



**LEH**

Building an  
Urban Database

This report is the compilation of all the study done and work produced in the workshop LEH\_Building an Urban Database by students of architecture in Leh, Ladakh from 02-13 July 2019 under the guidance and mentorship of Ar. Intekhab Alam and Ar. Maithily Velangi.

All data, photographs, diagrams and sketches used are made by the team of students unless credited otherwise

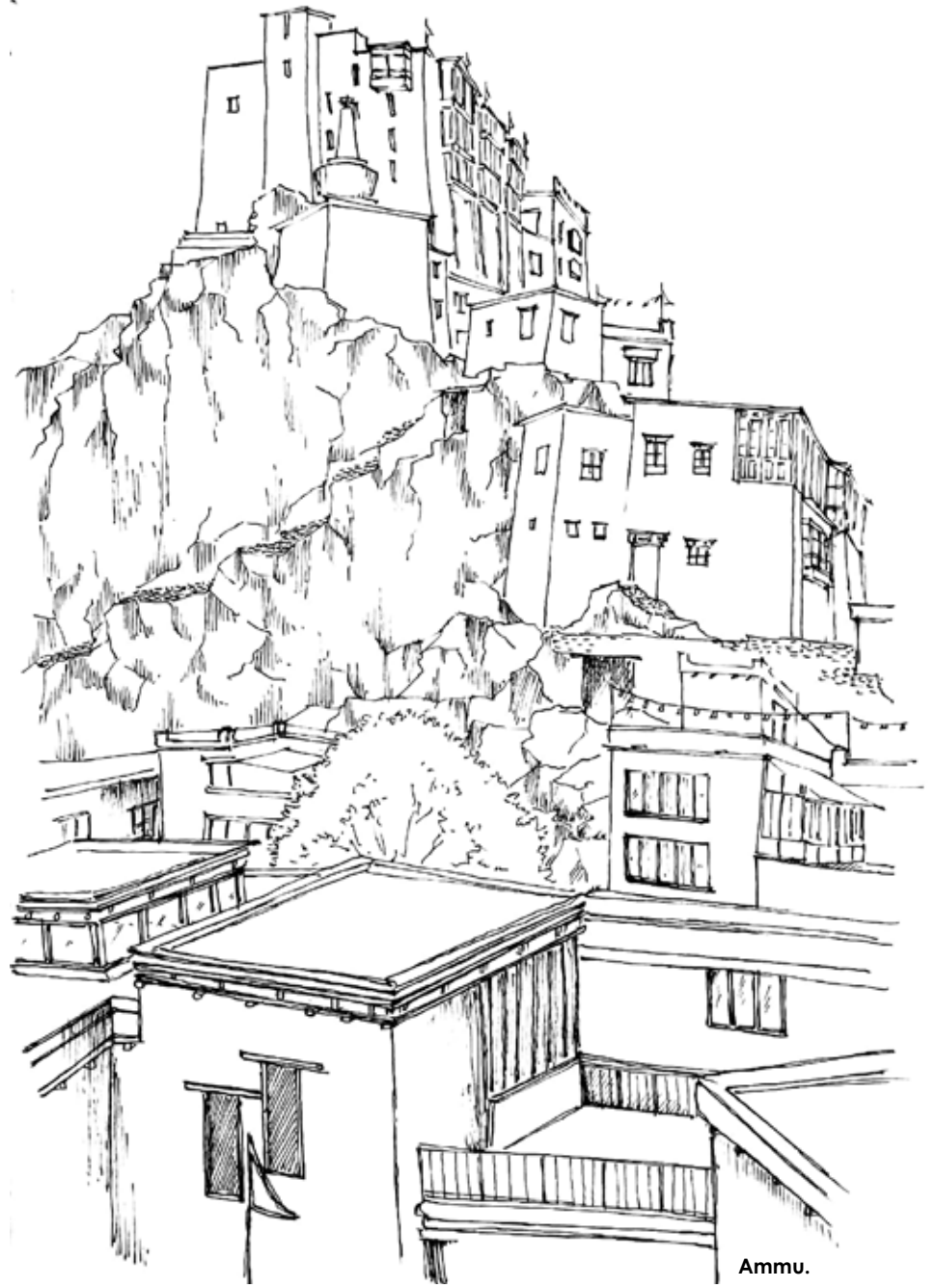
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# **LEH** Building an Urban Database



Ammu.

# Foreword

Intekhab Alam,  
EMARA Architecture and Urbanism

Today, there is a great disparity between what is learnt by students on the basis of academics in architecture. The gap between what is learnt and what is necessary on the field has therefore shifted the notion of architecture from being a profession for the masses among society to one that is greatly misunderstood

Furthermore, with cities expanding and the wave of urbanization existing in continuity across cities of all scales, there is a fundamental need to understand and comprehend the functioning of the region for better urban level strategies and planning.

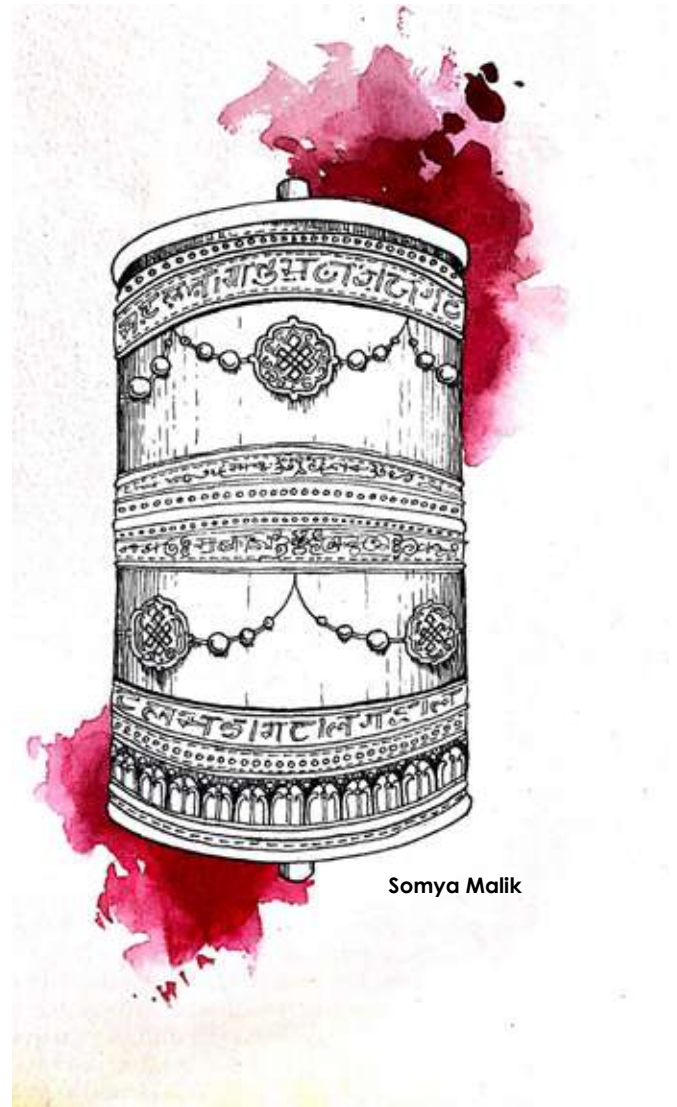
Himalayan cities are in nature already fragile while being paralelly subject to boom in population and tourist influx. Leh in particular has been in the limelight over the recent years post the gain in popularity after its portrayal in popular culture.

Due to its scenic aesthetics, it has in the last few decades emerged as a tourist destination and tourism contin-

ues to be a strong support to Ladakheconomy. Having said so, demand by the tourism sector has led to pressures on the city's urban infrastructure and hence a threat to the inherent values of the district - on architecture, culture and importantly, the natural resource pool.

There are multiple organizations making efforts and small steps to join the several dots connecting the people, fading cultural traditions and the region's progress.

The intent of the workshop was to rekindle new perspectives of development or progress in a holistic manner which is studied at a micro scale in Leh. The inferred learnings can then be applied at a practical macro scale in larger cities and academia post its conclusion.



Somya Malik

# Acknowledgements

The work produced during and the learnings brought about by the workshop owes its successful conduction and completion to a series of favourable events and decisions. The inception and ideation of the workshop, required a lot of support from all the members associated directly and indirectly with this.

The first seed planted by Intekhab Alam of EMARA - an Architecture and Urbanism firm based out of Delhi was supported by Er. Nazin Din, Elite Consultants Pvt Ltd based in Leh by helping with logistics locally. Shoaib, Arif and Deen M., all working with Elite office did fill in the gaps and were of great help in almost everything for the ten days of the workshop.

We are grateful for the hospitality and the support from the Ladakhi people during our stay at Hilltop, which also made us learn something beyond the mere tangible. The hosts, and the staff were very warm and welcoming, making sure we get served our meals on time, and helped us with local nuskas to get acclimatized to Leh.

Taxi owner-Jumahji and his team of drivers were there sharp on time everyday to pick us and drop back from hotel to studio/sites and back.

Our appreciation and gratefulness extends towards Richard, from Womens Alliance of Leh and Henry, of Local Futures group for making time to screen their movie " Ancient Futures" followed by thought-provoking discussions with participants. We extend our gratitude towards Tashi and Lobsang of Raku House, who not only lent us their space for the movie screening but also added up with refreshments.

Additionally, there were a lot of people we met along the various site visits and documentation whose experiences and accounts helped paint a clearer picture of what we did not experience first hand.

These have been crucial in our understanding of the city and in drawing inferences from our learnings for purpose of making our thought process and proposals more relevant.

Last but not the least, we place our special thanks to our 18 participants belonging to various Architectural colleges from different cities who shared our vision and put in their energies and efforts, keeping up the enthusiasm and making this workshop an engaging one.

On behalf,  
Mailthily Velangi.  
Workshop Host





# Introduction

Maithily Velangi,  
Landscape Architect and Workshop Host

Leh in Ladakh, the last Tibetan settlement, set within Trans-Himalayan Range at approx. 3500m high altitude has shaped itself in a unique way. The harsh and arid conditions, the climatic setting over the year and the limited resources are not something very favourable for habitation. Yet, the ancient Tibetians migrated and carved their own niche, accepting and adapting to all that the region offered in coherence with nature, forming a cultural landscape that has now looked up to as a sustainable model of traditional wisdom.

As the story of every other settlement in country, Modernization and Urban development has penetrated in this closely-knit society and urban fabric, leading to disparity between the new developments and the traditional urban settlement. The new ideas, globalized materials and construction techniques and globally accepted ways of urban planning with grid-iron base, treating the land as a "tabula rasa" has started to set in a new language to the Urban built.

The new policies implied by the government has further led to subsidized imports hence giving out accessibility to basic requirement without the need to grow and harvest by individual households. The modernization opened other occupational opportunities which allowed economic progress amongst the Ladakhis but also detached them slowly from the traditional practices. The tourism industry is growing at a rapid pace, with the no. of tourists exceeding more than the carrying capacity of this area with every coming summer. With this boom in tourism, every other local Ladakhi household is trying to play a role of being hosts, some as homestays, some as hotels, and many as restaurants and eating places. This has led to conversion of many local houses to accommodate the tourists and their needs. Many new constructions of hotels can be seen, more and more lavish, with best of technologies implied - all to please the tourist. Many tour operators operate unethically putting pressure on locals to meet demands of their set of

tourists in terms of food and facilities. The competition is so high that you either deliver or loose., which is quite a risk, for the locals now are majorly dependent on tourist season of 6 months only for their income and sustenance.

The ten day workshop being held in this Leh aims to study these impacts of growth and tourism on this small Himalayan settlement. The disassociations and consequential problems arising due to it are identified and attempts to find solutions in terms of policies and design guidelines are proposed by the Architecture students. The entire study is carried out under major heads namely Architecture, Demographics, Public spaces, Street-scapes, Infrastructural services , while documenting all of this as a videography too.



# OVERVIEW

Bound by the Siachen Glacier of the Karakoram range in the north and the Great Himalayas to the south are the valleys of what is nowadays the territory of Ladakh. These are the Indus, Zangskar, Nubra, Shyok and Suru valleys and the Rupshu plateau. Politically, this territory is today part of the Republic of India. Ladakh occupies an important geographical and strategic position, bordered on the east by Tibet, on the north by Xinjiang (Eastern Turkestan), on the north-west by Baltistan (beyond the line of control and now in Pakistan), on the west by Kashmir and the Doda district and on the south by Himachal Pradesh and Punjab within India<sup>1</sup>

<sup>1</sup> A.G. Sheikh, Ladakh and its Neighbours: Past and Present, in J. Bray, N. Tsering Shakspo (eds.), Recent Research on Ladakh 2007, Leh 2007

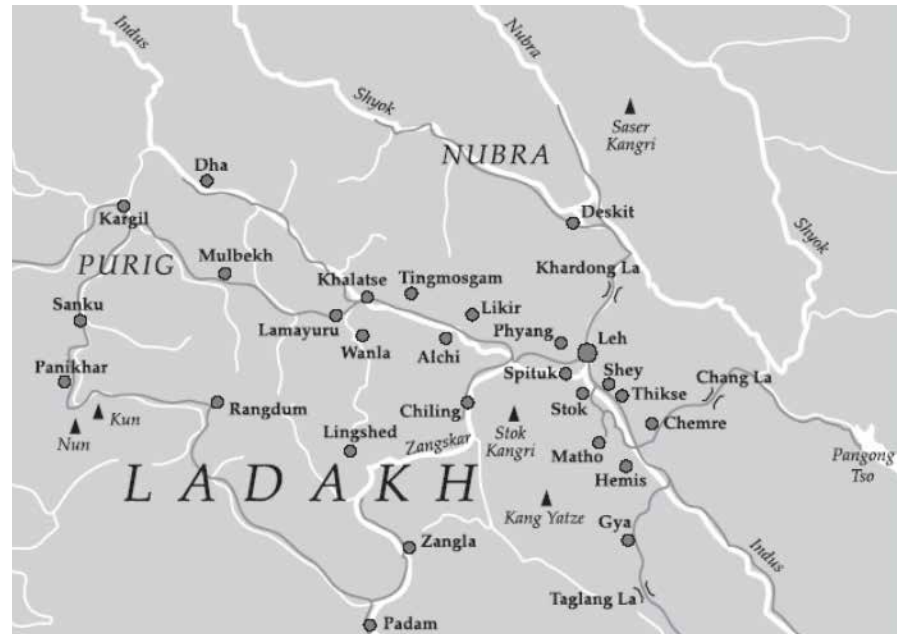


Map showing the different regions within the state of Jammu and Kashmir in India and the area marked by Ladakh along the Indus river and Ladakh range of the Great Himalayas

Also known as the “land of great passes”, “the crossroads of high Asia”, “the land of Gods and humans”, “the last Shangri-La” and “little Tibet”, Ladakh was hugely important for centuries because of its strategic location at the crossroads of important trade routes running north to Yarkand, east to Tibet and thence to China, south into India and west to Kashmir.

