

अनन्त सम्बृद्धी: Kathmandu in 2071

A Glance into the Future; Advent of a New Era



SWSC ASTRONOMY AND
ASTROPHYSICS CLUB



SWSC ROBOTICS CLUB

Design Kathmandu Project

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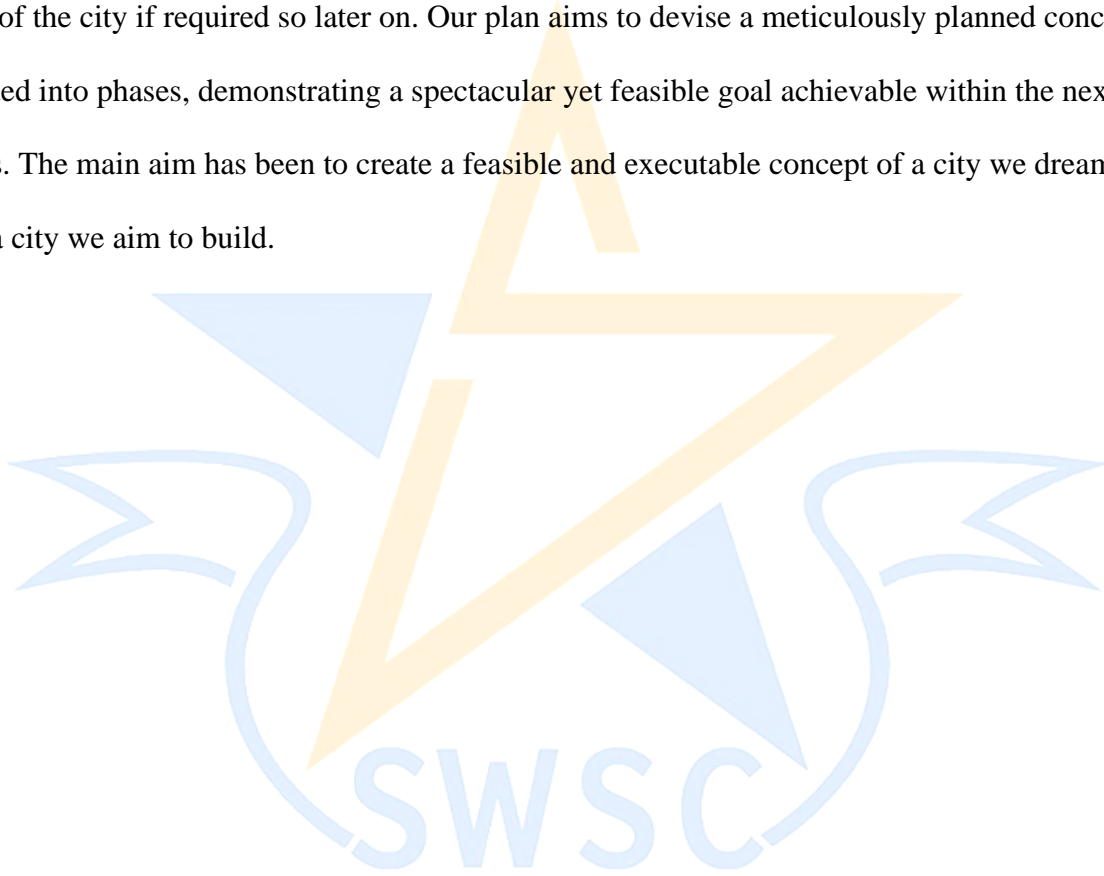
INTRODUCTION

अनन्त सम्बद्धी: Kathmandu in 2071 is a critical and meticulous conceptualization of Kathmandu City for the next 50 years. This project aims to cover topics ranging from history and present status to a systematically planned developmental plan for Kathmandu. We represent Southwestern State College and our clubs, The Southwestern State College Astronomy and Astrophysics Club (SWSCAAC) and The Southwestern State College Robotics Club (SWSCRC).

