examined in the laboratory of Department of General Science, Far Western University. Recovered parasites were processed using standard helminthological methods. Overall prevalence and intensity of the *Bothriocephalus acheilognathi* in *Tor putitora* were 5.20% and 2.2 respectively. Size- wise, higher prevalence (6.66%) and intensity (2.5) were found in 10-20 cm long fishes than >20 cm long fishes (3.12%, 1). Weight-wise, highest prevalence (8.33%) was found in 101-150 gm weighted fishes and highest intensity (4) in 51-100 gm weighted fishes. Sex and Month-wise, highest prevalence (17.39%) and intensity (2.5) were observed in female host fish in April followed by January (6.66%, 1). Higher prevalence (10.81%) and intensity (2.5) were found in spring season than winter season (2.32% and 1.0 respectively). Statistically, the prevalence and intensity of the parasite were insignificant (Exact significance two-sided p-value > 0.05). Present study first report the infection of *Bothriocephalus acheilognathi* in *Tor putitora* in Mahakali River, Nepal and identify as a zoonotic risk to human.

Keywords: Asian fish tapeworm (*Bothriocephalus acheilognathi*), Mahseer (*Tor putitora*), mean intensity, prevalence, season

Parallel Session-B

Api-Saipal Hall

Theme B9: Social Science (Panel 8)

Chair: Amy Johnson and Deepak Chandra Bhatt

Khasa Hegemony in the Central Himalayas and Trans-Himalayas

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South Asian historiography is largely oblivious to the Tibetan 'Empire' from the seventh to the ninth centuries that linked the entire Himalayan chain through an overland route on the Tibetan plateau. (Beckwith, C.,1987, *The Tibetan Empire in Central Asia* Princeton) This paper explores the centrality of this connection and argues that the emergence of Himalayan kingdoms in Ladakh (Jammu and Kashmir), Bhramaur(Himachal Pradesh), Pandukeshwar (Uttarakhand) and Jumla (Far Western Nepal) in the Upper Himalayas were linked to this 'Empire'.

A number of new polities emerged in the ninth and tenth centuries in the upper Himalayas and trans-Himalayas. Tucci refers to the unrest among the hill tribes in the eleventh century (Tucci, G.,1956 *Preliminary Report on Two Scientific Expeditions in Nepal*, Roma) and Adhikari documents the emergence of a Khasa Kingdom (Surya Mani Adhikari 1988 *The Khasa Kingdom: A Trans-Himalayan Empire of the Middle Age* Jaipur) This polity straddled the two linguistic worlds of Tibetan (Tucci documents) and Proto Pahari (gold and copper plate inscriptions). Its significance lay in the fact that from the eleventh to the fourteenth centuries it transformed the middle mountains of the Central Himalayas by introducing the plough, rice and terraced cultivation. The ensuing demographic increase led to a shift towards the east and the south. This narrative thus interrogates Atkinsonian historiography that relegates the Khasas to hoary antiquity (Atkinson, E.T.1884, *The Himalayan Districts of the North Western Provinces of India*,Volume II,Allahabad) and contextualises the role of the Khasas in the formation of Kumaun, Garhwal (Uttarakhand) Baisi and Chaubaisi (Western Nepal) kingdoms. This is also documented by R.N.Pandey in his monumental work, *Making of Modern Nepal* (1997,Jaipur). Though the linkage with the trans-Himalayas continued, from the fifteenth century links with North India, via the Tarai, were strengthened. By the eighteenth century, the Gorkha Kingdom was successful in reuniting these polities, but had to confront the kingdoms of Awadh, Rohilkhand and the East India Company on its southern periphery, which led to a new dynamic of change.

The paper thus suggests a fresh appraisal of the shared histories of the Central Himalayan region, which includes Uttarakhand, Far Western Nepal and Western Tibet.

