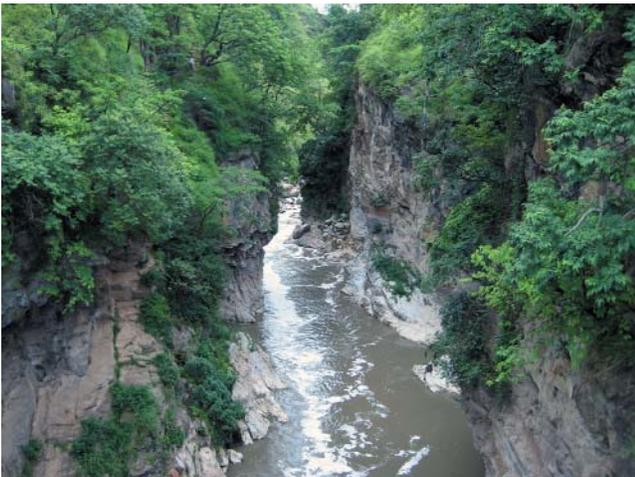


1

Introduction

History of the Kathmandu Valley

Legends concerning the origins of Kathmandu Valley (referred to also as the valley in this document), from both religious texts and oral tradition, describe it as a lake surrounded by hills and forests. The lake, Nag-hrada, the abode of serpents, so the legend has it, was drained by a Chinese Saint, Manjushree, so that he could worship at Swayambhunath and Guheswori. Once the waters were drained away, the valley was settled (Jha 1996). The formation of Chobhar Gorge, the drainage conduit for the inner valley, is given as an example of the veracity of the legend. Kathmandu Valley used to be known as Nepal and any early history of Nepal is actually the history of the Kathmandu Valley (Regmi 1999).



Source: A.B. Manandhar, SEED Nepal

Chobhar Gorge

The 'Vanshavalis' (historical documents) record that initially Kathmandu Valley was ruled by 'Gopal Bansi' (cow herders) from 900 to 700 B.C.; by 'Mahisapalas' (buffalo herders) from 700 to 625 B.C.; and by 'Kirat' Kings from 625 B.C. to 100 A.D. The first Kirat king was Yalamber. Gautam Buddha visited Nepal during the rule

of Jitedasti, the seventh ruler of the Kirantas, and Buddhist culture and art were adopted in the valley. The 'Lichhavis', from Northern Bihar, invaded at the end of the 5th century. The Lichhavi era is known as a golden period, and it is from this time that the recorded history of Nepal really begins with the inscription of King Manadeva I (464–505 A.D.) at the temple of Changu Narayan. At the beginning of the seventh century, Amshuvarma, a 'Thakuri' officer, became king. An able administrator, he opened up a trade route to Tibet. After Amshuvarma, the Gupta nobles came to power and ruled for twenty-two years until Narendradev of the Lichhavi dynasty took over again. The Lichhavi period was prolific in terms of cultural activities.

In the 13th century, the 'Mallas' from far west Nepal took over the Kathmandu Valley. Arimalla, the first Malla King, ruled from 1201 to 1216 A.D. King Jayasthiti Malla was the most noted among this dynasty (1380 to 1395 A.D.). He was a great politician, reformer, and an able administrator. He stratified the society into various castes and sub-castes based on Hindu philosophy. Land too was stratified according to productivity into four types: 'Abbal', 'Doyam', 'Sim' and 'Chahar'. However, Malla rule was weakened in the 15th century following the death of King Yakshya Malla. Kathmandu Valley was divided into three sister kingdoms: Kathmandu, Lalitpur, and Bhaktapur. This led to the weakening and eventual end of Malla rule.

In 1769 A.D., Prithivi Narayan Shah, the king of Gorkha, took over the three kingdoms of Kathmandu Valley. He unified the many small kingdoms and principalities into a single nation, Nepal, with Kathmandu as its capital. In 1846, Jung Bahadur Kunwar came to power and founded a Rana Dynasty as hereditary prime ministers with Prithivi Narayan's descendants as puppet kings. During the time of King Tribhuvan, a democratic movement emerged and Rana rule came to an end.

King Mahendra, Tribhuvan's son, dissolved the elected parliament in 1960 and replaced multiparty democracy with a partyless 'Panchayat' system of government under the direct rule of the king. During the reign of Mahendra's son, Birendra, a people's movement emerged and this led to the establishment in 1990 of multiparty democracy with a constitutional monarchy. There were frequent changes in government and from 1995 onwards a political faction from the Communist Party of Nepal/Maoist took up arms.