The geography of Ladakh, with its harsh climate and high altitude, has remained unchanged for many centuries allowing for slow adaptation and has been crucial in shaping its communities. The scenery is affected by the difference of heights in the valleys from east to west. Moving westward, the valleys deepen while the mountains remain at the same level. In these valleys the character of the country changes and it assumes the typical tracts of the Himalayas, where massive ridges alternate steeply carved valleys.<sup>2</sup> The mountain ranges, valleys and plateau are all part of two districts — Leh and Kargil — forming respectively two Autonomous Hill Councils.

In this territory the architecture of houses present many similarities, even though differences have to be taken into account, as they are also a characteristic of this land. The differences can be given by local climate, by the topography of each settlement, and also by the variety of customs which sometimes change from place to place due to the varied building experience and practical needs of a precise moment in time.



Above: Local map of Ladakh taken from *Locating Ladakhi History*, John Bray  
 Drawn by Ea Rasmussen, Moesgaard Museum/ University of Aarhus.

<sup>2</sup> M.S. Randhawa, Prem Nath, *Farmers of India* vol. 1. 1956



# HISTORY OF LEH CITY

Situated at an altitude of 3,524m(11,562ft), Leh was the capital of the Himalayan kingdom of Ladakh, the seat of the Leh Palace. The city of Leh was an important stopover on trade routes along the Indus Valley between Tibet to the east, Kashmir to the west and also between India and China for centuries. The main goods carried were salt, grain, pashm or cashmere wool, charas or cannabis resin from the Tarim basin, indigo, silk yarn and Banaras brocade.

Although there are a few indications that the Chinese knew of a trade route through Ladakh to India as early as the 1st century CE or Kushan period, most of the history of the region has been recorded only post the end of the 10th century.

More recently, the administrative power has been taken over by the LAHDC or Ladakh Autonomous Hill Development Council, an elected body of governance constituted in 1995.

Above : View of Old Leh Town, *British Archives, 1934*

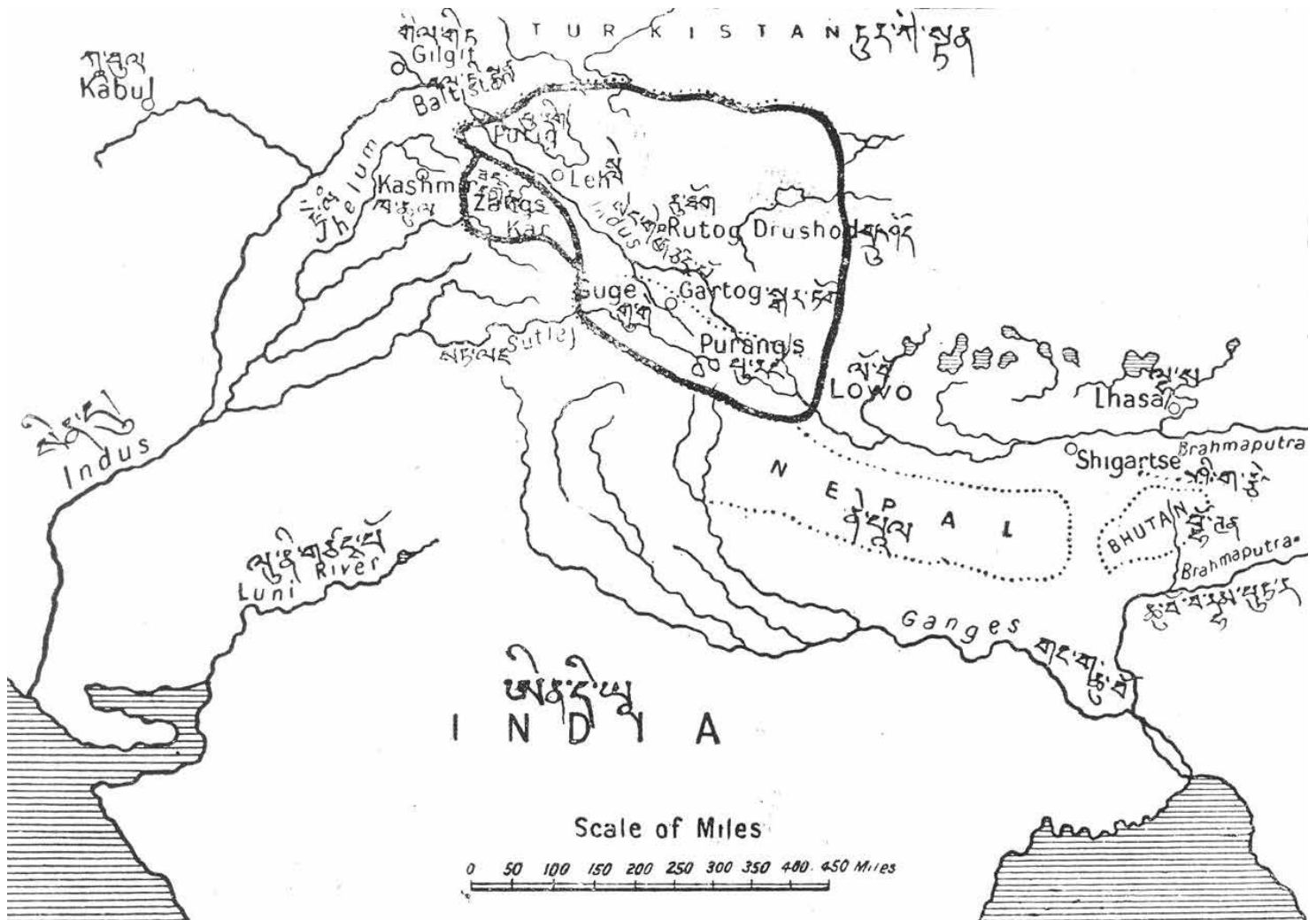
Below : View in Leh Bazaar showing older used gates and streets for trade and commerce exchange, *Yarkund Mission, 1973*

In ancient times, Leh was part of Greater Ladakh which was neither under the Domain of Tibet or its influence. The first inhabitants of this land appear to have been the Brokpas from Dadrastan who inhabited the lower reaches of the Indus Valley. Leh, at this juncture, was also known as Maryul or low land. This was followed by more waves of Indo Aryans and Tibetan immigrants, whose racial characters and cultures were in consonance with early settlers.

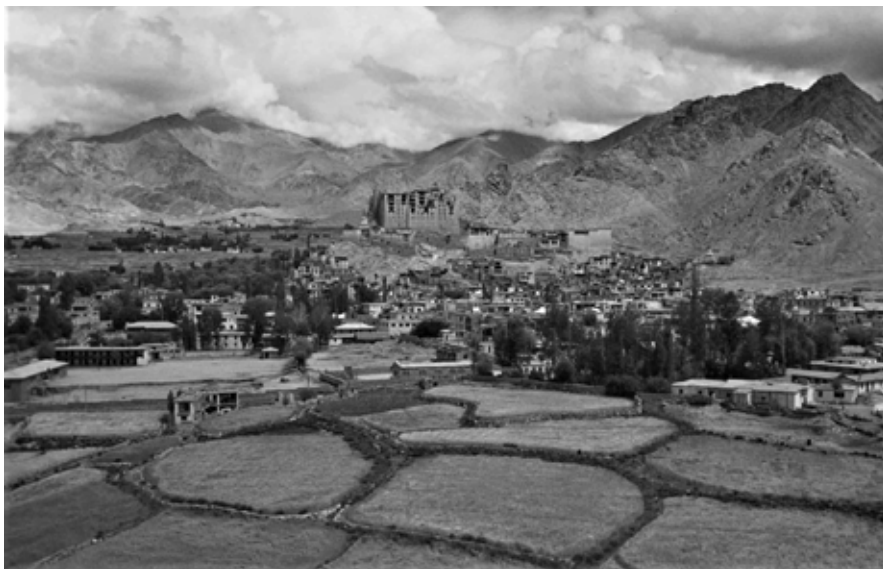
Buddhism travelled from central India to Tibet, leaving imprints on the region of Ladakh.

After the breakup of the Tibetan Empire in 842AD, the first Ladakh dynasty was founded and the region underwent severe Tibetanization. Since the 8th century, people belonging to different religions, particularly Buddhism and Islam have co-inhabited the region with no records of conflict.

Below : The territorial extent of Ladakh during the period of King Nyimagon as depicted in A History of Westm Rgyal (A History of Western Tibet) by A.H. Francke, 975-1000AD







Towards the end of the 10th century, the Tibetan prince Skyid lde nyima gon formed the independent kingdom of Ladakh and ordered for the founding of towns, castles as well as the construction of sculptures at Shey. During the reign of Delegs Namgyal in the 16th century, the Nawab of Kashmir arranged for the Mongol army to temporarily leave Ladakh. In exchange for the assistance, the Nawab demanded for a large Sunni mosque to be built in Leh at the upper end of the bazaar.

The first recorded royal residence was built by King Tashi Namgyal at the top of the high Namgyal Peak overlooking the present palace and Leh town (currently remains as dilapidated ruins of a fort and the gon-khang or temple of Guardian Divinities) King Singge Namgyal was not only a strong monarch but a statesman, a diplomat and builder. He built the 9-storeyed royal palace which accommodated the royal family on its upper floors and stables, storerooms on the lower floors.

The palace was abandoned when the Kashmiri forces besieged it in the mid 19th century. The royal family moved their premises south along the Indus to their current residence at Stok.

From Top to Bottom

1. View of Leh City showing outer agricultural fields, Leh palace and the Old town, *LAMA archives*
2. View of Leh palace and Old town from the fort ruins, *LAMA archives*
3. Panoramic view of temple, monastery and Leh Palace, *British Library archives, Yarkund Mission, 1873*



Several trade routes have traditionally converged on Leh from all four directions. The Leh market or bazaar therefore retained its importance in the functioning of the city across several decades.

Two of the main pathways on the edges of Old town were Chutey Rantak and Nowshar, both roads have remained pedestrian till date.

By the beginning of the 19th century, the Mughal empire had collapsed and Sikh rule had been established in Kashmir and Punjab. The Dogra region of J&K remained under its Rajput rulers, one of whose General Zorawar Singh invaded Ladakh in 1834.

Ladakh now came under the Dogra rule and incorporated into the state of J&K in 1846. It still maintained considerable autonomy and relations with Tibet.



Above: Gateway to Old Town market, Leh, Rupert Willmott, 1934

Below : Absence of the previously existing gateway now replaced by painted signage

In 1834, after the Dogra invasion of Ladakh, the wall and the gates surrounding the Old town were gradually brought down. With the departure of the royal family from the palace, the grandeur and importance of the place diminished. Residents of the area followed them, most moving to lower parts of Leh town where they previously owned land.

With their movement out of Old town, a slow and steady deterioration of the neighbourhood took place; homes lay neglected - some demolished while others are almost in ruins

After the partition, Pakistani raiders invaded Ladakh and occupied Kargil and Zaskar, reaching within 30km from Leh. Reinforcement troops were sent in by air, and a battalion of Gurkhas made its way to Leh via South by foot.

The year 1949 witnessed the blocking of a 1000-year old trade route between India and China that existed between Nubra and Sinkiang.

In the 1960s, China occupied Aksai Chin region and built the first road to Ladakh from India and also founded the airport. India built the Srinagar-Leh highway and simultaneously the Ladakh-Tibet border was closed by the Chinese. The 1970s witnessed a wave of rapid modernization on an old culture after it was opened to international tourism. This connects the region globally and has seen exponential growth in its number of visitors over the last few years.