Our conceptual project revolves around the core value "Revolution of Consciousness," a value fundamental to us in all of its glory. Our project strives to communicate and signify that Education and Unified consciousness is the only way to proper and prosperous development, ergo our vision to bring a much-needed revolution of consciousness. We have visualized our conceptual city as "A city burgeoning on the grounds of scientific advancement while still promoting humanity and understanding." where we plan to not only aim to enhance the scientific and technological advancements of the city but also that promote cooperation and happiness through the means of our innovative approaches to solve the problem. Our design contrasts with the present problems that Kathmandu faces solve them using an array of systematic plans that stretch across many fields such as Education, Economics, Society, Happiness, Scientific and Technological Development, Environment, and many more. Currently, Nepal faces a flawed and static system that overlooks most aspects of development; however, our project instead embraces those aspects and grows onto them. The project workflow starts with a glance at the interesting yet perplexing history of Kathmandu and its development, gradually transitioning to the city's present state and its activities. After that, with an analytical review of the present and the past,

the project moves onto our future conceptualization. The phases have been divided into five parts, where each part requires about ten years to complete. This report talks in brief about the points; however, a complete detailed report at this point is out of the scope of the competition.

Nevertheless, we would be more than interested in working on a more in-depth and extended plan of the city if required so later on. Our plan aims to devise a meticulously planned concept divided into phases, demonstrating a spectacular yet feasible goal achievable within the next 50 years. The main aim has been to create a feasible and executable concept of a city we dream of and a city we aim to build.



RESEARCH ON PRESENT STATUS OF KATHMANDU

With the population of 1,471,867 and constantly rising, Kathmandu is the capital and largest city by a wide margin. The demography trend, environmental crisis, and the problems with social health and wealth have been identified for many decades. To know how the Kathmandu as it is, at present we will take a look at the history of Kathmandu.

History:

Kathmandu is and has been the centre of Nepal's history, art, culture and tradition since its inception which is traced to the period between 167 B.C to 1 A.D. The geology of Kathmandu points that there was a large lake which covered entire valley. It is mentioned that the name of the lake is Nagdaha (or also known as the snake lake) and a lot of snakes used to reside there. Legend has it that a Tibetan visitor named Manjushree visited the lake and knowing that a settlement can be established here, he cut the Chobar dada with his sword. As a result the valley thus created was fertile and people started cultivating and building homes here. Then Manjushree made Dharmakar, his disciple the king. He was from Gopal dynasty so Gopals started to rule in Kathmandu. According to Kotirudra Samhita of Shiva Purana, Chapter 11, Shloka 18 refers to the place as Nayapala city, which was famous for its Pashupati Shivalinga. The name Nepal probably originates from this city, Nayapala. Countless other dynasties rose and fell until the rule of the Shah dynasty when Kathmandu officially became the capital of Nepal.

The Rana dynasty ruled Nepal from 1846 until 1951, reducing the monarch to a figurehead and making the government positions held by the Ranas hereditary. This was the most corrupt the government of Nepal had ever been. In the 104 years that the Ranas were the ruling power of the nation, the country was under a dictator rule and almost all of the citizens except the families of Rana deprived education, were in poverty lines and lacked basic human rights.

To overthrow the Rana rule, the concept of revolution and democracy was developed where most of the political parties were established and the most of the revolution were started and finally in 2007 B.S(1951 A.D) the century long rana rule finally came to an end and democracy was established but democracy could not last for long because of the king's greed for power. Then the King formed a party less panchayat system in 2017 B.S which took order directly from the king using a royal coup where all of the parties were banned on various charges. This system of government had ended after the people's movement first and then the democracy which was restored but it could not last for long either because when the late king Gynendra came to power he took over the power on his hand. To regain democracy, the people started the people's movement ii and through the king's rule, and made the presidential system where the president will be ceremonial head and prime minister be the administrative head. This is the current political system in the country where Kathmandu is the hub area for the political planning of the country.

Administration and Government status

Kathmandu lies in the Bagmati province among the 7 regional provinces of Nepal. Kathmandu and adjacent cities are composed of neighborhoods, which are utilized quite extensively and more familiar among locals. However, administratively the city is divided into 32 wards, numbered from 1 to 32. Earlier, there were 35 wards which made it the metropolitan city with the largest number of the wards.

Kathmandu Municipal Corporation (KMC) is the chief nodal agency for the administration of Kathmandu. The Municipality of Kathmandu was upgraded to a metropolitan city in 1995.