After the massacre of almost all Birendra's family at the Royal Palace in 2001, Birendra's brother, Gyanendra, became king. Parliament was dissolved under the constitution, but elections could not be held due to the lack of security nationwide. After five years of turmoil, leading to dissolution of parliament and a succession of prime ministers without parliaments, King Gyanendra took over the government. The continuing dissatisfaction of political factions led to a series of demonstrations in early 2006 that ended the king's government. Since that time, continuing negotiations have been taking place between all political factions in an effort to re-establish peace and democracy.

Physical and Political Features

Kathmandu Valley lies at 1,300 masl and is located between latitudes 27°32'13" and 27°49'10" north and longitudes 85°11'31" and 85°31'38" east. Its three districts, Kathmandu, Lalitpur, and Bhaktapur, cover an area of 899 square kilometres, whereas the area of the valley as a whole is 665 square kilometres. The valley encloses the entire area of Bhaktapur district, 85% of Kathmandu district and 50% of Lalitpur district.

The valley is bowl shaped and surrounded by the Mahabharat mountain range on all sides. There are four hills acting as forts of the valley, Phulchowki in the South East, Chandragiri/Champa Devi in the South West, Shivapuri in the North West, and Nagarkot in the North East. The highest altitudes are 2,166m (in Bhaktapur), 2,732m (in Kathmandu), and 2,831m (in Lalitpur).

The climate is good, the soil fertile, and it is endowed with rich forests and scenic beauty. The three major river systems in the Valley are the Bagmati, Bishnumati, and Manohara. There are lakes and ponds in all three districts—Taudaha and Indra daha in Kathmandu; Gunaldaha, Katuwaldaha, Godavari, Nagdaha, Bojho Pokhari, and Saraswatidaha in Lalitpur; and Siddhapokhari, Bhajupokhari, and Kamalpokhari in Bhaktapur. Kathmandu Valley has waterfalls at

Sundarijal, Chobhar, and Matatirtha. The climate is sub-tropical, temperate, and cool-temperate, with four distinct seasons: spring from March to May; summer from June to August; autumn from September to November; and winter from December to February.

In general, the annual maximum and minimum temperatures are between 29°C in June and 1°C in January. The comparative monthly maximum and minimum temperatures for 1985, 1999, and 2004 are given in Annex 1. The average wind speed recorded by the Hydrology and Meteorology department's station at Tribhuvan International Airport in 1998 was highest in March (2.1 km/hour) and lowest in December (0.8 km/hour). The annual rainfall records for Kathmandu from 1995 to 2003 show fluctuations between 1,171 to 1,868 mm. Figure 1 shows the Kathmandu Valley districts, municipalities, and VDCs and Table 1.1 shows the distribution of municipalities. Kathmandu Valley has five municipalities and ninety-eight VDCs and 14 VDCs of the three districts fall outside the valley (Figure 1).

Human Settlement

Early settlements were around the Bagmati River near Pashupati Deo-Patan and on the banks of the Dhobi Khola at Hadigaon. Townships developed and flourished through Indo-Nepal-Tibet trade. Though many small towns were established by the second century A.D. and urban centres by the 11th century, according to the records, urbanisation of the valley commenced in the late 1950s, accelerating during the 1970s. According to the population census of 2001, Kathmandu district has the biggest urban population and the highest number of households.

Between 1984 and 1998, circa 6,300 hectares (ha) of fertile and productive agricultural land were lost to urbanisation, industrialisation, and quarrying of sand, soil, and stone. Between 1984 and 1994, the valley's urban area increased from 3,096 to 8,378 ha and 5,282 ha of fertile agricultural land were lost to urbanisation (MoPE 1999). It is estimated that more than half of the valley's 'A' grade land; i.e., 43% of the existing agricultural land, will be lost to urban sprawl by 2010 (HFA 1991, MoPE 1999).

