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Rig Tshoel - Research Journal of the Royal Thimphu College

Volume 6 Number 1 Autumn 2023

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*Rig  
Tshoel*



**Research Journal of the Royal Thimphu College**

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A Royal Thimphu College Publication.

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Rig Tshoel – Research Journal of the Royal Thimphu College is an open-access peer-reviewed journal intended to align with a key mission of Royal Thimphu College “stimulate new ideas, knowledge, and practices that serve to enrich people’s lives and enhance the welfare of society.” The journal aims to issue at least once a year and invites contributions on a wide range of subjects. Authors are encouraged to develop their own scholarship in areas of general relevance to Bhutan, submit work that advances knowledge in their fields, and is written in a broadly accessible manner. High-quality original articles in English and Dzongkha including theoretical and empirical research, commentaries, editorials, and reviews are welcome.

The views expressed herein are those of the authors themselves and not necessarily those of the Royal Thimphu College.

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# Editorial

This is the 6<sup>th</sup> volume of *Rig Tshoel: Research Journal of the Royal Thimphu College*. Rig Tshoel freely translates to the “search for knowledge”, and its genesis and objectives the journal responds to RTC’s mission to “stimulate new ideas, knowledge, and practices that serve to enrich people’s lives and enhance the welfare of society.” Rig Tshoel is multi-disciplinary in its scope, spanning the humanities, business studies, social sciences, and other sciences. Rig Tshoel is also inclusive, in the sense that it aims to provide a platform for young and early career scholars to develop and publish their work. For enabling this, I convey my gratitude to both the editorial board and to the reviewers for lending their time and expertise.

This volume carries eight articles. The first is the transcript of a distinguished lecture delivered by T.B. Subba, the former Vice-Chancellor of Sikkim University, to RTC’s Himalayan Centre for Environmental Humanities (HCEH) in August 2023. The lecture, and this contribution, is titled “Growing Up in Greater Bhutan, Scaling the Anthropogenic Stages of Life.” The second article is co-authored by a team of RTC faculty, staff, and a former student. They are Yuzer Peldon, Tashi Choden, Bijayata Rai, and Dorji Wangchuk. Their research was enabled by an Erasmus+KA2 Capacity Building in Higher Education (CBHE) Project that involves Bhutanese and European partners working towards developing capacity for the teaching-learning of qualitative research methods at colleges in Bhutan which teach social sciences and humanities programmes. The title of the article is: “Korean Cosmetics, Social Media, and Global Consumerism among Thimphu College Youth”, and explores the influence of Korean cosmetics and beauty standards on perceptions of self and identity among College-going youth in Thimphu.

The third article is by Thinley Dema and is titled: “Assessing Vegetation Dynamics in Lingzhi Using Normalized Difference Vegetation Index (NDVI).” This article applies the Normalized Difference Vegetation Index (NDVI) to assess vegetation dynamics in Bhutan’s western highlands. Thinley Dema argues that assessing vegetation fluctuations help to understand varied anthropogenic impacts and pressures in the highlands, and that this knowledge is crucial for designing policy interventions. By combining scientific data with ethnographic insights, Thinley

Dema's article offers a multifaceted window into contemporary vegetation trends and patterns in the highlands. The fourth article is by Singay and is titled: "Understanding Cultural, Ecological, and Indigenous Literacy in Rural Bhutan: A Case Study of Gangtey Gewog." Singay calls for the expansion of the term literacy to also include cultural, ecological, and indigenous knowledge as it exists in Gangtey. Through four detailed life-histories, Singay details the relationship between people's background, upbringing, profession, and the kind of knowledge they possess, and shows how cultural, ecological, and indigenous knowledge can flourish even when the knowledge-holder is non- or semi-literate in the conventional sense of reading and writing skills.

The next article is titled "Preserving Traditional Medicinal Knowledge and Its Transmission in Dorokha, Samtse, Bhutan" and is researched and written by Tej Kumar Nepal. The article calls for the preservation of indigenous plant-knowledge, with special focus on those plants that carry medicinal value to humans. Tej Kumar Nepal finds a slow loss of traditional knowledge, for which he empirically identifies a range of reasons. The sixth article is written by Sonam Darjay and Dorji Wangchuk and is titled "Dakwala and Communications in Bhutan: A Narrative Study of Dakwalas of Pemagatshel." Prior to the arrival of modern communications, Dakwalas, who were postal runners, were tasked with connecting places and peoples by delivering messages in various forms. This article traces the origins, characteristics, and challenges of the dakwala system, as well as identifies its role in the making of modern Bhutan. The data for this article is based on life-history interviews with two former dakwalas of Pemagatshel.

The seventh article is by Soumya Pandey and Nithil Dennis and carries the title: "Shared Challenges Encountered by the Cottage and Small Industry in Bhutan – A Post-Pandemic Analysis." The point of departure, of this article, is that while the Cottage and Small Industries sector make up 95% of all businesses in Bhutan, they contribute only 5% to the country's GDP. This article systematically reviews and evaluates why this should be so, and offers possible remedies to the hurdles and challenges CSIs seem to face. The eighth and final article is by Shiriin Barakzai and is titled "The Consecration of a Bhutanese Drukpa Kagyu Temple in Nepal." It draws attention to the recent consecration of a temple in the Kathmandu Valley that was rebuilt following its partial destruction caused by the 2015 earthquake. By offering a

rich and multilayered historical analysis, Shiriin Barakzai traces the Bhutanese genealogy of this temple. It then arrives back to the present by offering documentary photos of the 2022 consecration.

Jelle J.P. Wouters  
Editor-in-Chief

# Growing up in Greater Bhutan, Scaling the Anthropogenic Stages of Life

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*T.B. SUBBA<sup>1</sup>*

I need to make two clarifications at the very beginning of my lecture. First, this is not the first autobiographical lecture I have delivered; there have been a few, including one at this very hall some 6 or 7 years ago, but each time I looked at different facets of my life, or the same facet but differently. The present lecture, being delivered under the aegis of the Himalayan Centre for Environmental Humanities at RTC, attempts to focus on those aspects of my growing up which might have some relevance for Environmental Humanities. Second, the use of the expression “Greater Bhutan” might be intriguing for some of you, but it is quite common to use the word “greater” before nations that were once larger in territory than they are now, such as greater Nepal, greater Sikkim, greater Assam, and now greater Bhutan. I am not sure if anyone here has used the expression “greater Bhutan” in the past, but someone might surely like to do that in future, for it is a historical fact that Bhutan once, for more than one and a half century, included the whole of the present district of Kalimpong and substantial parts of the Jalpaiguri and Koch Bihar districts of West Bengal. Whether or not Bhutan wants to get back these lost territories today is a question that will require another lecture.

In my lecture this afternoon, I will talk about the anthropogenic stages of my life (by which I mean environmental changes that are often negative, albeit it might have been unintentional on the part of human beings) in a village in Kalimpong called Tanek, a village through which passed dozens of mules every day except for a month or two during the winter. In other words, the Indo-Tibetan trade took place through my village from the time it started until it stopped in 1959, following the occupation

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<sup>1</sup> This article is the transcript of a special lecture delivered by T.B. Subba for the Himalayan Centre for Environmental Universities on August 10, 2023. T.B. Subba served as the second Vice Chancellor of Sikkim University. Earlier, he was Head of Anthropology Department and Dean of School of Human and Environmental Sciences, North Eastern Hill University, Shillong.

of Tibet by China. The cobbled road of about eight feet width was hardly twenty-five feet away from my house. This village also had an important role to play in the field of educational and economic development of Bhutan for almost three decades, from about 1960s to 1990s. The trade agent for Bhutan in Kolkata was Lawrence Sitling, a Lepcha from our village. He supplied almost everything the Royal Government of Bhutan needed, from pin to pan. The Education Director of Bhutan then was also from our village and my father was one of the first school headmasters to be appointed by the Royal Government of Bhutan in 1962. He was posted in Dogar (now renamed Zoka) Primary School in Shemgang (nowadays spelt as Zhemgang) district and remained there for another 25 years or so. He was once transferred to Haa and once to Paro, but both the times the villagers of Dogar met the concerned officials and got him posted back to Dogar in less than a month each.

I grew up in my grandparent's house in Tanek village from the time I was about two years old. I spent my entire school and college days under a kerosene lamp. So, till I left my village in January 1978 for doing my master's from the University of North Bengal in Siliguri, my mother and I woke up with the first crowing of the rooster. While I made fire and fried the leftover rice of last evening, she milked and fed the cow. She also gave something to the goats and the pig before she ate the fried rice and left for the nearby forest to collect fodder for the animals. After she left, I cooked food for all of us, including my younger sister and my mentally retarded brother, before leaving for school or college. Cooking food in the morning meant cooking rice and one vegetable and if there was no vegetable it meant making some chutney with whatever was available in the kitchen garden. The leftover rice of the morning was always fed to the fowls and dog, but the leftover rice of the evening was kept to be eaten as a pre-dawn snack. And getting ready for school took no time because there was no concept of brushing teeth or wearing shoes until I reached the ninth standard. I splashed some water on my face, ran my fingers through my hair and I was ready for the school the first of which was just about twenty-five feet away, across the cobbled road, and the second, a junior basic school, was located about two kilometers away in the adjacent village called Tashiding. The same chores continued till I completed my collegiate education.

On winter holidays, however, my daily routine was different. My mother and I woke up, fried the leftover rice, ate it and left for the forest. If there was no leftover rice, we



fried some dry maize or soyabean, carried them with us to eat as we walked down about one hour through the narrow footpath to reach the forest. The forest was a primary or virgin forest and it was well-endowed with varieties of plants, vegetables, tubers, mushrooms and fruits but we needed to go farther and deeper into it for fodder as the winter season advanced.

We would be back home when the sun was clearly visible in the sky, which took time because of a very tall mountain on the east blocking the morning sun. After eating our meal, we washed our utensils with ash, paddy husks or the sand from the nearby stream. And, we used the corn cobs for scrubbing the utensils. Then we carried dry cow dung to the field, spread them, and prepared the terraces for maize cultivation. We had no concept of chemical fertilizers then but the high yielding Japanese variety paddy was known, albeit we never sowed them because its grains were large and not tasty. As pesticides, we used to spray DDT (Dichlorodiphenyltrichloroethane) powder. We got the powder in small amounts from the health department workers who went around the houses in the village spraying the same with the help of a manually pumped sprayer strapped on their back. Unlike today, the terraces in those days were left to recuperate for at least two months in the winter after paddy was harvested. We grew just two main crops in a year, maize as the summer crop and paddy as the winter crop. As subsidiary crops, maize used to be accompanied with long beans, cucumber, ginger, lady's finger, etc. and paddy used to be accompanied with soyabean on the terrace walls and black and brown lentils on the terrace edges. On the lands where no irrigation was possible, maize was planted as summer crop and finger millet and lentils as the main winter crops. The first harvest ritual, called *nuwagi* in Limbu language, was however organized only for paddy and not for other crops, not even for maize and millet. Paddy was offered along with the stem to our ancestors, forest deities, and to the creator of the universe called Tagera Ningmaphuma. This was usually done by the phedangma, or the Limbu shaman, but if he was not available, senior clan members knew how to make the offering of the new crop to various deities.

Come evening and I often needed to go and call a phedangma for my ailing younger brother. The distance between my home and his was hardly 150 meters but there were two haunted places I needed to cross. One was very near my home and the other one was near his. The haunted place near my home was known for the occasional

sightings of *murkhutta*, a skeletal ghost which was so tall that its head touched the sky and the one near his home was known for *mandre bhoot* or a ghost that came rolling down in the form of a bamboo mat. I heaved a sigh of relief if the phedangma asked me to wait because I didn't like to pass through those two haunted places alone. When I passed through those places alone at night, I felt goose bumps on my back and I invariably walked fast looking back over my shoulders just to make sure that no ghost was following me.

This stage of my life was almost completely governed by nature. I slept when it was dark and got up when the rooster indicated that it was time to get up. I actively participated, as the shaman's assistant, in the collection of materials for erection of a temporary place of worship, and accompanying the shaman in his ritual dances. Once he was possessed and instructed the audience around him what should be done next, he would return to this world. The temporary altar would be dismantled soon after the ritual was over and in no time, there would be any trace of it. In the death rituals, however, dismantling of the altar was a serious matter and it followed a *mundhum* or an oral tradition. In the Limbu tradition that we followed, there was no permanent place of worship and there was no waste creation. Even the old and discarded torch light or the radio were used for various purposes. The used and rusted nails were also straightened and reused. There were no plastics then.

When I started going to a town school, I was just about 11 years old. I covered a distance of about fourteen kilometers every single day, except on Sundays. I walked barefoot till I reached the ninth standard, but that was not an issue. In fact, I would have loved to continue walking barefoot even after reaching the ninth standard because the shoes I wore after reaching the ninth standard were so uncomfortable that I opened them soon after I started the narrow footpath leading down to my home. The shoes were always one size larger so that I could continue to wear them even when my feet would grow. But I often had blisters in my feet that made walking with shoes more a pain than a pleasure. The shoes would also get wet due to the overgrown grass on the footpaths.

What changed majorly after I started going to a town school was my exposure to communism when I was just about 14 years of age. I joined the 'auxiliary group' classes every Sunday afternoon with others who were mostly my cousins and

classificatory uncles. One Ramashankar Prasad came from the town to teach us about Marxism and Leninism. The evening classes were held in the house of one Relon Lepcha, the eldest son of once perhaps the richest man in the village. In a period of about one year or so after I became a member of the auxiliary group, I had begun to think more about social and economic issues of our society than about the shaman or the ghost. I think I still felt scared of the ghost if I was passing through a burial ground or haunted place alone at night, but I pretended not to be scared. After all, I was a comrade and my ideals for fighting against exploitation and suppression were too important to worry about ghosts. It was only after I became an adult and fully understood what the Marxists in my village were doing, I gradually dissociated myself from the Communist Party of India (Marxist). When the Left Front, representing a number of left parties, formed the government in West Bengal in 1977, with Jyoti Basu as its chief minister, I left the party for good.

My association with nature began to weaken when I started going to the college which was located farther away from my school by about two kilometers. I not only began to think critically of the state government and the CPI (M) party but often made my opinions known to anyone who cared to listen to me. I still went to the forest during the winter vacation, but more to collect firewood for the rainy season than fodder for animals. Collecting firewood needed a *dao* and an axe. While the forest guards would at times excuse a grass-cutter, they never excused someone with an axe and *dao*. But I had grown big enough to know the ways of the forest and how to evade the forest guards. In some winters, instead of collecting firewood from the nearby forest I felled some live trees from our own land, cut them into pieces and carried them home in a bamboo wicker basket. If I loved to read comics when I was younger I began to read Marxist literature. All this drew me away from the activities that were directly associated with nature.

Yet I was one of the saddest and angriest persons when the West Bengal Forest Development Corporation, established soon after the Left Front government was formed, clear-felled the primary forest below our village in 1978 and instead planted teak saplings. This resulted in cracks in our paddy fields and houses, and even sinking was visible in some places. However, not many villagers agreed with me when I argued that our lands and houses were cracking because of the clear-felling of the trees below our village. The reason for their disagreement was not so much as

me having left the ruling party as it was their loyalty to the newly formed government, as some of them were direct beneficiaries because their party was the biggest coalition partner in the government. The terrace walls not only began to require frequent repairs, but the crops also began to be affected with more insects around. Yet the villagers did not rise in revolt.

In early 1980s, the villagers had started to grow some cash crops like cucumber, ladies' finger, chilies etc. while others had switched over from staple crops to floriculture. The cultivation of gladioli was particularly profitable, as its propagation was easily scalable and the cultivators could sell the cut flowers as well as the bulbs. The streams that used to have some water even in the dry winter began to be totally dry because the upstream villagers extracted every drop of water for irrigating their flower beds or vegetable gardens. The downstream villagers had no alternative but to buy polythene pipes to draw water from farther distances in the upstream areas. As a result, the streams began to be clogged with polythene pipes, much resembling the water pipes in the drains of urban areas.

Some of the irrigated lands began to be abandoned, as paddy cultivation was no longer worth all the hard work and expenditure on food and wage of the labourers. I also noticed the change in the labour exchange system between my school and university days. During my school days there were two forms of labour exchange: *parma* where two families worked on each other's land and *hoori* where several families worked on their lands by rotation. Both the forms of labour exchange were reciprocal and did not involve any cash payment, although they needed to be provided food once during mid-day. Such forms of labour exchange virtually stopped in the 1980s and it was replaced by a system of payment in cash. There were two main reasons for this change. One, many youths who participated in such reciprocal exchange of labour had now begun to go to schools and colleges, thereby being available only during the lean agricultural season in the winter. Two, the school drop-out or illiterate youths of the village went out of the village to work in non-agricultural sectors like infrastructure and security services, which made it difficult for them to return to their village even during the peak agricultural seasons. Where they were available, they demanded food, drink and a much higher wage than generally paid to them. All this made cultivation cost-ineffective, leading to abandonment of cultivable lands in the village.

In the meantime, my village began to see more houses built along the old cobbled mule road that was made motorable. With more and more water scarcity in the town, many town people began to settle in the villages where the water crisis was not as severe as in the town. Soon, the number of houses doubled up, which led to the drying up of the old spring sources of water much earlier in the winter than before. Sporadic conflicts were also reported over “stealing” of water by one family or the other.

By early 1980s, water had already become a scarce resource to be controlled and even weaponized by those who owned the perennial sources of water. The maintenance of the houses and terraces had also become increasingly challenging. More and more men were in the habit of drinking factory-made alcoholic beverages and smoking cigarettes. While chewing tobacco was quite common during my school days, smoking was rare except by elderly men and women, but they always smoked tobacco wrapped in corn ears.

Why am I making you listen to my story of growing up in a village located in former Bhutan? What messages am I trying to pass on to you students in particular? What is your “take away” from my story?

Well, first of all, my story may inspire some youths of humble background like me to be achievers. We all need inspiration to do something big. If I, in spite of such a background and average intelligence, could become a vice-chancellor of a central university, a member of advisory boards of several national institutions, editorial board member of several international journals of repute, etc. there is no reason why you can't be one like me. You might not choose to become what I became, but you might achieve something even bigger in your own areas of choice, be it poetry, fiction, music, sports, academics, and what have you.

Secondly, my story also in a way highlights the need to reorient our Humanities and Social Sciences to engage with issues like climate change, pollution, and environmental degradation, as the matter has been festering for too long. The elected governments give only lip-service to the warnings by the scientists on climate change, although their claims are not always based so much on science as on scientism, or a belief that science alone, with the help of its so-called scientific methods, can achieve

full grasp of human reality and solve human problems like poverty, disease, inequality, pollution, and food safety. However, science alone is not adequate to understand human intricacies; we need a multi-disciplinary approach to understand them. Actually, as the postmodernists argue, if science has solved some problems, it has also created other problems. While we show our concern about the health of Mother Earth, write articles and present papers at conferences on the theme we should also do our bit to help the earth regain her health by making local or community level interventions. It was, for instance, our choice to use the DDT as pesticide in our village. We could have also stopped, or at least tried to stop, the clear-felling of the primary forest below our village by using the political capital we had. The setting of the forest on fire after clear-felling and extraction of the trees was also something that we could have perhaps prevented. But we did nothing to stop what we perhaps could.

Writing an essay in 2020 titled “The Great Unraveling” Joelle Gergis of the ANU Fenner School of Environment and Society makes a passionate argument that simply being concerned about the dying planetary system is not enough. We need to grieve it like the death of someone in our own family and respond to it emotionally, using our emotion as the new tool or resource to fight against what she calls “sociopathic disregard for all life on Earth”. She also mentions how psychologists are willing to acknowledge “personal and collective grief” as the only way out of the mess we are in.

Finally, a word about climate change. Scientists have told us for too long that climate change is responsible for global warming, which in turn is held responsible for numerous other negative changes on the earth. But is climate change the only reason for global warming? Are there no other factors responsible for global warming? Are we not abdicating ourselves, our community, and our government’s role in global warming, as my story of growing up has indicated? Is the climate change debate not wasting a lot of its time and energy on the politics of blame game between the northern and southern countries? I think it is time we from Humanities and Social Sciences start scrutinizing our own role, our societal role, our governments’ role and start taking corrective steps if we want to stop pushing our planet towards a certain death. We should stop waiting for climate change experts to bring down global warming. After all, such experts depend on the elected governments for

implementation of the policies whereas the elected governments need to provide energy, the biggest polluter, to their citizens no matter how.

Thank you for your patient hearing.

Tanka B. Subba

# Korean Cosmetics, Social Media, and Global Consumerism among Thimphu College Youth

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*YUZER PELDON, TASHI CHODEN, BIJAYATA RAI, &  
DORJI WANGCHUK<sup>1</sup>*

**Abstract:** This qualitative study aims to explore the impact of global consumerism (especially Korean cosmetics and social media) on physical beauty standards and how it affects the lifeways of Thimphu college youth. The study identifies Korean cosmetics and social media in reinforcing the adoption of Korean beauty standards and its products. We show how Korean cosmetics, and their allure, impact the lifestyles of Thimphu college youth as they share their daily routines/steps of using Korean cosmetics and how long it takes. Notwithstanding the cultural and societal differences between Korea and Bhutan, our findings relate to the impact of Korean cosmetics on beauty standards, including identity and gender norms in Bhutanese society.

**Keywords:** Global consumerism, Korean cosmetics, social media, Gender norms and beauty standards

"To men, a man is but a mind. Who cares what face he carries or what form he wears? However, a woman's body is the woman" (Bierce, 2015).

## Introduction

The above quote suggests why beauty is an integral part of most women and why they care about their physical appearance, arguably more than most men. From a young age, women around the world are told that every individual is beautiful, strong, smart and unique in their own ways. Women are taught to value their differences and accept other women for all their flaws (Glass, 2020). Motivational

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<sup>1</sup> Yuzer Peldon (Lecturer, Royal Thimphu College), Tashi Choden (Lecturer, Royal Thimphu College), Bijayata Rai (Academic officer, Royal Thimphu College), and Dorji Wangchuk (Royal Thimphu College Alumni, currently works at Bhutan Development Bank Limited). Email corresponding author: yuzerpeldon@rtc.bt)



speakers regularly preach self-love and that beauty lies within, as opposed to seemingly superficial appearances. At the same time, women are generally part of a world in which the media has an unbelievably strong presence; a presence that manipulates society's interpretation of the standard of beauty. This is true for Bhutan, as it is elsewhere.

It's no secret that the mainstream media are obsessed with the appearance of women. Living in a modern era, the media is a large part of our daily lives, and whether we recognize it or not, it influences our opinion and reshapes our view of the world and ourselves. For many of us, our first instinct when bored is to scroll through social media. In so doing, we become susceptible to self-comparison as we see images of women who are declared beautiful by society, causing us feelings of inferiority and self-doubt. While many of us acknowledge the possibility of Photoshop/editing being used to 'perfect' images before being displayed to the public, we fail to understand that while women are being digitally altered, so are our perceptions of what is truly beautiful, healthy, and realistic (Glass, 2020).

In the first episode of a show called #GirlTALK<sup>2</sup> (Yeewong Bhutan Multimedia, 2019), which was about self-esteem and body image in Bhutan, a little girl shared how upsetting it was for her when her sister used to call her *Naley-Pem*. *Naley-Pem* is a Bhutanese pejorative name for a person who has a darker complexion. In the same show, Miss Bhutan 2008, Tsokye Tsomo Karchung, also shared that growing up, she was also called *Naley-Pem*, which made her insecure about her appearance. Yet another girl shared about how she would hide from her crush because she was teased for her supposedly "big, fat nose", firstly by her own family, and then by her friends. The insecurities, dissatisfaction and disappointment expressed by the interviewed young girls beg the question: What is the standard of beauty they hold themselves against and who decides this standard in Bhutan?

According to Nagara and Nurhajati (2022), "The emergence of a notion of 'beauty

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<sup>2</sup> This show is produced by Yeewong Bhutan Multimedia Company. Yeewong is Bhutan's first and only women's lifestyle magazine and has maintained its position as the most popular and consistent magazine in the market. (<https://loden.org/entrepreneurs/pema-choden-3/>)

standard' or 'beauty ideals' might often be discussed when we are talking about a woman's beauty from every culture." Every country worldwide has its beauty standards, which vary from one another. Beliefs and culture influence the standard and how society's perspective defines the word 'beauty'. Female beauty, in particular, has changed multiple times throughout history to adapt to the ever-changing ideologies as beauty is a social construct. For example, traditional Korean beauty was earlier average weight, or even slightly overweight, and fair skin as these represented the abundance of the wealthy, who were not required to labour under the sun (Yan & Kim, 2014). In turn, in China and Japan, the women with round and plump faces were considered beautiful. (Lotti, 2018). These examples clearly show that beauty standards are not static over time.

During a baseline study that we conducted, as part of the "HAPPY Project",<sup>3</sup> to assess the factors influencing the purchase intention of Korean cosmetics in Bhutan, it was found that, beyond product effectiveness, significant themes emerged, such as changes in lifestyles, confidence related to skin issues, and the impact of social media and societal pressure. Building upon our earlier baseline study, and focusing on college youth in Thimphu, this article offers a deeper understanding of how Korean cosmetics, as integral to global consumerism, influence their lifestyles. We then examined the connections between these lifestyles and individual confidence levels. In overall terms, we look at the impact of Korean cosmetics, and associated lifestyles, on the beauty standard. By examining the impact of Korean cosmetics on beauty standards, we further aim to shed light on the role of social media and social pressure in reinforcing these standards within Bhutanese society.

This study holds significant implications for understanding the impact of cultural globalization on beauty perceptions and the adoption of new beauty norms, with particular reference to urban Bhutan. The findings contribute to the existing body of

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<sup>3</sup> This Erasmus+ KA2 Capacity Building in Higher Education (CBHE) Project was proposed in early 2020 and successfully awarded a grant in 2020. The Project involves Bhutanese and European partners working towards developing capacity for the teaching-learning of qualitative research methods (QRM) at all colleges in Bhutan which teach social sciences and humanities programmes at the Bachelor's level. Dr. Lorraine Nencel, Associate Professor, Department of Sociology, VU University, Amsterdam guided the team to write this paper by providing valuable feedback and through feedback during research retreat conducted Oct 2023. Find out more about "HAPPY project here: <https://happy-project.eu/>

knowledge on the influence of popular culture on society and shed light on the potential implications for individuals' self-esteem, social interactions, and lifestyles. The findings of this research can also have cultural implications by letting our society understand how the physical beauty standards have been transformed with the introduction of Korean beauty standards and Korean cosmetics in our country. By examining respondents' perceptions of global consumerism and the influence of social media related to beauty, the research also contributes to discussions on societal change, identity formation, and the influence of globalisation.

Using purposive sampling, we selected 12 females studying at Royal Thimphu College (RTC) in various programmes who use or have used Korean cosmetics. We used purposive sampling, which allowed for a focused selection of respondents who met the specific criteria of being users of Korean cosmetics. Semi-structured interviews and photo elicitation methods were used to collect data on K-beauty and its impact on beauty standards from our respondents. Semi-structured interviews served as our primary data collection method to investigate the use of Korean cosmetics, and its influence on perceptions of physical beauty standards, as well as the impact of beauty influencers and social media. To supplement these interviews, we integrated photo elicitation as a supplementary technique. During this process, participants were asked to share images of individuals they considered beautiful. Many of these visual references were drawn from popular social media platforms like Instagram, TikTok, and YouTube.