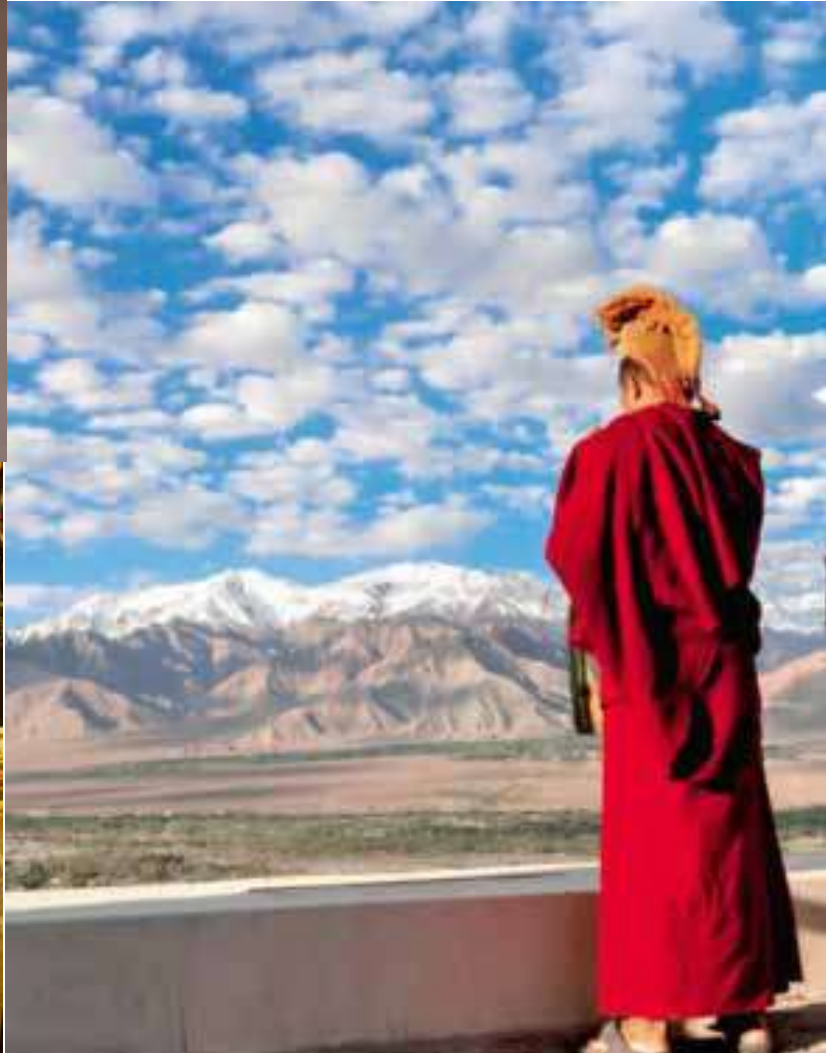
Unlike the other districts in the state, the LAHDC or Ladakh Autonomous Hill Development Council is incharge of governance in Leh. LAHDC was constituted in 1995. The conception of the council was conceived so as to

provide a transparent development in the area. It has 30 councillors, 4 nominated and 26 elected. The Chief Executive Councillor heads and chairs this council.

The town still lacks sensitive infrastructure development. While modern amenities have been provided in the area, they have been introduced without taking into account the terrain of the land and heritage value of the town.

A few of the historical houses have been restored while some have been demolished to make way for cement and concrete structures. Many of the original owners who no longer reside in their homes, have rented their houses out. Due to the cheap rates of accommodation, the town has become home to many migrant workers.

That said, Leh town has good potential as an important heritage area as well as for personal progress of the city and community.



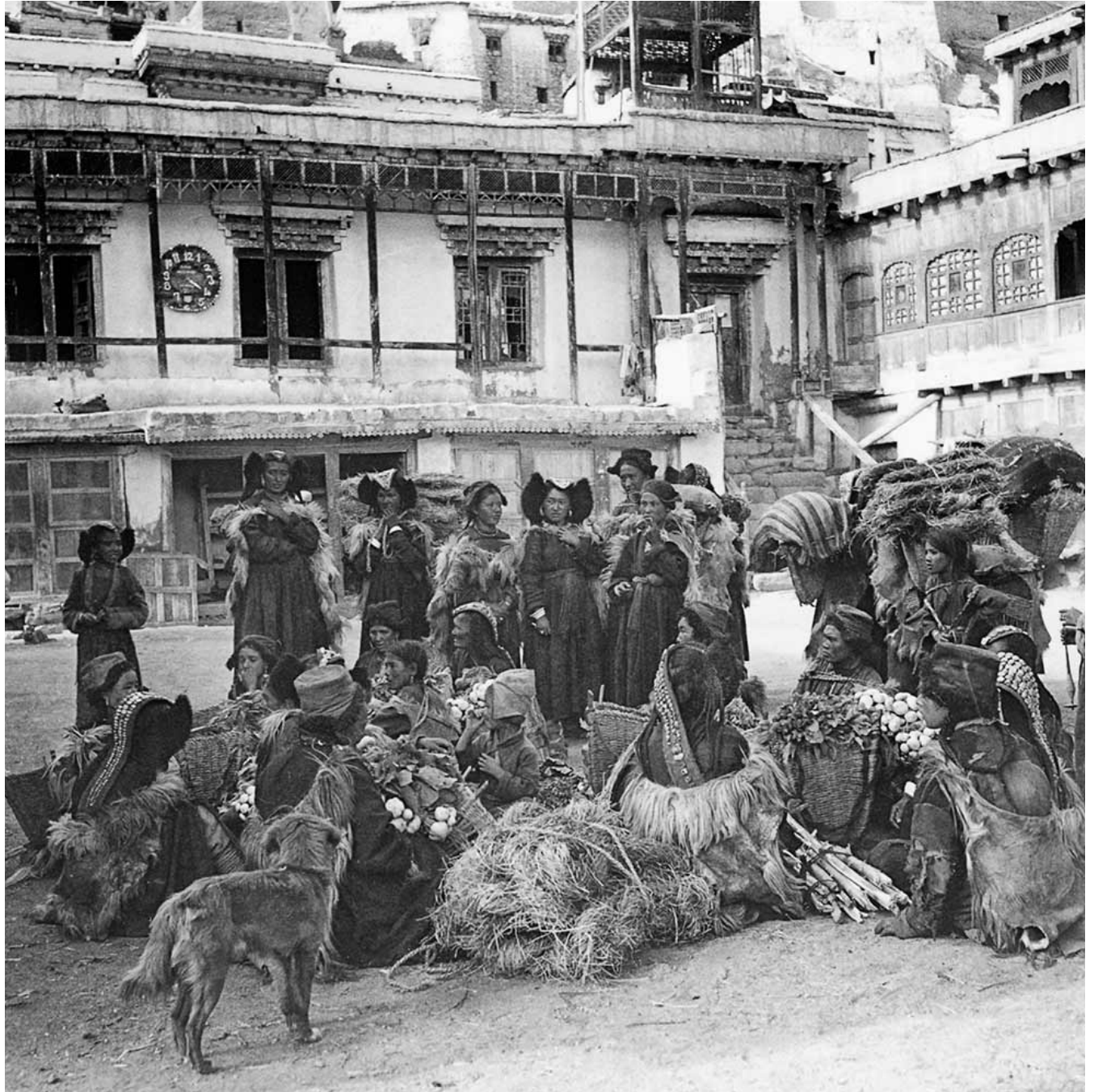
# ENVIRONMENT, PEOPLE AND CULTURE

Ladakh is a high-altitude cold desert with extreme temperature fluctuations. Vegetation is scarce with limited water and precipitation. Natural constraints appear to dictate many aspects of life, fostering people's capacity to overcome basic life needs and develop efficient yet simple dwelling solutions.

Agricultural practice in Ladakh was supported by efficient use of local resources. Although Ladakh seems an unfavourable land, it is to a certain extent favourable for the cultivation of cereals. Nomads and villagers always had close inter-relationships even if they had different life-styles. The outcome of their activities was their reciprocal exchange aiming at the subsistence of both communities. Such a system was regulated by seasons and a strong inter-connection was created between humans, animals, and natural products.

With the military presence since the last century and the advent of tourism, major changes have occurred. The region became a cash economy and to a large extent it became dependent on imported food and manufactures. Environmental hazards rose after the introduction of chemical fertilizers, as opposed to the more traditional environment friendly alternatives.

## The Environment and the People



The region of Ladakh falls in the rain shadow area of the Himalaya. Scarce precipitation (< 100mm/year) characterized this land and therefore influenced the house form.

Ladakh is a high-altitude cold desert that can reach temperatures down to -30 to -40 °C during winter. On the other hand, summer temperatures can also rise up to 30-35 °C.

Trees are also scarce in number since the limited water resources and precipitations do not allow an extensive growth. Poplars and willows are still currently the trees which are mainly used for timber production.

The long winters last more than six months and they mark an extreme climatic condition in one of the highest places to live on Earth. Building works can be accomplished only during the short summer months or autumn. Time for construction, repair and restoration was only sought after having taken care of the agricultural production and cattle pasturing. Below-zero temperatures and snowfalls impede the building of mud structures.

Rivers and their tributaries play an important role in determining the position of a settlement. Since the main rivers incise glacial, peri-glacial and fluvial deposits, they cannot be used as a water source without needing major engineering works; tributaries usually provide most supplies for the villages

#### LIFESTYLE AND SETTLEMENT

Agriculture has been, together with animal husbandry, the main form of activity that guaranteed subsistence to the locals.



There was strong interconnection between humans, animals and agriculture and a sense of interdependence. Each household member carried out the main farming activities and house duties, but in general the community worked as a whole. Many practices were performed collectively, especially in small villages. Working activities are often done in groups even from different families and people cooperate for agricultural works as well as for the construction of houses.

The location of the settlements was selected so that agricultural production and the availability of grazing fields was possible.

Over the last century and the advent of tourism, major changes occurred. The introduction of a monetary system has brought many to seek for governmental jobs. People often shift

from villages to other cities, or leave for places providing higher education in other parts of India while agrarian life-style, much influenced by seasons, is not the only option anymore.

Initially, the houses were intimately connected to the needs of an agrarian society .

It is only in the last decades that houses became more 'open' and that families divided more and more frequently their properties.

Left : View of people in Leh Market, outside the mosque, *Rupert Wilbert, 1934*  
Above : Ladakhi woman in traditional attire selling vegetables in Leh bazaar

## PEOPLE

The people of Ladakh are heterogeneous as far as their origins, cultural influences and varied identities are concerned

The earlier layer of inhabitants revolves mainly around two names: the 'Dards' and the 'Mons'. However, present-day Ladakhis are a mixed race composed of pre-Tibetan and Tibetan people that later migrated to this land. Today many people from mainland India, as well as from other neighbouring regions, have moved to Ladakh especially for work during the summer months.

## SYMBOLICAL NEED: SOCIAL AND SPIRITUAL HIERARCHY

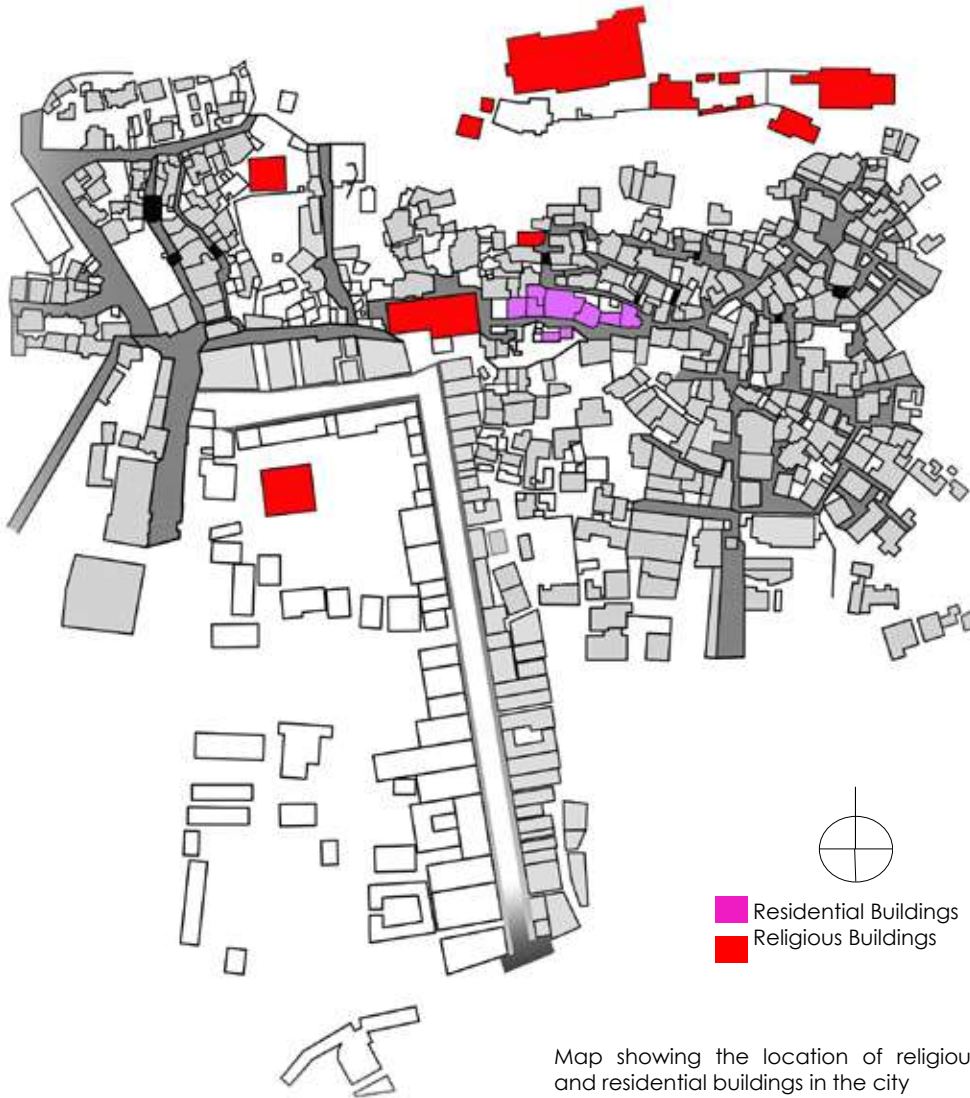
Social and religious hierarchies are often manifested through architecture. These tangible manifestations can be seen in single houses or on the whole village scale.

The physical structures reflect the social hierarchy: the castle of the ruler occupies the highest point with its subjects clustered below, but all are defensively united on a mountain top.

From the 17th century the power of the monasteries increased and, together with it, the position of the monasteries started becoming dominant, replacing the castles with their fortress-like mass on the hilltops

## RITUALS AND FESTIVALS

The major festivals celebrated in the Leh region are largely associated with Buddhist religion since they account to 44% of the total population . The reason for these festivals being the highlight of the Leh culture and



Map showing the location of religious and residential buildings in the city



its surroundings is the presence of monastery, stupa, gumpa with the city/town.

Hindus, muslims, sikh account to the rest of the population of Leh. Though the religion of the people is heterogeneous all the festivals celebrated here are in harmony with each other. The festivals such as Ladakh harvest festival, Polo festival, Losar festival and many more are celebrated by all the people of Leh despite their religion. The recent addition to the cultural lifestyle of the people initiated by youth are trans-himalayan youth festival and Ladakh polo festival.