Metropolitan Kathmandu is divided into five sectors: the Central Sector, the East Sector, the North Sector, the City Core and the West Sector. For civic administration, the city is further divided into 35 administrative wards. The ward's profile documents for the 35 wards prepared by the Kathmandu Metropolitan Council are detailed and provide information for each ward on population, the structure and condition of houses, the type of roads, educational, health and financial institutions, entertainment facilities, parking space, security provisions, etc. It also includes lists of development projects completed, on-going and planned, along with informative data about the cultural heritage, festivals, historical sites and the local inhabitants.

The city of Kathmandu also forms the 10 other municipalities, namely Budhanilkantha, Chandragiri, Dakshinkali, Gokarneshwar, Kageshwari Manohara, Kritipur, Nagarjun, Shankharapur, Tarakeshwar and Tokha.

Geography and Climate

Kathmandu lies at the coordinates of 27°38'32" to 27°45'7" North latitudes and 85°16'5" to 85°22'32" East longitudes. The total area is 49.45 km sq. and the average height from the sea level is 1,400 m. The climate is subtropical cool temperate. There are 4 clearly distinctable seasons where the wet season is warm,cloudy and most of the rainfall of the year takes place during this season and the dry season is cool and almost no rainfall takes place. The hottest month June (25 °C avg), coldest month January (11 °C avg), wettest month July (300.5 mm avg) and annual precipitation is 1154.7 mm per year. (

The city has two principal landforms, i.e. alluvial and flood plains along the rivers and slightly more elevated river terraces. The city area is generally flat. What is now a densely urbanized city was highly productive agricultural land. Although only a small percentage of land is now used for agriculture. Kathmandu is located within the Bagmati river system which has always been the city's main source of water for irrigation. Bagmati river further holds religious importance to the nation.

Kathmandu, being a route for economic prosperity, has always been the prime city for urbanization and development. With unplanned development, pollution level in the city has spiked to an extremely hazardous level. The average level of AQI reaches over 90 every day in the city. There are several causes for air pollution in Kathmandu valley some of which may be geographical reasons as well as human activities. First of all, Kathmandu is located deep within a valley and surrounded by many mountain ranges, which causes the dust to remain within the valley, unable to escape. Further, it is situated between China and India, both of which produce extreme levels of pollution, some of which reaches Kathmandu as well. Then comes the vehicles in the city, which are usually old and produce smoke in a large amount daily. Industries also don't have any method to purify the smoke.

Demography: Population, age structure, ethnic groups, religions

Kathmandu is a city located in Nepal, home to many different ethnic groups with both Hinduism and Buddhism being the main religions.

Over the years the city has been home to people of various ethnicities, resulting in a range of different traditions and cultural practices. In one decade, the population increased from 427,045 in 1991 to 671,805 in 2001. The population was projected to reach 915,071 in 2011 and 1,319,597 by 2021; it is likely to jump to 111 in 2011 and 161 in 2021.