Additionally, we utilised the photo-elicitation method to facilitate a comparative analysis of these images, enabling a deeper understanding of the participants' underlying beauty standards. For ethical considerations, strict measures were implemented to safeguard the anonymity and confidentiality of our participants. This involved the removal of any identifying information from the data collected, such as names, contact details, and any potentially revealing elements. Additionally, informed consent was obtained, and the respondents were assured that their information would be used solely for research purposes, further reinforcing our commitment to preserving their privacy and confidentiality.

## Korean Standards of Beauty

Korean beauty standards are known for being distinct and so high that it is almost unachievable with criteria such as double eyelids, a modest to medium-sized nose bridge, a V-line face/jawline, round shaped forehead, clear skin and porcelain white skin (Siena, & Claire, 2019). The high standards of beauty in Korea had a humble beginning when Dr David Ralph Millard, in 1953, after the Korean War, was commissioned to provide humanitarian relief in the form of plastic surgery (DiMoia, 2013). Millard's practice of facial reconstruction then gave Koreans a sense of control over facial transformation. Ever since Korea has been so competitive that people need to resort to plastic surgery to better their chances in marriage or jobs. The effort put into surgeries by an individual in Korean society means they are dedicated to performing well in terms of these standards (Leem, 2016).

In a "lookism society" where an individual's beauty influences everything, it is without a doubt that one would strive for perfection. In recent years, Korean celebrities' skin has been said to be fairer than ever and in order to achieve fairer-than-ever fairness, no blemishes, and even tone and glowy skin, most celebrities rely on Photoshop or camera applications such as SNOW, Foodie, B612, and SODA, which help modify pictures (Park and Hong, 2021). Such duped beauty ideals are then portrayed to the world, and on such beauty ideals, Korea has constructed a whole economy (Holliday & Elfving-Hwang, 2012). Similarly, despite our respondents knowing the expensive cosmetics, surgeries and editing that goes behind those poster pictures, the respondents try to conform by enhancing their own features through makeup or filters. The participants also mentioned that they do so because of the pressure to meet beauty standards and the influence of societal expectations. The following reflects some of the remarks made:

"Yes, as we live in a very judgmental society, I see many people judging people's physical appearance. I used to be pretty chubby when I was young, and then I would be teased a lot for that, and I have also tried skipping meals. However, as I grew up, I moved on from it as I was more concerned about mental health."

"The people who have influenced me have their professional makeup artist with much experience. For us, even if we try our

best to look like them with no experience, it is not a match. They also use costly creams and moisturisers as they can afford. As I cannot afford all those expensive creams, I often mix cheap creams with my makeup, so the combination does not work. However, I always try to meet the standards even if I cannot meet them."

"Yes, I feel that if the person is beautiful, they are more comfortable to face the crowd. I have noticed that most of the people who come on stage are those people who are more beautiful than others, and they also seem to be much more confident."

The enhanced importance of one's appearance in today's society has also led to a growing consumption of beauty products (Eze et al., 2012). Moreover, as stated by Fredrickson and Robert (1997), the most aggressive purveyor of sexual objectification is the mass media. Taking advantage of mass media, Korean beauty emerged as a global trend, becoming the fourth largest export country for global cosmetics (Korea Economic Daily, 2021).

## **Korean Cosmetics as a Global Consumer**

The combination of global connectivity and global consumer culture can be called globalisation. Theodore Levitt coined this term in a Harvard Business Review article that stated, "The globalisation of markets is at hand" (Levitt, 1983). Globalisation created a market in which products and services could be sold to the masses. However, globalisation is now defined as "the worldwide diffusion of practices, expansion of relations across continents, organisation of social life on a global scale, and growth of a shared global consciousness" (Holt et al., 2004).

From a sociological angle, consumerism focuses on the role of consuming lifestyles in shaping social boundaries. People use their consumption choices to create affiliations or distinctions within their social groups. Marketing plays a crucial role in this process by creating brands that individuals can identify with and remain loyal to. Through marketing strategies, products gain inner meanings that bring users of the brand together, thereby forming new social groups. While creating these groups is not marketing's primary goal, it aims to cultivate a broad base of brand loyalists.

The consumer society's identity is reflected in the lifestyle it generates, encompassing product preferences, shopping locations, fashion choices, and more. Factors like income, social class, and economic indicators also influence consumer behaviour. In an effort to enhance brand image, notions of charity and compassion are often leveraged, giving consumers a sense that their purchases make a positive impact on others (Dzurová & Paholková, 2016).

With Korean cosmetics gaining immense popularity worldwide, the beauty industry has witnessed a significant surge in global consumerism. Korean beauty products are known for their innovative formulas, appealing packaging, and emphasis on skincare. This rise can be attributed to effective marketing strategies, affordability, and the globalisation of beauty standards. The K-beauty phenomenon has transformed into a global trend, with consumers seeking out Korean skincare routines and makeup products (Shi, Z. 2020). This has led to the convergence of beauty standards. Korean cosmetics often align with the beauty ideals that have become widespread internationally, emphasising flawless skin, innovative skincare, and makeup routines. The appeal of these products lies in their ability to help consumers achieve these shared beauty standards. Our respondents have also emphasised these characteristics when asked to define beauty:

“I would describe it as someone who has a really fair complexion, has a radiant, glass skin type and then maybe with big eyes. And big mouths may be. Physical beauty is important. In a lot of ways, because when I was in middle school, looks were very important. Looks are important everywhere, not to deceive people or anything, but looks are important. Because, look says something like if we had a daughter or a son, you wouldn't want them marrying someone who's hideous, you know, we would love them to marry a person who's more beautiful, beautiful. It's just like I can't... have a particular word for it, and I can't explain it, but then I think that beauty does matter.”

The impact of Korean culture, particularly Korean beauty standards, has extended beyond the borders of South Korea and has made its presence felt in East and Southeast Asian countries, including Bhutan. This influence can be attributed to the increasing global interest in Korean pop culture products, fuelled by the accessibility

of K-dramas, music, and films through various media platforms (Lee, 2011). Bhutan, in particular, has witnessed a rise in the popularity of Korean beauty products, with a surge in demand for skincare and cosmetic items (Lhaden, 2020). Korean Pop music invaded Bhutan first, followed by Korean beauty products. Sonam Pelden, the owner of the K-Beauty store in Thimphu, said that when she restocked skincare products after the lockdown due to COVID-19, there was a long queue of customers waiting outside the shop. The influence of Korean culture in Bhutan has become increasingly evident with the emergence of physical and online stores dedicated to Korean beauty products. Bhutanese girls and women took to the K-products like fish to the water. Furthermore, by the look of it, K-Beauty and skincare craze will likely be the biggest preoccupation and business in the country (Lhaden, 2020).

The so-called "K-beauty" trend has gained popularity in recent years, and Korean brands have become known for their innovative skincare and makeup formulations. Our respondents admitted that appearance has become essential in everyday life, even though sometimes people are reluctant to acknowledge it. Korean cosmetics are expensive, and the girls (our respondents) usually spend Nu. 3000 (36.23 USD) to Nu. 5000 (60.21 USD) monthly from their pocket money (which is usually given to them either by their parents or relatives). While these amounts are substantial, they think it is worthwhile since it improves their skin. None of the respondents complained about the price, and everyone mentioned K-cosmetics' effectiveness. Global consumerism has enabled economies of scale, making Korean cosmetics more affordable for consumers in Bhutan. The availability of these products, both in physical stores and online, has made them accessible to a wider audience. As mentioned by one of the respondent:

"I don't think it is that expensive. Since, I buy everything in bulk (toner, serum, essence, moisturizers and sunscreens) and I buy it within the interval of 2 months and spend around 4000 to 6000. It costs more if I buy Korean makeup but it lasts long. I don't buy it every month and compared to other American or European brands, Korean cosmetics are quite reasonable."

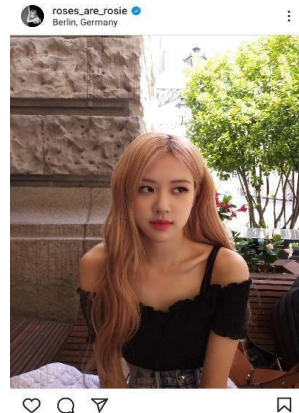
## **Background on Beauty Standard of Bhutanese Women**

Beauty standards in Bhutan are often described in Buddhist texts, poetry and songs

as mentioned by the Bhutanese elderly. According to them, the Buddhist textual description of beauty is often compared to that of a Goddess and expects beautiful women to be the depiction of the Goddess. The descriptions found in the poetry and songs are mainly metaphorical descriptions in order to please the women and seduce them. These give us the idea that beauty has been an important part of women.



Picture 1. Queen Pema Dechen in 1932. She was considered beauty icon of Bhutan. (From 1932, <https://1.bp.blogspot.com/-5tW0M829V5g/TnNpk90kV7I/A>)



Picture 2. Rosie of Black pink (K-pop idol) (Park, R., 2019)

To gain insights into the historical changes in beauty standards among Bhutanese women and how they have transformed over time, we conducted an interview with one of the language teachers at RTC, who possesses knowledge about the subject matter. On top of that, we looked at the pictures of the Bhutanese women who were considered beautiful at that time, and we asked around 4-5 elders who were all aged between 40-50 years old. According to the language teacher, Bhutan's beauty standards have changed over the years, based on his knowledge from his grandmother, parents, and people who served the 2nd and 3rd monarchs of Bhutan. He mentioned two types of beauty that were considered when they related to females in Bhutanese society. The first focused solely on the face, where a beautiful face was enough to be considered beautiful, regardless of height. The second type of beauty considered overall health, favouring individuals who were not skinny, had white skin, and prominent body features. A famous Bhutanese saying used to describe beauty is "*Za ma za dong lu ta*," (meaning, facial appearance is the outcome of how well you were fed) indicating a person's beauty based on certain criteria by looking



at their face. A woman with red cheeks on their face and a healthy body was considered beautiful compared to someone pale.

The language teacher and the other elderly we interviewed also agreed that big features and faces were considered beautiful during their ancestors' time, and individuals with dark skin and curly hair were not deemed beautiful. The royal family's beauty standards matched these ideals as well. Moreover, in the eastern region of Bhutan, beauty was associated with having a flat back head, achieved by placing new-borns on hard, flat surfaces. Additionally, oiling the hair with cow butter or shing mar (an oil extracted from a plant) was considered beautiful, while dry hair was not.

When asked about changes in the perception of physical beauty, the respondents mentioned that it varies based on location. In villages, the traditional idea of beauty remains prevalent, focusing on healthy women rather than skinny ones, which are considered unhealthy. In contrast, town areas tend to emphasise thin body features, which might be influenced by technology, globalisation, and the availability of beauty products. The respondents recalled one incident when products like "Fair and Lovely" and "Boroline"<sup>4</sup> was forcefully applied to their face to achieve a fair complexion. The language teacher further noted a shift in hairstyles, where he shared how he feels everyone prefers long straightened hair in Bhutan. "In the past women usually kept their hair short, except for the royals who had time to maintain long hair. Certain features such as double eyelids, big eyes, and long black hair were considered epitomes of Beauty in Bhutan ", he said. "Blonde and coloured hair was not the trend and was not regarded as beautiful", he added.

The analysis of our respondents' descriptions of their ideals revealed several common themes. Facial features play a significant role, with respondents admiring specific attributes like foxy eyes or big and round eyes, double eyelids, and straight eyebrows (just like the Korean idol photo no. 2 as shown by our respondents during the photo-elicitation). Fair complexion and glowing skin were often associated with beauty. Respondents also paid attention to body figures, preferring a perfect weight. The influence of makeup and styling was evident, as respondents mentioned being inspired by celebrities, influencers, and Korean beauty trends. Korean beauty

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<sup>4</sup> Both Fair Lovely and Boroline are products of India and are imported in Bhutan.

standards and cosmetics notably impacted their perceptions, mentioning the "no makeup" look and "glass skin." Personal transformations and individual preferences were also expressed, highlighting the unique perspectives on beauty.

## **Role of Social Media in the Global Consumption of Korean Cosmetics**

Social media enjoys phenomenal success in terms of adoption and usage levels in places across the globe, including Bhutan. These causes paradigm shifts in how people connect and communicate with each other, how they express and share ideas, and even how they engage with products, brands, and organisations. Moreover, social media has become a significant network of consumer knowledge (Fotis, 2015). Social media has played a vital role in the global spread of Korean cosmetics. Social media platforms like Instagram, YouTube, and TikTok are powerful marketing tools that beauty influencers and brands use to showcase and promote these products. Influencers provide reviews, tutorials, and before and after content, influencing consumers' purchasing decisions. Social media's reach and influence amplify trends, contributing to the widespread adoption of Korean beauty products.

One such example is how advertisers convey the message of what is considered beautiful. The advertisement for Fair & Lovely, a popular fairness cream in India, conveys a message of freedom and unhindered movement in public spaces. The advertisement features a woman with her face covered by a *dupatta* (veil), similar to how urban Indian women use veils to shield their faces from the sun and prevent skin darkening. The product promises to provide glowing skin without the need to cover the face. This portrayal of facial covering as resembling a veil invokes associations with the image of oppressed women and traditional practices. By linking the use of the fairness cream to discarding the veil, the advertisement cleverly suggests that consuming the product leads to freedom from patriarchal constraints and represents a progressive and empowered choice. It reframes the act of using beauty products, moving away from the perception of personal vanity, and instead positions it as a means to challenge societal norms and gain independence in public spaces (Pathak & Nichter, 2021).

Our respondents expressed being influenced by social media platforms like

Instagram and YouTube, where they were introduced to Korean cosmetics and followed beauty vloggers and influencers for recommendations and tutorials. Respondents also mentioned looking up to celebrities, influencers, and family members who embody these standards. These reflect the influence of societal beauty ideals on individual perception. Respondents emphasised the significance of clear skin and mentioned using skincare products like cleansers, moisturisers, and concealers to achieve it. They also discussed using Korean cosmetics to address skin concerns such as acne, pigmentation, and scarring. This suggests that achieving clear and healthy skin is crucial in their perception of beauty and self-confidence. They also emphasised the importance of physical appearance. One of them remarked thus:

"In many ways, physical beauty matters because when I was in middle school, looks were significant. Looks are important everywhere; not to deceive people or anything, but looks are important. Because, look says something like if we had a daughter or a son, you wouldn't want them marrying someone who's hideous, you know, we would love them to marry a person who's more beautiful, beautiful. It's just like I can't... have a particular word for it, and I can't explain it, but then I think that beauty does matter."

## **Korean Cosmetics and its Impact on the Lifestyle**

Korean cosmetics have significantly impacted the lifestyle to meet the beauty standard among women, not just in Korea but worldwide. Our literature review revealed that Korean cosmetics' impact on beauty standards has spread across China, the USA, Indonesia and Japan. Under the study we have carried out, our respondents confirmed that the use of Korean cosmetics to meet the physical beauty standard set by each one of them impacts their daily lives. Furthermore, it has become a part of their daily routine. The kind of beauty standards such as fair skin, double eyelid, and thick lips is described and demonstrated through the photo-elicitation method where our respondent showed pictures of celebrities or social media influencer who meets their ideal beauty standards, such as Jennie from Black Pink, Kylie Jenner, Lhakyila (a social influencer from Nepal), Phuntsho Kinrab, Jitshenn and Damemariika (social influencers from Bhutan). One of the critical ways that Korean cosmetics have impacted their lifestyle is through the emphasis on skincare. Korean skincare routines

often involve multiple steps, including cleansing, toning, treating and moisturising, and can take 10 to 15 minutes or more to complete. This focus on skincare as a daily ritual has encouraged our respondents to prioritise caring for their skin and has increased demand for high-quality skincare products. They also shared that before Korean cosmetics, they used products imported from India, which were easily available to us as the neighbouring country. Most respondents shared about spending at least 10 minutes in the skincare routine in the morning and even in the evening. Some even shared that spending more than 30 minutes or an hour putting on makeup has become their daily habit. The following are some of the responses we received:

"Daily, I use toner, and after toner, I use lotion, and after lotion, I apply cream, and after that, I use regular sunscreen."

"I use the Innisfree mist in order to achieve fair skin. After the makeup, I started from the beginning, I used my toner and then base a moisturiser, which is of a new brand. Did you see it, madam? Ya, it's Cosrx, the one with the transparent cover. I used that in the morning. And then there's an Innisfree cream, Jeju cherry blossom toner cream, which makes you white. And then there's the mist that I use. And then there are also some cosmetics that I use. Some of them are like the eyebrow eyebrow pencils and the Etude house eye clipper tool kit and eyeliners. Most of them are etude house brands, and in the night, I don't really have a night routine, but then sometimes when I feel like my face is getting dehydrated, I use Innisfree slipping marks."

"I would say it takes an hour. My class starts at 10 am; I wake up at around 8:30 am, wash my face and start putting on my makeup for another hour."

According to Ziteng Shi (2020), college students are also easily influenced by the opinions of friends and family. Consumerism in Korean cosmetics also depends on factors such as corporate image, brand image and self-congruity (Anggrila & Tunjungsari, 2021). Many consumers first started using Korean cosmetics because of referrals from either family or friends. However, after a period of use, some of the consumers started to research the product ingredients and their skin types to search for their skin fit (Yeng, 2018). There are also various marketing strategies which help

boost the sales of Korean products, such as loyalty schemes whereby if a customer is regular, then for every purchase, the customer will be awarded points, which later can be used for discounts or free trials for the customer to try the products, good customer services and reasonable prices (Shi, 2020). Similarly, during the interviews with the respondents, it was found that the respondents recommend and take recommendations of K-products from their friends and family, which shows that Korean cosmetics have become a common topic in daily conversations among the girls who use them. Most of the girls are self-conscious about what their peers and family say about their looks and when their friends and family share their positive experiences with some products, and our respondents have agreed that such positive remarks on products ignite the desire to improve their appearance with the suggested products.

## **Gender Norms and Beauty Standards**

Our study revealed that cosmetics contribute to reinforcing or challenging gender norms and beauty standards. Our respondents variously share that they use Korean cosmetics to express themselves, experiment with their appearance, and assert their individuality beyond prescribed gender expectations. Through the use of social media, our respondent has also been religiously following make-up artists and influencers who we believe often showcase diverse gender expressions, encouraging others to embrace their unique beauty.

While interviewing, we observed that ambivalence can arise from the tension between using cosmetics as a form of self-expression and the pressure to conform to societal beauty standards. Individuals may question how much of their cosmetics use aligns with their desire for self-expression versus their desire to fit into gendered beauty norms. Ambivalence in the context of gender and cosmetics reflects the complex interplay of personal identity, societal expectations, and self-expression. The use of cosmetics can evoke mixed emotions and attitudes, highlighting the need for open dialogue, understanding, and acceptance of diverse gender identities and expressions.

Cosmetics empower individuals to express their gender identity and creativity. It allows them to redefine beauty on their terms, regardless of societal expectations. For

many, using cosmetics is a form of self-expression and a way to communicate their gender identity authentically. Beauty is very subjective, therefore, in this article, we are only talking about physical beauty and what kind of standard is set by each of them through using Korean cosmetics and social media. Two of our respondents thus expressed:

"Yes, if we are beautiful, then we also feel included in many social groups, and then if we are not pretty, then it is also difficult to find/get a friend. According to me, especially in Bhutan, one needs to be fair skin with a white tone; then, people don't dare tease them and make fun of them on their faces. Whereas people with dark skin like me, we are often teased and made fun of. It also affects us mentally to some extent."

"Yes, on the day when I don't get time to do my makeup, I don't even feel like coming to college and showing up also, my classmates would always tell me I look very different when I don't wear my makeup."

Historically, gender norms have heavily influenced beauty standards, dictating how individuals should present themselves based on their gender. However, the rise of gender inclusivity and awareness has challenged traditional norms. Beauty standards are evolving to embrace diverse gender identities, encouraging self-expression regardless of societal expectations. The beauty industry is gradually moving towards inclusivity, showcasing individuals of various genders in advertising and product lines.

## **Discussion and Conclusion**

The findings of this study underscore the interplay between global consumer culture, beauty standards, and the influence of Korean cosmetics on the perceptions of beauty among Bhutanese women. The exploration reveals that the impact of cultural globalisation, particularly through the popularity of Korean beauty products, has significantly shaped the beauty standards and lifestyles of the respondents. The notion that beauty standards are dynamic and subject to cultural shifts is evident, both historically and in the contemporary context of Bhutan. The impact of Korean beauty standards is not just limited to physical appearance but extends to lifestyle

choices. The study highlights how the adoption of Korean cosmetics has become an integral part of daily routines, with respondents dedicating significant time and resources to achieve the beauty standards set by both societal expectations and personal preferences. The emphasis on skincare, the meticulous application of makeup, and the reliance on specific beauty products contribute to a lifestyle shaped by the influence of global consumerism.

Moreover, the role of social media, especially platforms like Instagram, TikTok and YouTube, emerges as a factor in shaping beauty perceptions. The constant exposure to curated images and beauty influencers on these platforms creates a standard of beauty that is often unrealistic and contributes to self-comparison, feelings of inferiority, and societal pressures. The participant's acknowledgement of the digital manipulation of images underscores the need for a critical understanding of the mediated nature of beauty standards. The study also sheds light on the intricate relationship between beauty standards, self-esteem, and societal expectations. The participants' narratives reveal that the pursuit of beauty is not only driven by personal choice but is also influenced by societal judgments and the desire for social acceptance. The emphasis on physical appearance as a determinant of confidence and societal recognition highlights the need for a nuanced understanding of the psychological and social implications of beauty standards.

This study contributes insights into the transformative impact of global consumer culture, specifically through Korean cosmetics, on the beauty standards and lifestyles of Bhutanese women. The evolving nature of beauty ideals, the role of social media, and the interplay of personal agency and societal expectations provide a comprehensive understanding of the complex dynamics surrounding perceptions of beauty in the context of cultural globalisation. Recognizing these dynamics is crucial for fostering a more inclusive and nuanced discourse around beauty, self-expression, and identity in Bhutanese society.

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# Assessing Vegetation Dynamics in Lingzhi Using Normalized Difference Vegetation Index (NDVI)

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THINLEY DEMA<sup>1</sup>

**Abstract:** The assessment of vegetation dynamics using the Normalized Difference Vegetation Index (NDVI) is crucial for the development of effective strategies for biodiversity conservation and management. Using Landsat images, this article investigates the vegetation dynamics in the Bhutan highlands of Lingzhi between 2010 and 2021. The NDVI measurements were classified into five categories, and NDVI differencing was used to determine vegetation changes over time. The main objective of the study was to assess vegetation fluctuation, which assists in the investigation of anthropogenic pressure, deforestation, urban development, natural disasters, and regular landscape changes over time. The article discovered a decline in the moderate vegetation class, which was ascribed to grassland nationalization, the legality and regularization of cordyceps collection, and a decrease in illicit cordyceps harvesting. The results highlight the need to adopt image recognition methods and the NDVI index to understand forest changes. These findings can help planners and decision-makers steer sustainable land development in similar places.

**Keywords:** Normalized Difference Vegetation Index, anthropogenic pressures, cordyceps, Bhutan highlands, sustainability.

## Introduction

Thimphu Dzongkhag comprises eight administrative districts (*Gewog*), namely Chang, Kawang, Dagala, Genekha, Mewang, Lingzhi, Soe, and Naro (National Statistics Bureau, 2020). The focus of this study is Lingzhi *Gewog*, located in the northern part of Bhutan and recognized for its spectacular snow-capped mountains, grasslands (*tsamdro*), stunning lakes, and an environment that is often considered pristine. Lingzhips, as inhabitants of Lingzhi are referred to, are dominantly

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associated with the yak-herding tradition in Bhutan’s northern belt (Wouters, 2021). Many of them still herd yaks, even as in recent years the highlands witnessed the emergence of secondary employment sectors, including that of medicinal plants (Choki, 2021).

Ethnographic research is a part of this study, which incorporates three months of fieldwork in the highlands. Data collection involved face-to-face and telephone interviews, field observations, the review of extant literature, and a snowball sampling approach. The sample comprised 39 individuals, ranging in age from 20 to 102, with 18 females and 21 males. The study employed purposive field sampling to collect data, with 35 face-to-face interviews and 4 telephone interviews conducted (Table 1).

The study area, Lingzhi, encompasses a substantial geographical area but exhibits significant variation in altitude, complex topography, and diverse land cover. Since 1995, the entire Lingzhi administrative district has been within the Jigme Dorji National Park. The altitude ranges from 6400 to 3280 meters above sea level (masl), covering a total area of 38678.9 hectares, with a forest cover of 9.47% and a total forest area of 7116.48 acres (National Statistics Bureau [NSB], 2020; Ministry of Agriculture & Forest [MoAF], 2009). Lingzhi Gewog is situated 92 km away from Thimphu district, housing 94 houses and a population of 490 people. The Gewog comprises five Chiwogs and 12 villages.

*Table 1: Socioeconomic background of the participants*

Sl. No.	Category	Specific	Total
1	Gender	Male	21
		Female	18
		Total	39
2	Age group	Below 40	13
		40-60	8

		Above 60	18
3	Education	Literate	6
		Illiterate	33
4	Location	Chakphu	6
		Gangyuel	11
		Shayuel	9
		Chuzakhar	8
		Khangkidyuel	5
5	Altitude	4100 masl	6
		3900 masl	33

The vegetation in the study area lacks detailed ecological or meteorological data. However, it consists of scattered shrubs of alpine scrub, including Juniper scrub at lower elevations, as well as Rhododendron shrubs with various species mixed with Primula and *Bryocarpum himalacum*. Coniferous forests and cool temperate mixed broadleaf forests are abundant on north-facing slopes, while grasslands dominate south-facing slopes (Lakey & Dorji, 2016; Ohsawa, 1987). Conifer trees like *Larix griffithiana*, *Cupressus cornetana*, and *Picea spinulosa* can be found in the cool temperate mixed broadleaf between 2480 and 3355 masl (Yeshe et al., 2021; Wangchuk et al., 2020). The forest boundary overlaps with the lower limit of extensive Rhododendron scrub, indicating the expansion of Abies forest understory trees. In addition to yak-herding, the local communities rely on the sale of cordyceps, which is an insect fungus that fetches higher prices in the international market for its medicinal properties (Choki, 2021). The local economy is mostly based on yak herding and cordyceps collection, with most community members spending the winter in their villages and the summer on high-altitude grazing pastures, where they reside in temporary camps (Lakey & Dorji, 2016).

Since the mid-2000s, the geographical region under consideration has undergone a persistent wave of developmental activities as documented by the Ministry of Agriculture and Forestry (MoAF, 2009). These pronounced fluctuations and developmental trends have exerted consequential effects on the dynamics of vegetation and the accessibility of resources for the community in this region. The peak of the cumulatively increasing developmental trend resulted in a large-scale vegetation change (Lahkar, 2008). By the same effect, it was noticed that during the subsequent 2010-2021 period, a drastic change in vegetation continued. Throughout history, fluctuations in forest cover have largely been affected by development of the region.