Squatter settlements are another aspect of urban settlement. In 1985, there were 17 squatter settlements in the valley with a total population of 3,000 (MoPE 1999). In 1994, there were 33 squatter settlements with a total population of 15,000 (Thapa 1994). Sixty per cent of these squatter settlements are on public land and 40%

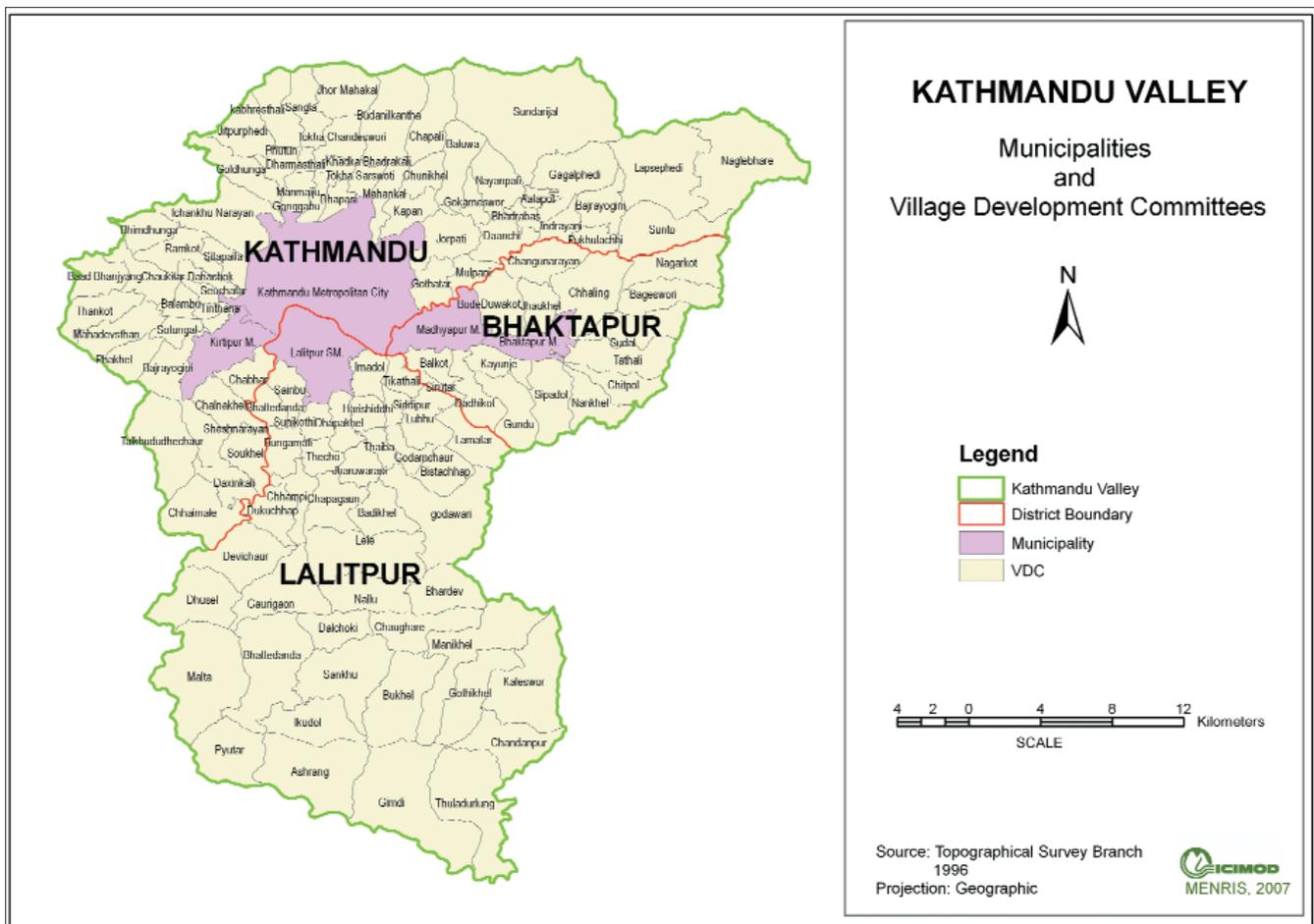


Figure 1: Kathmandu Valley: districts, municipalities, and village development committees (VDCs)

Table 1.1: Kathmandu Valley boundary	
Districts & Municipalities	Area (km ²)
1. Bhaktapur district	119
1. Bhaktapur Municipality	6.88
2. Madhyapur-Thimi	5.56
2. Kathmandu district	395
3. Kathmandu Metropolitan	48.29
4. Kirtipur Municipality	5.70
3. Lalitpur district	385
5. Lalitpur Sub Metropolitan	16.10
Valley urban areas total	82.53
Valley districts total	899

Source: NIDI 2006 and compiled from municipality records

are in public buildings such as temples and traditional free shelters provided by the community called 'patis' (Rabenau 1990). A survey of 24 squatter settlements carried out by students from Trondheim university in 1988 revealed that 54% of the settlements were located in urban areas and 46% on river banks; 66% of the houses had permanent structures and 52% were without tap water; and 63% had no electricity and 66% had no toilet facilities.