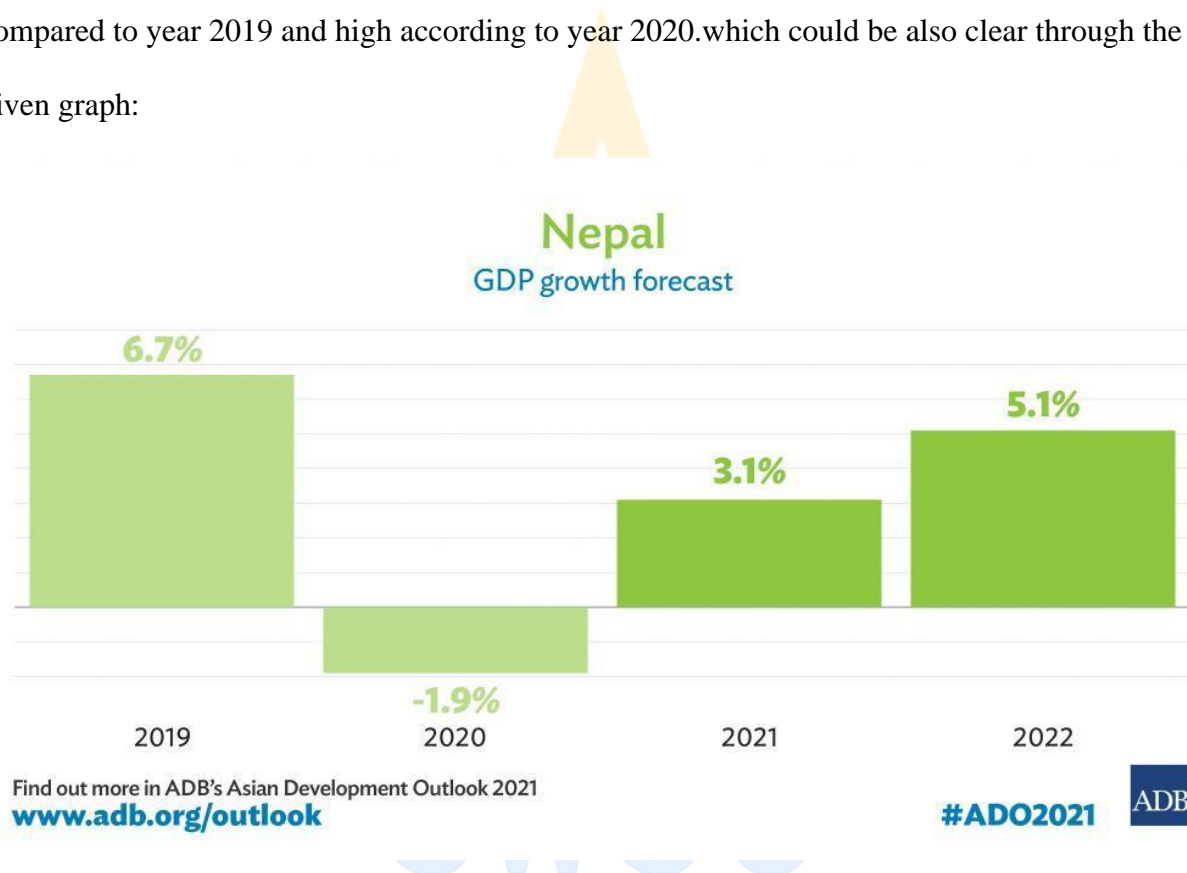
Currently based on various data Kathmandu population is 1,442,300 with population density of 29,166.835 per sq.km making it as 6th densely populated city in the world.

_____The largest ethnic groups residing in Kathmandu Metropolitan City consists of primarily various caste groups of the Newar community at 25%, Hill Janajati like Tamang, Kirat, Gurung, Magar, Sherpa, etc. making 20%, Khas Brahmin at 24%, Khas Chhetri at 20%, and Terai groups including Madhesi and Terai Janajatis like Tharus and Chaudhary. The major languages are Nepali and some peoples use their cultural languages in their homes and private conversations, while English is understood by many, particularly in the service industry. Around 81.34% of population follows Hinduism, followed by 9.04% of Buddhism and small populations adhere to Islams, Kirats, Christianity and others.

The linguistic profile of Kathmandu underwent drastic changes during the Shah dynasty's rule because of its strong bias towards the Hindu culture.

Economy: City, Media and technology, Tourism:

Nepal's gross domestic product (GDP) is anticipated to grow by 3.1% in fiscal year (FY) 2021 from a contraction of 1.9% in FY2020, says the Asian Development Outlook (ADO) 2021, the flagship economic publication of the Asian Development Bank (ADB).which is low as compared to year 2019 and high according to year 2020.which could be also clear through the given graph:



Nepal had established a series of five-year plans in an attempt to make progress in the economic sector. It completed its ninth economic development plan in 2002; its currency has been made convertible, and 17 state enterprises have been privatised. Foreign aid to Nepal accounts for more than half of the development budget. Government priorities over the years have been the development of transportation and communication facilities, agriculture, and

industry. Since 1975, improved government administration and rural development efforts have been emphasised.