The Far West of Nepal as a Remote Area

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It should hardly be surprising to view the Far West of Nepal as remote. Its very name proclaims it. Government regulations proclaim it (inhabitants of the Far West are entitled, universally, to welfare benefits that elsewhere in Nepal are restricted to the most excluded members of society – Drucza 2020). Most inhabitants of the hills of the Far West have never visited the nation's capital, Kathmandu. It takes a long time to get from Mahendranagar to Kathmandu and vice versa. Yet, at the same time, Mahendranagar and Dhangadhi are closer, much closer, to Delhi than they are to Kathmandu. Most people in the Far West region have experience of travel – often regular, yearly trips – to different places in India. They may never have visited Kathmandu, but they are expert at living and surviving in India. Investment – in infrastructure, in medical facilities – is woefully low in the Far West region, as is the resulting human development status, when compared to other parts of the country. Within the Far West region, hill districts such as Bajhang are still more remote when compared to the regional capital in the Tarai. Based on research carried out in Bajhang between 2020 and 2022, and analyses of the secondary sources, this paper explores the idea of 'sudur' as a concept ('remoteness' as a state of mind, as a discourse, and as a daily reality). We ask who defines it and for whom it is an issue. We also speculate about its consequences. We argue that the very notion of 'sudur' is an imposed political construct, symbolizing (more than spatial position) the loci of power elsewhere, with detrimental consequences: persistent neglect, the reproduction of marginalization, and increasing dependency.

Minorities and Identity Politics in Federal Nepal: A Study of Sudurpaschim Province

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Each of the major individual Janajatis, Indigenous peoples (IP) of Nepal, lives as a minority group in their traditional homeland, including the Tharus of Kailali and Kanchanpur districts which in combination constitute 17 percent of the total population of the Sudurpaschim province, a federal unit consisting of nine districts (7 hill and 2 tarai districts). Like the Limbus and Rais (IP of eastern hills), the Newars and Tamangs (son/daughter of the soil of central hills) and the Gurungs and Magars (native people of western hills), the Tharus are non-conformists to the constitutional provision of 7-provinces federal Nepal since it is framed in contrast to their genuine aspiration to have their own identity-based political space at the sub-national level. In the given adverse federal structure, the Tharus, like other IP minorities, could at best translate their identity politics into political power at three micro-level electoral constituencies:

rural/urban, provincial, and parliamentary constituencies where they live as the majority or plurality population. This proposition has come to the truth as shown by the results of all elections—of the Tharu cluster areas, for instance, Tikapur municipality, Joshipur Gaunpalika and Janaki Gaunpalika of Kailali district—held after the promulgation of the new constitution in September 2015. This paper focuses on two major aspects of the identity politics of the Tharu community living in Tikapur and surrounding areas. One is the construction of identity, mainly through political socialization. The other aspect of the study is the manifestation of identity politics at times of ethnic movements and or during the elections. The paper is primarily based on the field works; one of the authors has already made three short study visits in some areas of Kailali district, Tikapur and adjoining villages. The first field work was carried out on the eve of the 2017 provincial and parliamentary elections, followed by the second visit in 2018 (a couple of months after the 2017 elections) and the third in 2019. Particularly for the writing of this paper with updated data and information, one more follow-up field visit is in the plan (maybe before the drafting or at the stage of revision/finalization).

Does Downward Accountability Work? An Assessment of Local Government Practices in Nepal

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The articulation of downward (social) accountability to the local government (LG) is established by the new constitution of Nepal (2015) and **further elaborated in the Local Government Operational Act (2017)**. LGs in Nepal have gained more autonomy, role, and responsibility for providing public services to local citizens following the state restructuring into federal **Nepal**. This paper examines the existing practices of downward accountability practices, particularly in the case of Kailali district of Far Western Province. Two separate field-based studies were conducted at different periods of time. Initially, the study was conducted to assess the compliance of social accountability tools in three local units of Kailali district (2019). The second attempt was a study focused on the practices of the monitoring mechanisms of four LG units (2021). The Observation Checklist, key informant interview, and questionnaire schedule were used for data collection. The elected representatives, staff of LGs, and service-receiving citizens were the respondents to the fieldwork. The study shows that the downward accountability in LG is obscure and ineffective. Perception of the social accountability compliance mechanism of local elected representatives is not clear and specific. However, the elected representatives and the citizens have taken monitoring action positively. It seems that the monitoring mechanism stands as a vital tool for feedback on local government activities and service delivery. However, social accountability tools have not been prioritized by local governments as a governance compliance strategy. Effective service delivery has slowed because of a lack of an institutionalized downward accountability system. The study's detailed results and recommendations will assist in the formulation of an effective local governance policy.