Traditional Water Supplies

Kathmandu Valley has a number of traditional, stone water-spouts: 237 in Kathmandu, 77 in Lalitpur, and 53 in Bhaktapur (Amatya 2006). These waterspouts are evidence of the engineering skills of the past. The spouts are located within rectilinear pits built into the ground and supplied through 'Raj Kulos' (state canals), which met irrigation needs using local water sources. Even though they received state sanctions, they were decentralised in operation. Modern construction and the falling water level in the valley have led to the drying up of many of these stone water spouts.

Distribution of improved drinking water started around 100 years ago during the period of the Rana Prime Minister, Bir Shamsheer. Kathmandu's first drinking water system, 'Bir Dhara', was built at that time. The Bagmati River and its tributaries are the valley's principal river system and its springs are the main source of drinking water for residents, particularly for greater Kathmandu – the urban core of the valley.



Source: G. K. Shrestha, SEED Nepal

A typical stone spout

Traditional Agricultural Practices and the Housing System

Traditional agricultural practices

The prosperity of Kathmandu Valley has been attributed to indigenous agricultural practices and good crop yield. The valley farming community are known collectively as 'Jyapoos'. The community produces the greatest share of fresh vegetables for the Kathmandu market, and is known for its good practical skills and expertise in intensive traditional agriculture, especially for vegetable production (FAO 1994). Traditional methods included keeping and maintaining quality seeds, using local compost and organic manure, and maintaining soil and crops by indigenous methods.

The Jyapoos cultivate around 1,000 to 2,500 square metres of land per family. They do not use oxen or bulls for ploughing, but simple tools. Every bit of land is used efficiently. Black clay, compost, and human excrement

are traditional sources of manure. They rarely keep cattle as other farmers do and transport goods with a piece of equipment like a balance called 'kharpan'. They are skilled at intercropping (which helps control crop diseases and pests) as well as crop rotation, and harvest three crops annually.

The traditional housing system

Traditional housing in the valley is constructed with local materials. Thick load-bearing walls are made of mainly green or unfired bricks held together with mud mortar. This ensures low heat transfer to render houses cool in summer and warm in winter. The timber used is mainly hard wood for beams, doors, windows, staircases, and purlins.

Normally, traditional houses have four stories. The kitchen and 'puja room' (prayer room) are on the top floor and have sloping roofs made of fired clay or ceramic tiles. The bedrooms are on the second floor and the living room is on the first floor. The ground floor of the house has a stone 'dhiki' for milling paddy.

The floors of the houses are plastered with mud supported by wooden planks. Windows on the first floor, called 'aankhejhals', are often decorated with wood carving and on the second floor it is customary to build three joined windows called 'sanjhya.'

Unlike in the villages, where the houses are scattered and separated, Kathmandu Valley houses are joined together. The line of houses near New Road, called 'Jhochhen' (meaning 'lined houses'), is a good example. This type of construction provided stability. Groups of houses were arranged around a courtyard, which was also used for the management of solid waste.



Source: G.K. Shrestha, SEED Nepal

A typical traditional house

Cultural Heritage of the Kathmandu Valley

Kathmandu Valley is known for its ancient art, culture, craftsmanship, and numerous monuments of historic and archaeological importance. UNESCO has described Kathmandu as a 'living heritage site'. The valley has a number of temples, palaces, monasteries, and Buddhist stupas that are centuries' old. A unique feature is the religious co-existence of Hindus and Buddhists, as they worship at the same religious sites. There are many interesting sites within a radius of 20 km, and it used to be said that there were as many temples as houses and as many festivals as there are days on the calendar.