Agriculture still remains Nepal's principal economic activity, employing about 65% of the population and providing 31.7% of GDP. Only about 20% of the total area is cultivable; another 40.7% is forested (i.e., covered by shrubs, pastureland and forest); most of the rest is mountainous. Fruits and vegetables (apples, pears, tomatoes, various salads, peach, nectarine, potatoes), as well as rice and wheat are the main food crops. The lowland Terai region produces an agricultural surplus, part of which supplies the food-deficient hill areas.

GDP is heavily dependent on remittances (9.1%) of foreign workers. Subsequently, economic development in social services and infrastructure in Nepal has not made dramatic progress. A countrywide primary education system is under development, and Tribhuvan University has several campuses. The export-oriented carpet and garment industries have grown rapidly in recent years and together now account for approximately 70% of merchandise exports.

The Cost of Living Index in Nepal is comparatively lower than many countries but not the least. The quality of life has declined to much less desirable value in recent years. Nepal was ranked 54th worst of 81 ranked countries (those with GHI > 5.0) on the Global Hunger Index in 2011, between Cambodia and Togo. Nepal's current score of 19.5 is better than in 2010 (20.0) and much improved than its score of 27.5 in 1990

Culture and Heritage:

_____The socio-cultural environment comprising communities, families, various other forms of social groups is not only external features for the context of an individual, instead it defines who a person is and their lifestyle. Hence, the culture of Kathmandu directly impacts the present condition of the city. The culture is enigmatic with many religious customs, rituals, festivals, processions and local secrets. As there are many cultures present in Kathmandu, it originally belongs to the Newar community. Most of the people were Newar and the newari cultures like Jatras, Punhi takes place which is still present.

Kathmandu is home to a number of culture, heritages, religion, museums, art galleries, Hinduism and Buddhism. There are also many cultures and religions followed by the people reside in this city. Many festivals are celebrated by the people of this city, some best known were Dashain, Tihar, Chhath, Teej, Eid, Maghi, Buddha Jayanti, Sakela and the Nepali New Year. The top major cultural heritages which enlisted their name in UNESCO World Heritage Sites are;

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

Museums and art galleries in Kathmandu include: 1. The National Museum
2. The Natural History Museum
3. The Kaiser Library
4. The National Art Gallery
4. Narayanhiti Museum
5. The NEF-ART (Nepal Fine Art) Gallery
6. The Taragaon Museum

Transport:

_____This fairly large network has helped the economic development of the country, particularly in the fields of agriculture, horticulture, vegetable farming, industry and also

tourism. Mahendra Highway the longest highway in Nepal which runs across the Terai geographical region of Nepal, from Mechinagar in the east to Bhim Datta in the west. Kathmandu is connected by the Tribhuvan Highway (189.66 km in length) to the south connecting India, Prithivi Highway (173.43 km in length) to the west and Araniko Highway (112.83 km in length) to the north connecting China. Transportation takes place in Kathmandu mainly by roads and air, but the fast-track is under construction which will be the shortest route to connect Terai with the valley.

Sajha Yatayat provides regular bus services throughout Kathmandu and the surrounding valley, including micro-bus and other bus companies operate several routes. Trolleybuses used to operate on the route between Tripureshwor and Suryabinayak on a 13-kilometer route.

The main international airport serving Kathmandu valley is the Tribhuvan International Airport, about 6 kilometres from the city centre. It has two terminals, one domestic and one international. At present, it connects 30 cities around the globe in Europe, Asia and the Middle East such as Delhi, Bangalore, Mumbai, Lhasa, Guangzhou, Kolkata, Singapore, Bangkok and Hongkong.

Ropeways are another important transportation in hilly terrain because of the high cost for construction and maintenance in roads due to hilly terrain. A ropeway operated between Kathmandu and Hetauda over a length of 43 km (27 mi) which carried 25 tonnes of goods per hour. It has since been discontinued due to poor carrying capacity and maintenance issues. During the Rana period, a ropeway was constructed between Matatirtha in Kathmandu to Dhorsing in Makwanpur of over 22 km (14 mi) in length, which carried a cargo of 8 tonnes per hour. At present, a cable car service is operated in Kathmandu in Chandragiri Hills.