In recent years, there has been an observable decline in vegetation cover within this region, as indicated by the National Statistics Bureau (NSB, 2020). The methodology employed in data collection for this study includes the utilization of Landsat Thematic Mapper (TM) and Landsat Enhanced Thematic Mapper Plus (ETM+) Operational Land Imager (OLI) satellite imagery, acquired from the United States Geological Survey (USGS) website, to examine the variability and trends in land surface conditions within the Lingzhi area, with a specific focus on vegetation index data (see Table 2). The selected Landsat imagery possesses a temporal resolution of one image per year, with acquisitions dated November 4, 2010, and November 4, 2021, chosen due to their minimal cloud cover and snow interference, rendering them suitable for Normalized Difference Vegetation Index (NDVI) computation.

Nevertheless, it is essential to acknowledge that more frequent data acquisitions at intermediate intervals could provide a more holistic comprehension of vegetation dynamics and alterations in land cover. The restricted temporal scope of the current dataset may fail to capture short-term vegetative transformations or phenological variances occurring within the growth season. For the accurate assessment of vegetation dynamics, higher-resolution imagery (Gilani et al., 2015) or Land Use/Land Cover (LULC) data would be the preferred choice however, such data resources were not available for the study area, hence requiring the utilization of medium-resolution Landsat images characterized by minimal snow coverage, negligible cloud presence, and limited atmospheric contaminants such as haze, aerosols, and water vapor. Despite the application of atmospheric correction techniques, residual atmospheric interference remains a potential source of

uncertainty in the NDVI calculations.

*Table 2: Satellite imagery used.*

Satellite/sensor	Date	Path	Row
Landsat TM 5	November 04, 2010	138	041
Landsat 8	November 04, 2021	138	041

## Normalized Difference Vegetation Index

The assessment of vegetation dynamics using the Normalized Difference Vegetation Index (NDVI) and analysis of land cover changes are critical for understanding environmental changes, biodiversity conservation, and sustainable land use. This article investigates the vegetation dynamics in Lingzhi, Bhutan, between 2010 and 2021, focusing on the application of NDVI analysis to study land cover changes and the associated environmental factors. Numerous studies have demonstrated the significance of NDVI as a reliable indicator of vegetation dynamics and ecosystem health (Pettorelli et al., 2011). NDVI, calculated from satellite imagery using the near-infrared (NIR) and visible red (RED) reflectance bands, provides a quantitative measure of vegetation greenness and density. It has been widely used to monitor changes in vegetation cover, assess land degradation, and identify trends in ecosystem productivity. NDVI analysis has proven valuable in conservation planning and land management efforts. Studies by Pettorelli et al. (2011) and Taddeo et al. (2019) demonstrated the utility of NDVI in monitoring habitat fragmentation, detecting ecosystem disturbances, and guiding conservation interventions. Additionally, the application of NDVI in assessing the impact of policy changes on vegetation, such as grassland nationalization in Bhutan, has been demonstrated by Singh et al. (2005).

Over the years, advancements in remote sensing technology and image processing techniques have improved the accuracy and precision of NDVI analysis. Researchers have explored the use of high-resolution satellite data, such as Sentinel-2 and Planet Scope imagery, to capture fine-scale changes in vegetation (Gislason et al., 2006). Furthermore, machine learning algorithms and deep learning techniques have been

applied to enhance image recognition and classification (Rai et al., 2018), providing opportunities for more sophisticated vegetation dynamics assessments.

A similar study was carried out in Haa and Phobjikha valley to investigate vegetation dynamics utilizing Landsat NDVI data and identified the drivers of vegetation changes, including agricultural expansion and urban development (Chaudhary et al. 2017). Kafle (2015) examined vegetation dynamics in the Himalayan region of Nepal, which shares similarities with Lingzhi in terms of mountainous terrain and vegetation types. The research employed time-series NDVI data to understand the impact of land use changes on forest cover and biodiversity and found that urban development was the main drivers of vegetation changes. Choudhury et al. (2021) conducted a land cover change analysis in the Sikkim region of India, which has similar ecological characteristics to Lingzhi. The study used Landsat imagery and classification techniques to identify changes in forest cover, agriculture, and urbanization. The research used NDVI and supervised classification methods to detect urbanization, anthropogenic activity, and land cover changes and their drivers.

The literature review provides a theoretical background for the research on vegetation dynamics, NDVI analysis, and land cover changes in Lingzhi, Bhutan. It establishes the context of the study by drawing on relevant research conducted in similar regions with comparable ecological characteristics. By incorporating insights from these studies, the research can better contextualize its findings and contribute to broader knowledge on environmental change and sustainable land management in high-altitude regions. The NDVI approach is used to extract the various features present in the Lingzhi administrative district's 3-band satellite image. One of the most significant biophysical markers for determining the distribution and patterns of green vegetation is vegetation cover. From the equation, NDVI is calculated as:

*Figure 1: Equation*

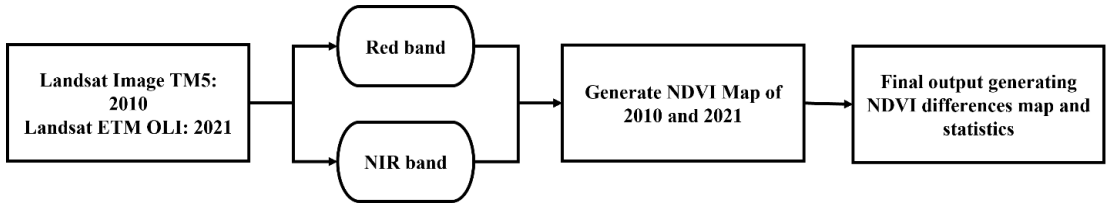
**NDVI calculation**

$$NDVI = \frac{NIR - Red}{NIR + Red}$$

In this calculation, RED is visible red reflectance (600-700 nm) and NIR is near-infrared reflectance (750-1300 nm). The NDVI image was used to check the spectral

signature of the vegetation, the changes in vegetation, and the dynamics of the land use/ land cover (LULC).

*Figure 2: Operational processes to generate NDVI maps and NDVI differentiating.*



In this study, the NDVI threshold for change detection was established to classify the vegetation into different categories and identify significant changes over time. The threshold selection process involved two main steps: (1) ignoring values between -1 and 0, and (2) using statistics from the mean and standard deviation of NDVI images for each year to determine the threshold values. NDVI values range from -1 to 1, where negative values represent non-vegetated areas, zero represents areas with no green vegetation, and positive values indicate the presence of vegetation. Since NDVI values between -1 and 0 do not correspond to any meaningful vegetation, they were ignored during the change detection process. To set the threshold for change detection, the mean and standard deviation of NDVI values for each year were calculated. The threshold was then determined based on a certain number of standard deviations from the mean. The rationale behind this approach is to identify significant changes in vegetation that deviate from the normal variation.

The choice of threshold was based on the need to strike a balance between sensitivity to change and reducing false positives or negatives. A threshold that is too low may result in excessive detection of changes, including minor fluctuations or noise in the data, leading to false positives. On the other hand, a threshold that is too high may miss genuine changes, leading to false negatives. By using the mean and standard deviation, the threshold was selected to encompass a range of NDVI values that are likely to represent meaningful changes in vegetation cover (Anyamba, et al., 2005). This approach ensures that only significant changes in vegetation, beyond the typical year-to-year variation, are identified as a result of the analysis.

To assess the sensitivity of the results to the chosen threshold, a sensitivity analysis



could be performed by varying the threshold value and observing its impact on the detected changes. This analysis would help to understand how different threshold values influence the extent and magnitude of detected changes. Furthermore, comparing the results of the change detection analysis with ground truth data or other independent sources of information can provide additional validation of the chosen threshold. If possible, validation through ground truth data would help determine the accuracy and reliability of the change detection process.

## Analysis and NDVI Map classes for 2010-2021

NDVI differencing and post-classification comparison were used to analyze the vegetation changes over time in Lingzhi. These methods are commonly used in remote sensing studies to detect and quantify changes in land cover and vegetation over time (Singh et al., 2005). In this study, the aim was to assess the changes in vegetation cover between the years 2010 and 2021. Post-classification comparison involves comparing the classified land cover maps of different periods to identify changes in vegetation classes. For this study, land cover maps were generated based on the NDVI classification results for the years 2010 and 2021 (Figures 3 and 4). The land cover classes were categorized as dense vegetation, high vegetation, moderate vegetation, sparse vegetation, and non-vegetation.

*Figure 3: NDVI map of Lingzhi 2010*

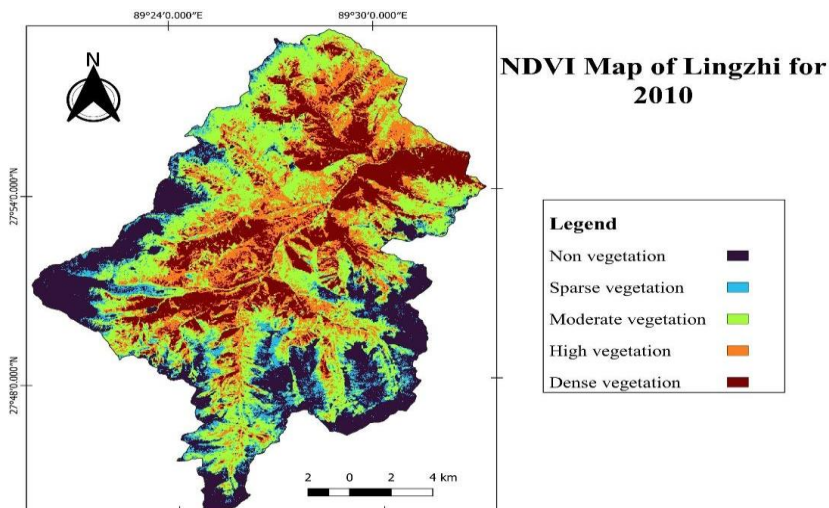
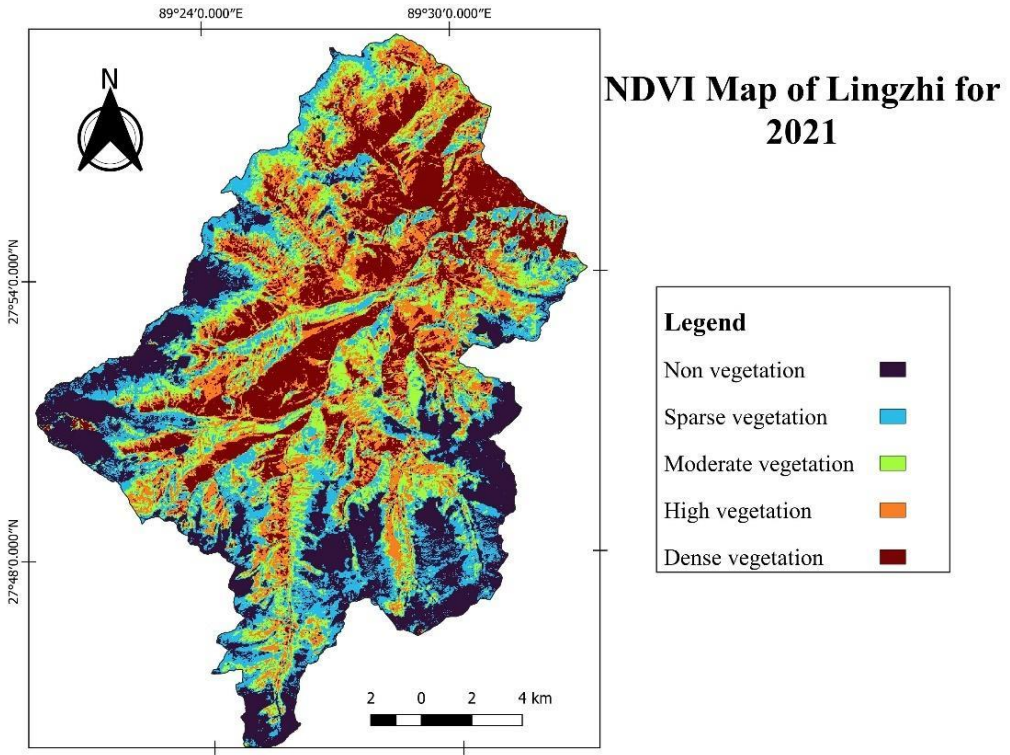


Figure 4: NDVI map of Lingzhi 2021



The comparison of the land cover maps revealed notable changes in vegetation patterns within the study area (see Table 3 and Figure 5 below). The moderate vegetation class showed a decline from 2010 (96,759 ha) to 2021 (60,892.2 ha). This decrease can be attributed to various factors, including the nationalization of grasslands, climate change, the legalization and regulation of cordyceps collection, and a reduction in illegal cordyceps harvesting. These findings suggest that the implementation of policies and regulations (Hazell & Wood, 2008) has influenced the vegetation dynamics in Lingzhi. The Land Act of Bhutan 2007 nationalized the highlander's grassland which were previously owned by private individuals or communities through acquisition of the land. The government now controls the grassland, leading to a significant change in grassland use (Royal Government of Bhutan [RGoB], 2007; Dhakal, 2018). Later, the government exclusively leased the grasslands to the residents which has resulted in significant increase in land use. It should be noted that at this time, the full impact of nationalization of grasslands cannot be assessed and will require more time.

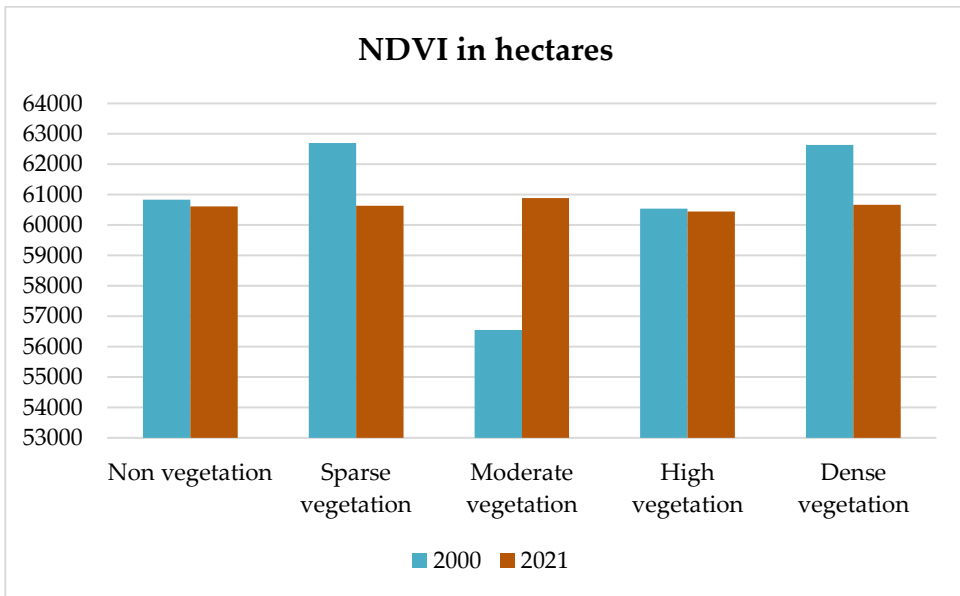
However, unsustainable practices such as exploitation of natural resources (non-wood products and wood products), seasonal migration, unsustainable tourism, and leaving the dunged areas open by the locals have resulted in a decline in vegetation, worsened by climate change and uncontrolled burning. The reduction in grassland has shifted the ecosystem towards less productive plant species. Clearly, the change in land ownership and practices has led to a decrease in vegetation growth in the area. The nationalization of the grasslands owned by highlanders has resulted in a decrease in vegetation growth due to unsustainable practices and climate change. Additionally, the legalization of cordyceps collection and construction activities has also contributed to the decline in vegetation. Overall, these factors have led to a noticeable reduction in vegetation in the area, requiring attention for ecological restoration.

Furthermore, the analysis indicated an increase in the sparse vegetation class from 2010 (24,849.9 ha) to 2021 (60,638.4 ha). This expansion of sparse vegetation may be associated with factors such as settlement expansion, the renovation of the Lingzhi fortress, and the introduction of prisoners for construction activities. These findings highlight the impact of human activities and infrastructure development on the vegetation dynamics in the region. The non-vegetation class exhibited relatively stable trends over the years, with minor changes observed from 1991 to 2021. This indicates that non-vegetated areas, such as barren lands and built-up areas, have remained relatively constant in Lingzhi.

*Table 33: NDVI in hectares*

Class	2010	2021
Non-vegetation	60678.9	60618.6
Sparse vegetation	24849.9	60638.4
Moderate vegetation	96759	60892.2
High vegetation	62199.9	60441.3
Dense vegetation	58768.2	60665.4

*Figure 5: NDVI pattern in hectares*



## NDVI differencing

Changes in LULC have a significant impact on global climate change. Developmental activities such as urbanization, infrastructure, and industries can lead to deforestation, encroachment, fire, plantations, mega-dams, reclamation, water logging, agriculture, shifting cultivation, and other developmental variables to detect NDVI changes. NDVI shows the vegetation index and displays the increase and decrease in vegetation (Singh et al., 2005). NDVI distinguishes vegetation from other land cover and determines its overall status. It enables the mapping of vegetated regions as well as the detection of anomalous alterations in the growth process (Hazell & Wood, 2008). It assesses the status and health of the plants by measuring biomass. It is also fast and accurate in estimating vegetation losses induced by extreme weather, drought, exploitation, and anthropogenic activities. The disadvantage of NDVI is that its high vegetation content makes differentiating between moderately high and high vegetation difficult; hence, during categorization in 2010, the vegetation change was particularly high in comparison to prior years. The georeferencing process is a crucial step in remote sensing studies as it ensures that satellite imagery is accurately aligned with real-world geographic coordinates.

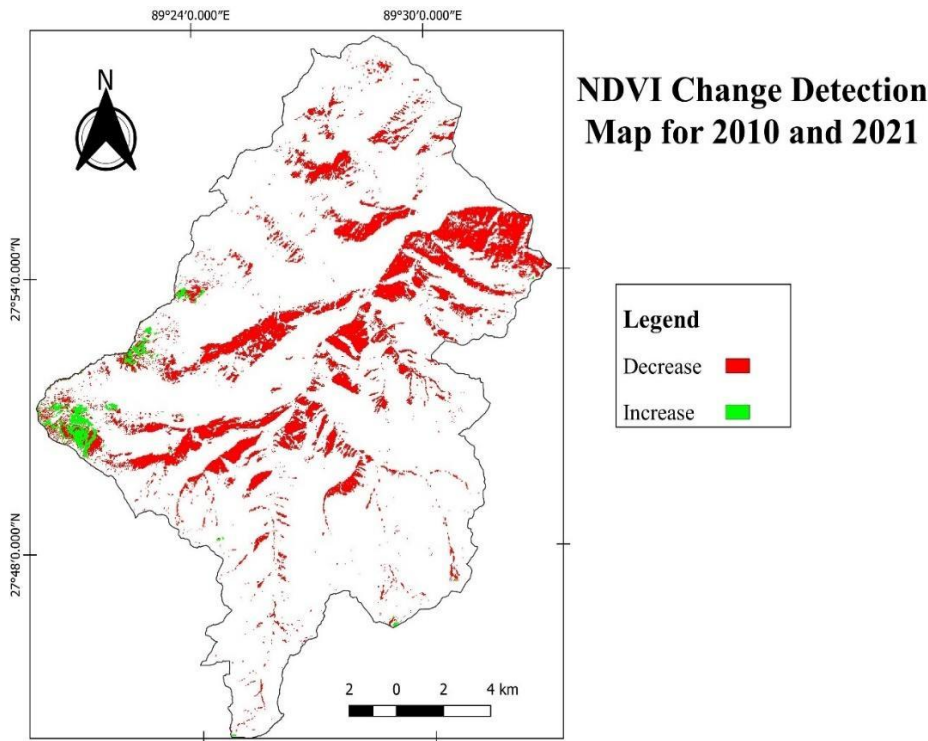
In this study, the Landsat TM and Landsat ETM OLI satellite images were georeferenced using Ground Control Points (GCPs) collected from known locations on the Earth's surface. The georeferencing was performed using robust transformation methods to minimize spatial distortions. Despite the careful georeferencing process, certain errors and uncertainties can still affect the spatial accuracy of the remote sensing data used in the analysis. Some of these potential issues include the accuracy of georeferencing heavily relies on the selection of appropriate GCPs. Errors in GCP selection, such as misidentifying locations or using inaccurate coordinates, introduced inaccuracies into the geospatial information. However, ground truth validation was conducted to verify the accuracy of the georeferenced data and to assess the spatial agreement between satellite imagery and on-ground measurements. Lingzhi's mountainous terrain poses challenges for accurate georeferencing due to variations in topography. Steep slopes and rugged terrain may result in distortions, especially in regions with limited GCP coverage. Geolocation errors in the satellite imagery, caused by sensor inaccuracies or orbital variations, can lead to misalignments between image pixels and geographic coordinates, affecting the overall spatial accuracy. Atmospheric conditions, such as aerosol scattering and water vapor content, can introduce uncertainties in the radiometric calibration of satellite images, potentially impacting the derived NDVI values and vegetation classifications.

## **NDVI differencing for 2010-2021**

The NDVI map was analyzed to quantify vegetation change in the Lingzhi administrative district's landscape. One NDVI change detection map, as shown in Figure 6, was created to understand the landscape and vegetation dynamics of the study area. The main objective of using NDVI was to highlight changes in vegetation in time series data because NDVI data has minimal air disturbance and bias and is free from classification subjectivities. Only vegetation increase and decrease were evaluated since they would aid in analyzing anthropogenic pressure, deforestation, urban expansion, the influence of natural catastrophes, and normal landscape change through time. The NDVI changes due to changes in the spectral signature of the vegetation. NDVI differencing, is sensitive to temporal variations in vegetation, making it susceptible to seasonal changes and intra-annual fluctuations. Moreover, NDVI differencing may not effectively discriminate between different vegetation

classes, particularly in areas with high vegetation content, leading to challenges in accurately identifying changes.

Figure 61: NDVI change detection map for 2010-2021



The Lingzhi NDVI map change detection study demonstrates a change in landscape. According to Table 4, the highest negative change is noted from 2010 to 2021 (40688.1 ha), which may be attributed to an increase in settlements, electricity, fortress restoration, the import of prisoners as laborers in the study area, changes in snow cover, changes in spectral signature, and vegetation loss.

Table 44: NDVI change detection representing the decrease and increase of six maps.

Class	2010-2021
Decrease	40688.1
Increase	2444.4

There is a drastic change in vegetation, which may be attributed to the rebuilding of

the *Yügyal Dzong* (fortress) in Lingzhi in 2005 (image of the *Yügyal Dzong* in image 7). About 300 prisoners were relocated there in 2010 or 2015 for construction, which may have degraded the natural environment. Construction alone has an impact on the environment, as does transporting raw materials. The prisoners were housed in a neighboring grassland region, and they may have utilized fodder, putting more pressure on the natural resources.



*Image 1: Picture of Yügyal Dzong in Lingzhi during November (Photo: Thinley Dema)*

The development of the area required considerable tree-cutting for construction purposes, which is a source of debate in the village. According to oral history, these trees in Lingzhi are the physical manifestations of the Great Tibetan Lama Zhabdrung Ngawang Namgyel's guardians, so cutting down these trees is frowned upon in *Cheybeysa* (village). This idea depicts a conflict between materialists and religious people (Dema, 2021). The homes were likewise well-furnished, and even the furniture is adorned with traditional sculptures, making it impossible to distinguish the altars from regular shelves. Highlanders would cut a growing number of trees to build these houses. However, there is a tension between the spiritual and historical value of these trees and the legislation prohibiting their removal. Bhutan's strong



environmental consciousness is demonstrated by the view that portions of the environment, such as sacred sites, cliffs, and lakes, are not available as resources to be exploited (Ura, 2001; Wouters and Dema, forthcoming). In contrast, as the number of houses being built increases, it has become unavoidable for highlanders to cut down trees. People have also begun to dig additional ground to drill foundations, destroying many rocks in the process. All these behaviors are supposed to provoke the local deities (Wouters, 2023).

## **Linking Research Findings to Policy Recommendations**

The research findings on vegetation dynamics in Lingzhi, Bhutan, provide valuable insights into the state of the region's natural resources and the impact of various drivers of change. These insights have significant implications for policy development and decision-making aimed at biodiversity conservation, sustainable land use, and community livelihood improvement. Based on the research findings, the following policy recommendations are suggested.

The first recommendation underscores the need to intensify conservation efforts in Lingzhi, particularly in response to the diminishing moderate vegetation class. This involves measures to safeguard and restore deteriorated grasslands, forests, and alpine scrub habitats. It also advocates for enhanced monitoring and enforcement of Jigme Dorji National Park's regulations to safeguard vital habitats and curb illicit activities that further threaten vegetation. Additionally, biodiversity assessments are recommended to pinpoint ecologically sensitive zones and prioritize conservation strategies for safeguarding the region's distinctive flora and fauna.

The second recommendation centers on promoting sustainable land use practices in grasslands, striking a balance between the livelihood requirements of highlanders and ecological preservation. It encourages strategies like rotational grazing and sustainable resource harvesting to prevent overexploitation and degradation. Moreover, it calls for the development of land use plans that consider ecological carrying capacities and the promotion of agroforestry practices to bolster vegetation cover while supporting local livelihoods.

The third recommendation seeks to improve community livelihoods and socio-



economic development. This involves launching capacity-building programs to enhance highlanders' expertise in sustainable land management practices and diversifying income sources beyond cordyceps collection and yak herding. Initiatives such as eco-tourism and sustainable use of non-timber forest products are explored as means to reduce dependence on cordyceps harvesting. The promotion of community-based conservation efforts that empower local communities in decision-making processes and ensure equitable benefits from conservation endeavors is also emphasized.

The fourth recommendation urges the conduct of vulnerability assessments to understand climate change's potential impact on vegetation dynamics and identify adaptation strategies for the region. Climate-resilient practices, including afforestation, reforestation, and soil conservation, are proposed to bolster ecosystem resilience against climate-induced disturbances.

These recommendations aim to strike a harmonious balance between environmental preservation, sustainable land use, and the enhancement of community livelihoods in Lingzhi. By integrating these policy recommendations, stakeholders can work collaboratively to safeguard the region's exceptional biodiversity, boost resilience against environmental shifts, and promote sustainable development for both current and future generations.

## **Limitations of the Study**

The data collection process in remote sensing studies can introduce several limitations that may impact the accuracy and reliability of the results. Cloud Cover and Snow Interference was prevalent in Lingzhi, as it is a mountainous region, prone to cloud cover and snow during certain periods, which can hinder the acquisition of cloud-free and snow-free satellite images. This limitation led to data gaps and inconsistencies in the analysis. The availability of satellite imagery with suitable temporal resolution was one of the limitations, especially in areas with frequent cloud cover. The availability of satellite imagery with suitable temporal resolution was one of the limitations, especially in areas with frequent cloud cover.