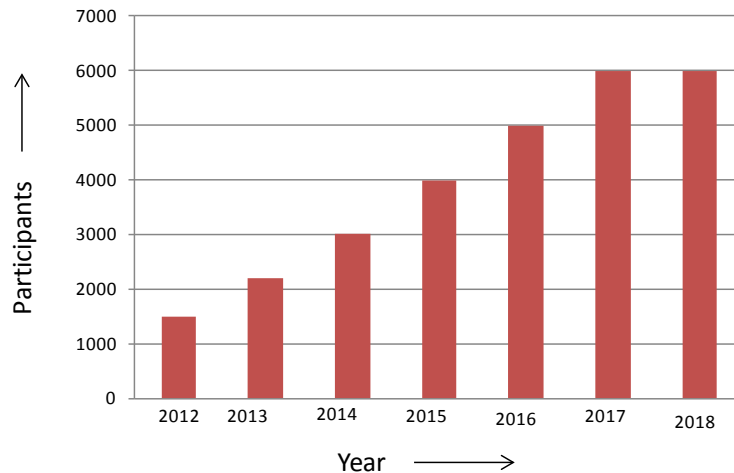
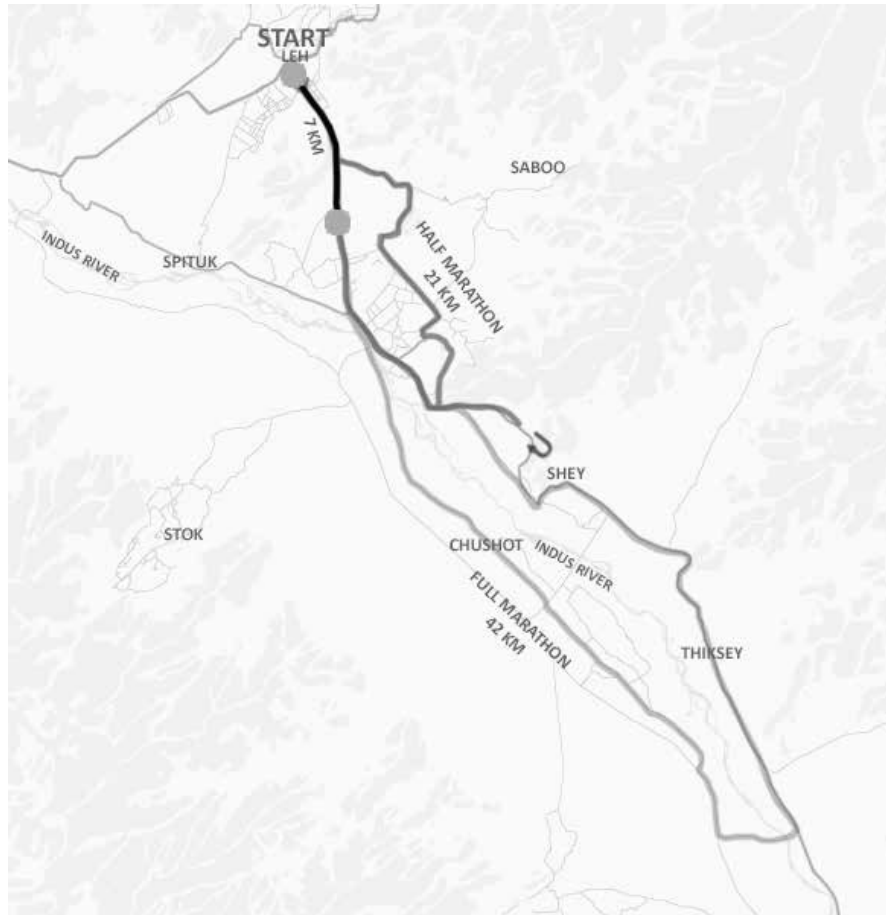
The villages surrounding Leh have unique festivals of that region which is guided by the cultural markers of that place (such as monastery). People from all the towns and villages come together to celebrate these festivals. These festivals are also one of the tourist attractions.

### MARATHON

The Leh marathon became an annual event after it was started in 2012 following the devastating flash floods that claimed 200 human lives and rendered hundreds homeless in Leh district in August 2010.

The initiative was started to convey to the world that Ladakh is back and running. It is aimed at encouraging the youth of Ladakh to live a healthy lifestyle by taking up running (in hostile weather conditions) and by becoming more aware of the need to protect the environmentally fragile region. The event is held in the month of september for a duration of 2 days.

Graph showing participant trajectory across recent years





LOSAR FESTIVAL



PHYANG TSEDUP



TRANS-HIMALAYAN YOUTH FESTIVAL



DOSMOCHY FESTIVAL



TAKTHOK FESTIVAL



LADAKH HARVEST FESTIVAL



SAKA DAWA FESTIVAL



LADAKH POLO FESTIVAL

Map showing the location of various cultural festivals across the region of Leh

PHYANG

LEH

SABOO

SPITUK

SHEY

STOK

CHUSHOT

THIKSEY

MATHO

HEMIS

0 1 3 5

GRAPHICAL SCALE IN KM



SINDHU DARSHAN



THIKSEY GUSTOR



MATHO NAGRANG



HEMIS FESTIVAL



### DOSMOCHE FESTIVAL

'Festival of Scapegoat'  
It marks the last celebration associated with the particular year. It happens in the courtyard of Leh Palace, monks and Lamas perform the 'chamm' dance and evil spirits are waded off by burning offerings from the different monastries.  
Duration: 2 days.



### SAKA DAWA

'name of the closest star to the earth'  
This festival marks the birth of their faith and symbolises the birth of Gautam Buddha when he attained enlightenment. people attach flags and help Monks erect the Tarboche flag pole (located at the south of Mt. Kailashkora and is considered auspicious if the same stays erect.  
Duration: 1 day.



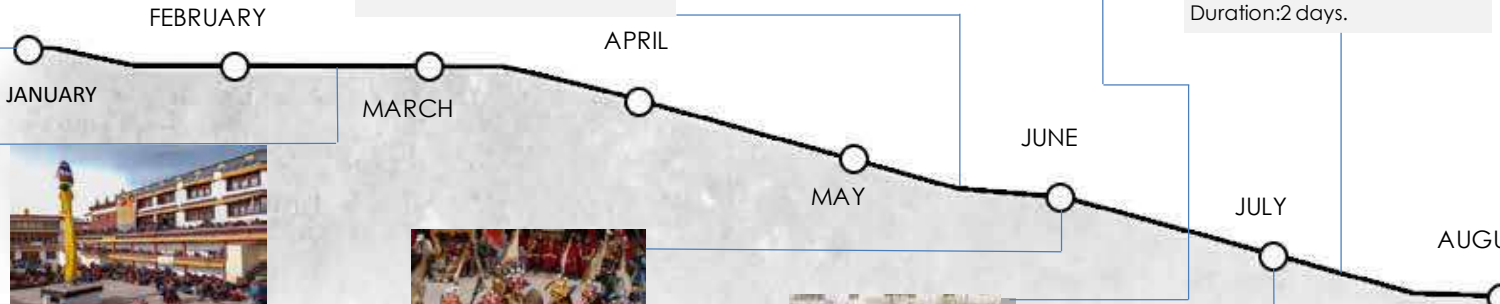
### HEMIS FESTIVAL

It is celebrated to commemorate the birth of guru Padmasambhava, founder of tantric Buddhism. Masked dances & theatrical Representations of good over evil are performed in the celebrations.  
Duration: 3 days.



### PHYANG TSEDUP

It celebrated the victory of good over evil. A giant Thangka of Skyoba Giksten Gombo is placed at the courtyard with monks dressed in costumes dancing and worshipping their deity. On the last day offerings are burnt to conclude the procession.  
Duration: 2 days.



### MATHO NAGRANG

It is presided over by 2 Oracles, who after 2 months of complete Isolation make their appearance, accompanied by monks and make predictions about future happenings.  
Duration: 2 days.



### SINDHU DARSHAN

It represents unity & national pride. This festival is celebrated to pay due respect to the indus. Of late, it is also celebrated to pay respect to our soldiers.  
Duration: 3 days



### LADAKH POLO FESTIVAL

The game is played on a highly arid land with the accompaniment of traditional folk music with each goal scored.  
Duration: 6 days



### TAKTHOK FESTIVAL

Famous amongst the locals, this festival includes 'chamm' dance that is supposed to protect the audience from evil, people visit the caved Gompa at Takthok monastery to be a part of this festival.  
Duration : 3 days.



### TRANS-HIMALAYAN YOUTH FESTIVAL

A youth cultural festival which gives a platform to people to come together and celebrate their culture.  
Duration: 3 days.



### LADAKH HARVEST FESTIVAL

The harvest festival witnesses rich cultural displays including folk performances, archery, theatre, music, mask dances, polo matches and carnival parade through Leh's streets.  
Duration: 15 days.



### LOSAR FESTIVAL

Losar marks the new year in Tibetan culture.  
Duration: 1 day.

JUST



### LEH MARATHON

Various races that take place in and around Leh offer runners the unique opportunity to run with the locals through the most beautiful landscape.  
Duration : 2 days.



### THIKSEY GUSTOR

Gustor, literally meaning sacrifice on the victory of good over evil. celebration is done by creation of sacrificial cake (forma) and re-enactment of assassination of the traitor King Lang Darma of Tibet





### REFLECTION OF SOCIAL HIERARCHY THROUGH PHYSICAL STRUCTURES

SOCIAL HIERARCHY

MONASTRY

PALACE

RESIDENCES OF SUBJECTS, MARKETPLACES, Etc

Photo showing the importance of women in the social structure of the city reflected in their daily activity

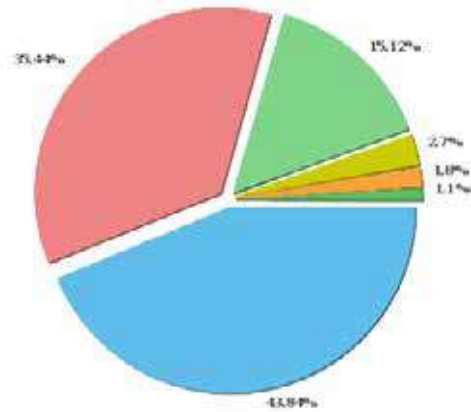
Above : Symbolic cultural manifestations and repetitive elements seen across the region

The Ashtamangala are a set of eight symbols of good fortune that are found in Buddhism and other Indian traditions. These symbols are commonly used as ornaments in shrine rooms or private homes. The symbols are often drawn on the ground to create auspicious conditions when an important guest comes to visit a monastery or during an investiture. The symbols include:

- Conch
- Endless knot
- Fish
- Lotus
- Parasol



## Religion wise population Leh Ladakh (MC) - 2011



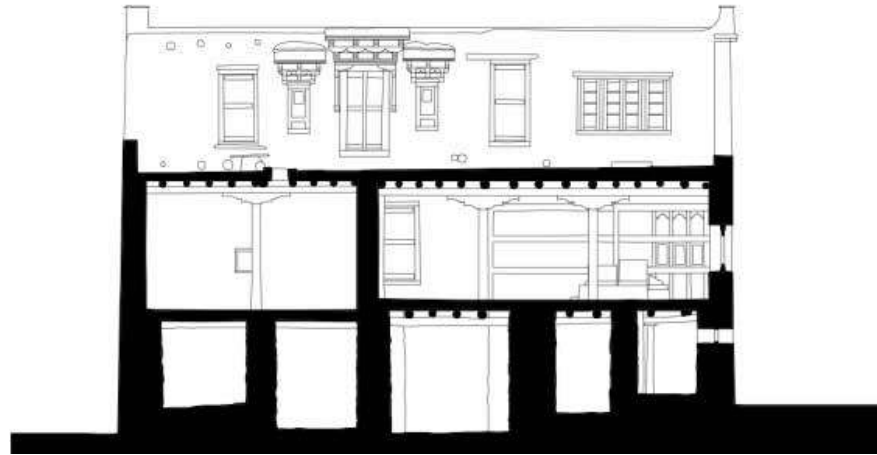
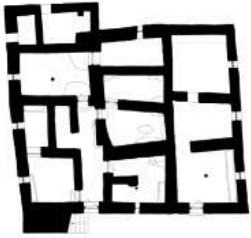
- Buddhist
- Hindu
- Muslim
- Sikh
- Not Stated
- All others





## HOUSES

Houses not only protect humans, but animals, food and fuel, all indispensable elements for survival. The house is a 'comprehensive system', which includes every aspect of life: from the practical to the spiritual ones.



Left : Key Plan of house  
 Above : Typical section of a three storeyed Ladakhi house  
 Below : View of Horse Stable

Houses generally have from two to three floors and in some cases a third floor hosts a veranda and a prayer room.

- The ground floor as the lower level, inhabited by animals, associated with black and blue colours and with the subsoil and slithering creatures;
- The first floor as the middle level, inhabited by humans, associated with the earth, human beings, and other beings;
- The second floor as the highest level, associated to the deities and gods, the purest level

The house in Ladakh has been also closely linked to the seasonal life of the family. The weather drastically changes and forces people inside in winter, while in summer people spend most of their time in the open air.

According to the seasons, the village can also have two parts used in different seasons of the year: one in which people live in winter and the other where they shift during summer, closer to the fields.

'The Old Town' (in Leh) is a more favourable area in winter.

### Stables (Tangra)

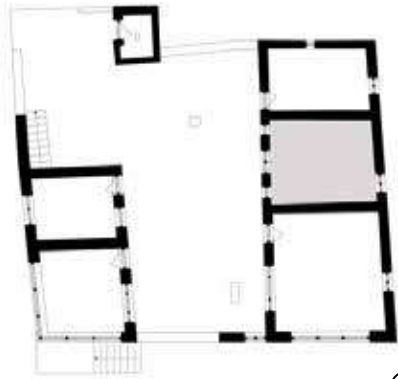
Animals are a necessary resource in any agrarian society. In winter, animals are protected against severe temperatures and at the same time their body heat is transferred to the upper level of the house — where people live. In this way the stables are part of a 'heating system' that, together with the fireplace of the main living room, makes the house warmer in winter.