Education:

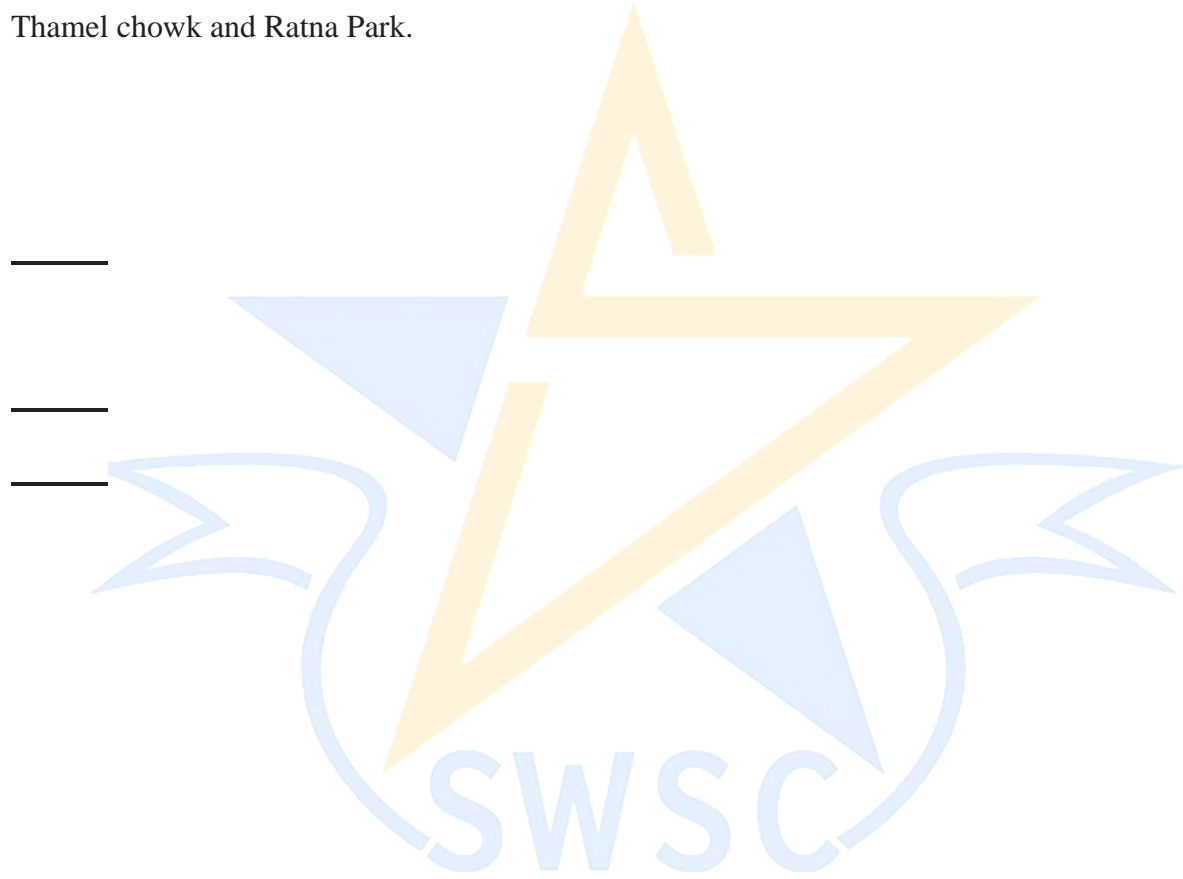
_____ Education in Nepal was long based on homeschooling and gurukuls' first formal school, Durbar High School was established by Jung Bahadur Rana in 1853 and the oldest college, the Tri-Chandra College, are both in Kathmandu. Tribhuvan University is the oldest university in Nepal, located in Kirtipur, which is an ancient city of the Kathmandu Valley and the second largest university, Kathmandu University (KU) of Nepal, established in November 1991. Many best of best schools and colleges were established in Kathmandu and in others cities. The education system in Kathmandu has lately been on the rise and it continues to expand. Through this past years every years thousands of students from all over Nepal came to get admission in top and best colleges of Kathmandu for great achievement of knowledge around him and for better skills, beliefs and moral habits.