In this study, I utilized Landsat TM and Landsat ETM OLI images with a temporal

gap of 11 years. A longer temporal gap may overlook short-term vegetation fluctuations. 11-year temporal gap might not capture short-term fluctuations in vegetation dynamics. Future studies could benefit from employing satellite data with higher temporal resolution to monitor more frequent changes in vegetation cover over time. The spatial resolution of Landsat data (30 meters) used in this study may not fully capture fine-scale changes in land cover. Utilizing imagery with higher spatial resolution, such as Sentinel-2 or commercial high-resolution satellites, would provide more detailed insights into vegetation dynamics at a local scale. Due to the challenging terrain and remoteness of the study area, ground truth validation of vegetation changes was not conducted. Including ground-based data collection and validation techniques, such as field surveys or drone imagery, in future research would improve the accuracy and reliability of the analysis. The choice of the NDVI threshold for change detection introduces subjectivity. Future studies should explore alternative methods, such as data-driven approaches or machine learning algorithms, to objectively determine optimal threshold values. The study lacks detailed ecological or meteorological data, which could have provided additional context for understanding vegetation dynamics. Integrating ancillary data, such as climate variables and topographic characteristics, would enhance the comprehensiveness of the analysis.

## **Future Research Directions**

Conducting long-term monitoring of vegetation dynamics in Lingzhi and other similar regions would facilitate a deeper understanding of vegetation trends, including the impact of climate change, anthropogenic activities, and conservation efforts. Investigate the specific drivers of vegetation change in the study area by incorporating socio-economic data, land use policies, and human activities. This could provide valuable insights into the causal factors behind observed vegetation fluctuations. Analyze the impact of land use changes on landscape fragmentation and connectivity to understand how human activities affect ecological corridors and biodiversity conservation. Combine data from multiple sensors, including optical and radar imagery, to complement the analysis and overcome limitations related to cloud cover and snow interference. Engage local communities and stakeholders in participatory research to gain insights into their perceptions of vegetation changes, the effectiveness of conservation policies, and their adaptation strategies in response

to environmental shifts. Conduct an ecosystem services assessment to understand the benefits provided by the various land covers and how changes in vegetation affect ecosystem functions, such as carbon sequestration, water regulation, and habitat provision. Assess the effectiveness of ecological restoration efforts, such as afforestation and reforestation programs, to mitigate the impacts of land use changes and promote sustainable land management. By addressing these limitations and pursuing these future research directions, we can advance our understanding of vegetation dynamics in Lingzhi and other ecologically sensitive regions. Such research outcomes will have significant implications for biodiversity conservation, sustainable land development, and informed decision-making in the face of environmental change.

## **Conclusion**

The article contributes to a broader understanding of environmental changes and sustainable land management in high-altitude regions, with implications for policy development and decision-making. The findings underline the importance of proactive conservation strategies and sustainable land use practices in maintaining the ecological integrity of Lingzhi and similar regions, as well as the importance of engaging local communities in these efforts. The objective of this study was to perform NDVI to assess the vegetation dynamics in Lingzhi over 11 years, from 2010 to 2021, in order to comprehend environmental changes. NDVI differencing was also performed on all two-time series to get an unbiased and minimal atmospheric distortion while analysing vegetation in the study area. Vegetation changes were assessed in the study since they would aid in analyzing anthropogenic pressure, deforestation, urban expansion, the influence of natural catastrophes, and normal landscape change through time. The results for NDVI also show changes in vegetation cover, which are caused by anthropogenic pressure, socio-economic development, and policies. The increased transportation of raw materials, the introduction of labourers for the construction of the fortress, and the construction of schools have all had a severe influence on grassland regions. Other reasons, such as the placement of communications towers near villages and the use of its branches as fuel by highlanders, have had an influence on the vegetation cover. In some areas, vegetation has grown due to the national park declaration and nationalization of

grassland. Grassland degradation is due to digging of the soil for collection and trampling when they crawl to search for cordyceps. This study serves as a foundation for informed actions that will not only benefit the environment but also the well-being of the people who call this region home.

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# Preserving Traditional Medicinal Knowledge and its Transmission in Dorokha, Samtse, Bhutan

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**Abstract:** Traditional ecological knowledge is often specific to a particular place or ecosystem and is deeply rooted in cultural and spiritual beliefs. It can be a valuable resource for the conservation and management of natural resources. It provides insight into the dynamics of ecosystems and impacts of human activities on the environment. Despite its potential benefits, it is often undervalued and marginalized in mainstream conservation and management efforts. To evaluate the status of traditional ecological knowledge, with special attention to traditional medicinal knowledge, this study was carried out in Dorokha *Dungkhag*, and data was collected through face-to-face interview. The result indicates that there is slow loss of local traditional knowledge because of several factors.

**Keywords:** Knowledge sharing, tradition, resource, ethnobotany, Dorokha, Bhutan.

## Introduction

Bhutan's wildlife management is based on the principles of Buddhism, where humans exist in harmony with nature. Another principle is strong government regulation focused on development for the people and the well-being of flora and fauna. The Middle Path, the national environment strategy of Bhutan, which was formed in 1997, explicitly links environmental resource management to the preservation of culture, values, lifestyle, and traditions (Nepal, 2022a). The Middle Path seeks to formulate policies and laws by keeping an eye on the use of natural resources and the citizen's demand for material development without diminishing the quality of the resource base. Gross National Happiness (GNH) pillars and domains are the guiding light for Bhutan while formulating environmental policies, which ultimately are linked to sustainable development goals (Dema, 2021).

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Unlike many other Himalayan places where forests are typically fragmented and surrounded by farming, Bhutan's forests are vast, complete, and rarely disrupted by anthropogenic activities (Zurick, 2006). Bhutan has avoided major forest destruction, with roughly three-fourths of its land covered in forest. The degree of forest cover exceeds the government's intended 60% minimum coverage target under the constitution. Nonetheless, animal grazing, fuelwood cutting, and commercial resource exploitation threaten forest areas in some densely inhabited areas, such as the southern foothills (Kobayashi, 2022).

Traditional Ecological Knowledge (TEK) refers to a knowledge system passed from one generation to another through direct contact with nature (Inglis, 1993). It is based on communities' experience of interaction with the environment and usually transmitted in the form of stories. However, the concept gained popularity in the 1980s. TEK is also referred to as Indigenous Knowledge and Native Science. When the interaction between humans and the environment is examined, TEK is comprehensive. TEK perspective emphasizes the philosophical concept of holism, which maintains that natural systems (social, mental, economic, linguistic, chemical, biological, physical, and so on) and their qualities are intertwined and should be viewed as a whole, not in parts (Oshry, 2008). It draws on Smuts' (1936) early works, which argued that parts of a whole are closely integrated to the point where they cannot exist independently. TEK is thus the comprehensive knowledge of accumulated encounters, insights, and one-of-a-kind contributions to societies, cultures, and networks of humans living in a close relationship of balance and serenity (Haverkort & Reijntjes, 2010).

TEK is described as having a deeper understanding of identity and culture (Semali & Kincheloe, 1999); at once intuitive, spiritual, and philosophical (Berkes, 2008); and spontaneous, non-dualistic, dynamic, and occasionally sacred or intimate (Semali & Kincheloe, 1999). Native peoples worldwide have their TEK and practice it. TEK is concerned with what is known and how that knowledge it is acquired. Culture, tradition, and lifestyle shape how human societies perceive their surrounding environment. Most communities use and manage their resources based on the knowledge they have passed from one generation to another over millennia. Some of the age-old traditions can degrade the ecosystem, while others can play a critical role in supporting biodiversity conservation and mitigating climate change (Negi, 2010).



The cultural behaviour in traditional societies drives the sustainable management of natural resources, and local culture and traditions get stronger with interaction and living in harmony with nature (Maurya et al., 2022). If the traditional knowledge system can reduce or prevent resource depletion, habitat degradation, and species extinction, then it is considered conservation-worthy (Chunhabunyatip et al., 2018).

Bhutan is the Himalayas' sole remaining Vajrayana Buddhist nation. Rituals and festival celebrations are an important aspect of its Buddhist practice and intangible cultural legacy. Buddhists believe that making ritual gifts to gods and local deities can alleviate patients' and their families' physical and emotional suffering due to sickness (Pelzang, 2010). Such offerings necessitate the use of plants and their products. Cotton fibers from *Gossypium hirsutum* are used to manufacture wicks for burning butter lamps, which are a common sight in Himalayan monasteries and temples. Although butter has been used to light lamps traditionally, most people use vegetable oil these days. *Dimug's* (*Onosma hookeri*) roots are used to make natural dye for painting *Gtor-ma* (traditional sacrificial cakes) during rites and religious ceremonies. According to Buddhist scholars, sacrificial cakes symbolise the clearing away of negativities and impurities one has in life and symbolise selfless giving to sentient beings (Dema, 2021; Nepal, 2022b). Each guardian deity and rite have its own sacrificial cake. The sacrificial cake takes the place of the pre-Buddhist era's human and animal offerings. *Saali Bishali* (*Equisetum arvense*) is used in one of the intricate rites called *Dog-pa*. Buddhists place the *Tsampaka/Totela* (*Oroxylum indicum*) flower and incense sticks in every family's praying room/shrine. The flower signifies the beauty and blossoming of enlightenment, while incense denotes a relaxing aroma offered to the Buddha and represents morals, ethics, and discipline, to cultivate pure enlightened traits (Yeshe et al., 2021).

In many myths and religions around the world, trees always seem to have a special position and sacred stories are connected with them. Hindus consider nature sacred. They cultivate *Tulasi* (*Ocimum sanctum*) and worship it as *Tulsi Mata* (Goddess). *Bar* (*Ficus bengalensis*), *Pipal* (*F. religiosa*), *Jamun* (*Eugenia jambolana*), and *Sāla* (*Shorea robusta*) are all mentioned in Hindu and Buddhist scriptures as having a strong mythical tie to the gods, goddesses, and deities (Pokharel & Pokharel, 2021). *Tsen-den* (*Cupressus corneyana*) is revered in Bhutan for its historical and spiritual value, and each species has its own story to tell. Bhutan was once known as *Lho-Mon Tsen-Den*

*Jong* (the country of cypress), and the cypress tree is honoured as the country's national tree. People grow this tree outside monasteries, fortresses, and other religious sites (Phuntsho, 2013).

In Bhutan, incense items are the most frequently utilized products made from plants during religious ceremonies and at home. The need for medicinal herbs has increased as incense producers have grown. Most commonly sought are *Jatamansi* (*Nardostachys grandiflora*), *Tsen-Den* (*Juniperus* species), *Kālo Dammar* (*Canarium strictum*), *Agaru* (*Aquilaria malaccensis*), *Kusum* (*Saussurea lappa*), *Puskarmool* (*Inula racemose*), and *Carthamus tinctorus*. These plants are either utilized as incense ingredients or burned fresh (or dried) as part of an offering of prayers. Around 40 medicinal plants, aromatic plants, and natural herbs are utilized to make incense sticks and powder. Since its founding in 1991, the Nado Incense Factory has been one of Bhutan's oldest incense stick manufacturers (Wangchuk & Tobgay, 2015).

Several authors have agreed that the older generation has more experience and knowledge about traditional ecological knowledge compared to the younger generations (Schniter et al., 2021; Childers & Elz, 2022; Flores-Silva et al., 2023). Different social groups tend to develop their own approaches to the environment and specialise in different environmental knowledge (Müller et al., 2015). The literature has shown that there is a gradual loss of traditional ecological knowledge the world over, and there is a need to alter policies and regulations, strengthen stakeholder cooperation, and strengthen interdisciplinary research to preserve the age-old tradition (Ray, 2023). The research's primary goal is to list the risks now facing traditional knowledge related to the use of medicinal herbs. The study that was carried out in the Dorokha *Dungkhag* villages of *Ngagang* and *Boribotey* was driven by this aim.

## The Setting

Samtse lies to the southwest of Bhutan, with an area of 1,305 km<sup>2</sup>, of which 59.8 % is forested. It is bordered by Haa and Chhukha districts to the east and north, the Indian state of West Bengal to the south, and Sikkim to the west. It has a population of 32,022 individuals, of which 51.2% are male (National Statistics Bureau [NSB], 2020). The altitude ranges from 1,000 to 2,500 meters, and daily temperatures range from 12–

15°C in winter to 26–32°C in summer. The data from 1990 to 2020 shows that the average yearly temperature has been around 17–28 °C. Summers are hot and humid, while winters are chilly and dry, with the mean annual rainfall ranging from 1,200 to 3,000 mm. Dorokha *Dungkhag* is 200–2200 masl and is located in a sub-tropical monsoon climatic zone with dense forest cover. The monthly temperature ranges from 15°C in the winters to 32°C in the summers, with yearly rainfall ranging from 1200 to 3000 mm. Summers are hot and humid, while winters are dry and chilly (Nepal, 2023).

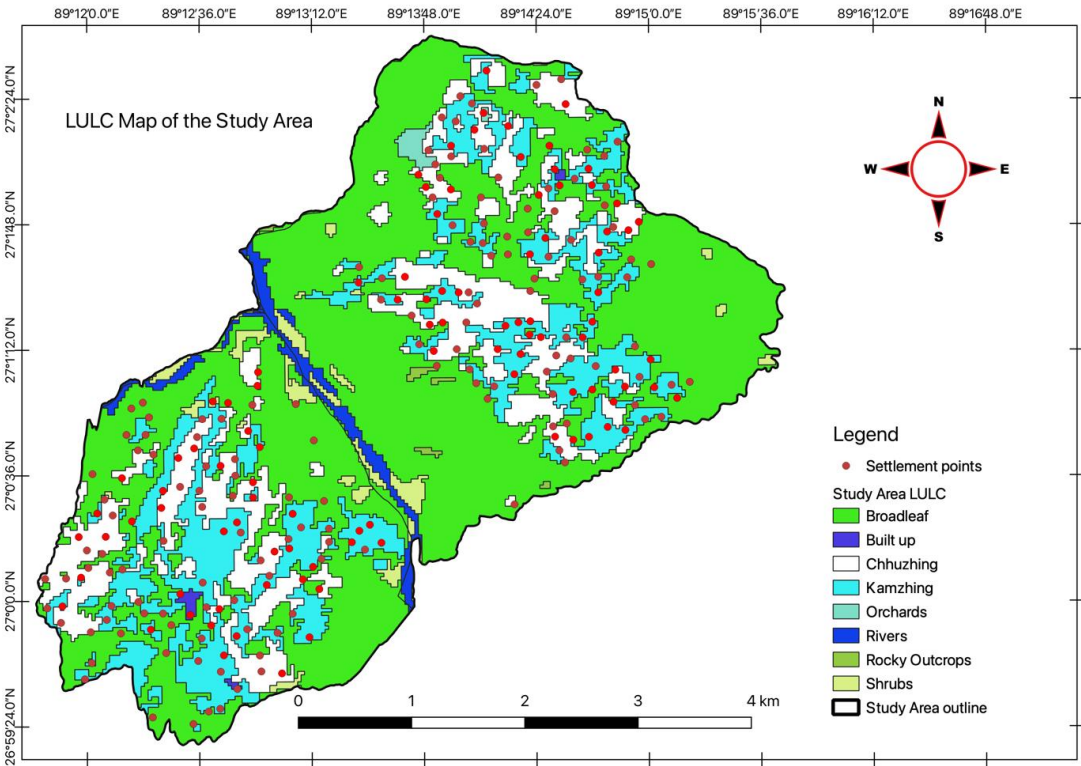


Figure 1. Map of the study area (Ngagang and Boribotey) (the LULC shapefile was downloaded from the Bhutan Land Commission’s website, and it was analyzed using QGIS 3.28 Firenze software)

The study was conducted in 2022 within the villages of *Ngagang* and *Boribotey*, situated under *Dorokha Dungkhag* in Bhutan, was strategically made due to their geographical significance. These villages, positioned in close proximity to the Indian border with West Bengal, offer a unique perspective on cross-border dynamics that could influence various aspects such as culture, trade, and environmental factors.

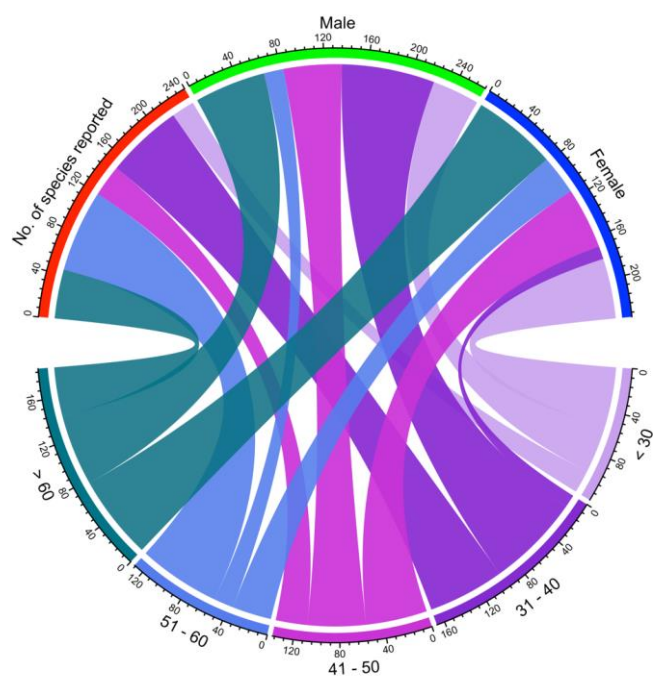
Moreover, their adjacency to the Amochhu River, the fifth largest river basin in Bhutan, adds another layer of importance. The presence of the river basin introduces a critical environmental component to the study, impacting factors like water resources, agriculture, and overall ecosystem dynamics. By selecting these specific villages, the research aims to capture the diverse conditions and potential variations in socio-economic and cultural aspects within a relatively confined geographical area, contributing valuable insights to regional studies and understanding the complexities of the broader context.

A total of 54 persons were interviewed, of whom 29 were male and 25 were female. 8 people belonged to the age group of less than 20 years, 21 people belonged to the age range of 20 to 40, 20 people belonged to the age range of 40 to 60, and 5 were more than 60 years of age. Out of 54 people, 49 were literate with basic education, while 5 were illiterate. Since the community is Hindu-dominated, 42 people followed Hinduism, while 12 of them followed Buddhism. 34 of them belonged to Ngagang village, while twenty of them were from Boribotey village. The research sought to assess the knowledge related to medicinal plants and their corresponding ailments, examining how this knowledge has been passed down to younger generations. Additionally, it inquired about factors influencing the transmission of this knowledge from respondents.

## **Results and Discussions**

In general, there are two types of knowledge about the medicinal properties of plants: community knowledge and specialist knowledge. In the first type, residents of a given village are familiar with the medicinal virtues of various animal and plant parts and can use them when necessary. Individuals gain this knowledge through their daily interactions with the socio-ecological systems in their communities. Members of the community frequently contribute this type of information. Specialists, who perform traditional medicine, on the other hand, keep this information a trade secret. They don't readily share this information with other practitioners. Only family members receive such information vocally and through practise (Biró et al., 2014). As a result, expert information, such as how to make a particularly specific pharmaceutical ingredient or how to identify endangered plant species, is at risk of being lost (Hamilton, 2004).

Using the information, we may examine species knowledge (the name of the plant and its associated properties) according to gender and age (Figure 2). The distribution of species knowledge by age makes it clear that as people get older, they tend to become more knowledgeable about a variety of species. The information is broken down into five age ranges: <30, 31–40, 41–50, 51–60, and >60. With a total of 85 different species reported. The >60 age group stands out as having the highest amount of species knowledge. On the other hand, there are fewer documented species among people under 30; in fact, there are only 21 in this age range. When we look at species knowledge by gender, the data shows that, across all age groups, females report a higher number of species than males (Figure 2). This indicates that females generally have more knowledge of species than males do. It's crucial to highlight that the interpretation makes the assumption that the "species reported" measure refers to the variety of species that people are aware of.



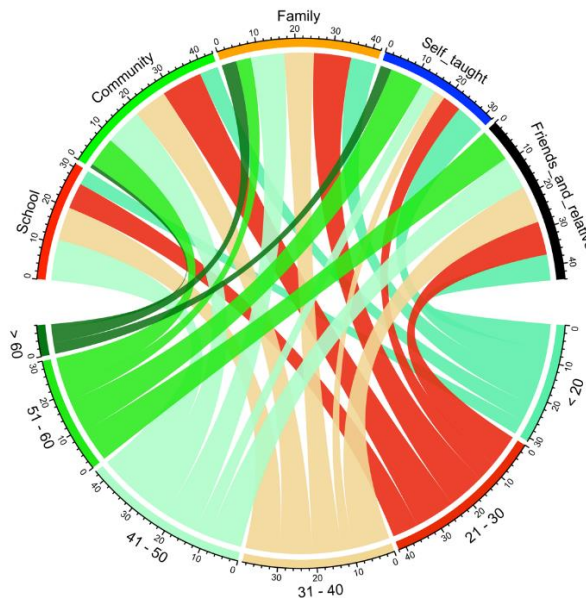
*Figure 2. Chord diagram showing plant knowledge based on age group and gender*

The younger generations mostly learned about local culture, traditions, and its relationship with the environment from the community or from friends/relatives, followed by their family members. Around 32 people are self-taught regarding the local knowledge, either from what they have heard, read, or seen while visiting other

communities (Figure 3). The most knowledgeable group were those who were over 60 years old, as they were able to name more than 70–90 species of wild edible plants and had wide knowledge regarding the use of medicinal plants. The least knowledgeable group was those less than 20 years of age, as they could hardly name more than 10 species of plants consumed in the wild. But few can name more than 20 species. We can notice from this observation that some younger generations were more concerned about their surroundings and showed interest in learning new things.

A 21-year-old girl shares how she feels about TEK:

“TEK feels like this incredible bridge between my generation and the wisdom of the past. Growing up in a time of rapid technological advancement, I find solace in the idea that there's this wealth of knowledge grounded in tradition and nature. It's like discovering the roots of our existence in the midst of a digital whirlwind. I see TEK as a way to balance the fast-paced, tech-driven world I'm navigating daily. It's not just about the latest trends or gadgets; it's about connecting with the earth and understanding the timeless wisdom that has sustained communities for generations.”



*Figure 3. Chord diagram showing the mode of transfer of traditional knowledge*

The majority of the village’s children and youth leave their villages for education and

better job prospects. They rarely have the chance to interact well with the local environment or learn about it. Traditional knowledge of biological resource management cannot be smoothly passed on in the absence of younger locals, and it may be lost within a generation. Along with particular knowledge of the ecology of medicinally useful species and the making of medicines, a broad understanding of the traditional ways of using them has deteriorated over time. Indigenous knowledge is typically passed down informally (outside of school) and instinctively from a young age, and by puberty, it is practically complete. It occurs in typical activity contexts (work, play, and rest), and it entails observations and experience (e.g., peripheral engagement, trial and error) and a degree of local language skills (Caniago & Siebert, 1998). With youngsters moving abroad for further study, it’s unclear whether traditional reproduction will proceed automatically in Dorokha.

## Culture, Tradition, and Religion

Many features of nature are seen as divine by most Hindus. Many creatures, including snakes, mountains, rivers, trees, and the cosmos, vibrate with divine energy. Some Hindus consider natural events religious, while others believe they have reigning deities (Table 1). Although the Godhead is investing in some natural occurrences and places, this does not mean that they are not exploited. There is a mismatch between perception and conduct, as there is in many religious systems. At *bhâi tikâ*, during the Hindu festival of *tihâr*, women place walnuts/*Okhor* (*Juglans regia*) in the doorways of houses. When cracked, these are believed to kill local demons. The gum of *Canarium strictum* is used for incense. People believe that burning incense from this gum will drive out the evil spirit. When environmental elements get integrated into religious practises, they get protected (Kumar, 2020).

**Table 1: Environmental Elements Used for Religious Purposes**

Scientific Name	Local Name	Family	Uses
<i>Elaeocarpus sphericus</i> (Gaert.) Schum. Rudraksha tree	<i>Rudraksha</i>	Elaeocarpaceae	Rosary
<i>Juglans regia</i> L.	<i>Okhar</i>	Juglandaceae	At <i>bhâi tikâ</i> during the Hindu

Walnut			festival of tihâr, women, place walnuts in the doorways of houses. When cracked, these are believed to kill local demons.
<i>Oroxylum indicum</i> (L.) Benth. ex Kurz Indian Trumpet Flower	<i>Totla</i>	Bignoniaceae	Important while conducting <i>puja</i>
<i>Ficus religiosa</i> Forssk Sacred Fig	<i>Pipal</i>	Moraceae	Used in <i>puja</i>
<i>Ficus benghalensis</i> L. Banyan tree	<i>Bhar</i>	Moraceae	Used in <i>puja</i>
<i>Ocimum tenuiflorum</i> L. Holy Basil	<i>Tulsi</i>	Lamiaceae	Worshiped as the wife of Lord Vishnu
<i>Cynodon dactylon</i> (L.) Pers. Bermuda Grass	<i>Dubo</i>	Poaceae	Used during bhâi tikâ
<i>Canarium strictum</i> Roxb Black dammar	<i>Gokul dhup</i>	Burseraceae	Gum is used for Incense. People believe that burning incense of this gum would drive out the evil spirit.
<i>Cinnamomum glaucescens</i> (Nees.) Hand.-Mazz. Dwarf Cinnamon	<i>Malagiri</i>	Lauraceae	Used seldom its heartwood chips as incense
<i>Mangifera indica</i> L. Mango tree	<i>Bhan aanp</i>	Anacardiaceae	Leaves are used while conducting <i>puja</i>
<i>Corvus corax</i> L. Common Raven		Corvidae	National bird of Bhutan
<i>Pavo cristatus</i> L. Indian Peafowl	<i>Mujur</i>	Phasianidae	Feather is used in rituals
Snake	<i>Saap</i>		Considered related to Lord Shiva, Lord Vishnu, and Lord Krishna



## Devi-than

Since 80 percent of the study area's population practices Hinduism, most of the interaction between man and nature is shaped by the idea of Hinduism. One particular practise is the idea of *Devi-than*. *Devi-than* is a place where *Devi* (the goddess) prefers to stay or reside. Anything growing or occurring near this place is considered sacred. To demarcate the boundary of the *Devi-than*, a wall of boulders is made so no one can dirty the place. Most of the people go and worship at the place, offering milk, fruits, flowers, water, and locally made dishes, and in return, they pray for the protection of their king, country, good health, and social harmony. When a place is declared the sacred place where a *Devi* resides, it is also opened to people of different faiths, and most of the Buddhists residing near the sacred places come to worship during the full moon. Such places not only protect the environment but also promote social harmony.

Sacred areas, such as *Devi-thans*, where the goddess is thought to reside, have the capacity to protect the environment through a number of processes. Respect for these places can deter destructive behavior, resulting in the preservation of biodiversity, the prevention of erosion, and the conservation of natural resources (Molnár & Babai, 2021). These areas are surrounded by walls made of boulders, which can serve as barriers to prevent degradation and save habitats. In addition, the spiritual ties that bind these locations to their water sources can ward off pollution and contamination, ensuring that clean water is always available (Seltenrich, 2018). The cultural practices and communal involvement connected to these locations promote a sense of accountability and cooperation, promoting responsible waste management and long-term sustainability. In the end, the reverence accorded to these places fosters a happy coexistence of people and nature, encouraging the preservation of the environment for both the present and the future.