There are seven sites classified as World Heritage Sites by UNESCO. Urbanisation and construction of concrete structures with little architectural merit threaten these sites and they have been placed on the 'World Heritage in Danger' list. However, preservation activities are taking place on these sites, and it is expected that they will be off the 'danger list' next year (THT 2006, 27 July).

The seven sites are as follows.

1. Kathmandu Durbar Square
2. Patan Durbar Square
3. Bhaktapur Durbar Square
4. Swayambhunath Stupa
5. Pashupatinath Temple
6. Boudhanath
7. Changunarayan Temple

Recent photographs of the heritage sites are presented overleaf and details of them are given in Annex 2.

In the Kathmandu Durbar Square, some of the houses built in contravention of the prescribed code have been demolished. Many important temples, including Kasthamandap, have been renovated. Presently, Jagannath Temple is being renovated. Similarly, the fifty-five windowed palace, known as 'Pachpanna Jhyale Durbar', in Bhaktapur Durbar Square is being renovated. Around Swayambhunath, a number of statues and monasteries are being built in and around the hillock. Swayambhu hill has been stabilised. Many new statues, including a large statue of Buddha, and monasteries have been built on the western side of the hill. Pashupati Development Trust has been more active in demolishing buildings encroaching on the area and also in constructing new monuments and service areas, along with providing green areas.

Besides the above UNESCO world heritage sites, there are numerous important cultural sites in the valley. There are more than 360 'vihars', 'chaityas', and 'monasteries'. There are also many important religious and cultural sites on the river banks such as the Teku – Thapathali Riverine Heritage Site, Gokarneswor Mahadev Temple at Gokarna, Jagat Narayan Temple, and the shrines at Sankhamul, Patan; Shova Bhagwati, the Vijeswori temple and Kankeswari temple in Kathmandu; and the temples and shrines of Ramghat and Hanumanghat in Bhaktapur. Even in rural areas, every village has religious and cultural monuments such as temples, vihars, stupas, or monasteries. The important ones among them are as follows.

- Mahalaxmi Temple in Thankot,
- Bishnudevi Temple in Satungal,
- Kalika Temple, Kisipidi
- Mahalaxmi Temple, Balambu

- Rudrayani Temple, Khokana
- Bramhayani Temple, Thaiba
- Bringareshwor Mahadev Temple, Sunakothi
- Aadhinath Temple, Chobhar
- Chilanchu Mahavihar Temple, Bagh Bhairab Temple, and Umamaheswor Temple in Kirtipur
- Bajrabarahi Temple in Chapagaon
- Shikara Temple of Rato Machhendranath in Bungamati

There are also numerous wayside settlements and resting places, called 'pati', and stone water spouts. There are also important ponds as it was believed that bathing in these ponds washed away sins. Examples are Rani Pokhari, Kamal Pokhari, and Nag Pokhari in Kathmandu and Godawari and Kumbheswor in Patan.

Festivals Contributing to the Environment

Many festivals are linked with nature. About 76% of the population of Kathmandu Valley are Hindus and 20% are Buddhists. Other religious groups found in the valley are Christians, Muslims, Kirats, and Jains and a very small number of Sikhs and Bahais. Hinduism and Buddhism have close links. The whole mechanisms of worshipping, temple architecture, features of gods and goddesses, and myths are highly influenced by nature. For example, Hindus worship the sun, moon, rivers, land, stones, trees, and animals. Religious texts like the 'Puranas', 'Gita', 'Ramayan', and 'Upanishads' explain about the vehicles, or 'bahans', of each god or goddess. For example, the lion is associated with Durga, the elephant with Indra (the god of rain), the snake with Lord Shiva, and so on. Moreover, there are certain plants that are worshipped. For example, 'pipal' (*Ficus religiosa*), bur (*Ficus bengalensis*), 'kush' (kush grass), and 'tulsi' (basil). This helps in preservation of such plants. The 'pipal' and 'bur' trees are never cut. They are planted at important locations along the route to provide shade for travellers and trekkers. 'Tulsi' is an important plant with medicinal values. This also has insect repellent characteristics and is generally planted in the middle of the courtyard.

In some areas, certain parts of the forests remain untouched because they are considered to be sacred. These sacred places are protected and conserved because of faith in or fear of deities. It is believed that the sacred portion of a forest belongs to the 'Ban Devi' (goddess of the forest), or other deities whose temples and shrines are built there. It is considered an ill omen for the village or locality if anything is taken from this forest. This belief has helped to protect forest resources. The forest of Bajrabarahi is one example of this practice.