Many other health education related colleges are also present and number of students came for their doctoral, technical and engineering degree too. Institute of Medicine, the central college of Tribhuvan University is the first medical college of Nepal and is in Maharajgunj, Kathmandu. It was established in 1972 B.S. Other major institutions include Patan Academy of Health Sciences,, KIST Medical College, Nepal Army Institute of Health Sciences, National Academy of Medical Sciences (NAMS) and Kathmandu University School of Medical Sciences (KUSMS), are also in or around Kathmandu.

Recreation: Parks and open spaces, walking

Recreational activities in Kathmandu provide a wide range of options for every person residing within the city or any tourists. Kathmandu is full of fancy shopping malls, restaurants,

parks and recreational areas that ensure that life in Kathmandu is never dull and for visitors, there is always a fun way to spend time. Beautiful cultural places and traditional lifestyle always gives a colorful and vibrant way of enjoying days in the city. Kathmandu offers an incredible amount of diversity in the activities it offers. The major recreational places in the city include but are not limited to : Thamel, Durbar Square, Garden of Dreams, Kopan Monastery, Freak Street, Thamel chowk and Ratna Park.



DESIGN OF NEW KATHMANDU

From the research that we have done we have seen lots of the problems in the past which are somehow little improved in present conditions. In the past most of the ancestors used to live in poverty, illiterate, and deprived of their rights whereas agriculture was only the source of earning.

Though, being the capital of the country there were very few infrastructural developments done and zero knowledge regarding the technology. But slowly and gradually some of the things keep on developing. The normal people were also given permission to study after the century long Rana Regime ended. Some of the unhuman cultures like “Sati Pratha”, “das pratha”, and “cast discrimination” also were marked banned. Most of the people started to migrate to Kathmandu from the village area in the search of knowledge and education. The people were aware about their rights and social norms and values. As a result, the economic condition of the city kept on increasing and the population growth rate was also controlled. There are lots of changes in the political situation of Kathmandu.

Regarding the origin of the city there are too many theories according to the different religions. In the present context the city is densely populated as most of the people have shifted here for the employment opportunities and for better facilities. In the present Kathmandu we can see most of the modern buildings but are unplanned. The city is divided into 1 metropolitan city and 10 municipalities. The metro city of Kathmandu is highly developed as compared to other municipalities. In the present condition about 75% of the environment is polluted. And the literacy rate of the city is 89.6%. So, if our team got the opportunities to develop the city we will

run our development work slowly and gradually. If the project is for the time tenure till 2071 B.S. Then we can divide it into five phases where every phase will be 10 years long. So, the phases can be as below:

- Phase 1- (2021/31) A.D
- Phase 2- (2031/41) A.D
- Phase 3- (2041/51) A.D
- Phase 4- (2051/61) A.D and
- Phase 5- (2061/71) A.D

Phase 1- (2021/31) A.D

In this tenure we will try to solve the problems existing in the present context.

- Educational Sectors

By the starting of the phase 1 we aim to provide the free education for the secondary level and providing the different scholarship opportunities for higher educations because of which no one will be deprived of their educational right due to lack of money and they can later contribute in nation developments. We also aim in making the literacy rate to 100% from 89.6%. We will also introduce the different ways of learning via digital and technological methods for better understanding and focus on practical knowledge rather than focusing on theoretical knowledge.

- Environmental sector

By the end of this decade, we aim to control the environment pollution by providing the proper knowledge of solid waste management, follow the '3R' formula, and the proper method of dumping of sewage. Proper cleaning of the rivers of the city through scientific methods. And a permanent ban on the use of plastics. Control the frequent deforestation for the settlement area and promote afforestation.

- Sports

In this first phase we will also promote the sports by providing free training to the students and by organizing different sports competitions through which the capable player can get the opportunities to play the big level game and the development towards the educational sectors too.

- Administration and Government status

Our aim is to focus on the day to day administration where we aim to run the administration smoothly where there will be no corruption, the people work to be done smoothly conduction and the online method to do governmental works too.

- Science and Technology

By the end of the first phase we will provide the basic knowledge of technology to the youths and inspire them to conduct the different research and projects in the technological field by providing them the required funds.

Phase 2- (2031/41) A.D

In this decade we will try to develop the different sectors and introduce the new concept of development.