In my interview with him, a Hindu priest explained:

*"Devi-than plays a significant role in the lives of people. We do have a Shiva Mandir, but not all the people can visit it owing to the distance from their homes. These people can always visit the Devi-than nearest to them during the*

auspicious days. Since my grandparents' time, I have seen people cleaning the *Devi-than* and offering things to the *Devi-than*. Initially, I only noticed a stone and didn't want to believe that a stone had some power over human beings. But as I grew, I heard and saw many people getting sick because they disrespected the sacred place. I know two people who fell seriously ill as they disrespected the place, and both were bedridden. To know what has happened to them all of a sudden, their parents first called a *dhamil/jhakri* (shaman) to check on their child's health. Upon performing *pūja* by the shaman, they came to know that the kids were ill because they disrespected the sacred site. The shaman asked for forgiveness on behalf of the kids and promised never to disrespect the sacredness of the *Devi-than*. Their health was back to normal two days after the shaman conducted the *pūja*. Stories and incidents like this instill a sense of respect for Mother Nature. When we respect the site, we are safeguarding the surrounding environment, which is actually good."

The *Devi-than*, a sacred site, holds significant importance in people's lives, as evidenced by the tradition of cleaning and offering at the site, with instances of illness believed to result from disrespect leading to a sense of reverence for nature and environmental preservation.

## **Threats to local traditional knowledge**

Formal education is necessary for human progress, but it may jeopardize indigenous knowledge transmission. Children who receive formal education at a distance (at boarding school) spend much of their time passively learning in classrooms rather than engaging in hands-on learning on the field. Teachers have taken over as custodians of knowledge and responsibility from parents and elders. As a result, formal schooling may lead to indigenous youth's de-culturation, loss of social cohesion, alienation, and confusion. Across the globe, indigenous people are frequently sidelined by mainstream society. This results in the formal school system's marginalization or belittlement of local knowledge, values, and worldviews. The consequent estrangement, loss of identity, and low self-esteem are disastrous for indigenous kids and society (Figure 4). The remainder of this section discusses threats to local traditional knowledge in the context of Dorokha specifically.

A 45-year-old woman says:

“TEK takes me back to a time when life was simpler, and our connection to the environment was more direct. As someone who has witnessed the transformative journey of technology over the years, TEK offers a sense of grounding. It's a reminder of the wisdom that sustained communities long before the digital age. While I've embraced the conveniences that technology brings, there's a certain nostalgia and respect I hold for the deep understanding embedded in TEK. It prompts me to reflect on the sustainable practices of the past and consider how they can inform a more balanced and mindful approach to our rapidly changing world.”

One strand of this research looked into the perceived threats of TEK (medicinal plants and their properties), as experienced in Dorokha *Dungkha* as shown in figure 4.

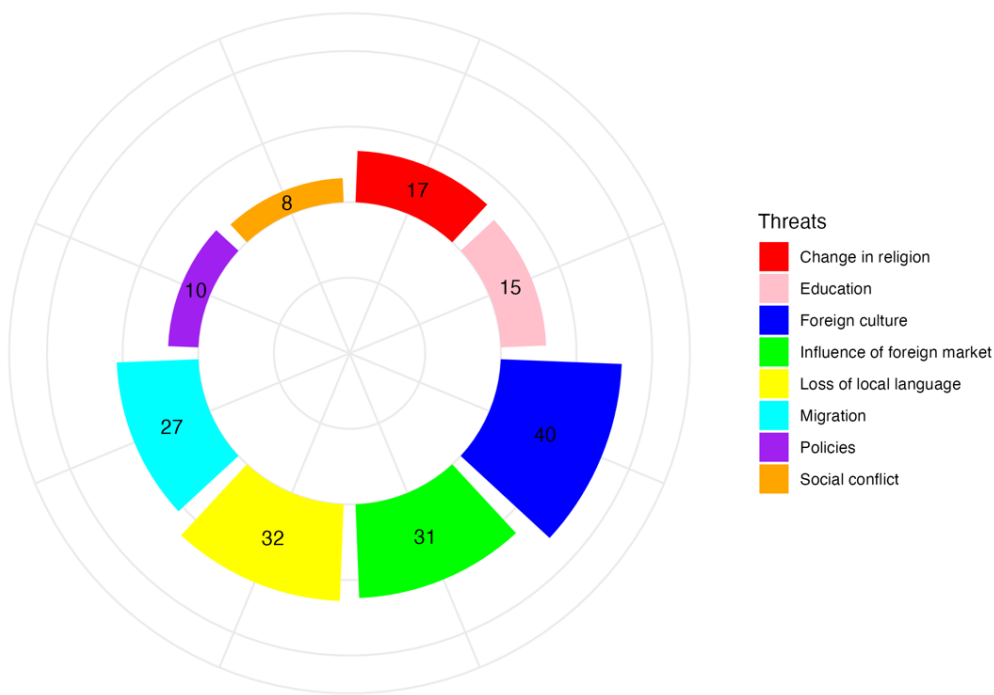


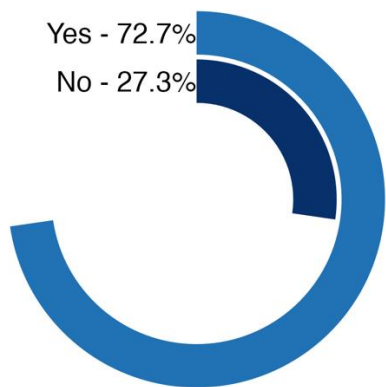
Figure 4. Threats to local traditional knowledge

A respondent shared his opinion:

“I take pride in my children's academic successes, but I can't help but feel a

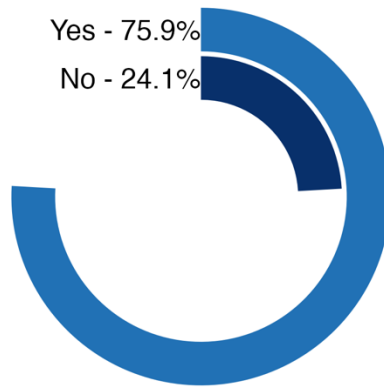
sense of loss as they become less interested in our traditional ways, cultural beliefs, and language due to the influence of education and external factors, making it crucial to find a way to preserve our local knowledge amidst these challenges.”

Figure 5 shows that a significant majority, comprising 72.7% of respondents, perceives imminent threats to local traditional knowledge concerning the importance of medicinal plants. Notably, this sentiment is particularly pronounced among individuals with over 30 to 35 years of experience, having witnessed numerous cycles of both new years and *Diwali* celebrations. In contrast, 27.3% of respondents express a contrary view, asserting that there is no imminent threat to local traditional knowledge. This subgroup contends that traditional knowledge should undergo regular updates, akin to new technological gadgets, as they believe certain aspects of this knowledge have become obsolete in light of the efficacy of modern gadgets, discoveries, and inventions.



*Figure 5. Response to threats to local traditional knowledge*

Furthermore, a substantial 75% of respondents contend that traditional knowledge is on a decline, attributing this decline to the transformative effects of modern lifestyles (Figure 6). This observation underscores a prevailing concern about the impact of contemporary living on the preservation and relevance of age-old traditional wisdom.



*Figure 6. Response to the decline in traditional knowledge*

The threats discussed below are not the threats to particular knowledge system, the threats are analyzed in general, partly focusing on the local knowledge on the traditional medicinal plants.

A grandfather shares his concern:

“The market is changing how we understand nature. New ideas and technologies are coming in, making us rethink our ways. But there's a worry that our traditional knowledge might get mixed up or lost. We need to find a balance between the new things and keeping our old wisdom about nature.”

The study findings highlight a prevailing sentiment among respondents, with 57.4% expressing apprehension about the substantial risk posed to local traditional knowledge pertaining to the importance of medicinal plants (Figure 6). This perceived threat is intricately linked to the broader impact of the external market, manifesting in the displacement of traditionally cultivated food crops, locally crafted fermented foods, and handwoven textiles. The influx of cheaper imports from other countries not only undermines local industries but also acts as a catalyst in eroding traditional practices, cultural norms, and historical roots. This multifaceted challenge underscores the complex interplay between economic globalization and the preservation of indigenous knowledge and cultural heritage.

The study area has a longstanding cultural heritage rooted in Buddhism and Hinduism, passed down through generations. Anything outside these religions is often perceived as foreign and as unable to protect and preserve traditional ecological

knowledge. Notably, 31.5% of respondents expressed concern that shifts in religious affiliations pose a threat to local traditional knowledge concerning the significance of medicinal plants. This apprehension reflects the intricate interplay between religious dynamics, cultural preservation, and the perceived vulnerability of traditional knowledge in the face of evolving religious choices in the community.

In the study area, linguistic diversity is evident with *Lhotshamkha*, referring to the Nepali language in Bhutan, being widely spoken, alongside the national language, *Dzongkha*, and other dialects like *Rai*, *Gurung*, *Limbu*, and *Sharchopkha*. However, a noteworthy trend has emerged among school-going children who increasingly perceive English proficiency as a marker of knowledge, potentially sidelining their rich local languages. The loss of local language competencies correlates to a loss of local knowledge. For instance, local languages carry nuanced vocabularies essential for expressing the intricacies of traditional knowledge. The same nuance is not to be found in the English language. The cultural transfer of such knowledge faces a gradual erosion, evident in the fact that 59.3% of respondents express concern about the diminishing use of local languages, seeing it as a significant threat to the preservation of local traditional knowledge.

The above apprehension is rooted in the understanding that the subtleties and depth of traditional knowledge are intricately tied to the exact words used in local languages. The adoption of English, while providing access to a global language, risks diluting the richness of traditional wisdom, hindering the accurate transmission of cultural practices and insights embedded in the local languages and dialects. This underscores the delicate balance needed to ensure the preservation of linguistic diversity for the effective transfer of traditional knowledge across generations.

The overwhelming sentiment among respondents, with 74.5%, identifies the influence of foreign culture as the most significant threat to the survival of local traditional knowledge. Recognizing the inevitability of cultural interaction, there is a collective concern that such intermingling poses a risk to the distinctiveness of local cultures. The fear is not merely of dilution but of potential disruptions to the transmission networks of traditional knowledge, impacting core institutions, livelihood practices, and deeply held beliefs.

Tang & Gavin's (2016) study resonates with this concern, highlighting the amplified impact of modern media, particularly television, on the interest of native youth in traditional ways of life and culture. In the eyes of the residents in the study area, exposure to the outside world brings forth opportunities, but this perceived benefit comes at a cost to local culture, beliefs, and religion. The metaphorical opening of doors to external influences is acknowledged as a double-edged sword, offering prospects for development while simultaneously threatening the essence of local identity and heritage. This underscores the delicate balance communities must navigate between embracing global opportunities and safeguarding the integrity of their cultural and traditional fabric.

The Bhutanese Constitution guarantees citizens access to high-quality health services and international-standard education. However, concerns among adults suggest that the influence of the Western education system on the younger generation is gradually diminishing the local cultural framework. As youths pursue higher education, often relocating from their villages, a disconnection from their cultural roots ensues. Even upon returning, such visits are typically brief, limiting opportunities for substantive interaction and cultural learning. This perceived disconnection is echoed by 27.8% of respondents, who assert that the education system itself poses a threat to the preservation of local traditional knowledge. This highlights the intricate interplay between modern education, cultural preservation, and the necessity for nuanced approaches that reconcile global learning with the conservation of indigenous wisdom.

A woman shares her concern:

“The modern education system gives us wide opportunities, and we can grab those opportunities, but we tend to lose interest back home. We want to celebrate Christmas and want to know more about celebrities like K-Pop, English singers, and all, but if we ask our youths about our kings, history, and culture, I bet most of them will give a blank look. Recently I had a conversation with a friend of mine, and she was talking about how she has never missed a K-Pop song or concert. In response, I asked her whether she listened to the speech of His Majesty the King during the National Day Celebration. She quickly changed the topic. It is not that we have to abstain from such things, but we must not forget our roots. We, as Bhutanese, are taught to live in harmony and lead a simple life, so if we start to love what we have back home,

then we can appreciate the beauty of other cultures.”

The survey indicates a significant concern, with 50% of respondents expressing the belief that substantial migration could lead to the loss of their traditional knowledge. This underscores the intricate relationship between migration patterns and the preservation of indigenous wisdom, highlighting the need for policies and practices that recognize and address the potential impacts of migration on traditional knowledge systems.

Changes in the transmission channels, beliefs, and livelihood practices of TEK can be attributed to voluntary or forced migration, impacting both indigenous and non-indigenous populations. The migration of indigenous youth to urban centers, driven by aspirations for improved career prospects and education, can influence their inclination to learn local traditions, culture, and beliefs. However, prolonged stays outside their communities often result in missed opportunities for practicing their indigenous language and learning from elders upon sporadic return visits.

The Hindu society in the study area adheres to caste systems, with the *Baun* caste, akin to Brahmins in Hindu practices, holding dominance. This hierarchy places *kamis* and *damaïs* in lower caste positions (Subedi, 2011). Notably, a prevailing belief among respondents is that marriages across caste lines, particularly from higher to lower castes, are viewed negatively, deeming the person from the higher caste as impure.

A man shares his concern:

“Elderly people talk about the caste system and how they should be inclusive, but when it comes to the individual level and their home, they don’t practice what they preach. Suppose I am going to marry a girl from a low caste, then my parents and I will be down-looked, and my parents have to perform *puja* to purify the house. The villagers engaging with our family is out of question; they won’t even drink water given to them by us. And finally, they must either leave the village or find acceptance elsewhere for marrying a woman from a lower caste. These are those things that need to end, but we say it is culture, and we need to preserve it. A few people were forced to leave their native places because of such issues.”

This caste-based discrimination contradicts the national developmental philosophy



of Gross National Happiness, which advocates for equal treatment irrespective of caste, creed, religion, sex, and nationality. Consequently, such discriminatory practices create social conflicts, compelling couples and families to relocate, hindering the transfer of traditional knowledge. A notable 14.8% of respondents identify social conflict as a contributing factor to the loss of local traditional knowledge. This underscores the tension between traditional societal norms and the national ethos, posing a challenge to the preservation of indigenous wisdom and cultural practices. A substantial 18.5% of respondents highlight the role of policies and regulations in contributing to the loss of local traditional knowledge. This underscores the need for policy reform that recognizes and respects indigenous cultures, promoting an environment where traditional knowledge can thrive and endure.

## **Conclusion**

Traditional ecological knowledge is place-specific, and the knowledge of one community will differ based on the availability of resources, the religion they practise, and the environmental context. The literature on TEK recognises the explicit presence of knowledge among native people groups. The major threat to traditional knowledge is posed by easy access to the outside world. Earlier, people depended on edibles from forests for essential nutrients, but the situation and living standards have changed. Most of the respondents feel that the traditional knowledge of the locality is declining. The most pressing threat is posed by the influence of the outside market, change in faith, loss of local language or dialect, foreign culture, migration, social conflict, and policies. Therefore, there is a need to revive the interest of local youths in appreciating the rich culture and traditions of their society. Overall, the recognition of traditional ecological knowledge as a valuable resource for conservation and management is gaining momentum, but more needs to be done to ensure that the rights, needs, and perspectives of indigenous and local communities are respected and incorporated into decision-making.

## **Disclaimer**

This paper is an extended version of a preprint titled “Keeping the local tradition alive: the status of local traditional knowledge in Dorokha, Samtse, Bhutan” of the

same author. See: <https://assets.researchsquare.com/files/rs-2492233/v1/723689ed-d4c1-4b7f-8d53-97c3c1f7ccda.pdf?c=1674160483>

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# *Dakwala* and Communications in Bhutan: A Narrative Study of *Dakwalas* of Pemagatshel

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SONAM DARJAY<sup>1</sup> & DORJI WANGCHUK<sup>2</sup>

**Abstract:** *Dakwalas* have been crucial to the history and socio-economic development of Bhutan by connecting leaders and communities. The evolution of the communication system in Bhutan can be traced through the usage of smoke signals, conches, shot-through arrows, and carrier messengers to the later use of modern technology. The role of *Dakwalas* in the communication sector has been vital for the central government in implementing and executing developmental policies. The transition in the telecommunication system has brought considerable changes to Bhutanese society and played a vital role in how people interact, today in comparison to the past. Thus, this article documents the development of the communication system in Bhutan through a narrative study conducted in Pemagatshel. Since the subject area is related to historical findings, the two *Dakwalas* of Pemagatshel were interviewed about their role and experiences.

**Keywords:** *Dakwala*, Post, Mail, Communication, Telecommunication, Messenger, Postal service, Technology.

## Introduction

Bhutan's rapid development was significantly dependent on the development of communication networks across the country. This started after the inception of the first Five Year Plan (FYP) in 1961. For instance, the construction of roads in 1962 improved the communication system within the country and with neighboring India. In addition, the Post Office was established in Phuntsholing under the Ministry of Communication and was then called the Department of Posts and Telegraphs. The institution of communication network throughout the country was initiated a year later in strategic locations such as in Paro, Thimphu, Samdrup Jongkhar and

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Communication has been difficult for a landlocked country like Bhutan, especially during the pre-modern period. However, the traditional communication networks between regions, leaders, and peoples have been in place since ancient times. For instance, the story of Legendary Garp Lungi Khorlo [Unstoppable Wheel of Wind], who had a reputation for delivering mail within a day covering long distances, has been etched in the memories of the Bhutanese people. Prior to 1960, *Dakwalas*<sup>3</sup> were responsible to carry and deliver verbal and written messages or documents, walking arduous journeys from place to place. Dakwala Karma Jamtsho said that their work was to deliver or bring official mails and parcels. The duty of a Dakwala was risky and required a person with strong feet and stamina. However, following the start of modernization, Dakwalas did not travel long distances anymore because of the arrival of a modern transportation system. While their duty was crucial, they have been rarely mentioned in written records of Bhutan's history. In this article, we therefore relate Dakwalas as the living source of the communication history of Bhutan.

This article focuses on the Dakwalas' roles and responsibilities in the development of communication systems in Bhutan. The evolution of communication from smoke signals, carrier pigeons, telephone and email to the advancement of artificial intelligence has changed the way people communicate with each other. The modern communication channel simplified the way people interact and communicate where a message is being delivered in a click, irrespective of the receiver's whereabouts, which could have taken days in the past. Moreover, the contemporary evolution in the form of communication such as telegraphs and postal services has superseded the jobs of dakwala into a systematic and synchronized gateway. Dakwalas' sacrifices, commitments and legacies became thus reduced to oral tradition. Therefore, this study documents the contributions of Dakwalas of Pemagatshel in the socio-economic development of the region and in connecting different districts. The study also highlights the challenges and their social roles as courier messengers of Pemagatshel. Two former Dakwalas, namely Dorjan and Karma Jamtsho, were

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<sup>3</sup> This is a Hindu term which is possibly a corrupted term of 'daakiya' which means postman or mail carrier.

interviewed at length. The significance of the study lies in providing comprehensive insights into the development of Bhutan's communication system through the lens of Dakwalas of Pemagatshel in contributing to the understanding of district level governance and the linkage with central authority during their service

## Historical Significance of *Dakwala*

In the absence of a modern postal system, it were dakwalas who connected peoples. In so doing, they played a pivotal role politically, historically, and economically in the regions. Their role in shaping the Bhutanese political system and society has been often overlooked, however. The system of sending a person to dispatch messages or parcels has prevailed since time immemorial. For instance, the local king of Bumthang sent a messenger to invite Guru Padmasambhava to Bhutan in the 8th century. In addition, the king of Cooch Behar is said to have become Zhabdrung's patron upon receiving a letter from a merchant. Karma Ura's book, *The Hero with Thousand Eyes* (1995), mentions that a messenger from the court arrived in Ura, Bumthang, to take Dasho Shingkar Lam and his brother as retainers. The system of appointing Garp or other officials from the court prevailed until the introduction of modern postal service in the country. Jichen (2015) states that systematic telecommunication services started with the country's planned economic plan in 1961. The establishment of the Postal Service on 10th October 1962 at Phuentsholing resulted in recruiting regular postmen. Since then, other regional post offices have been established across the country.

According to the biography of Chakhar Gyalpo, a local king of Bumthang known as Sinda Raja was inflicted by a local deity, Shelging Karpo, due to his defilements and mistreatment towards the deities. A messenger was sent to invite Guru Padmasambhava to Bhutan in the 8<sup>th</sup> century to cure his deteriorating health (Dargye, 2009). For centuries, it has been apparent that communication depended solely on an individual carrying messages, either through spoken language or written documents. During the time of Zhabdrung Ngawang Namgyal (Dharma Raja) in the 17th century, messages were delivered by his followers. Padma Narayan (ruled from 1626-1665), the king of Cooch Behar, became a devoted patron to Zhabdrung Rinpoche upon receiving a persuasive letter of a merchant from Chapcha (Booth, 2021).

Another early record of Bhutan's communication system can be traced back to the era of Zhabdrung in the 17th century. A person from the court was sent to dispatch messages or parcels in times of need. The *Choe-sid Nyiden*, or the Dual System of government, headed by *Desi* assigned *Boe-Garp* to deliver messages and parcels. For instance, a legendary man known as 'Garp Lungi Khorlo' is said to have traveled from Trongsa to Punakha and back in a day. The myth mentions Garp Lungi Khorlo as the fastest messenger in Bhutan's history. The then messenger is referred to as the *Garp* or attendant of the court. Karma Ura (1995) specifies that communication during the reign of the third king was made possible by courtiers who were sent whenever and wherever the need arose. There was no specific person as a messenger in the court, however. It is obvious that an able-bodied man was chosen to deliver mail of any kind.

Bhutan Postal Museum states that Thrimpoen, random travelers, or Garp from the court, were responsible for delivering official mails and parcels. Dakwala Dorjang recounts that he had seen *Drungpa* distributing official mails in Pemagatshel. Consequently, individuals known as Dakwala were appointed as postal runners and provided with salaries. However, only basic services such as mail, postcard and parcel delivery were offered. Nevertheless, this system of appointing a Garp or Dakwala prevailed until the introduction of the postal service in the country. Since then, the government established regional post offices to enhance better connectivity between leaders to foster rural development.

The Postal Service was formally established on 10th October 1962 at Phuntsholing (Zylinski, 2018). Additionally, two post offices were opened in Paro and Thimphu that same year. Other regional post offices were set up in Trashigang and Dewathang in Samdrup Jongkhar in Eastern Bhutan. Other regional post offices throughout the country were established notwithstanding the difficulties posed by rugged terrain and extreme climatic conditions. In light of this, a fleet of vehicles was assembled run the mail services, and employees from Bhutan were chosen and trained to manage the new post offices. Following that, the *Kuensel Newspaper* was launched as an international and national news outlet on the eve of the second FYP (Zylinski, 2018). Subsequently, the communication network then gradually developed into the system it is today.



## **Dzong-Dak System**

A *Dak* is a Hindi term referring to a transport or post by relays of men and horses. Dak includes every type of written communication such as letters, telegrams, interdepartmental notes, files, wireless message, telex, fax message, emails, which were received by post, messenger or by other means. Therefore, the system of exchanging multiple written communications is called the Dak System. The Dak System was operating as the communication network among different district administrations strategic to Bhutan. The Dzong was operating as the office responsible for distributing mail, newspaper, and postcards. Therefore, it was known as the *Dzong-Dak* system. Consequently, Dzong-Dak is a network of systems operating from the district administration.

Dakwala Dorjang recounts that a Drungpa was there to deliver mails, parcels and official documents to schools and health units prior to his recruitment as the Dakwala of Pemagatshel. Drungpa was the first official in Pemagatshel in the Dzong-Dak System. It is also obvious that Karma Jamtsho and Dorjang were also recruited under the Dzong-Dak system as they were both recruited before the establishment of the postal service in the country. Moreover, he said that there was no designated office space since there was no Dzong until 1980. It is also notable that the Dzong-Dak System was the earliest system of courier network prior to the institution of Postal service.

### **Dakwala: The Postman on Foot**

The legendary story of Garp Lungi Khorlo notwithstanding, recorded history highlights the figure of the Dakwala in delivering messages and connecting peoples. Since postal service was not readily available in most parts of the country, Dakwalas played the role of delivering messages to distant places across the country. Mails were delivered to schools, agriculture offices, and basic health units in rural areas of Bhutan by postal runners (Acharya, 2020). Therefore, the initial service provided by the Dakwala was basic service delivery which was either official mails and documents or parcels. Dorjang recounts that the regional post office at Samdrup Jongkhar was responsible for the management and efficient service delivery in the

region. He also said that the general postmaster in Samdrup Jongkhar looked after the subsidiary branch at Pemagatshel and Trashigang. Jichen (2015) mentions that there was frequent delivery of official mail and documents in these eastern districts.

The term Dakwala (Dak- mail, wala- person) was a person who ran for their living carrying public and private mail to distant places. Dakwala was a transmuted term of Hindi word "*Daakiya*" which means "mail-runner". According to Joshi (2012), the tradition of running as couriers existed in northern and eastern India among castes like Kahars, Pattamars in the south and Mahars in the west. He also states that early in the 19th century India saw an increased demand for courier service to meet the demand of the East India Company (EIC). Running as a courier existed before the road system was constructed. The dakwalas were strong and able-bodied runners who had precise knowledge of the areas and routes for their easy access. Contrary to retaining only strong and active runners by postal authorities in India to meet EIC's increasing demand for courier service (Joshi, 2012), Bhutan's mail couriers were much older on average. The two dakwalas of Pemagatshel were in their late twenties when they were recruited. The study found that much older men were recruited in the following years owing to their genuine interest and commitment to the service.

## **The Hardships Limiting Courier Service**

The Dakwalas often had to deliver mail with trepidation, never knowing what could happen along the way. If delays or losses occurred, they were often accused of neglecting their duties or of being dishonest (Joshi, 2012). Accusations like these were not altogether fair. Dakwala Dorjang recalls that they had to travel to Mikuri from Pemagatshel, which was the farthest place. They recounted that it was a one and half day journey to Mikuri and back to Pemagatshel, which was approximately 90 kilometers.

Maintaining the required speed to dispatch the mail on time was challenging and at times risky. Dorjang narrated further that walking towards Tshelingore-tri junction was not peaceful as the densely forested area posed a common threat to couriers and travelers alike. Encountering wild animals was a concern and the office would recommend a companion, usually a family member, to accompany the Dakwala.

Dorjang narrated his encounter with a bear at Tshelingore gate. Dakwala Karma Jamtsho shared that the five Dakwalas in Pemagatshel walked in turns to deliver or fetch mails in different directions. It was crucial for them to reach in time for the bus traveling to Samdrup Jongkhar from Trashigang. Although the branch office at Pemagatshel knew of the bus arrival at the Tri-junction, they did not know when the mail would arrive at the regional post office at Dewathang. For instance, Dorjang shared that he had to walk by early morning or would miss the bus traveling to Samdrup Jongkhar from Tashigang.

Moreover, Dakwala Dorjung also shared his daunting experience of traveling to Tshelingore gate. He discussed an incident while carrying and delivering the monthly salaries of schoolteachers. During the journey, his fear of being killed and ransacked almost became a reality as he encountered individuals who seemed intent on robbing him. However, being suspicious he refused their offer to help him. Further, the Dakwalas often traveled with empty stomachs to fulfill their duty. Dakwala Dorjang narrates that he would only be served a meal if he reached by the time the host was having their meal. If not, they would only be provided with local *bangchang* or *ara*. He also recounted a personal experience in which he could not make it to Thonphu from Mikuri on time for lunch. Despite this, he said that the lama of Thonphu served him a cup of *ara* and continued his journey to Tsebar where he spent his night with the host. The monsoon rains and slippery paths did not comply with the weekly dispatch and fetching of mails, parcels and other documents. Those dangers and obstacles had to be confronted to make communication effective and efficient. It was also about the Dakwalas' commitment to public service and making communication possible all year round.