The horse stable [stara] -also used for other large size animals. The stables for smaller animals, like sheep and goats lugra

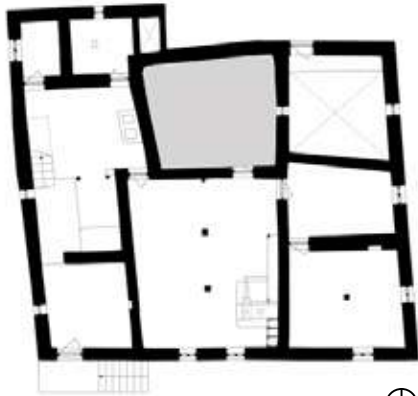
The stables have troughs to which animals are tied so that they can eat without moving around. Families owning a large number of cattle usually built extra stables, always nearby the household, sharing one or more outer walls of the house. In this case baby animals were kept on a higher level from the ground to be more protected. Farmers started to shift all stables outside the houses

At the beginning this was done in order to prevent animal excrements from being unintentionally spread around the house and, nowadays, this is mainly due to the fact that many families do not own as many animals as in the past; sometimes they have no animals at all. This important life-style change made a considerable difference to the ground floor, previously containing the stables, both in poor and rich houses as well as in palaces and monasteries.

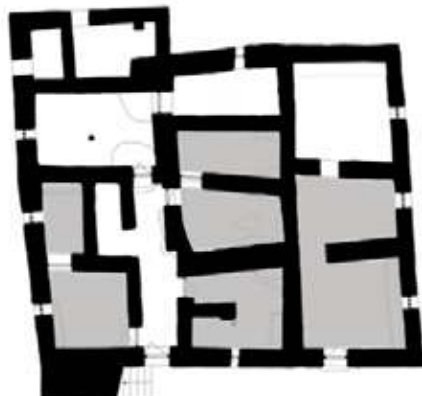




Second floor  
■ Prayer room



First floor  
■ Storage space



Ground floor  
■ Stables



The prayer [chhotkhang (mchodkhang)] which means 'offering room' is built on the uppermost part of the house, towards the highest and purest area, north or west oriented. The prayer room is not built south facing and in no circumstances should it be built falling under the path of the six-star constellation minduk, which crosses the night sky in the months of October/November, as this is considered inauspicious.

The chhotkhang is used daily by the family to give offerings in different forms. Pure water in seven cups is brought in the morning or oil lamps are lit. The room should accommodate monks sitting along the room sides to perform rituals in special occasions. On one or two sides of the prayer room there are low tables for the monks to sit and read.

A passage around the chhotkhang can be built to perform a clockwise walk called skora (skor-ba); the circumambulation is generally done around any sacred object. This passage is called skorlam (skorlam). A skorlam can be included in the house volume, a sort of narrow and dark corridor, while in other cases it might be formed by a balcony projecting on the house façade.

## Storage Rooms

Food, fodder and fuel are necessary resources that every family needs to store inside the house. The larger the household the more rooms are specifically used to store all the kinds of goods. Certain storage rooms can be found in almost every house while some others are exclusive to wealthier families.

These storage rooms are:

Storeroom/larder: dzot

Chang fermentation room: changkhang

Cereals storage: bangkhang

Fodder storage: pugraks

Dry dung storage: lchekhang

Cold room and butter room: silkhang and markhang

Wood storage: shingkhong

The dzot (storeroom/larder) is used to store food of different kinds. This is functionally positioned in a room that has direct access from the chansa.

The door to the larder is very close to the woman's sitting position next to the fireplace.

The dzot is a room reserved to the family, an intimate space where strangers are generally not allowed.





The house can also have protective systems specifically positioned in and around it, which are not against physical agents but are used to prevent the house from being harmed by spirits or evil forces. These protective systems correspond to various charms which can still be seen in many houses. Charms are not always present in all their forms and in some places only certain typologies are still used today.

On the external walls, put in specifically calculated positions, there are

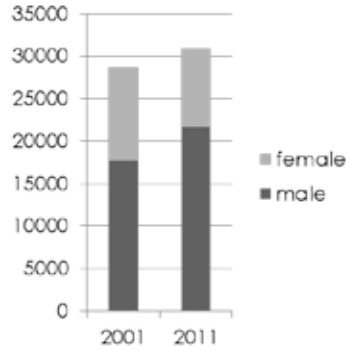
three-dimensional charms known as sasgo [ a sheep skull] and namsgo [a dog skull] respectively meaning earth door and sky door. These elaborate constructions made of different materials are supposed to prevent bad influences caused by beings residing in the earth or sky.

Printed charms are often seen on top of the doorframes and they are known as door watchers: goshrungs. The graphic representations are often actions performed for protection

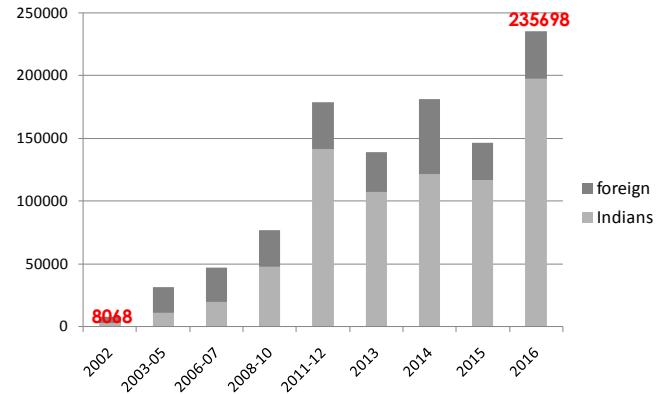
Again, on the outer walls, a red pigment called tsak is used to depict symbols of protection and to colour special stones to be placed around the house. The drawn charms are painted above the stables level on the ground floor, to prevent attacks by the tsan. On the wall corners large red triangles reinforce this protective system. A conical red dyed stone or red dyed brick called tsandos, is meant to have the same protective role against these spirits. Tsandos are generally found on the rooftop of houses, or on top of fencing walls around the household property, especially close to the gate. There is sometimes a phallic symbol hanging from the rooftop. This is hung to protect recently built houses from envious people's or spirits' sights;

Photograph of a Sasgo charm  
 References : *High altitude houses. Vernacular architecture of Ladakh* , Edoardo Paolo Ferrari

### Population of Leh

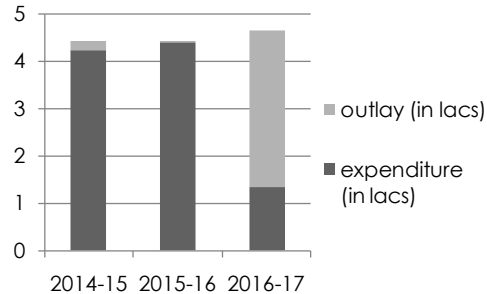


### Tourist Population of Leh



### PLANNING – TOURISM

District Plan of Leh District for the Year, 2014-15, 2015-16 and 2016-17.

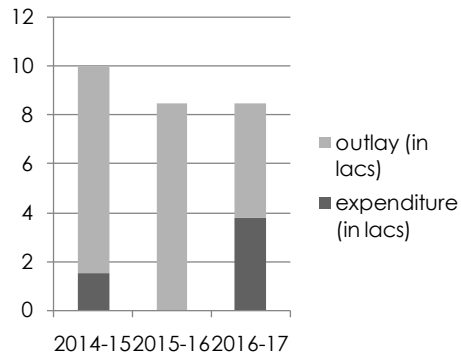


### Small scale industrial units

Registered with DIC ( 2016-17 )

Industry	Units	Employments
Food product	1	16
Wood product	1	1
Metal product	3	15
Electricity Mach apparatus & others	1	2
Misc	2	6
<b>Total</b>	<b>8</b>	<b>40</b>

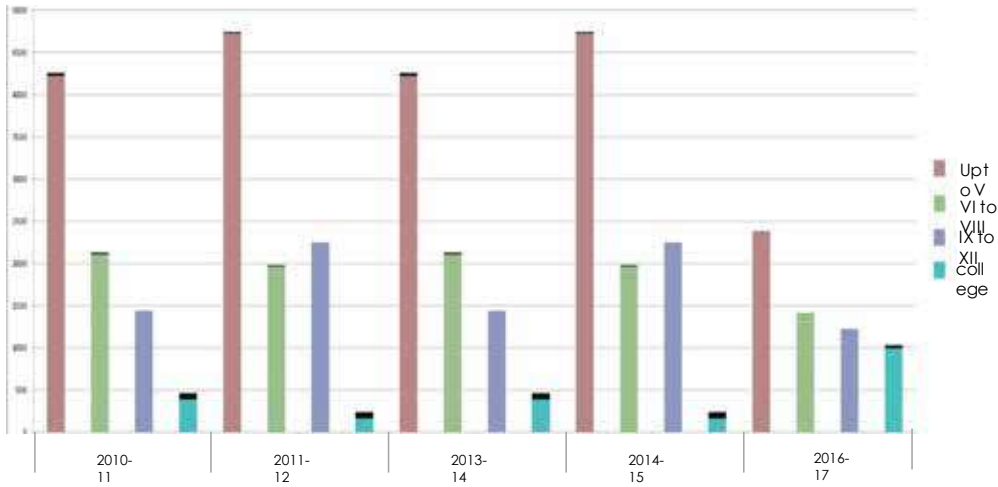
### PLANNING – ARTS AND CULTURE



### Handicraft and Handloom training center ( 2016-17 )

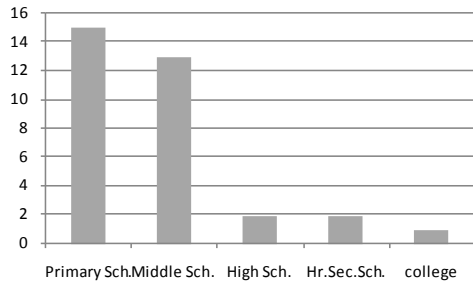
	Training centers	persons trained
Handicraft	6	10
Handloom	7	101

The handloom department, established in 1966 in Leh district, imparts training to unemployed youth in various handloom activities



### Education ( enrolments and dropouts )

#### No. of govt. institutions for general education ( 2016-17 )



- Out of total no. of students enrolling for education upto V only half of them attend VI to VIII
- And half of that no. attends college.
- No. of dropout has been gradually decreased.
- No. of students attending college has increased from 388 to 992 within a span of 7 years.

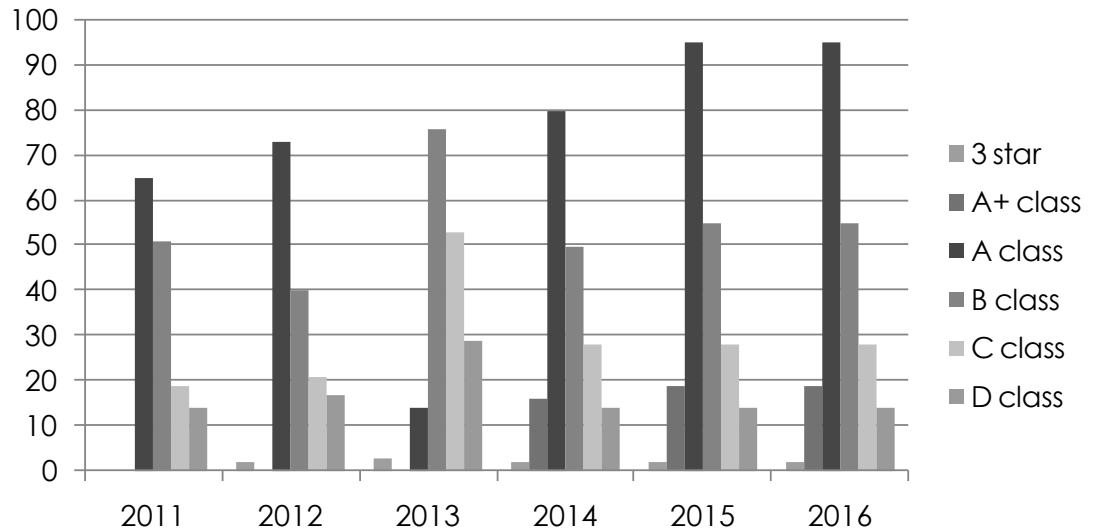


Jamyang school



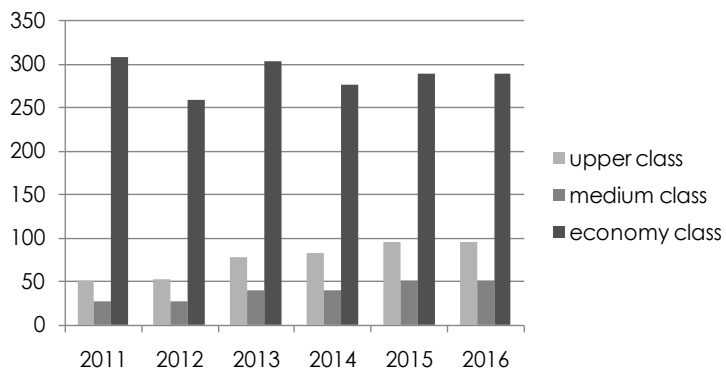
Ladakh Public school

## No. of hotels from 2011-2016

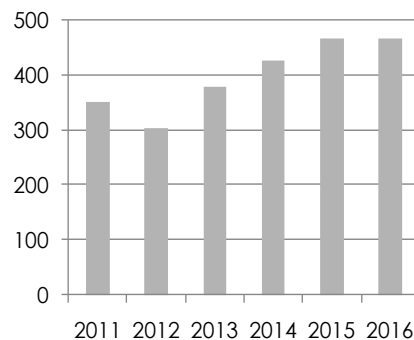


- Significant increase in tourism since 2011
- Increase in no. of hotels constructed
- Addition of 3 star and A+ hotels from 2013 due to increase in demand especially from foreign tourists.
- Up gradation of B,C and D class hotels.
- Considering an average family size of 6 – 4% of the families in Leh own hotels.
- Guest houses are in greater no. compared to hotels.
- Gradual decrease in economy class and increase in upper and medium class guest houses.
- 9% of the families have guest houses
- Gradual increase in travel agencies from 2012
- Travel agents to tourist population – one travel agent for 500 tourists
- 9% of the families own travel agencies.