Keywords: Social Accountability, Local Governance, Monitoring Mechanism, Local Government, **Downwards Accountability**

**Plenary Session 3 (Sukhlaphanta Hall & Online)
Public Health**

Roundtable: Medical Education in Sudurpaschim

Convener/Moderator: Puspa Raj Pant

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Panelist 1: Aruna Upreti

Panelist- 2: Chet Raj Pant

Panelist 3: Deepak Prakash Bhatt

Panelist 4: Hem Nath Joshi

This Round table discussion will focus around the major question: What has prevented Sudurpaschim from having its first Medical Education institution despite of its urgent need, recommendations of various commissions, legal provisions and the demand of Sudurpaschimeli citizens.

Nepal's first medical degree program was started 44 years ago by the Tribhuvan University therefore it is younger than all of the pannelists in this roundtable. It has been only 25-30 years when there was a rise of the numbers of medical colleges in Bagmati, Gandaki, Narayani and Koshi Zones. These medical colleges are running as either affiliate colleges or autonomous Academies. The nearest Medical college in Nepal's territory from Sudurpaschim is in Kohalpur. The concept of Medical University is not yet clearly perceived in Nepal. The regulation of thus established Medical Education Institutions is still being coordinated by the Ministry of Education. It has been only 5 years when the Medical Education Commission was established in 2017. As of October 2020, there were a total of 23 medical schools (75% are private) and none are in Sudurpaschim province. Here I would like to remind you all of the provisions on Nepal's National Medical Education Act (2075 BS).

राष्ट्रिय चिकित्सा शिक्षा ऐन, २०७५ को दफा ४६ अनुसार “नेपाल सरकारले सञ्चालन गर्न सक्ने: (१) नेपाल सरकारले चिकित्सा शिक्षा अध्ययन अध्यापन गर्न गराउनको लागि एक चिकित्सा शिक्षा विश्वविद्यालय स्थापना र सञ्चालन गर्नेछ। (२) यस ऐनमा अन्यत्र जुनसुकै कुरा लेखिएको भए तापनि कुनै पनि सार्वजनिक मेडिकल कलेज वा प्रतिष्ठान नभएका प्रदेशमा यो ऐन प्रारम्भ भएको पाँच वर्ष भित्र नेपाल सरकारले कम्तीमा एउटा सार्वजनिक मेडिकल कलेज सञ्चालन गर्नु पर्नेछ।”

This Act was effective on 2075/11/11, accordingly Nepal Government must ensure the operation of at least one functioning medical college before 2080/11/09.

यद्यपि सार्वजनिक मेडिकल कलेज को परिभाषा उक्त ऐनमा खुलाइएको छैन तर यदि त्यो “सार्वजनिक शिक्षण संस्था” हो भने ऐनको दफा २ को (प) मा त्यसको प्रस्ट परिभाषा यस प्रकार छ: “सार्वजनिक शिक्षण संस्था” भन्नाले सरकारी, सामुदायिक वा सार्वजनिक सम्पत्तिको प्रयोग गरी स्थापना भएका सरकारी, सार्वजनिक गुठी वा अन्य शिक्षण संस्था सम्झनु पर्छ।

यसै ऐनको दफा १२ मा आशयपत्र (Letter of Intent) प्राप्त गर्न शर्तहरूको व्यवस्था गरिएको छ: जस अनुसार “(क) विद्यार्थीको पढाई र अभ्यासको लागि मेडिकल तर्फ कम्तीमा तीनसय (300) तथा डेण्टल र नर्सिङ्ग तर्फ एकसय (100) शैयाको अस्पताल सञ्चालन नभएसम्म सम्बन्धित विषयको कुनै कार्यक्रम सञ्चालन गर्न ।”

With these legal provisions, when we are demanding a medical college or a medical science institute or a medical education university, there arises a serious question of accountability to our people's representatives in regard to their past actions in terms of their long-term vision and infrastructure development in the past.

The residents of Sudurpaschim who were in decision-making positions in the past have failed to identify the need for developing Medical Education Institutions which could have produced Health Professionals at home. The ground reality -- the citizens are forced to cross borders to get health treatment, which has drained billions of rupees out of the country. This situation also contradicts the Constitutional provisions to have access to health services and is too late to address this urgent need.

Plenary 4 (Sukhlaphanta Hall & Online) Roundtable (ICIMOD HUC)

Inter-university Collaboration for Innovative Research

Chair/Moderator: Tri Ratna Bajracharya

Panelist 1: Yagya Raj Pathak

Panelist 2: Arjun Kumar Shrestha

Panelist 3: Nina Amatya Gorkhali

Panellist-4: Sabnam Shivakoti

Panelist 5: Sameer Newa