The Dakwala system was based on a complex web of rules and regulations. Those recruited had to sign the terms of agreement. The agreement instructed Dakwalas to fulfil their assigned duties without negligence. Moreover, terms such as payment of fines or ultimately managing out the recruits were also included in the agreement. Nevertheless, limited manpower in the sector left any shortcomings of Dakwalas readily unnoticed. Due to lack of manpower, no penalty was ever imposed but a minimal amount of salary was deducted. Dakwala Dorjang recalls that the monotonous nature of the task was unappealing and attracted only a few individuals. Some Dakwalas remained as mail couriers for more than 20 years, however.

## Conclusion

The importance and the urgency of communication can be seen through the historical figure of the Dakwala. The Dakwalas were crucial in Bhutan's turn to modernity because it was them who connected leaders and communities across vast and difficult terrains. The Dakwalas thus contributed to the development of the nation as they carried important mails related to nation-building. However, they rarely figure in historical reconstructions. Many in fact may not have heard about their existence. They should be credited for their work as they struggled to serve the nation.

People were reluctant to work as Dakwalas as it required the workers to dedicate their time and strength to the work. Even if their children and wives were sick, they had no option but to continue with their work. There were times when they had no meals for days. On top of that, the daunting weather and mountainous terrain were a hindrance to their journey. There were also times when the Dakwalas could not deliver the message on time due to the hindrances mentioned; when that happened, they were subjected to complaints and reprimands. Dakwalas embody the history of Bhutan's communication system, and while much has changed in communication technology, neglecting their stories of hardship and their role in socio-economic development would be unfair.

## Acknowledgment

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# Understanding Cultural, Ecological, and Indigenous Literacy in Rural Bhutan: A Case Study of Gangtey Gewog

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SINGAY<sup>1</sup>

**Abstract:** Recent scholarship emphasizes expanded understanding of literacy in cultural, ecological, and indigenous terms. In this context, this article examines the cultural, ecological, and indigenous knowledge of Bhutanese people residing in the rural area of Gangtey Gewog. This study uses a case study approach to understand rural people's cultural, ecological, and indigenous knowledge. Data was collected by using semi-structured interviews and field notes. This study shows that people residing in rural Bhutan have diverse knowledge, indicating that rural Bhutanese are literate and competent in indigenous, ecological, and cultural terms.

**Keywords:** Culture, ecology, indigenous, literacy, Bhutan; Gangtey

## Introduction

Literacy is a topic that has received much attention, both in academia and policy, over the past decades. Literacy is usually associated with texts. Here, I uphold a broader definition of literacy with it referring to various knowledges, both written and oral. Although there is considerable research suggesting a rich history of Bhutanese oral traditions, there remains a vast scope to explore indigenous, cultural, and ecological literacy in Bhutan. Particularly lacking is scholarship on ecological, cultural, and indigenous knowledge of the rural population in Bhutan (notable exceptions include Tobgay, 2022). Drawing on the literacy landscape in indigenous, cultural, and ecological terms and by using qualitative tools, including, semi-structured interviews and field notes, the present study explores the indigenous, cultural, and ecological landscape of Gangtey gewog.

It is a well-established understanding that indigenous, cultural, and ecological knowledge can provide important insights for deciphering Bhutan's rich literacy

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landscape. While there has been a great deal of research about cultural (Cuerrier, 2022), indigenous (Flood et al., 2021), and ecological literacies (Ritchie, 2017) in other countries, little is known about the indigenous, cultural, and ecological landscape of Bhutanese communities, specifically in rural areas. However, focusing specifically on a rural community can be useful with respect to the phenomenon under study. It can provide insight into the rich culture, ecological, and indigenous knowledge of the Bhutanese people. In this article, I enliven this broader understanding of literacy by exploring local festivals, the names of wild plants and animals, and artistic skills. The contribution of this study is two-fold: first, it will help us to understand the rich culture, ecological and indigenous knowledge of Bhutanese people; and second, it will help us to preserve and promote traditional knowledge and practices.

## **What are Indigenous, Cultural, and Ecological Literacies?**

The term 'literacy' embodies a multitude of concepts including language, culture, and society. The notion of literacy is used in different disciplines to mean different things. For the present study, the term literacy refers to indigenous, cultural, and ecological knowledge and understanding. Much of the greater part of the literature on literacy pays particular attention to reading and writing, in the process ignoring indigenous, cultural, and ecological literacies, which do not necessarily exist in written form.

There is a relatively small body of literature that is concerned with studies cultural, indigenous, and ecological literacy landscape. However, there are a few notable studies conducted on individual literacy, such as cultural, indigenous, and ecological knowledge (Claude et al., 2021; Farrokhnia & Yaghob, 2010; Flood et al., 2021). These studies highlight different aspects of culture, indigenous, and ecological accounts of a particular place. For example, Claude et al. (2021) conducted a study to explore the nexus between well-being and land, from the indigenous perspective in Quebec (Canada) by applying an ecosystem services framework and explored indigenous values and perspectives. This study elicited values related to six landscape practices (moose and goose hunting, trapping, fishing, education, and resources). Four dimensions of landscape value emerged from the subsequent thematic analysis: abundance, quality, access, and experience. Claude et al. (2021) conclude that landscapes, and knowledge traditions and practices associated with it, contribute to the well-being of indigenous peoples as it sustains their livelihood, culture, and

identity.

In another case-study, conducted in Iran, Farrokhnia and Yaghob (2010) studied Kurds with the intention to explore the dietary habits and nutrition among Iranian Kurds. It employed the cultural ecology approach as a theoretical perspective and ethnographic fieldwork as a research strategy. The study was conducted in the West Azerbaijan province of Iran, Bukan Township. The findings demonstrate that the dietary ingredients of the Kurdish people of Bukan are collected mainly from their surrounding environment presenting a wide range of traditional food in this Kurdish community. The findings also indicate that the ecological and cultural properties shape the food and nutrition patterns in an interrelated way. Similarly, Flood et al. (2021) examined the cultural landscape of the communities participating in the forest stewardship council. The study employed a case study approach to understanding the cultural landscape. Overall, the findings indicated that there is a relationship between people and the landscape, such as water, plants, animals, and life force on the land.

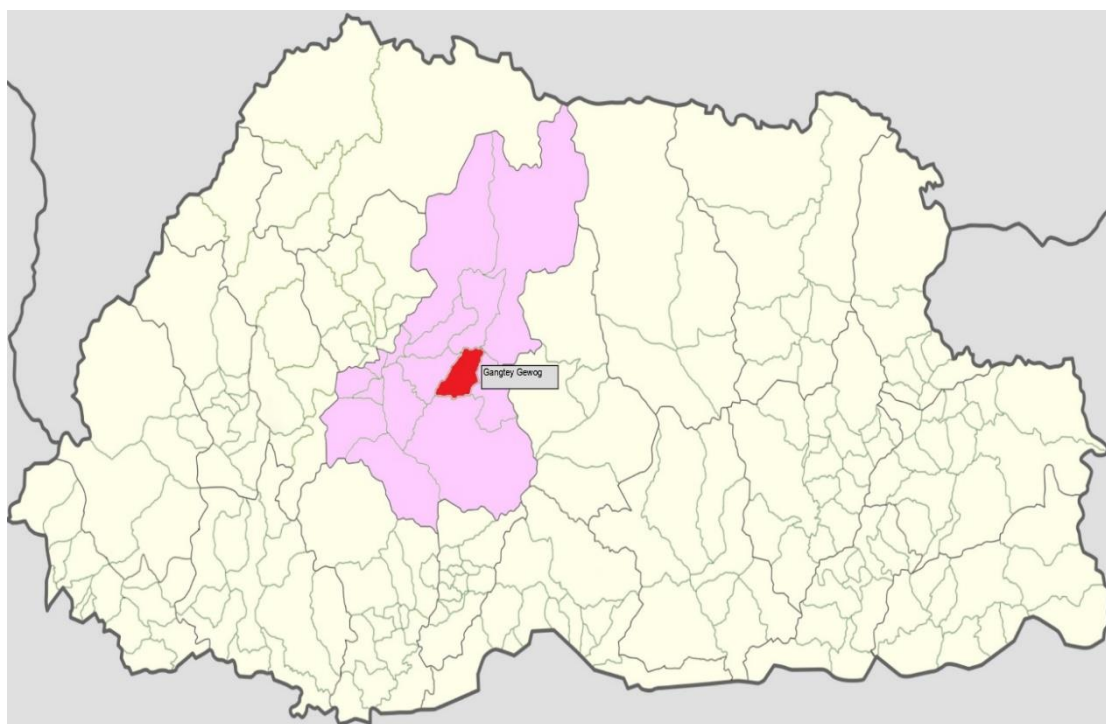
The above examples, taken from extant literature, elucidate what can be included under the concept of cultural, ecological, and indigenous literacy. Taken together, I argue that understanding the indigenous, cultural, and ecological of the rural area of Bhutan will be informative as well as a great source of knowledge. Thus, the current study explores the indigenous, ecological, and cultural literacies of the rural population of Gantey gewog and examines indigenous, ecological, and cultural competencies. More specifically, the present study examines the indigenous, ecological, and cultural literacy and competencies of the rural population of Gantey gewog. This research was carried out through field-visits and qualitative interviews. The interviews were conducted in the local settings following Denzin & Lincoln's assertion that social phenomena are best captured in their "natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, 2018, p.3).

## **Research Context and Participants**

The present study took place in Gangtey gewog (Figure 1) located 65 kilometres east of the Wangdue Phodrang Dzongkhag. The gewog is situated at 2900 to 3200 meters above sea level, has a cool temperate climate, and usually receives snowfall during the winter season. The summer is mostly rainy, while in spring rhododendron



flowers sprout across the valley. The settlements are mostly clustered, and the communities share broadly the same culture, the same dialect of Dzongkha, while the majority of the communities depend on subsistence farming. In the past, the residents of Gangtey used both Gangtey and Chitokha (now under Nysho Gewog) as their summer and winter residences respectively. They cultivated paddy at Chitokha and potatoes in Gangtey, but after the proper demarcation of the gewog in 2008, the majority of the residents of Gangtey have ceased their seasonal migration.



*Figure 1. Map of Gangtey Gewog.*

Source:[https://commons.wikimedia.org/wiki/File:Wangdue\\_Phodrang\\_Gangtey\\_Gewog\\_Bhutan\\_location\\_map.png](https://commons.wikimedia.org/wiki/File:Wangdue_Phodrang_Gangtey_Gewog_Bhutan_location_map.png).

Gangtey gewog is very rich in tradition and culture. For instance, every chiwog consists of one *lhakhang* and most importantly Gangtey Lhakhang, including the Shedra, plays a vital role in promoting culture and religion with over 400 monks studying there. The culture is further promoted with the presence of the supreme spiritual Master, His Holiness the Gangtey Tulku Rinpoche who performs many ceremonies and rituals. The natural beauty of the valley and rich flora and fauna, in particular the migration of black-necked cranes around mid-October till the end of February, make the place an attractive recreational destination for both Bhutanese

and foreign visitors.

Participants, in this study, hailed from four villagers. They shared their insights on indigenous, cultural, and ecological perspectives of Gangtey gewog (Table 1). The participants were selected through purposive sampling. While the sample-size would seem to be very modest, the case-study method, as adopted here, enabled in-depth interviews with them, as well as assumes that their traditional knowledges and practices are indicative of the wider community they belong to. In the present study, a semi-structured interview was used since it provides insight into the world of the research participants and seeks to make meaning of their experiences (Kvale, 2007; Yin, 2017). The interview questions were adapted from the Centre for Bhutan Studies & GNH Research (2016) study on gross national happiness in Bhutan entitled ‘a Compass Towards a Just and Harmonious Society’. More importantly, the researcher conducted four semi-structured interviews. The interviews were recorded and transcribed by the researcher.

*Table 1. Participants’ Background Information*

Name	Gender	Age	Work experience
Kado	Male	65	Serving as temple janitor for the last 20 years
Kumbu Lham	Female	45	Working as a farmer for the last 15 years
Sigay Dorji	Male	56	Retired monk and experienced mask dancer.
Gyem Lham	Female	77	Worked as a farmer and housewife for the last 30 years

### Detailing local knowledge

Data collected from participants’ interviews and field notes provide thick descriptions of participants’ knowledge of indigenous, ecological, and cultural. In what follows, I will detail and characterize the traditional knowledge possessed by

the informants.

### *Kado's knowledge*

Kado is 65-year-old male who has served as a temple caretaker for the past 20 years. He lived and experienced rural life since he was a child and continues to cherish living amid nature. He joined the monastic body at the age of 6 and has been practising Buddhism ever since. However, due to his age and declining health he faces challenges in carrying out his day-to-day monk duties. For this reason, he decided to devote the rest of his life as a servant of the god by taking care of the temple. The conversation with Kado was enriching and his vast knowledge of the community was helpful to gain a deeper understanding of different aspects of indigenous, ecological, and culture. He shared:

“I think culture, indigenous, and ecology are all related to each other. It is a way we think, eat, talk, and do daily activities. Moreover, these give us identity and place us unique among many people in the world.”

Kado went on to mention different cultural activities conducted in his community. Over the course of his stay in the village, he witnessed many cultural festivals, such as Tshechu, Kurum, among others. Among the festivals, he said that the black-necked crane festival is one he has been eagerly waiting for. He elaborated:

“There are different festivals celebrated in my community and also in our gewog. Some of the festivals are tshechu and rimdro for the well-being of the public. Most importantly, I like the black-necked crane festival celebrated in November by the schools in our gewog. I feel the black-necked crane is a unique bird and plays a significant role in our community. But I am worried about its disappearance because the number of birds migrating to Bhutan is decreasing.”

Kado shared his knowledge of indigenous skills in carpentry, and painting. As Kado shared, being a monk in the past and leading the life of a layperson today is challenging. These challenges forced him to learn indigenous skills such as carpentry and painting. He relayed:

“I can do painting and carpentry, but I am not an expert in these skills, and I am still trying to enhance my skills. I learned these skills because of my interest in and passion for learning artisan skills.”

Thus, kado's knowledge of culture, indigenous, and ecology was diverse. He asserted that it might disappear if we do not preserve it and pass it on to the younger generation.

## **Kumbu Lham's Knowledge**

Kumbu Lham is a 45-year-old from Gela chiwog who worked as a farmer for the last 15 years. She studied till class eight but had to drop out of school due to family issues. She shared that her ambition was to become a teacher; an ambition that did not come to pass for her. Since dropping out of school, she has been helping her parents in looking after her two younger brothers. She still has an interest in continuing her studies. Kumbu Lham's account of the present study has yielded rich information and diverse perspectives on culture, ecology, and indigenous knowledge. She expressed:

“Living in the village has taught me a valuable lesson. Interacting with animals, plants, and people helped me to understand better culture, indigenous, and ecology. I think culture is all about our life and the way we think and do whereas indigenous, and ecology are concerned with animals and plants.”

In a similar vein, Kumbu Lham demonstrated her indigenous knowledge through her daily routine and her lifestyle. About cultural festivals, she related:

“Festivals are part of our community. There are many festivals organized in our village. Some of the festivals that I eagerly look forward to are tshechu, kurim, and black-necked crane festivals. These festivals bring the community together to celebrate and people enjoy attending such festivals.”

Furthermore, her knowledge of animals and wild plants that are unique in the community was particularly rich. She shared about black-necked cranes and brown trout found in Gangtey gewog. In addition, she mentioned about sambar deer found in her community. However, Kumbu Lham pointed out the need to protect these animals for future generations:

“Animals that roam freely in our village are black-necked cranes and sambar deer. These animals are rare and not found in other regions of our country. There is also a different species of fish found in the river called brown trout. However, I am very concerned about the disappearance of these animals in the future if we do not protect

them.”

Overall, Khumbu Lham’s understanding of cultural, ecological, and indigenous indicates her strong bond with her natural surroundings. Moreover, she is concerned about the possible vanishing of culture and of animals becoming extinct in the future. Therefore, she argues that people should protect and preserve animals and culture. Further, her strong sense of identity has been an important force in her life which helped her to imbibe the culture, ecology, and indigenous around her community and gewog as a whole.

## **Sigay Dorji’s Knowledge**

Sigay Dorji is 56 at the time of this study. He is a retired monk and currently works as a mask dancer during festivals. Most of his time is spent performing rituals and religious ceremonies. The researcher followed Sigay Dorji for one week to better understand his daily activities and glean insights into his personal life. Unlike Kado’s and Khumbu Lham’s stories, Sigay Dorji’s life-history does not offer a strong emotional connection to emplaced cultural, ecological, and indigenous knowledge. He spent his childhood in a rather strict environment at the monastery. However, his early days have nurtured him to be a cultured person right now. When asked his opinion of the terms cultural, indigenous, and ecological. He explains that his view on these terms relies on his past experience:

“I think it depends on past experience and where I was brought up. I have been culturally aware and follow daily. I think cultural, indigenous, and ecological are interrelated. It is the way we behave, what we eat, and what we see around us. Therefore, I will say that it is our nature.”

As Sigay Dorji points out, there are many skills that he wants to learn but due to age and lack of training, he says that it is challenging to acquire various artistic skills now. However, he thinks that he has mastered the mask dance. However, he is keen on also developing other skills such as painting, carpentry, and carving to be self-sufficient by earning money from these skills. Sigay Dorji describes in-depth his difficulties in learning mask dance and his interest in learning other artistic skills, as encapsulated by the following excerpt:

“Learning mask dance was not easy and I struggled for years to master this art. Once I had learned I did not stop there and wanted to learn

other artistic skills. I am particularly interested in studying painting, carpentry, and carving. If I cannot study all I wish, I can study at least one skill among other skills I had mentioned earlier.”

In terms of how Sigay Dorji views his understanding of ecological and indigenous knowledge, it was clear from the interview that these were not necessarily embodied for him. However, the field notes account Sigay Dorji shows that he is still trying to learn the rich ecology of his community.

## **Gyem Lham’s Knowledge**

As a 77-year-old woman, Gyem Lham never had any experience of studying in school and she was therefore illiterate. In other words, she had never attended formal education in her life. At the time of this study, she had a low competency in literacy and she had dedicated most of her life as a homemaker. However, she had given her children education and all of her children are now employed and staying in Thimphu. Although she has not received any formal education in her life, she showed a great deal of knowledge of culture, indigenous, and ecology. The case of Gyem Lham tells that people may hold advanced levels of literacy, even when they cannot read and write. It all depends on how one defines and approaches what literacy is, and what it is meant to achieve. Gyem Lham said:

“I have never attended any school in my life but my existence and interaction with people and animals in the community had taught me a valuable lesson on culture and indigenous knowledge. I think culture is what makes them distinct from the animals and indigenous is one that makes people and communities unique from other communities in the country.”

Gyem Lham described how she developed her knowledge during the course of her life. Over the years of staying in the village, she managed to attend numerous festivals and gatherings that resulted in a rich knowledge of the cultural, indigenous, and ecological accounts of her community. She further elaborates that this knowledge has to be passed down to future generations. When asked about some of the cultural festivals conducted every year in her community, Gyem Lham reflected:

“If I am to share about some of the festivals conducted in my village. There are many, for example, tshechu, and other festivals, such as kurim, wang, and so on. Among many festivals, I am always eager to attend tshechu.”

## Discussion and Conclusion

This study related the life-experience of Kado, Kumbu Lham, Sigay Dorji, and Gyem Lham to cultural, indigenous, and ecological knowledge. The analyses of the participants' narratives suggest that the knowledge of culture, ecology, and indigenous is more than just learning about what constitutes these elements. This is because culture, ecology, and indigenous knowledge are deeply interrelated. What is needed, therefore, is a holistic understanding. These types of knowledge enable them to make a living and to achieve overall well-being. In some cases, indigenous knowledge in relation to instruments or tools also offers opportunities for livelihood.

Central to local knowledge in this gewog, is the annual presence of the black-necked crane. The respondents invariably spoke about this migratory bird and so in affective terms. It seems that the black-necked crane is central to people's cultural, indigenous, and cultural perceptions and practices in Gantey gewog. This centrality is affirmed in the rituals and festivals associated with the black-necked cranes. What also stands out is that formal literacy, in terms of the skills to read and write, is not a prerequisite for attaining ecological, cultural, and indigenous literacy. Knowledge in Gantey, as probably in places across Bhutan, is not limited to the written-word, but emerges from embodied and emplaced experiences of living in close relationship to the environment, in sharing and expressing culture, in attending rituals and ceremonies, and through continuous interactions with other-than-humans such as animals and plants.

In all of this, the current study aligns with studies on indigenous, cultural, and ecological knowledge conducted in other parts of the world, and as cited above. In Gantey gewog, too, welfare and wellbeing are closely tied with these forms of literacy, while community values are also directly derived from these bodies of experiential knowledge. This study has shown that people residing in rural Bhutan have a diverse knowledge of indigenous, ecological, and cultural. This further indicates that rural Bhutanese are literate and competent in indigenous, ecological, and cultural. This work contributes to the existing knowledge of indigenous, ecological, and cultural literacy of the rural population of Bhutan. While further studies need to be carried out to validate these findings, this study has sought to impress the value of expanding our understanding of what literacy is by including

cultural, ecological, and indigenous dimensions of knowledge.

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# Shared Challenges Encountered by the Cottage and Small Industry in Bhutan - A Post-Pandemic Analysis

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SOUMYA PANDEY & NITHIL DENNIS<sup>1</sup>

**Abstract:** More than 95% of the businesses in Bhutan come under Cottage and Small Industry (CSI), constituting 26116 businesses as of June 2022. However, due to a wide range of problems, CSIs are unable to survive and compete efficiently in the market. The significant role of CSI in the nation's economic growth and development necessitates timely analysis. However, no such researches have been conducted on CSIs of Bhutan. The aim of this study is to analyze their major hurdles and challenges in the post pandemic era. Additionally, this study also suggests state-of-the-art technique to address the identified problems. Based on the semi structured interviews, the thematic analysis tool *Taguette* has been applied for 10 different CSIs operating in Bhutan. Based on the outcomes, we offer suggestions that may result in cost minimization (up to approx. 20%), increase in efficiency and upgradation in the operative capacities of the businesses.

**Keywords:** Industrial classification of CSI in Bhutan; CSI in Bhutan; Problems in CSI sector; Sustainability of CSI

## Introduction

Since the inception of the first five-year plan (1961-1966), Bhutan witnesses a gradual increase of small, medium and large-scale businesses. As per the Ministry of External Affairs (MoEA, 2022), the new license issued in Cotton and Small-scale industries (hereafter CSI) is 13941 in current year (2023). CSI has been the center-stage of development for the Bhutanese economy since its opening up to foreign trade. CSI

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plays a crucial role in overall economic as well as social development of the country. They enhance economic activities in multiple sectors, including manufacturing the exportable goods. Not only are they the sources of varied vocations but also the playground for implementing innovative practices and procedures. From a societal perspective, they strengthen the community development and prosperity. CSI, also referred as Small and Medium Enterprise (SME), has been recognized globally as the major contributor to GDP and Balance of Trade through enhancing exports. Due to low initial outlay for establishment and lower administration costs, they may generate higher and quicker returns than large scale enterprises.

CSI's unique ability to capture niche market and supply products suiting the latest demands of customers, makes them irrefutable. They enhance employability, job satisfaction and skill generation for wide workforce employed under them. They also make use of locally available resources and ensures best quality exportable products. From internal management perspectives, CSI makes use of best entrepreneurial skills available in the region, also ensuring appropriate division of labor and power. As the number of employees are limited, equality in resource and wealth distribution are ensured. CSI are customer centric in nature as they are specialized in making personalized products which are ready-to-be-modified as per the unique demands of their customers. Not only this, CSI are well known for strengthening personal social interactions with clients. Moreover, the resistance to change and change management in CSI has been found to be relatively less compared to large and medium sized organization. This may be due to their less complicated organizational structure, ability to manage conflicts and stressful situations, and huge operational flexibility.

To understand the economic impact of the CSIs, we need to understand the total employment generated by them in various sectors. As per the National Statistics Bureau (2023), a total of 12,871 businesses are single-proprietorship and partnership businesses, accounting to almost 92% of the total operative businesses. Further, there are 7653 businesses with 1 employee, 9431 setups with 2-4 employees and 3791 firms with 5-10 employees. Out of almost 27290 businesses operative, 95% belongs to CSIs thereby dominating the industrial sector of Bhutan currently (MoEA, 2022). However, due to some critical problems, this sector only contributes to 5% of GDP of the country (see table 1). These problems are swelling up post the COVID pandemic as the nation struggles from unwanted economic slowdown resulting from

circumstantial and global factors. For any business operative, the major question that arises is: “What can be done to increase profits, reduce costs and improve visibility among its customers?” This article tries to identify the root cause of problems faced by the CSI in Bhutan, and also make suggestions regarding ways of improvement.

Despite the dominance of Cottage and Small-scale industries in Bhutan's industrial landscape, these businesses only contribute to 5% of the country's GDP. This low contribution to the GDP, especially exacerbated by post-pandemic economic challenges, raises the critical question of how to enhance the profitability, cost-effectiveness, and customer visibility of CSIs. Therefore, the research problem revolves around identifying the root causes of the issues faced by CSIs and proposing solutions to improve their performance and impact on Bhutan's economy. The COVID-19 pandemic has brought about a range of challenges for CSIs in the country. These include:

- **Demand Fluctuations:** Consumer demand for various products, especially non-essential goods, experienced significant fluctuations during the pandemic. CSIs, often specializing in niche markets, found it challenging to adapt to these rapid shifts in demand.
- **Workforce Challenges:** Lockdowns, social distancing measures, and health concerns affected the availability and productivity of the workforce. CSIs, typically smaller in scale, had to navigate these challenges with limited resources.
- **Financial Strain:** Reduced cash flows and access to financing were common problems for CSIs during the pandemic. They faced difficulties in managing working capital, paying wages, and covering fixed costs.
- **Market Uncertainty:** The economic uncertainty caused by the pandemic made it challenging for CSIs to make informed business decisions. Many were hesitant to invest in growth or expansion plans due to the volatile economic environment.
- **Export Restrictions:** The closure of international borders and trade restrictions impacted CSIs that relied on exports. Export-oriented CSIs faced a slump in international sales and difficulties in accessing foreign markets.

These post-pandemic challenges have posed significant hurdles to the growth and

sustainability of CSIs in Bhutan. To address these issues effectively, it becomes imperative for researchers and policymakers to delve into the root causes and propose solutions that can help these industries thrive despite the lingering effects of the pandemic. The primary objectives of this research are therefore as follows:

- 1. To identify the root causes of the challenges faced by Cotton and Small-scale Industries (CSIs) in Bhutan, particularly in the post-pandemic period.
- 2. To propose practical and effective solutions for enhancing the profitability, cost-effectiveness, and customer visibility of CSIs in Bhutan.

Hence, the scope of this article includes examining the challenges encountered by CSIs in Bhutan with a specific emphasis on the post-pandemic period. This research delves into various aspects of CSIs, including their operational strategies, market dynamics, and resource utilization.