- Environmental sector

The start of these tenure reduces the carbon footprints by the ban on plastics products, use of the eco-friendly devices, introducing the electrical and solar vehicles, reducing the greenhouse gases, switching to renewable energies and management of waste production using the less carbon industrial process and leading towards carbon neutrality.

- Roadways and traffic management

By the end of this tenure, we aim to construct the proper system of the roads with the well managed construction to the every end of the city including the under ways and the air bridge with the proper traffic management system in the surveillance of CCTV cameras.

- Traditional, cultural, and religious sectors

In this phase we will protect the cultural and the religious infrastructures using the AI and conduct the different programs to protect the religious and cultural practices. We will pay special attention in

these sectors because these are the pride of the country and promote it to today's youth who are frequently being influenced by the western culture which also helps to protect our culture.

- Science and technological sectors

At this phase we aim to introduce the AI technology and to provide the different trainings regarding the use and the importance of AI system and to conduct different exhibition to show the technical innovations made by the youths which will help the youth to raise the confidence in the required sectors and to promote the technical sectors like robotics and to promote the nations.

Phase 3- (2041/51)A.D

In this phase we aim to specially promote the upcoming future technologies and the change in the infrastructures.

- Transportation and Communications sectors

By the end of this phase we aim to build a different metro train for transportation and to build railways transportation facilities to provide safe journeys to physically weak people like pregnant women, old men and small kids. It can also be used for shipping goods. The metro

station to be controlled using the ai technology with the digital ticketing system.
The total use of ecofriendly vehicles and zero use of petroleum based products.

- Decreasing the Brain Drain

At the end of this phase, we aim to decrease brain drain from our city, increase the GDP of the city, zero pollution, better education system, foreign investment in city, return of the man power to its own place, and a corruption free city.

- Infrastructural changes

In this phase we aim to the proper planned urbanization with the modern infrastructural buildings, the great theme park for the children with the modern machinery and children friendly environment, and standard level roads and the AI system to control it with the AI based traffic management system.

- Fusion energy

By the end of this phase, we will complete our nuclear test and start to use fusion energy. We can produce electricity by using heat from nuclear fusion. We can create a suitable environment for the production of fusion energy without harming nature and human life.

Phase 4- (2051/61) A.D

In this phase the city will experience different new innovation and introduction to the smart city.

- Inventions of robots

By the end of this phase, we aim to invent different kinds of robots to do the work and to make human work easy. Till the end of these the robots will be seen in the different governmental offices and the work of the machine will be less.

- Communication and Transportation sector

By the end of this phase the transportation system will be automated where the human free transportation facilities will be available which will give birth to the automatic smart city and the start of the technological city where the people can live with the better facilities and better protections.

- Economy, Education, and poverty less city

By the end of this phase the city will be poverty free, the highest earning city with highest revenue, well-educated city and crime free city.

Phase 5- (2061/71) A.D

The phase where the technology will be on top and the formation of the perfect smart city.

- Renewable energy

By the end of this phase there will be the city where there is only the use of the renewable source of energy with the ecofriendly environment led by AI and complete protection of nature with 0 % of environment pollution where the people can live freely in a beautiful nature.

- Humanoid robots and teleporting machine

By the end of this phase, we will be able to bring humanoid robots in use and there at the end of this phase people can transport with the help of teleportation machines. The robots are used by everyone frequently and humans can see the real magic of technology. And all the controls and coordinates are done by robots.

AN INNOVATIVE APPROACH TO THE SOCIETY AND HAPPINESS

Our new society will be full of the modern technology and the modern machineries so along with the lots of advancement the people can forget each other and there will not be the happiness because will be busy in the robots which can cause the human illness so happiness is mostly required so by being inspired form bhutan we can create the gross national happiness index through innovations.

CONCLUSIONS

At last, we can conclude that in the future not only Kathmandu but many other places will be upgraded as smart cities. The trend can be followed in many other cities of the country too. So, at last we can say that in the future robots will be more active than humans. we can know that from the means of scientific and technical development a revolution of consciousness can be fostered that can give the whole city, country and at large the whole world a holistic and prosperous development.

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