No. of guest houses from 2011-2016



No. of travel agents



- 1) Economy class guest houses ( are greater in no.). Typically the owners stay on the ground floor and the guests are housed on the upper floors.
- 2) A class hotel
- 3) 3 star hotels ( these came up in 2012 due to increased tourist demands)







# STREETSCAPE

Once the abode of culture, happy faces, helping hands and rich hearts, Leh, on the account of its residents, has lost what brought warmth in the hearts of people when talked about.

The city of Leh has a varied streetscape as one moves from the old city to the newer settlements which grew around old settlements. One can witness stark differences in the construction as well as in the grid iron plan of the colonies. With the constantly changing street widths, few paved, non-paved and covered streets add a lot of character to the streetscape in the old city.



GIS Map of Leh City showing extent upto the airport

Streetscape is a term “that is used to describe the natural and built fabric of the street, and defined as the design quality of the street and its visual effect.” The concept recognizes that a street is public places where people are able to engage in various activities. Streetscape designs are created to improve the overall look and atmosphere of a publically used area.

The ‘development’ of Leh has not been merciful to the streets of the old city. With neglected narrow lanes adjoining properly paved lanes, street lights not doing their part, areas of already narrow streets encroached by houses, neglected stupas and cultural icons, the streets have started to lose their essence.









The introduction of materials like R.C.C and reduction of traditional ideas, the street views and elevations have started losing their beauty, proving to be another example of development moving in the wrong direction.

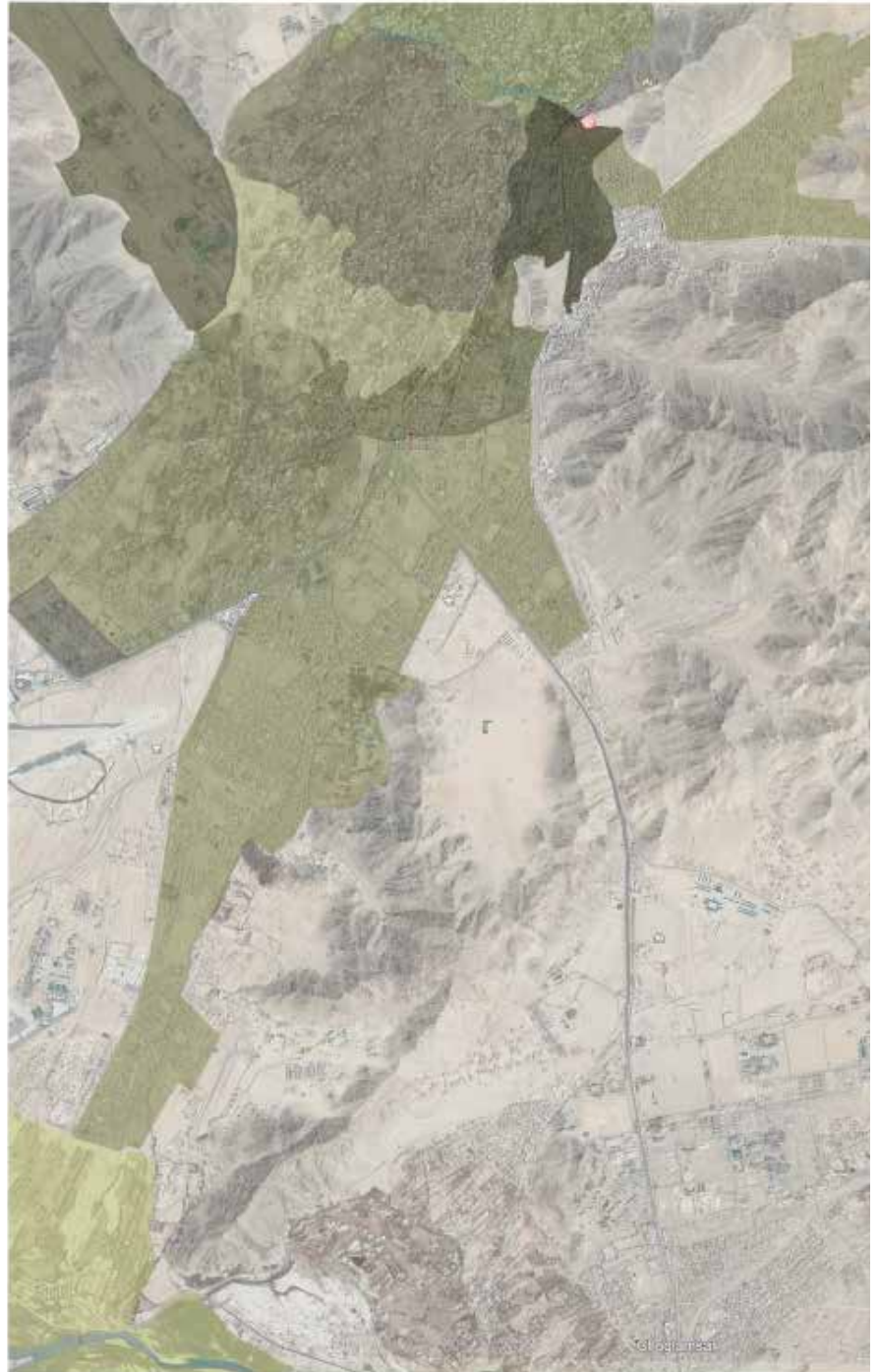
*“When I was a little girl, there used to be a beautiful and clean stream running in the middle of our streets. People lived together peacefully, using the water from the stream for drinking, cooking, washing their clothes and every other imaginable need. With immense love for their community, no one had any greed for money, spending more time outside, helping each other, instead of being bound in their houses.”*



Map showing city level land use

**LEGEND:**








	Old City
	Commercial
	Residential
	Agricultural
	Industrial
	Mixed use
	Defence
	Hotels/ Homestays

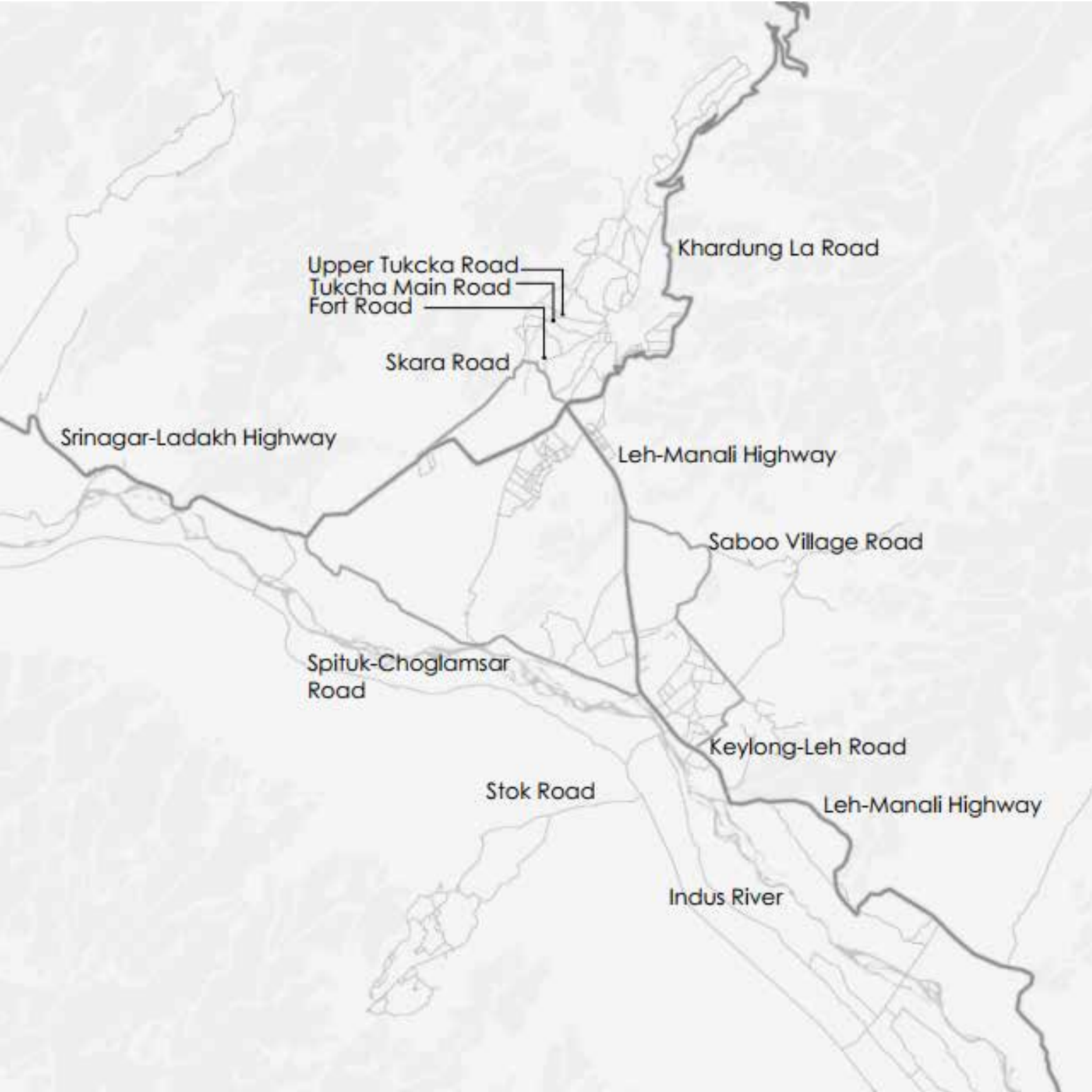




Map showing the location of the various colonies in the city

**LEGEND:**

	Skampari Colony
	Murtse Colony
	Housing Colony
	Skalzangling Colony
	Ibex Colony
	M.E.S. Colony
	Tibetan Colony



Upper Tukcha Road  
Tukcha Main Road  
Fort Road

Skara Road

Khardung La Road

Srinagar-Ladakh Highway

Leh-Manali Highway

Saboo Village Road

Spitik-Choglamsar  
Road

Keylong-Leh Road

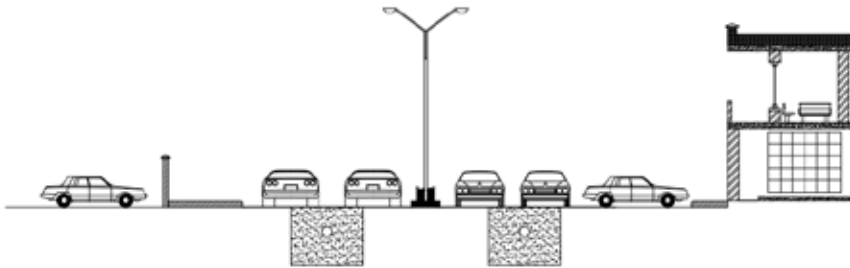
Stok Road

Leh-Manali Highway

Indus River

## ROAD NETWORKS AND TRANSPORTATION

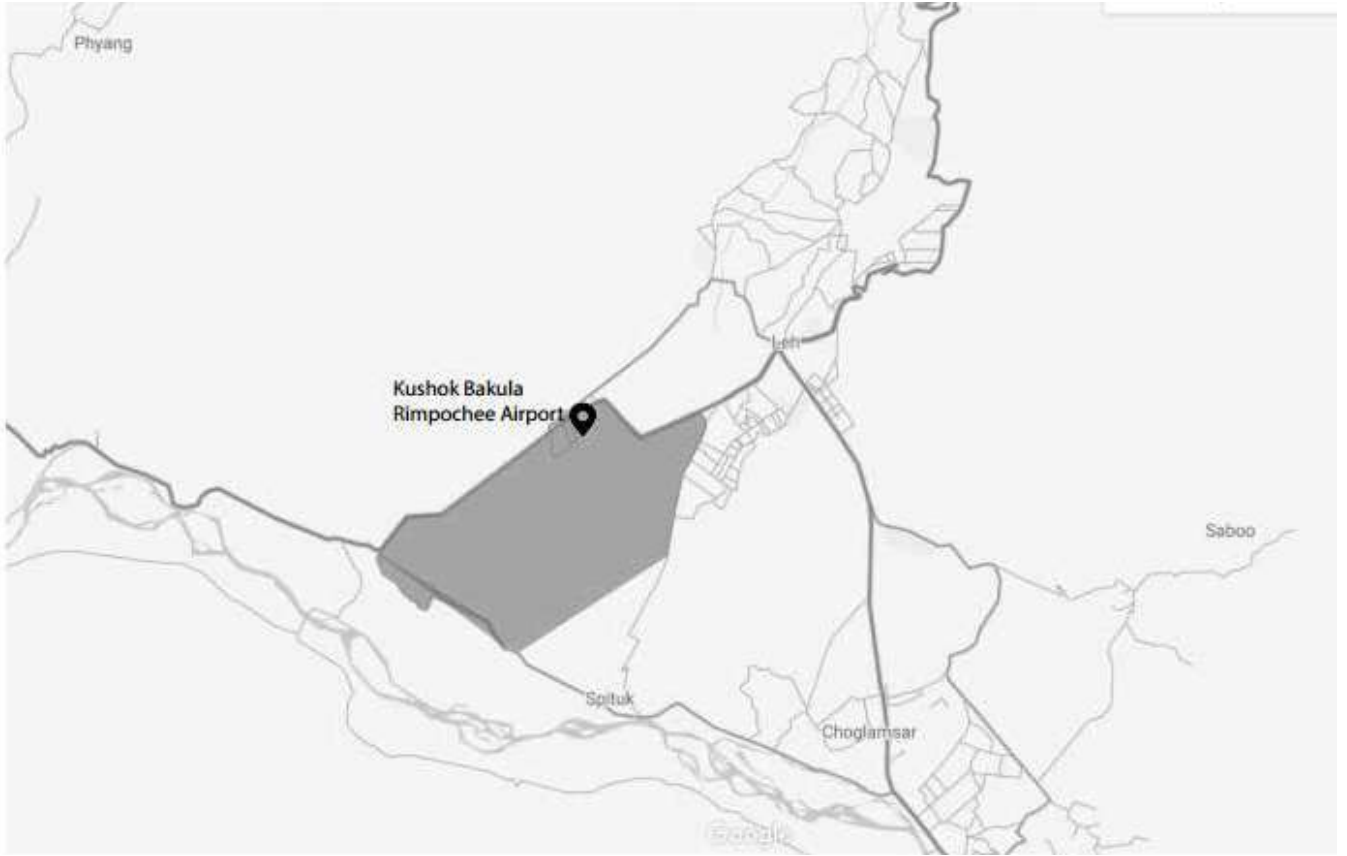
Leh is connected to the rest of India by two high-altitude roads, NH-1 (Leh-Srinagar) and NH-3 (Leh-Manali). The JKSRTC operates regular deluxe and ordinary buses between Srinagar and Leh on this route with an overnight halt at Kargil. NH-3 acts as the second land approach to Ladakh, there are a number of high passes en route among which is the world's second highest motorable road at 5359m. The connectivity by road is lost during the winters (October-May), owing to the extreme snow. The only way of connection throughout the year is by air. The Leh Kushok Bakula Rimpochee Airport has flights to and from the capital city daily. This has drastically improved the accessibility to the Himalayan city.