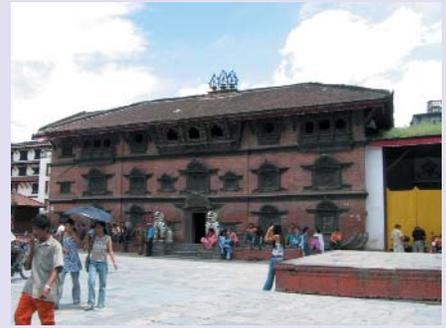
Kathmandu Valley Heritage Sites



Swayambhunath Stupa



Kathmandu Durbar Square with Jagannath Temple being renovated



'Kumari Ghar' (Home of the Living Goddess) at Kathmandu Durbar Square



Patan Durbar Square



Bhaktapur Durbar Square with the fifty-five windows' palace being renovated



Temple of Pashupatinath on the bank of Bagmati River



Landscaping of Pashupatinath Area



New statues and stupa being constructed on the western side of Swayambhu hill



Boudhanath Stupa



Temple of Changunarayan



Improvement of Pashupatinath Area

Source: All photos by A.B. Manandhar and G.K. Shrestha, SEED Nepal

There are certain cultural activities such as 'Bhumi Puja' (worshipping of land), dances, fasting, and cremation activities that are closely related to the environment. These practices, festivals, and beliefs have both positive and negative impacts on the environment. Linkages of other festivals to the environment are presented below.

- **'Sithinakha'** is celebrated on the sixth day of the waxing moon of Jestha (around the last week of May) among Newar communities in the valley. People clean the surroundings of water sources and repair and maintain the canals, wells, deep stone taps, ponds, and rainwater drainage systems. This festival highlights the importance of preserving water sources.
- On the fifth day of the waxing moon of 'Shrawan' (around the third week of July) **'Naag Panchami'** is celebrated by worshipping the 'Naag' (snake), believed to be the source of water. It is believed that people will suffer from skin diseases and infections if they agitate the Naag by polluting water sources. This helps to keep pollutants away from water sources.
- On the full moon day of 'Shrawan' (last week of July), **'Janai Purnima'** is celebrated. Farmers offer food to frogs in the rice fields for their contribution to eradicating insects protecting their crops.
- **'Deepmalika'** is celebrated for one month from the full moon of 'Aswin' to the full moon of 'Kartik' (the first week of October to the first week of November) by lighting oil lamps on high bamboo poles. These lamps attract and kill harmful insects which would otherwise destroy the almost ripe crops.
- **'Tihar'** is celebrated for five days in the month of 'Kartik' (around the end of October). The crow is worshipped on the first day, the dog on the second day, the cow on the third day, and bulls on the fourth day for their contributions to the environment.
- One day before the waxing moon of Mangsir, **'Balachaturdashi'** is celebrated by spreading the seeds of seven different grains – maize, wheat, lentils, cereals, and mustard seeds — all over the forest of Sleshmantak (around the Pasupatinath area) in the name of deceased family members. These produce food grains that eventually support animals and birds in the area.

Forests and Biodiversity

The forests in and around the valley of Kathmandu provide basic needs to rural communities, clean water for valley residents, and recreational sites for tourism; and they also help in situ conservation of biological diversity.

The valley has 20,945 ha of forests, about 32.7% of the total area of the valley. The natural vegetation, except in a few conservation areas, has been under intense pressure. The area under natural forest cover, excluding shrubs, is 9,580 ha (45.7% of the total forest land), of which only about 22% has good forest cover with more than 50% of crown coverage. Mature hardwood forests are now confined to parks and sacred areas such as Nagarjun (Raniban), Gokarna and Shivapuri watershed and Wildlife Conservation forest, and Bajrabarahi forest. Shrubland occupies nearly 34% of the total forest area. Quarries cover 84 ha of forest land in the valley (MoPE 1999).

The main vegetation groups in the valley are the following.