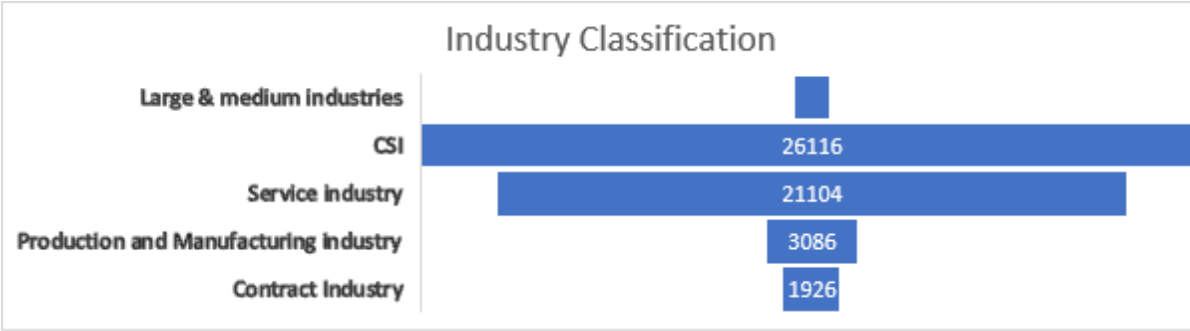
Country	Sectors	Contribution (% of GDP)
India	Manufacturing and services	28.90 (Bhawan, 2018)
Malaysia	Service and construction	38.2 (OECD, 2022)
Singapore	Manufacturing	48 (UOB, 2022)
Bangladesh	Service and Manufacturing	20.25 (ICAB, 2022)
Bhutan	Service and Production	5 (MoEA, 2022)

*Table 1: This provides percentage contribution to GDP by CSI of various countries along with the major sectorial divisions.*

## CSI in Bhutan

As per *Business Bhutan* (2022), there are 26116 CSI currently operating in Bhutan with 21104 in the service industry, 3086 in production and manufacturing industry and 1926 in contract industry (see figure 1). Other than CSI, there are only 1174 large and medium industry establishment as of June, 2022 (Dorji, 2022). Classification of CSI can be understood based on the capital invested in them and number of working employees in a particular year. *Statistical year book of Bhutan* (NSB, 2023) provides the

capital and employee wise classification of various industry denominations (refer table 2).



Source: Business Bhutan, 2022

Figure 1: This figure provides the industry classification based on large scale and CSI with sub divisions into service, production and manufacturing and contract industry.

Industry	Capital Invested	Number of Employees
Cottage	Nu. 1 million and less	1 to 4
Small	Nu. 1-10 million	5 to 19
Medium	Nu. 10- 100 million	20 to 99
Large	Nu. 100 million and above	100+

Source: Statistical year book of Bhutan, 2022

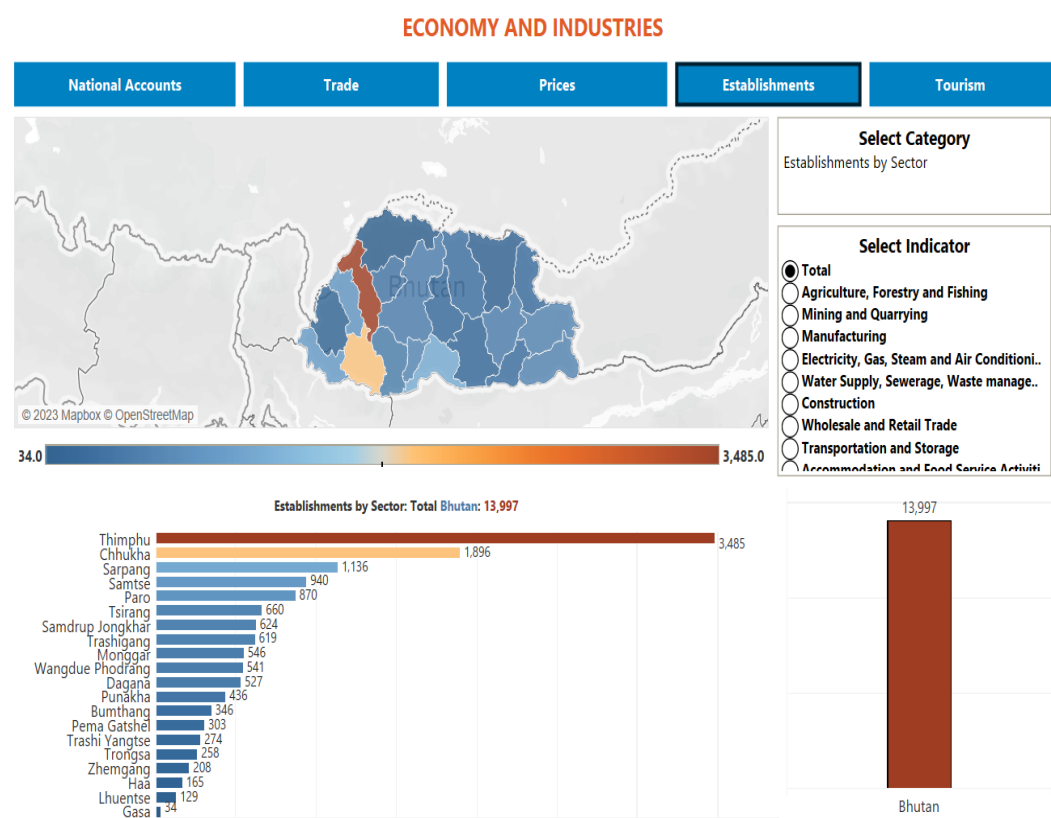
Table 2: This table provides the classification of industry scale based on the capital invested in the business and number of employees working in the business.

## Current Landscape of CSI: A Review

CSI needs to adopt innovative ways to generate cutting edge performance over medium and large-scale enterprises. For this, innovative ways for operating businesses are required, irrespective of the fact that whether they are newly established or older businesses (Jain & Jain, 2012). Many researchers have studied the current situation of CSIs in multiple locations and tried to provide solutions to the critical problems faced by them. This includes adoption of digital technology to increase the pace of CSIs growth (Rawat et. al, 2022) and to modernize their work style. They tried to find a model of business operations that can suit the working environment and needs of the small-scale units to accelerate the overall growth of the

business (Dutta et. al, 2020).

In Bhutan, a study on three sectors of CSI provided evidence that the creation of incubation centres has proved to be major factor in its development (Bhattarai, 2021). Current development in technologies related to artificial intelligence and big data analytics are also adopted in order to bring ease of operation. (Paschen, Kietzmann, & Kietzmann, 2019). Technologies such as neural networks use high computational power to develop human brain like response to the problems at hand. Planning and implementation stages of unique marketing strategies for the businesses can be easily assembled using artificial intelligence algorithms (Van Noort, Himelboim, & Martin, 2020). A concept named as ‘Computational Marketing’ is booming recently based on AI modelling structures. Finance and Human resource (HR) areas of business are also been restructured based on the recent developments in the field of technological based management (Dutta et. al, 2020).



Source: (NSB, 2023)

This image provides the real time data of the industrial establishments of Bhutan as per 19 different sectoral divisions. For more details, visit National Statistics Bureau ([nsb.gov.bt](http://nsb.gov.bt))

In businesses, daily management of cash inflows and outflows plays a major role in enhancing profitability. This cash management techniques are sometimes not known to the owners of such businesses due to lack of financial or accounting related knowledge. Lack of interpreting financial reports and making predictions in budgetary controlling techniques can cause serious losses in the long run of the business. (Lambert, 2012). Some researchers have advocated the role of financial literacy for the managers of small-scale businesses (Alafifi, Hamdan, & Al-Sartawi, 2022). Halabi, Barrett, & and Dyt (2010) also, evaluated the reality of financial and management accounting in small firms and found out that owners of small firms do not have appropriate accounts keeping mechanism.

Basic knowledge in the areas of cost control, budget preparation, financial analysis with financial ratios, cash flow management and inventory management are some of the areas that are highlighted to be of prime importance in bringing and maintaining the financial health of the businesses (Mano, Iddrisu, Yoshino, & and Sonobe, 2012). The model developed in their research paper (Alafifi, Hamdan, & Al-Sartawi, 2022) talks about theory of planned behavior (TPB) in order to replace Intuition based judgments with information and data analytics-based judgment to bring in prospective growth.

Employing consultancy services can also generate positive returns and bring constant growth in not only turnover and profitability but also employability of the firm. A survey was conducted on SME in England that reported the impact of expertise services provided by Business Link: a one stop shops for advice and local support to SMEs with a national chain of 240 outlets launched in the year 1992. The results show a positive and encouraging response from 56% of the companies acknowledging marginal increase in turnover, employment, exports and profitability. Multivariate analysis shows high positive loadings on following factors influencing SMEs operations: People skills, Management skills, Business information, external environment, Innovation, Experience and growth (Bryson, Daniels, & Ingram, 1999)

(Li et. al, 2020). Another study was conducted on Malaysian entrepreneurial ventures (Omar, Aris, Nazri, Jannat, & Alam, 2022) that established significant positive relationship between Entrepreneur support agencies and SMEs specifically in the areas of trust and reciprocity (non-financial indicators).

Likewise, some studies also focused on the unique set of challenges faced by CSIs in their respective regions. Research on foreign owned SMEs in South Africa highlighted Access to markets, Bureaucracy, Cost of living, Crime and Corruption as top 5 challenges faced by them while operating in the market (Mazanai & Cecile, 2022). Others jotted down factors like lack of governmental support in post pandemic era (Moise, Khoase, & Ndayizigamiye, 2020), access to finance and differential market conditions (Zondi, 2017), market knowledge, market commitments, uncertainties related to prevailing conditions and accumulation of requisite resources (Shangase, 2017). Entrepreneurs starting export businesses or expansion in international borders faces challenges in the form of cultural discrimination, language barriers, Resistance from community and immigration problems (Mazanai & Cecile, 2022).

## **Methodology**

This study aims to identify the commonalities in the major problems faced by the CSI sector of Bhutan. For this analysis, we have used convenience sampling approach to identify 10 CSI operating in different parts of Thimphu, with a few of these having branches in other places of Bhutan and abroad. These CSIs are having different fields of specialization and also segregated target customers. The business ranges from sale of property, furniture and tiles to tertiary service providers such as massage center, IT solutions and hospitality services. This sample size of 10 CSIs aligns with the study's qualitative research approach, aimed at identifying common challenges within the CSI sector in Bhutan. By choosing organizations with distinct specializations and target markets, the study ensures a comprehensive exploration of sector-wide issues with practicality and resource-efficiency. The selected CSI organizations has been assured that data generated would only be used for academic purposes ensuring confidentiality and privacy of the parties involved. Convenience sampling was chosen for this study over other sampling methods primarily due to its alignment with the research objectives, constraints, and the exploratory nature of



the study. It allows for the inclusion of a variety of CSIs with distinct specializations and target markets. Although we acknowledge the limitation that convenience sampling may introduce some level of bias, as the organizations selected may not fully represent the entire CSI sector in Bhutan.

A semi structured interview question pattern was constructed to develop a deep understating and make fruitful inferences on the problems stated. As the data analysis for the topic is subjective in nature, we have used both short surveys and personal interviews with the top management (generally owners and their team) of the organization. Few questions were added on spot, to analyze deeply the root cause of the problems identified and access the impact of those problems on the business. It is directed at the most pertinent question- what are the biggest challenges faced by the enterprise in post pandemic scenario. Based on the answers, the major themes are identified using content and thematic analysis. The major themes are then segregated into headings to find out commonalities in the critical problems faced by these organization in post pandemic situations. We used Taguette online thematic analysis tool (Taguette, 2023) to perform this analysis. For this, firstly the content of personal interviews was thoroughly analyzed. After that systematic coding was performed to segregate the data; next patterns and connections among the codes were identified and minutely reviewed; and finally, names and quotations are provided as themes.

## Diagnosing and Analysing the Challenges Faced by CSI

The table below represents the year of incorporation, primary business along with auxiliary business (if any), and the branch office location for each respondent.

Respondent	Year of Incorporation	Primary Business	Auxiliary Businesses	Branch Offices location
R01	2021	Sales and purchases of property	Real Estate transaction facilitators	Thimphu (HO); Australia
R02	2016	Tiles	-	Thimphu

R03	2020	dealership Fast food business	-	Thimphu
R04	1988	Construction company	-	Phuentsholing
R05	2013	Furniture Sales	Printers and related machines sales	Thimphu
R06	2015	Healing and massage service providers	Herbal products sales	Thimphu (HO); Paro
R07	2019	Chartered Accountant firm	Taxation and auditing consultancy	Thimphu
R08	2011	Software development and IT solutions	-	Thimphu
R09	2005	Drycleaner and launderer	-	Thimphu
R10	2016	Hotel and restaurant	-	Thimphu

Some of the highlighted problems quoted by the respondents are as follows:

“The company has been losing money since 2018, and as the covid epidemic spread, it made the firm's cash flow issues worse and prevented it from growing. One of the major repercussions of this problem was that the business was finding it difficult to keep up with its rising costs, losing the ability to compete in the market and draw in new customers.”

“The threat of new entrants is high in our business as there are few barriers to enter the operative market. Also, because not much capital

investment is required for setting up such businesses, obtaining licenses is easy and because no special skill is required for operating the machineries.”

“During the pandemic, the company's staff faced a major challenge. They had a difficult time acquiring specialized professionals from within the country since no workers could be brought from elsewhere. The firm had no trouble recruiting personnel for executive positions, but they couldn't find anyone to work in installation services or delivery because all of the company's products are delicate, so drivers had a difficult time delivering them securely.”



Although there are multiple problems identified by the business owners, only those problems that are common and mostly occurred due to post pandemic effect, are mentioned here. Based on the thematic analysis, the following were the major problems identified by the business owners in post pandemic situation:

## **Operational Difficulties**

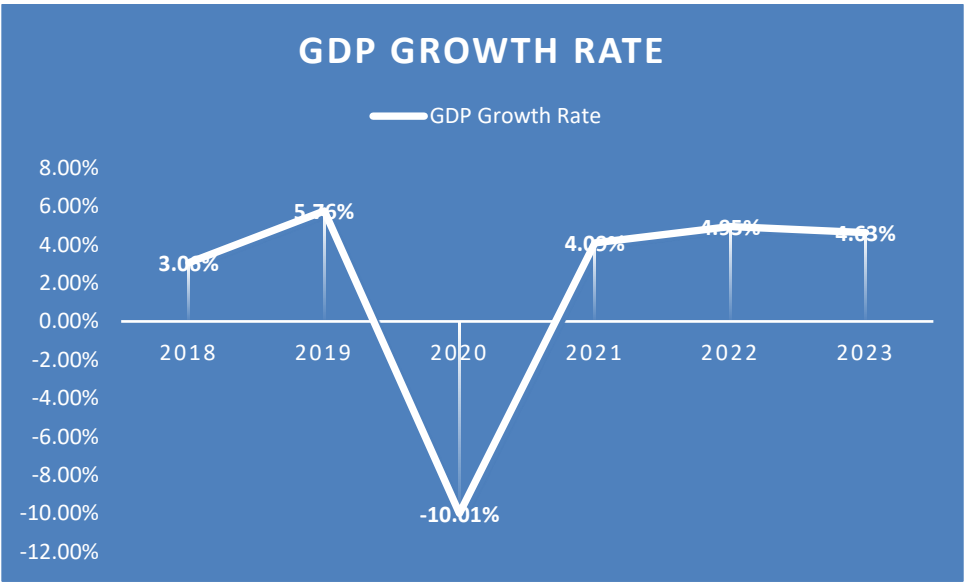
### *1. High Wastage*

Though this problem is not unique to CSI businesses but its impact on them is quite

high. Wastage of inventory results in high cost to the business which can be one of the prime reasons for low profits. Depending on the type of business, inventory wastage to some extent, is literally unavoidable. Based on the observations of the respondents, the major reason for wastages are high transportation and warehousing costs, lack of appropriate inventory management technique, non or low availability of raw material resulting in decay of current stock and improper time management skills.

2. *Low Profits*

One of the major conclusions drawn by almost all the respondents, is lack of sales, resulting in low profitability of the business. Although service sector is considered having the major hit due to pandemic, however other sectors under CSI are also seems to be bearing the brunt of the event. The businesses are facing a major slowdown post pandemic which can be attributed to low sales, lack of demand and very minimal growth rate of the economy of Bhutan.



Source: (MacroTrends, 2023)

3. *Lack of financial accounts keeping*

This problem relates to both having high wastages and low profits as the revenue generated by the business activities are kept unrecorded or recorded in the loose

format that cannot be re-assessed. The books of accounts are essential for understanding the expenses incurred, revenue/income gained and overall profit/losses on daily basis. It also keeps track of any recent transactions in terms of loans paid or received and interest charged on the same. The relevance of the books of accounts are appreciated by every business we selected. However, some lacked either the skills or willingness to maintain them.

## **Marketing Related Issues**

### *4. Lack of sales promotion strategies*

Although all the firms either knew or tried to apply some form of marketing, be it online or physical mode, only few have appropriate marketing plans to capture the untapped customer base. The advertisement prepared by the marketing team, are generally displayed on social media, with only few viewers. The rate of conversion of prospective buyers to actual buyers are extremely low. Sales Promotion activities such as giving discounts, sale offers, coupons and loyalty reward programs to engage customers, are very less and irregular in nature.

## **Workforce Management**

### *5. High labour turnover*

As per the respondents, one of the major problems faced by the business, in current scenario, is retention of skilled workforce. It is easy to acquire and retain unskilled labour but skilled labour, generally quit either due to better job opportunities, low salaries or lack of commitment. As per one of the respondents, "Nowadays, it's a trend to migrate to preferred job destinations such as Australia, Singapore, Canada and Thailand among the Bhutanese youths". The process of providing training to new employees and skill upgradation to match the standards are strenuous, time consuming and costly affair. Hence, high labour turnover is considered as dent in the smooth flow of the business.

## Digital Transformation

### 6. *E-Commerce/Website maintenance*

Among the latest trends, “Going global” is the new norm. However, very few businesses in Bhutan are ready to face the challenge that global competition demands. Most of the businesses are still operating or prefers to operate in offline or physical mode. The concept of opening and maintain website to get orders for sale is still a distant dream. This is attributed to lack of skilled resources, cost of maintenance and high promotional cost. Other issues relate to internet connectivity and infrastructure, concerns over trust and security, complexities in payment gateway integration, the need for localization and language customization, and the necessity of educating potential customers about online shopping. It has numerous benefits, including 24/7 accessibility, valuable customer data insights, targeted marketing opportunities, enhanced competitiveness, and scalability. It reduces geographic limitations, facilitates product customization, and encourages digital payment adoption. Embracing e-commerce not only addresses challenges but also positions CSIs for growth, diversification, and improved competitiveness in the global marketplace.

## Suggestive Approaches to Solve Critical Problems

Though the problems identified are quite unique to the business selected for this study, few of the strategies are found to be applicable to all the businesses. Some of these effective and suitable strategies can be adopted by the CSI businesses in order to rebuild the lost business capabilities. This state-of-the-art technique provides a basic framework to address the identified problems. The suggested actions may result in cost minimization, increase in efficiency and upgrade in the operative capacities of the businesses.

### 1. *Building a Strong Online Presence*

A solid digital footprint is critical in the modern era of technology for any business looking to broaden its reach and draw new customers. Having a user-friendly website and building a strong social media marketing can help accomplish the

business's online visibility. Some of the business selected for this study, already has a strong social media presence but their website needs to be improved to be user friendly. A marketing plan can help manage the work more methodically. This suggested action is for the identified problem- Lack of E-Business. CSI businesses can enhance their websites by optimizing them for mobile devices, assuring security measures, offering live chat support, encouraging email subscriptions, ensuring fast loading times and tailoring content for the local audience. For this, websites such as Forbes, Gartner and Corporate Finance Institute can be referred and structured plan can be adopted free of cost.

## *2. Networking and Building Relationships*

Contract based professionals like Brokers, legal professionals, contractors could aid with the expansion of a business. Likewise, joining a trade show, joining community industry groups and volunteer activities in the public are all excellent ways to meet new people and expand one's professional network. By expanding their market reach through connections with potential clients and partners, CSIs can increase sales opportunities. Additionally, establishing relationships within the industry provides access to crucial resources, including suppliers and financial support, enhancing operational efficiency. Collaborative ventures, brand visibility, and customer loyalty are few of the further benefits. Overall, networking is a strategic tool for CSIs to navigate uncertainties, access new opportunities, and build a resilient and competitive presence in the market. This suggested action is for the identified problem- Low Profits and Lack of Marketing Strategies.

## *3. Inventory Management*

Inventory management is simply a set of processes, tools, and techniques that a company uses to manage and control its inventory. How it is used and executed varies from simple to complicated type of business structures. Inventory management software is a necessary and beneficial tool for all inventory-centric enterprises. It manages the movement of stock in and out, keeps the right inventory levels for all goods and stocks, provides access to sales data and analytics, and allows businesses to specify customized safety-stock needs. Recommended software such as Inflow On-Premise, Zoho inventory and Odoo (Kerai, 2023) can be applied free of cost to manage inventory for CSI businesses. This suggested action is for the

## **Cost Control Techniques for the organization**

### *1. Revenue and Expense Tracker.*

It is a consolidated format in excel which will help the organization to reflect the expenses incurred on a daily basis. It allows user to monitor and categorize different forms of expenses. As a result, an accurate record of the outflow of money can be analyzed through it. The excel template also consists of a revenue recording feature, which can be used to reflect the sales figures of the company, and compare them with the costs incurred. Therefore, the primary function of the revenue and expense Tracker is to record the expenses of the company in a structured manner.

### *2. Budgeting.*

Budgeting, also known as budgetary control is a system where funds are used for planning and controlling costs. Through the budgeting process, the differences between the Company's cost baseline and the current financial activities can be analyzed properly. In order to make it more convenient, the budgeting feature can be installed in the same excel template where the revenue and expense tracker is maintained. This way, two of the most effective and efficient cost control techniques can be used by the enterprise. Free excel template for expense tracking and budgeting, are available on Smartsheet (Marker, 2022) with daily and monthly record keeping facilities. Also, TemplateLab, (2023) provides 37 handy excel and google sheet templates of expense management for different types of businesses such as real estate, Legal, Education and so on. These solutions cater to the identified problem- Lack of Financial Accounts.

### *3. Human Resource Management*

The company can review its current recruitment policies and make adjustments to them to make it more effective and efficient. This solution is concerned with designing statistical and analytics-based assessments so as to improve the quality of hires. Also, it entails to reviewing the current onboarding and training processes and



making adjustments to make them more efficient. This will result in hired employees, having better knowledge and proper training to fit in the organization. This will drastically improve their experience at the company, which will, in turn enable the company to retain more of its employees. This solution goes well with problem of high labor turnover.

Implementing a strong online presence with proactive networking, efficient inventory management, cost-controlling techniques and strategic human resource management, collectively contribute to the robust growth, economic impact, and overall development of the CSI sector. By establishing a digital footprint, CSIs expand their market reach and streamline transactions, resulting in growth and economic efficiency. Optimized inventory practices ensure product availability, while cost-controlling measures enhance competitiveness and financial stability. Strategic human resource management fosters a skilled and motivated workforce, positively impacting productivity and economic performance. Together, these solutions position the CSI sector for sustained development, innovation, and resilience in a dynamic economic landscape. This might also lead to fill the huge gap in GDP contribution by CSI sector in Bhutan.

## **Conclusion**

Bhutan has domination of CSI, covering 95% of the total industries with only 5% contribution to the total GDP of the country. This is a problem. Hence, this analysis is conducted to understand the major problems faced by CSI sector in post pandemic situation and to also offer some viable solutions to address the identified problems. The key contributions of this study is that we have identified 6 major bottlenecks restricting the development of CSI including high wastages, lack of promotional strategies, improper financial management and so on. We have also proposed 5 state-of-the-art techniques to address the identified problems. Some of these effective and suitable strategies can be adopted by the CSI businesses in order to rebuild business capabilities. This state-of-the-art technique provides a basic framework to address the identified problems. The suggested actions may result in cost minimization, increase in efficiency and upgrade in the operative capacities of the businesses. Increased efficiency can lead to quicker processes, reduced waste, and improved overall

productivity. Businesses that implement these actions may become more competitive in the market due to their improved cost structures and efficiency. Implementing these actions should lead to reduced operational expenses (up to approx. 20%) for businesses, enabling them to handle a broader range of tasks and challenges. The scope of the paper is limited to examining the challenges encountered by CSIs in Bhutan with a specific emphasis on the post-pandemic period. However, future researches can take up the applicability and post application impact of these solutions on CSIs of Bhutan. As a recommendation, for overall economic development of the country, it is imperative to address the concerns and promote the development of CSI sector of Bhutan by the government undertakings.

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# The consecration of a Bhutanese Drukpa Kagyu temple in Nepal

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**Abstract:** A historical event occurred over three sunny days in November 2022, namely the consecration by senior Bhutanese officials at Kathmandu valley's most sacred Buddhist site, Swayambhu, of a temple rebuilt after a once-in-a-hundred-year earthquake. The first part of this article provides a brief history of a Bhutanese Drukpa Kagyu temple at Swayambhu. Although the legend of Bhutan's acquisition of this temple may be familiar to some readers, this article digs deeper into the popular oral account and shares some lesser-known material relating to the temple's loss by Bhutan in the 19<sup>th</sup> century, a fire in 1907 which led to the change in its physical form, and its subsequent recovery by Bhutan in the late 1970's. The second part of this article shares documentary photos of the 2022 consecration led by the current Dorje Lupon, Sonam Gyamtsho, supported by the incarnation of Kusho Tsechu Rinpoche, Jigme Choying Norbu. Zhung Dratshang monks were assisted by monks from Sangye Choling, the largest Bhutanese gompa in Nepal.

**Keywords:** Nepal, Bhutan, Swayambhu, 'phags pa shing kun, Gorkha, relations, consecration, earthquake

## Introduction

On Saturday 25 April 2015, just before noon, a magnitude 7.8 earthquake shook the Kathmandu valley. A temple on the west side of the famed Swayambhu *mahacaitya* (འཕགས་པ་པོ་ཐེང་ཀླན་) was among the many buildings on the hill which was heavily damaged (UNESCO, 2015, p. 71). The resulting reconstruction was implemented by the caretaker appointed from the Bhutanese-lineage Sangye Choling monastery and funded by the Royal Government of Bhutan. Although the historical narrative of Bhutan's acquisition of this temple may be familiar to some readers, the exact origins

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of Bhutan's management of this temple are unclear. This article explores variations of the popular oral account and shares some lesser-known material relating to the temple's history.

The practice of Tantric Buddhism as well as trade are said to be the basis for a centuries-old relationship between Bhutan and the Malla rulers of the Kathmandu Valley (Shrestha, 2008, p. 53). Some claim that Bhutan's relations with the Gorkha have existed since Dravya Shah (White, 1909, p.102; Pant et al, 1958, pp. 620-623; Hasrat, 1980, p. 47; Dorji, 1996, p. 13), but no primary sources are found to confirm this. There are also claims that Zhabdrung Ngawang Namgyal visited Nepal (Sharma, 1990, p.158) that he even studied at Swayambhu or was awarded both Swayambhu and Boudha (Rose, 1977, p. 69; Dorji, 1995, p. 191). Though there is no mention of this in his biographies, evidence for such a visit is said to be the migration of Nepali craftsmen to Bhutan in the seventeenth century (Dhungel B, 1976, pp. 131-132; Tamang, 1998, p. 23).