Section across Leh-Manali Highway

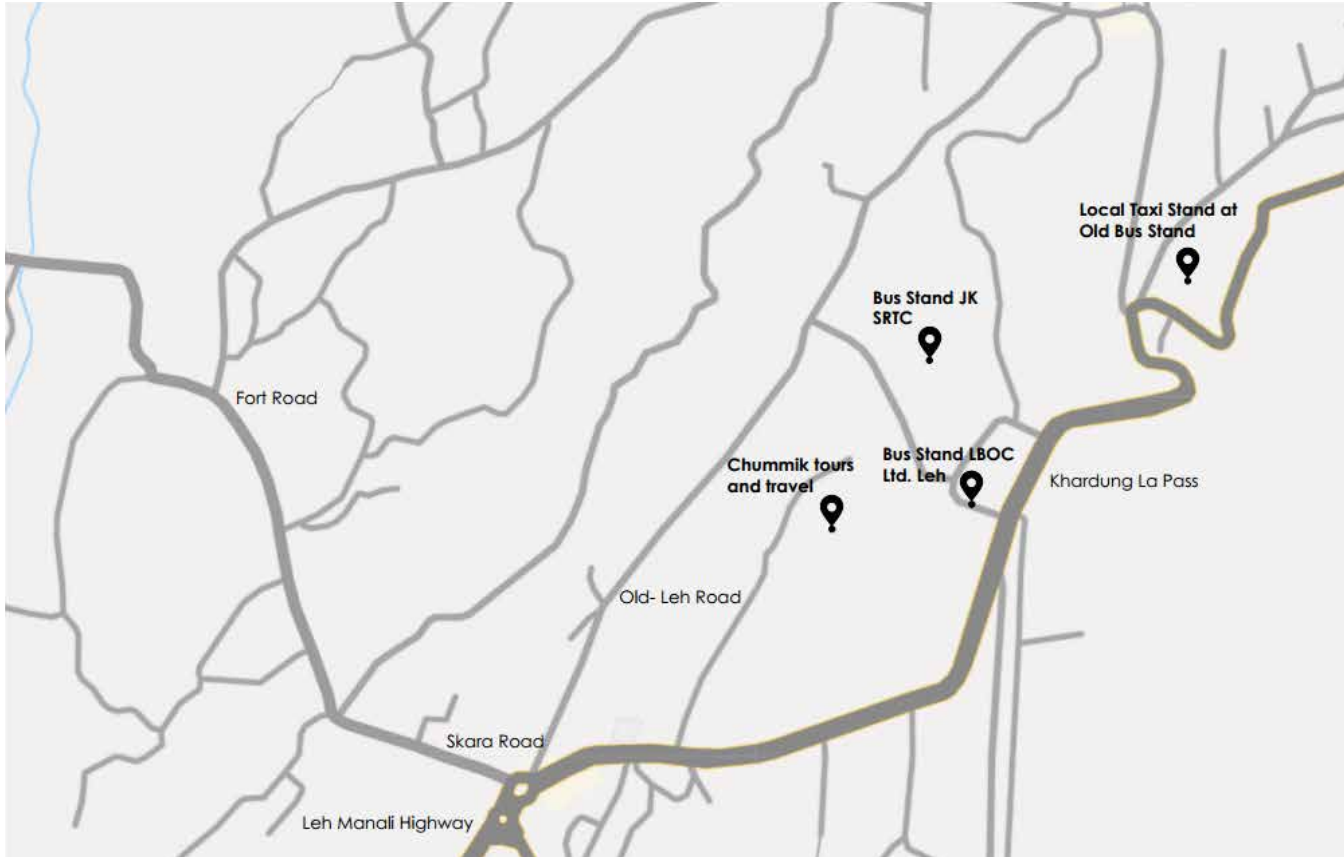
## CONNECTIVITY

Located in the eastern part of Ladakh, Leh is connected to the other parts of the country by two main, high altitude highways, NH-1 (Srinagar- Ladakh) and NH-3 (Leh- Manali). It is accessible by air and road but not the rail, owing to the challenging terrain of this region.



Map showing the location of the Airport and the major roads seen at regional level

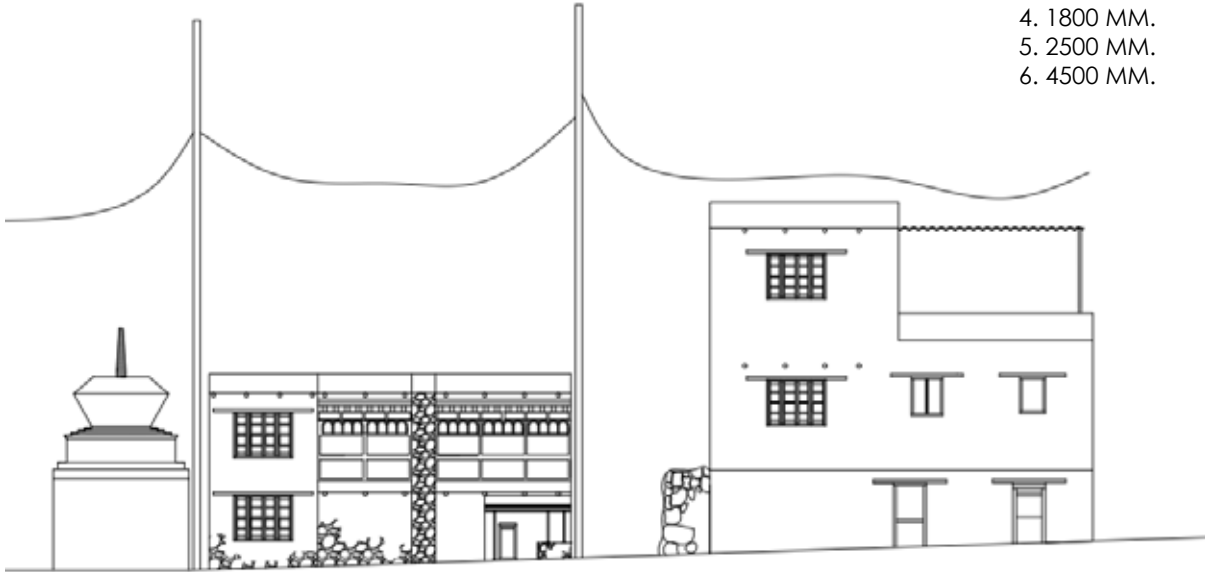




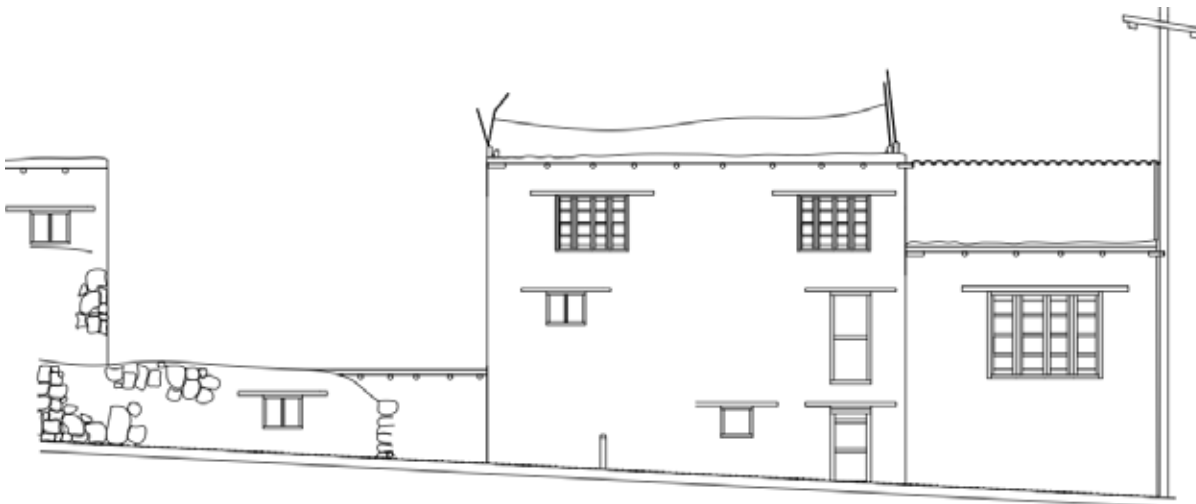
Map showing the location of the various taxi stands and bus points in the city as well as key roads/highways

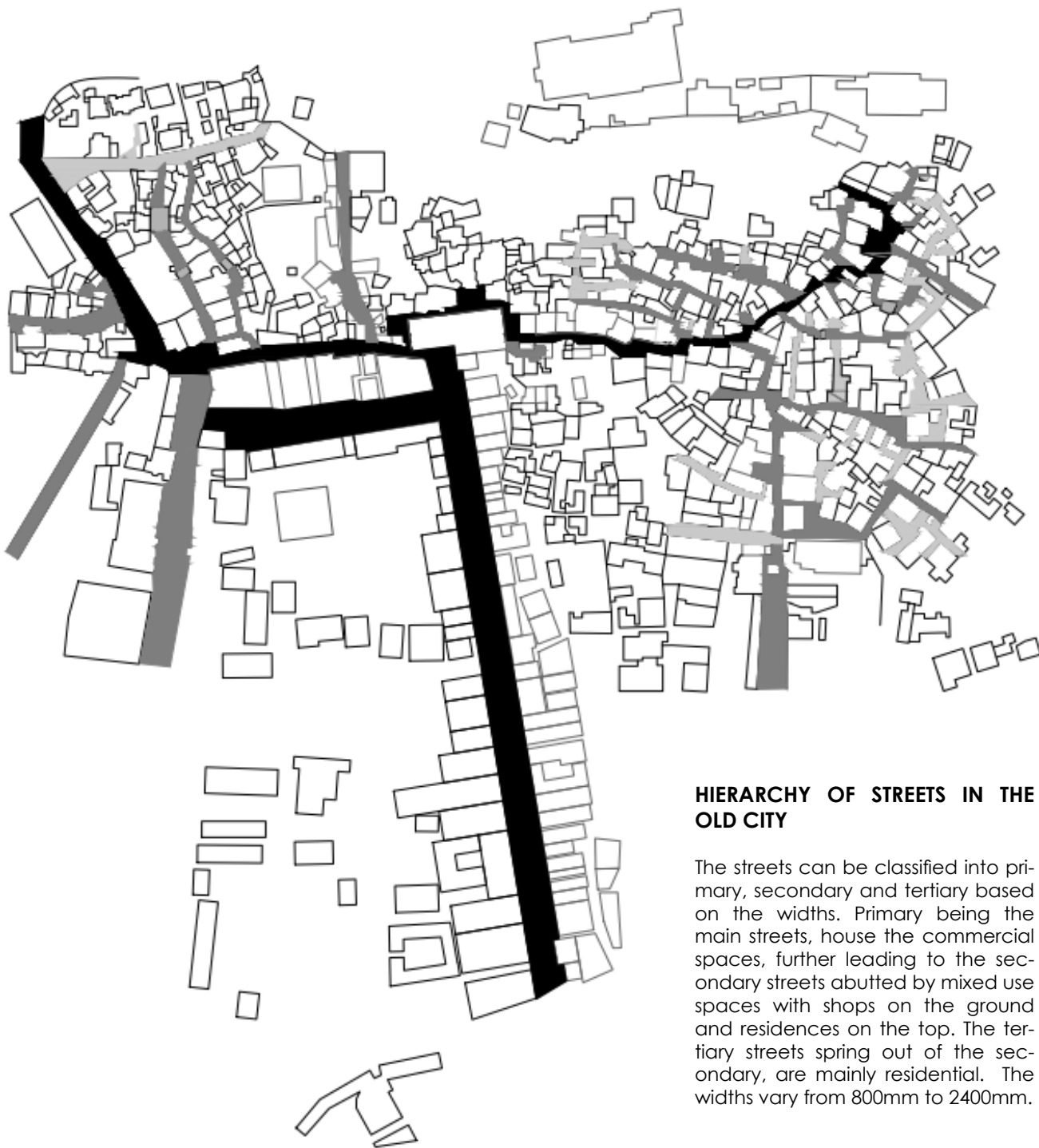
The hierarchy of the streets can be classified into primary, secondary and tertiary; primarily on the basis of their widths. The various widths noted as one move arounds the city are:

1. 500 MM.
2. 800MM.
3. 1200 MM.
4. 1800 MM.
5. 2500 MM.
6. 4500 MM.