- *Schima-Castanopsis* associations on the valley floor and hill slopes
- *Pinus roxburghii* on the lower hill slopes and on the southern sides of Chobhar, Nagarjun, Bisankhu Narayan, and Badikhel
- *Quercus lanata* dominating the upper hill slopes of Phulchowki, Shivapuri, and Chandragiri.
- *Quercus lanata* – *Pinus willichaina* generally found in Manichur Lekh and Nagarkot.
- *Quercus lamellosa* – *Laurus* (laurels) in the middle of Phulchowki
- *Quercus semecarpifolia* is abundant on the hill slopes of Shivapuri and Phulchowki.
- *Rhododendron arboreum* on the reaches of the valley hills, e.g., Phulchowki, Nagarjun, and Chandragiri

The forests in the valley are not in good condition. Most of the forests in the valley are in the regenerating stage. The crown coverage of *Rhododendron* and *Quercus* is more than 70% and the crown coverage of *Pinus roxburghii*, and *Schima-Castanopsis* is less than 40%. About 1,312 plant species belonging to 162 vascular families are found in the valley, representing 26% of the total of plants recorded in Nepal. About seven species of Gymnosperms, 170 species of Fern, and 97 species of Orchid are found in the valley. About 256 species of birds have been reported from the Phulchowki area and many

birds are found in Nagarjun, Shivpuri, Tuadaha, Tokha, and Bajrabarahi. Many migratory birds are found at Taudaha pond. About 33 bird species have disappeared from the valley due to habitat destruction. Marble and stone quarrying are among the causes of habitat destruction and genetic resource loss.

Some patches of forest exist in Bajrabarahi, Hattiban, Balkumari, Karya Binayak, Mhaipi, Pashupatinath, Raniban, and Bansbari. These are mostly of *Eucalyptus*, *Protea* sp, *Jacaranda* sp, and *Camphor*. Green belts are found in some city areas. *Populus* sp and *Eucalyptus* sp are found along the Ring Road, Kathmandu-Bhaktapur Highway, and Lagankhel-Godawari way. Among the trees planted around the Tudikhel are *Gravelia* sp, *Salix* sp, *Albizia* sp, *Gingo* sp, *Elaeocarpous* sp, and *Callistimon* sp.

Besides urban forests there are parks and gardens in and around the valley. These are given below.

- Tribhuvan Park with an area of around eight hectares consisting of mostly ornamental plants.
- Balaju Park which is a very attractive park for local residents and well managed: it also has a small forest.
- Sankha Park and Ratna Park also contribute greenery to the valley.

Besides parks, the valley also has many gardens. The Botanical Gardens in Godavari cover an area of 26 ha and have ornamentals, shrubs, and many natural trees. This garden provides an outdoor laboratory for students and also facilitates the in situ as well as ex situ conservation of plants. In addition to these gardens are the Zakir Hussain Rose Garden, Coronation Garden, and Bhrikuti Mandap Exhibition ground with many beautiful ornamentals and fruit trees. These gardens give the valley green spaces. A United Nations Park is also being promoted to establish greenery and bird habitats in Lalitpur district.

Pull Factors

Kathmandu Valley has exceptional scenic beauty. The fertile valley with terraced fields is surrounded by green hills. Snow-capped mountains can be seen behind the hills to the north. It is said that when King Prithvinarayan Shah of Gorkha saw the beautiful valley from Chandragiri hill during a trip to the then kingdom of Makawanpur, he was so taken by the site that he made up his mind to conquer the valley. Phulchowki hill at 2,765m is the highest point in the valley; and this hill provides a spectacular view of the Himalayas as well as a part of the Terai plains. Similarly, Nagarkot, at an altitude of 2,195m, provides a magnificent view of the sun rising over the Himalayas.

The unique combination of monuments, art, and architecture together with mountains and lakes or ponds is attractive to tourists, and many return, time and again. Historically, the valley was known as Nepal. Ironically, it seems to be so even today from the point of view of physical infrastructure and institutional centralisation. The valley houses all the major amenities and institutions, both governmental and non-governmental.

Basic amenities like water supplies, electricity, gas, telecommunications, roads, sanitation, education, security, and transportation are well developed in the valley in comparison to the rest of Nepal. New products and services are first launched in the valley; and its inhabitants have access to modern equipment and technology. New technologies and interventions come to the valley first, and this technological sophistication is an important pull factor.

There are all kinds of institutions – services and financial institutions, good academic institutions, renowned health care units, research centres, and the entertainment industry all clustered in the valley of Kathmandu. This means there are better job opportunities in Kathmandu than elsewhere in Nepal, resulting in excessive migration and inflow of people from other parts of the country.