The popular origin story of the Swayambhu temple states that a Gorkha king lacked an heir. His queen dreamt of being blessed by a lama of Deva Dharma, a name used in Nepal for Bhutan until the last century, resulting in the birth of a son. A royal invitation was thus sent to Bhutan and a lama was dispatched, whose blessings did indeed lead to a son. In return, the king offered a reward, and thus Bhutan acquired management of the Swayambhu temple (Yonten Phuntshogs, 2013, p. 268). The lama who blessed the royal couple is generally identified as Damcho Pekar (b.1639 - d.1708), later to become the fourth Je Khenpo. The Gorkha king he blessed is named as either Ram Shah (b.1550 c.1606 – d.1636) (Yonten Phuntshogs, 2013, pp. 268-269) or Nara Bhupal Shah (b.1697 c.1716 – d.1743), father of Prithvi Narayan Shah<sup>2</sup> (Yogiraj, 1957, pp. 25-26; Shakya, 2004, pp. 259-260; Pradhan, 1975, pp. 28-29). However the dates of these individuals seemingly contradict the historicity of both versions of the legend. Ram Shah died before Damcho Pekar was born, and Damcho Pekar was dead long before Prithvi Narayan's birth in 1723, thus he cannot have caused the birth of Prithvi Narayan.<sup>3</sup>

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<sup>2</sup> Prithvi Narayan Shah is credited with the unification of Nepal, but specifically with the conquest of the Kathmandu Valley.

<sup>3</sup> This date discrepancy has already been noted by Dhungel (1989, p170).

From Damcho Pekar's biography (ལྷོ་ཐེ་ཐེ་ཐེ་) we know he was sent to Nepal by 3<sup>rd</sup> Desi Migyur Tenpa (Ardussi, 1977, pp. 318-320; Kunga Gyaltsen, 1970, pp. 37-45; Kunga Gyaltsen, 1985, pp. 70-81). However, a unified Nepal had not yet come into existence, and thus, while it is possible that he met the Kathmandu or Lalitpur kings, he is unlikely to have met the ruler of Gorkha, and no such meeting is mentioned, nor any blessing of a son (Ardussi, 1977, pp. 318-320; Aris, 1994, f. 118). While Damcho Pekar's biography mentions reconstruction of a gumpa and the establishment of others, it also states that two years later he fled Kathmandu to Jumla and then to Ghatika<sup>4</sup> before returning to Bhutan (Kunga Gyaltsen, 1970, p. 41; Ardussi, 1977, pp. 319-320; Kunga Gyaltsen, 1985, p. 76; Aris, 1994, p. 110).

Despite this, popular accounts claim that Damcho Pekar remained in Nepal for decades managing the estates Bhutan had been granted. This is inferred by a list of lamas apparently appointed to the Gorkha court in the centuries following Prithvi Narayan's conquest of the Kathmandu valley in 1769. Bhutan's continued relationship with Nepal is presumed from various official documents including land grants which mention Simbhu and Kintol<sup>5</sup> (Pema Tshewang, 1994, pp. 233-234).<sup>6</sup>

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<sup>4</sup> Present day Cooch Bihar, West Bengal. (Dorje & Ura, 2017, p. 497 fn 27) (Dorji, 1996, p. 13).

<sup>5</sup> i.e. Swayambhu and Kimdole, the hill to the south, known to Tibetans and in Dzongkha as རྩ་མོ་ལྷ་མོ་, the second Vulture Peak. Note that until Prithvi Narayan's conquest of the Kathmandu valley, Swayambhu was not under Gorkha control and could not have been awarded by them.

<sup>6</sup> Lopon Pema Tshewang's 1994 "འབྲེང་གི་རྒྱལ་རབས། འབྲེང་གི་ལུང་ལུང་ལུང་ལུང་" is the earliest publication of the list of Lama's posted to the Gorkha court. Unfortunately he did not cite his sources, but the content of Lopon's Chapter 53 mirrors a set of documents also held by the National Library of Bhutan. The document appears to be based on a handwritten "history" and a selection of transcribed copperplates from Nagathali gumpa, Rasuwa. This transcription has no date or author, but the paper format and the lamas named suggest it was written in the Rana period, i.e. mid-19 to mid-20th century. These documents were shared with Dhungel by Kusho Tsechu Rinpoche in the 1980's (Dhungel, 1989 and 2012). Thus it seems that Lopon Pema's Chapter 53 is based on the Nagathali material.

Michael Aris undertook an early translation of some of these materials prior to Lopon Pemala's publication. Aris ascribes his text to བས་པོའི་རྒྱ་མ་ Sangye Norbu but provides no explanation for this attribution (Aris, 1994, ff. 96-106).

Thus, though the information appears to originate from Nepal, Lopon Pemala's is the only published version of the "history".

However the sources do not confirm Bhutan's control of a temple at Swayambhu at this time.

A variation on the legend states that a different Bhutanese lama came to Nepal during Rana Bahadur Shah's (b. 1775 c.1777-1799) reign and claimed the promised reward for the earlier blessing of the royal heir (Rodseth, 1993, p. 141), or that the temple was built with the income from previously awarded *guthi*<sup>7</sup> lands (Shakya, 2004, p. 309), and named Dharmakirti (Dhungel, 1989, p. 171; Manandhar, 2011, p. 35). However the name of this lama is not mentioned, he is only referred to as the Deva Dharma lama. Lopon Pema Tshewang records a lesser known event to which the Swayambhu temple award is also ascribed, together with land in Haku<sup>8</sup> (Jest, 1985, pp. 14-15).

Prithvi Narayan is said to have given the temple to Bhutan in exchange for the 16<sup>th</sup> Desi, Sonam Lhundrub (aka Zhidar) relinquishing claims over Vijaypur<sup>9</sup> (Pema Tshewang, 1994, pp. 235-236). However, Zhidar was ousted in 1773 and Prithvi Narayan died in January 1775. European sources suggest Vijaypur was under Gorkha control in mid-1774 (Bogle & Manning, 1879, pp. 141, 149; Stiller, 1973, pp. 109-110), while Lopon Pema notes that the Vijaypur leadership situation remained unresolved at the time of Desi Pema Chodag (1807-1808) (Pema Tshewang, 1994, p. 238). Thus it seems unlikely that if a deal regarding Vijaypur and Swayambhu had been agreed between Prithvi Narayan and Zhidar, it was ever concluded. However, Kinga and Penjore consider this to be the moment of Swayambhu's acquisition by Bhutan (Kinga, 2019, p. 1; Penjore, 2021, p. 18); no other source yet verifies this.

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<sup>7</sup> There are many forms of *guthi* in Nepal. In this context it refers to committees which maintain tangible and intangible heritage, financed by income from land gifted for that specific purpose. The land is not owned by the institution, and cannot be sold, but may be exchanged, renewed or confiscated by the king, and later the Rana Prime ministers. The word *guthi* originated in the Kathmandu valley but came to be used for similar arrangements throughout Nepal. The government nationalised all *guthi* property in 1964, and set up the Guthi Sansthan to manage them all. However this caused the collapse of many *guthis* (for more see Regmi, 1976).

<sup>8</sup> In Rasuwa district.

<sup>9</sup> Vijaypur is near modern Dharan, Nepal. Bhutanese popular histories record a Cooch Bihar uprising at this time which needed to be quelled, however award of Swayambhu is not mentioned (for details see Das, 1973, pp. 21-22; Hasrat, 1980, pp. 80-81; Rahul, 1983, pp. 10-11; Dorji, 1995, pp. 52-55, 70-71).



Finally, Lupon Pema also states that the year after Zhidar became Desi, he commissioned a *thongdrol* of Zhabdrung and more than 25 other small *thangkas*. Due to the blessing of those *thangkas* the Nepali king gave Swayambhu to Bhutan in 1769<sup>10</sup> (Pema Tshewang, 1994, p. 369). This is the same year that Prithvi Narayan completed his conquest of the Kathmandu valley. Was Swayambhu a reward for military or spiritual support that Zhidar had provided for Gorkha's success?

In any event, we see here a core legend with a number of sub-plots, which legitimise Bhutan's acquisition of the temple at this powerful location, that broadly signify the tantric prowess of Drukpa lamas and support to Gorkha rulers. The temple becomes known both as Deva Dharma gumpa and Marme Lhakhang, but the exact date and circumstances of its acquisition remain unclear.

## Loss and return

The Nepal-Tibet war of 1855<sup>11</sup> led to a misunderstanding between the two countries and the confiscation of Bhutan's lands and monasteries in Nepal, including Swayambhu (Manandhar, 1989, pp. 72-73; Dhungel, 2012, pp. 3, 112-113). However the situation was eventually clarified, and some of the estates, including the Swayambhu temple, referred to as Marme Lhakhang (Yonten Phuntshogs, 2013, p. 268; Rinchen Chozang, 2014, p. 43), were returned to Bhutan some time before 1862 (Dhungel, 1986, p. 12-13; 1989).

From the late 1700s the arrival of the British East India Company led to tensions in the region (Steinmann, 2003-4, pp. 147-152, 157-158; White, 1909, p. 253; Martin, 2012, pp. 8-9), and made it difficult to send monks, funds or supplies from Bhutan to Nepal (Manandhar, 1990, p. 19; 1992, pp. 14-48). One particular event highlights the

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<sup>10</sup> This event is not included in the transcription of the Nagathali texts, therefore Lupon Pema must have relied on a different, unidentified, source.

<sup>11</sup> Das ascribes the loss to 1788, the first Nepal-Tibet war, but provides no sources (Das, 1973, p. 29). Presumably he took this date from White, who writes that Migyur Tenpa was friends with Ram Shah, and at one time Bhutan held eighteen monasteries in Nepal, but lost all but two on account of supporting Sikkim against Tibet (White, 1909, p. 291). However there is no correspondence between Bhutan and Nepal which suggests a loss at that time.

difficulties of the time. The British had already caused the Sikkimese Chogyal, Thutob Namgyal and his Rani<sup>12</sup> to temporarily flee Sikkim in the 1880's only to be detained (Shakabpa, 1967, pp. 200-203, 217) and subsequently stripped of any real power in 1906 (Coelho, 1967, p. 21; Thutob Namgyal & Yeshe Dolma, 1908). In early 1908,<sup>13</sup> the Sikkimese royals came on pilgrimage to Nepal and offered 100,000 butterlamps at the Swayambhu temple, which apparently burned for three days. Contemporary documents suggest that the temple caught fire due to this offering (Manandhar, 2011, pp. 34, 37, 42), though the Chogyal writes that the fire had occurred some years earlier<sup>14</sup> (Shakya, 2004, pp. 309, 492; (Thutob Namgyal & Yeshe Dolma, 2003, pp. 383-384; 2021, pp. 501-502). Nepali records show that the caretaker (དཀོན་གཞེས་) was blamed for the fire, but Bhutan was unable to send a replacement. Thus the Bhutanese and Nepali authorities agreed to appoint a local lama, the second Chiniya Lama of Boudha<sup>15</sup> (Dhungel, 1989, p. 184; Manandhar, 1990, p. 19; 1992, pp. 14-15).

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<sup>12</sup> Grandparents of Ashi Kesang Choden Wangchuck.

<sup>13</sup> Before the end of the fire sheep year, 2034.

<sup>14</sup> The Sikkimese royals' account was written in 1908. So close to the event of interest to us, we would expect their account to be reliable, or did the political sensitivities of the time contribute to their different allocation of blame for the fire? Considering that the reason cited for coming on pilgrimage was to ward off evil for the coming year and hope of recouping some of their power, such a fire cannot have augured well for the Chogyal. The Tibetan version states that fire had damaged the temple, but does not appear to mention how long earlier. It is only the English translations which say, "Some years before".

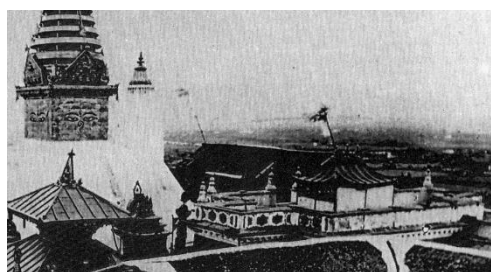
<sup>15</sup> Remembering that this was soon after Ugyen Wangchuk's coronation, he probably was too busy to be concerned with a temple in Nepal inherited from Bhutan's previous relations.



*Figure 1: 1901 Herzog and Higgins (Photo looking south west) Source : item 4305223 By permission of the British Library*

The previously Newar two storey *sattal*<sup>16</sup> (Fig. 1) was rebuilt with a flat roof, “Himalayan” style, sponsored by the Sikkimese royals. New statues and a mani wheel were donated by Newars with trading connections with Tibet (Shakya 2004, pp. 309, 492, 611). The ground floor was retained as a public space while the temple on the first floor retained the central triple bay Newar window (Fig. 2), an unusual architectural combination even in the Kathmandu valley.<sup>17</sup>

*Figure 2  
Est ~1910,  
unknown  
photographer  
(Photo looking  
south east,  
Himalayan  
rooftop visible to  
right of  
mahacaitya )<sup>18</sup>*



<sup>16</sup> Nepali, public rest-house.

<sup>17</sup> Documents suggest that the caretaker began reconstructing the temple but complaints were made about his work. A new construction was undertaken but the caretaker was not refunded expenses he had incurred. (Manandhar, 2011, p. 42) Could it be that the caretaker rebuilt the temple in the previous Newar style?

<sup>18</sup> See also from 1920 and 1926, <https://www.gettyimages.ae/detail/news-photo/shrines-and-tombs-at-the-swayambhunath-temple-original-news-photo/964875330> and

Although temple management was given to the Chiniya Lama of Boudha (Manandhar, 2011, pp. 41-43), documents suggest that failure to pay taxes, and the embezzlement of property and funds meant his descendants also lost control of Swayambhu for some years before losing it completely (Regmi, 1977, p. 70; Dhungel, 1989, p. 184; Rodseth, 1998, pp. 59-60). As a result, Swayambhu's day-to-day management fell to the local Tamangs of Kimdole, in the roles of *pujari*<sup>19</sup> and *dwareh*<sup>20</sup>. It is for this reason that, today, many Kimdole Tamangs refer to the temple as the Tamang gumpa.

## Drukpa Rinpoche, Sherab Dorje

In 1917 a lama from Mongar, arrived from Bhutan with donations for the renovation of Swayambhu *mahacaitya* led by Togden Sakya Shri. In addition to donations from his own followers, Sherab Dorje (aka Geshe Ngawang Palzang b. 1871/2 - d.1945) brought Ugyen Wangchuk's contributions (Shakya, 2004, pp. 311-315, 320-322; Rospatt, 2011, pp. 201-205; Kinga, 2019, p. 2). According to Bhutanese accounts, Sherab Dorje had some responsibility during the Swayambhu reconstruction, but he is not mentioned in any such capacity in Nepali or Tibetan accounts (Shakya, 2004, pp. 311 fn2, 320-321; Rospatt, 2011, pp. 197-205, 233; Jangchub Sangye & Yeshe Samdrub, 2021, pp. 17, 36-36).

After the reconstruction, Sherab Dorje left for Bhutan and stopped to visit the Ayra Wati Zangpo of Kyirong (Sherab Dorje, 2007, p. 9; Jangchub Sangye & Yeshe Samdrub, 2021, p. 61). The deity told him not to return home, but to spread the dharma in the Himalayan hill and mountain regions of Nepal. Therefore Sherab Dorje established nunneries and monasteries in Kyirong, Tsum, Gorkha, Nuwakot, Sindhupalchowk, and Dolokha amongst others and is better known in Nepal today as the first Drukpa Rinpoche (von Fürer-Haimendorf, 1976; Sharma et al, 1981-1983, p. 14; Sherab Dorje, 2007, pp. 6-20). He gathered a following as a *nyunge* (ལྷུང་གནས་)

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[https://www.gettyimages.ae/detail/news-photo/buddhist-temple-at-swayambhunath-nepal-1926-news-photo/964875128?](https://www.gettyimages.ae/detail/news-photo/buddhist-temple-at-swayambhunath-nepal-1926-news-photo/964875128?from_view=detail&from_opening_time=164875128)

<sup>19</sup> Who undertakes daily rituals.

<sup>20</sup> Guthi tax collector.

practitioner, particularly in the Kathmandu valley (Regmi, 1977, pp. 33-35; Ede, 1999, p. 140; Shakya, 2004, pp. 334-335). His nephew came to Nepal aged 13, with his elder brothers (Furer-Haimendorf, 1976, p. 125). Studying both under Drukpa Rinpoche and in Bhutan, Sherab Dorjet later appointed them to manage his Himalayan monasteries.<sup>21</sup> By the 1980's the youngest nephew was better known as Lopon Kusho Tsechu Rinpoche (b.1918 - d.2003) (Zigar Khenchen Thinley Dorje, 2013, p. 532; Jangchub Sangye & Yeshe Samdrub, 2021, pp. 91-92). He was considered by Nepalis as almost Nepali, having spent most of his life in the Nepal Himalaya.

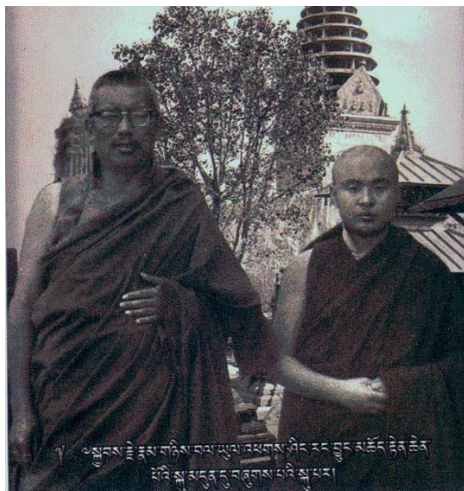
## **Reclaiming the Temple for Bhutan**

Kusho Tsechu Rinpoche established contacts with other prominent lamas of the time, including Tibetan refugees Tulku Ugyen Rinpoche and Chogye Trichen, as well as the Nepali kings (Zigar Khenchen Thinley Dorje, 2013, p. 534; Jackson, 2019a, p. 153; 2019b, pp. 331, 386, 448-449, 451, 619 n 484). He was related to the Bhutanese royal family and facilitated the visits of Ashi Phuntshog Choden, the second Dudjom Rinpoche Jigdel Yeshe Dorje and the 68th Je Khenpo to Nepal (Yonten Phuntshogs, 2013, pp. 268-270).

Thus it happened that in the 1970s or 80s the Queen Grandmother and Kusho Tsechu Rinpoche approached the Kimdole Tamang caretaker at the Swayambhu temple, which was in poor condition at that time, and offered to manage it (Yonten Phuntshogs, 2013, p. 271; Rinchen Chozang, 2014, p. 43).

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<sup>21</sup> Note that the Himalayan areas where Drukpa Rinpoche established gompas includes some communities who today also identify as Tamang or Yolmo (Hyolmo), but in the past were labelled as Sherpa by Nepal's caste-conscious bureaucracy (for example see Furer-Haimendorf, 1976). They should not to be confused with the Tamangs of Kimdole.



*Figure 3*  
*68<sup>th</sup> and 70<sup>th</sup> Je*  
*Khenpos*  
*visiting*  
*Swayambhu*  
*n.d.*  
*(Rinchen*  
*Chozang,*  
*2014, p. 43)*

They undertook a restoration of unclear extent, but possibly including an extension at the rear. The 68th Je Khenpo conducted the consecration, bringing statues from Bhutan and *tormas* to establish a protector temple (དགོན་ཁང་), and renamed it Dongag Choling (མདོ་ཁག་མོ་སྒྲིང་) (Yonten Phuntshogs, 2013, pp. 271-273; Rinchen Chozang, 2014, pp. 40-43). Although some renovation works are known to have been undertaken since then, it is assumed that this is essentially the structure that was damaged in the 2015 Gorka earthquake.

In addition to managing the monasteries and nunneries established by his uncle in the Himalayas, Kusho Tsechu Rinpoche established his own monastery in Kimdole in 1997, Sangye Choling, also known as Buddha Dharma Maha Vihar. It was initially populated by students from Sherab Dorje's Himalayan monasteries, some of whom were sent to Bhutan for further studies.

## **Reconstruction After the 2015 Gorkha Earthquake and Consecration**

The Swayambhu hill was inscribed as one of the Monument Zones of the Kathmandu Valley World Heritage Site in 1979. The impact of the 2015 earthquake on tangible heritage across Nepal was significant. The establishment of a National Reconstruction Authority did not relieve the workload on the Department of Archaeology, which is legally responsible for all structures over 100 years old.

*Figure 4: Chief Advisor of the Interim Government of Bhutan, Lyonpo Tshering Wangchuk visits the ongoing work in August 2018 (FSMC, 2019, p. 64)*



Dongag Choling is the only building at Swayambhu which was rebuilt using traditional materials and methods as required by international heritage principles. The Royal Government of Bhutan funded the majority of the structural works, supplemented by contributions from Sangye Choling and those raised by the *konyer* and private donors, plus donations for the repair of various objects as well as direct offerings including a new Manjusri statue.

A combination of bureaucratic delays and the COVID pandemic meant that the temple was only completed in 2020, and the statues and other sacred objects were reinstalled. A small consecration was conducted by the head of the Sangye Choling, Lama Kalzang, on 28 January 2021 to enable religious activities to continue, since COVID travel restrictions prevented Bhutan from sending any officials.



*Figure 5: Lama Kalzang conducts the consecration in January 2021  
(Photo: Ngedup Hyolmo)*



It was not until November 2022 that Zhung Dratshang representatives were able to come to Nepal and conduct a full consecration over three days. The ritual was led by Dorje Lupon, Sonam Gyamtsho, supported by Tsechu Rinpoche's incarnation, tulku Jigme Choying Norbu. Zhung Dratshang monks were supported by Sangye Choling monks, and tulku's family participated in the process. On the evening of the 5<sup>th</sup> of November, Dorje Lupon led a cleansing of the temple and the area around the *mahacaitya* with fire *cham*. He was supported by the *zhudapa* (ཞུདཔ་) and Dongag Choling's *konyer*.<sup>22</sup>

Figure 6 Day 1



Dorje Lupon supported by *zhudapa* and Dongag Choling's *konyer*.



Fire *cham* by Sangye Choling monks



Fire *cham*



Cleansing the area around Swayambhu *mahacaitya*

<sup>22</sup> All photos by author unless noted otherwise.



The second day, 6<sup>th</sup> November, involved a full day of purification and offerings, including a further fire *cham* and fire offerings (ཐྱིན་ཐེགས་).

Figure 7 Day 2



Tulku Jigme Choying with his yongzin (ཡོངས་འཛོན་), Lama Nono of Sangye Choling



Sand mandala prepared for fire offering between the temple and the mahacaitya



Tulku's family offer supplications and aspiration prayers



Fire cham by Sangye Choling monks



*Tulku's family circumambulate the mahacaitya with offerings*



*Fire offerings led by Dorje Lupon in the public space of the temple ground floor*



*Dratshang monks and tulku's maternal uncle circumambulate the fire in front of Swayambhu mahacaitya*



*A pot of rice pudding (འུ་ཐུག་) is connected to Dorje Lupon by a string of trumpet flower petals (ཅམ་བཀའི་མེ་རྟོག་)*



*Dorje Lupon offers rice pudding to the mahacaitya.*



*Dorje Lupon, tulku, Dongag Choling konyer, and tulku's family circumambulate the mahacaitya.*





*The Dongag Choling konyer is offered the eight lucky symbols*



*The shrine is hung with strings of trumpet seed flowers and five coloured khata*

The events of the third and final day, 7<sup>th</sup> November, also began early, and were completed by lunchtime.

*Figure 8 Day 3, morning*



*Entrance to the gonkhang established by the 68<sup>th</sup> Je Khenpo*



*Shrine decorated with five coloured khata and strings of trumpet flowers*

Since the temple is relatively small, situated to the west of the *mahacaitya* on top of the hill, a larger celebration to the east of the *mahacaitya* enabled official guests to be invited. This included representatives of the Government of Nepal, Guthi Sansthan and other dignitaries.

*Figure 9 Day 3, official program in the afternoon*



*Dorje Lopon reveals the commemorative plaque with Kiran Shaky, of Guthi Sansthan*

*Khenpo Shedup Tenzin of Shri Gautam Buddha Vihara & Gampopa Library, Swayambhu (Photo Rinzin Yonjan)*



*Khenpo Kalzang of Sangye Choling, Kimdole (Photo Rinzin Yonjan)*



*Konyer Lama Tendar with Kiran Shaky, of Guthi Sansthan (Photo Rinzin Yonjan)*

These three sunny days in November 2022 were a historical event; the consecration by senior Zhung Dratshang officials at Kathmandu valley's most sacred Buddhist site, of a Bhutanese temple rebuilt after a once-in-a-hundred-year earthquake.

## **Conclusion**

This article has shown that the exact history of the temple remains debated, despite the existence of a popular oral account. What the temple evidences is a centuries-old relationship between Nepal and Bhutan, although the connection was severed by regional politics, changing leadership both in Nepal and Bhutan, and the arrival of

colonial forces. In those intervening years the void left by Bhutan's inability to send monks to Nepal was filled by local communities; the Chiniya Lamas of Boudha and the Kimdole Tamangs.

Today, Dongag Choling and Sangye Choling are strongly connected with Nepali villages where Drukpa Rinpoche established his monasteries and nunneries. The monks of Sangye Choling principally come from these regions and continue to be sent to Bhutan for higher studies. Past and current Dongag Choling *konyers* come from these communities, as well as Tulku Jigme Choying's *yongzin*, Lama Nono. Dongag Choling is still referred to as Marme Lhakhang or Deva Dharma Gumba by Kathmandu Newars and Tamangs. However where history has been forgotten or is unknown, some Kimdole residents refer to it as the Tamang gumpa, believing it to have been recently 'captured' by Kusho Tsechu Rinpoche for Bhutan. Similarly, other misinformed sources claim Sikkimese foundation of the temple (Pruscha, 1975, p. 108). This demonstrates the multiple interpretations of events and claims to ownership.

The COVID pandemic affected activities around the world. The earthquake created a sudden demand for skilled workers, carpenters, masons, painters, metal workers, not easily filled. Nepal's Department of Archaeology struggled to respond in a timely manner to hundreds of applications submitted from affected communities across the country, heritage everywhere is being encroached upon even at sacred sites (FSMC, 2019, p. 59; Suwal, 2020, pp. 70-71). Many issues arose during Dongag Choling's reconstruction process; work only began in 2018, two and a half years after the earthquake, and was finally consecrated in 2022.

The combination of *sattal* and temple is unusual even in the Kathmandu valley, where few two storey rest-houses can still be found. The fact that it is now one of a handful of buildings on the Swayambhu hilltop constructed using traditional materials and methods only adds to its uniqueness in a city now rife with façade-clad concrete structures.

The connection between Nepal and Bhutan was resuscitated by the earthquake with

its epicentre in Gorkha.<sup>23</sup> The reconstructed temple enables continuity of practice and connects a myriad of communities; Himalayan, Newar, Kathmandu Tamang as well as Bhutanese. For most visitors their main concern is the knowledge and efficacy of the resident monks bolstered by the sacrality of the site. For them, the building's history is inconsequential (Owens, 2002, pp. 276-277). This article takes the opportunity to share the rich, and messy, history of this temple with a new generation of visitors.

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