Sections showing the character of the streetscape taken across streets in the old city





### **HIERARCHY OF STREETS IN THE OLD CITY**

The streets can be classified into primary, secondary and tertiary based on the widths. Primary being the main streets, house the commercial spaces, further leading to the secondary streets abutted by mixed use spaces with shops on the ground and residences on the top. The tertiary streets spring out of the secondary, are mainly residential. The widths vary from 800mm to 2400mm.

## STREET ELEMENTS

Having talked about the variation, with respect to typology and width, of the streets of the city, another aspect that makes the streets different are the elements that give the streets their character.

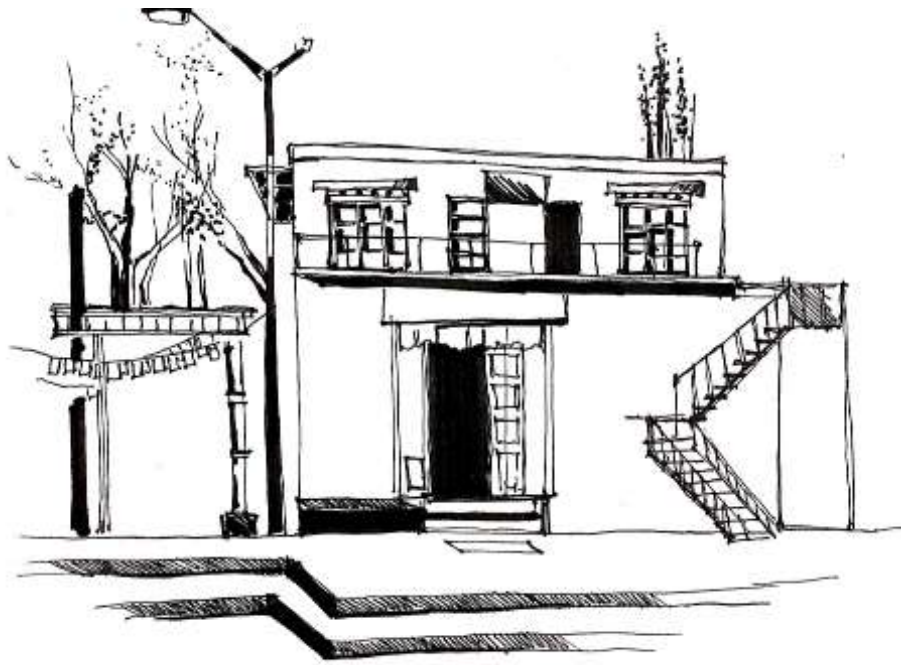
Adorned by the colourful Buddhist flags offering a sense of uniformity to the streets, they are further characterised by the shops, stations and markets surrounding the streets. Serving a multitude of purposes.

Elements such as landscaping, decorative lighting elements, signage, and improved pedestrian accessibility can give residents a greater "downtown" feel.



Some elements used may include but are not limited to

- New sidewalks, curbs, and pavers
- Complete and Green Streets
- Placemaking
- Site furnishings
- Signage and banner displays
- Ornamental landscaping and street trees
- Decorative pillars and lighting
- Accessibility ramps
- Bicycle racks
- Additional Parking facilities





# PUBLIC REALM

The term public realm loosely refers to the public domain to talk about external urban spaces that are accessible in nature. The public realm therefore relates to all parts of the built environment where the public has free access. It encompasses: all streets, squares and other rights of way irrespective of predominant land use. Public spaces are therefore manifestations of community and of human interaction outside the private home.

Public spaces are characterized by by their nature that connects and brings people together. The definition of public spaces has however changed over the past decades, mostly because of the advancements in technology. Earlier it meant squares, parks and gathering places where people met physically, but now it is a mere place with Wi-Fi, which connects people virtually.

The general pattern of public space in hill cities is that of a main mall road with cafes, restaurants, hotels, handicraft shops and entertainment activities, where tourists spend most of their time.

However, this is not a set pattern for all the hill stations.

Leh, has a completely different pattern of a public space. Being extremely sunny, a mall road was not feasible. The main public space is the LEH MAIN BAZAAR, which is a L shaped, non-vehicular street, a part of which remains completely sunny, and another completely shaded, acting like a solution for extreme Leh climate.

Having deep understanding and respect among the two dominant religions of Leh, i.e. Buddhism and Islam the main bazaar has a Vihara and Mosques.

In hill station like Nanital, the main public space is oriented around lakes, whereas the main public spaces in hill stations like Shimla, the main public space is surrounded by spectacular views.

### Influx of Tourism

With the increase in tourism the Leh Main Bazaar has seen a major change in the land use pattern.

Formerly, majorly used for trade purpose, and being a vehicular zone, it changed drastically. Now used to cater the tourists, the bazaar mainly has cafes, restaurants and handicraft shops.

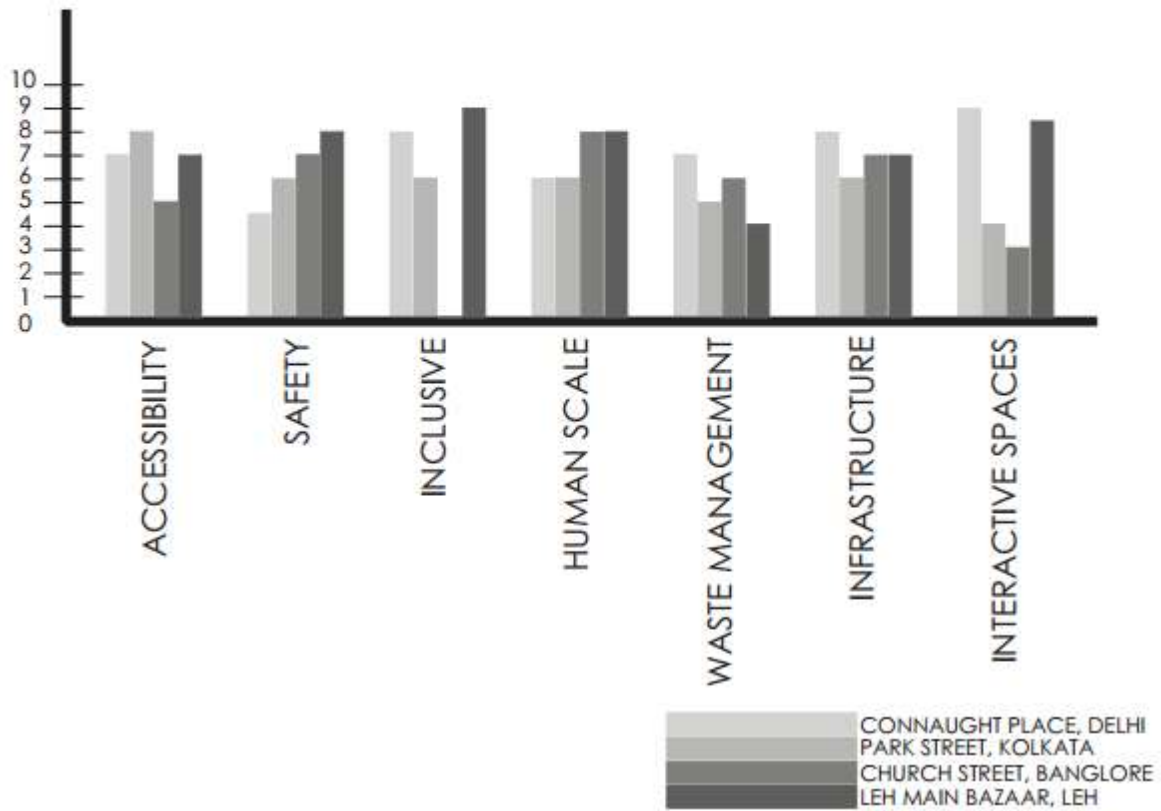


Views of Leh Bazaar showing public activity of various kinds across the street

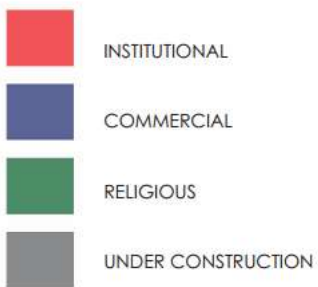


## What makes a public space a good public space?

- easily accessible
- safety
- inclusive
- human scale
- infrastructure
- waste management






















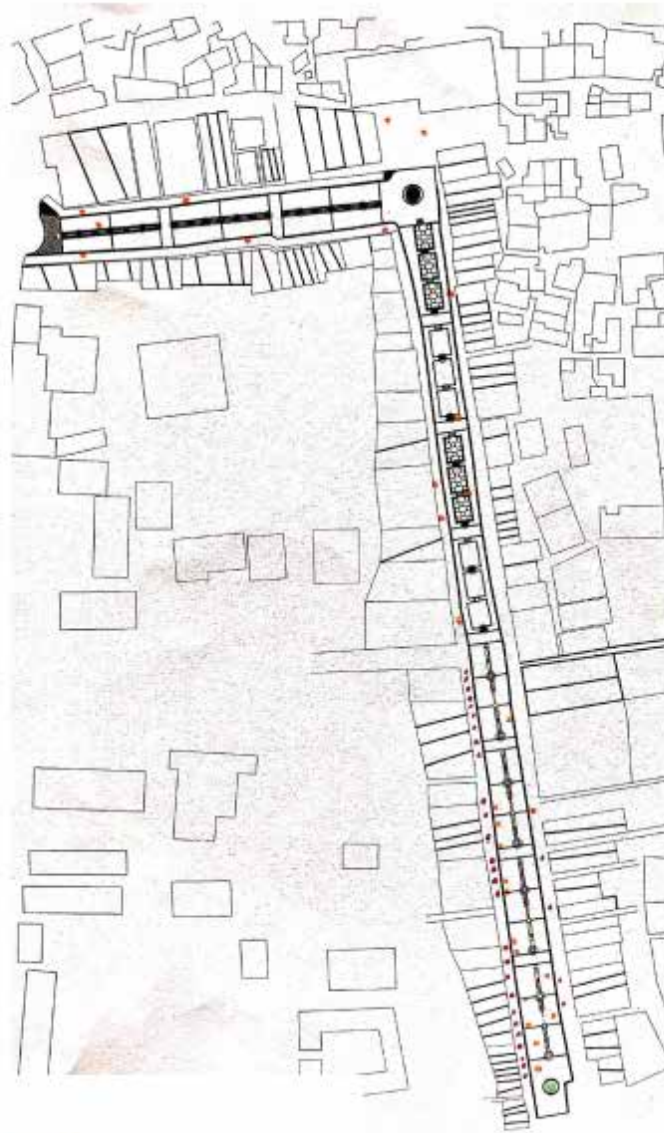
Land Use Patterns in Leh Bazaar



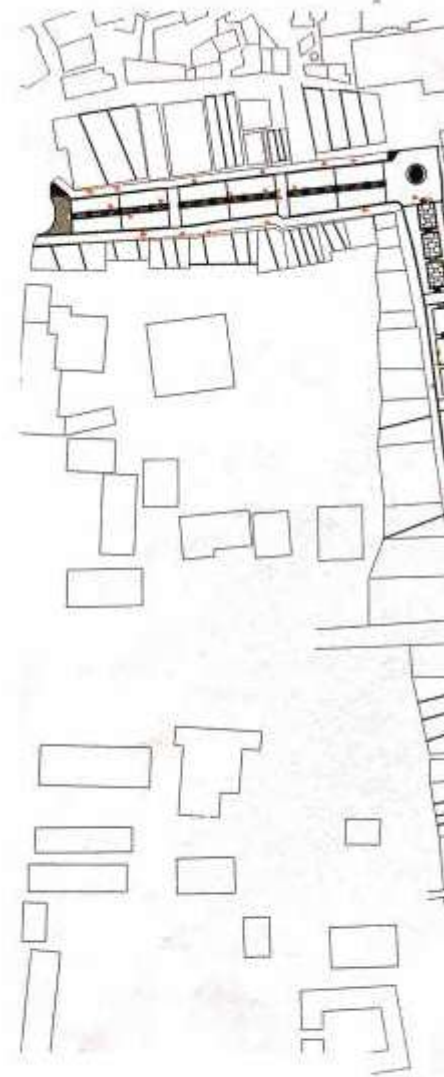


Detailed Land Use Patterns as observed in Leh Bazaar

 SWEET SHOP	 CHEMIST	 BOOK SHOPS
 GROCERY	 OFFICE	 ELECTRONICS
 HANDCRAFTS	 BANK	 JEWELLERY
 TRAVEL	 POST OFFICE	 UNDER CONSTRUCTION
 HARDWARE	 MOSQUE	
 CLOTHES	 GURUDWARA	
 DRY FRUITS	 YAKARA	
 CAFE		



9AM



12 PM

Activity Mapping of Leh Bazaar across three different times of the day



6 PM

























Lala's Cafe



# ARCHITECTURE

The architecture of the region is greatly influenced by the availability of local material. Earth, stone and wood are the essential constituents of Ladakhi houses. The environment offers plenty of the first two items, though timber is rare especially at high altitudes. This very restricted list explains how very few materials were exploited for building not just houses but also sacred buildings, defensive walls, fortresses and even royal palaces.

New materials have been introduced to a large extent during the last century, with a peak in the last three to four decades. These materials are those which were not directly available or made on site such as glass, cement and steel. Today large amounts of imported wood have only become a recent possibility. The construction of tourist facilities, army camps but also local houses, has fostered the import of large amounts of construction products.



LATA

CB 35B 0249

SERVICES

# The Team



Nazir Din



Intekhab Alam

Maithilly Velangi

Din Mohammad

Arif Abdullah

Mudassir Wahid

Shoaib Iqbal Nabir

Dhananjay Yadav

N Srishti Prabakar

Ammu A M

Somya Malik

Sahana HM

Samyukta

Agamya

Vatsala

Sakshita

Raghav Garg

Alekhya Krishna

Mariya Rabbani

Nipun

Anvitha Harish

Misbah

Vidhi

Abirami

Harini



