

## Trend of urban growth in Nepal with a focus in Kathmandu Valley: A review of processes and drivers of change

Netra Prasad Timsina, with input from Anushiya Shrestha, Dilli Prasad Poudel and Rachana Upadhyaya

Tomorrow's Cities Working Paper 001

August 2020

<https://doi.org/10.7488/era/722>



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## Abstract

This report documents and discusses the urbanization trend, spatial transition, major drivers of urban change, and existing institutional mechanisms of urban development in Nepal, one of the top ten fastest urbanizing countries in the world. Particularly, it reflects on the gaps and challenges for urban governance in Nepal and focuses on Kathmandu Valley, the “hub” of urbanization in Nepal. The urban population growth rate in Nepal almost doubled from 3.6% in 1991 to 6.5% in 2001, and the number of urban centers increased from 58 in 2013 to 293 in 2017. The review shows the transition of Nepal from predominantly rural to an emerging urban economy is primarily the result of the governmental decisions that merged rural administrative units and designated them as municipalities, administratively the urban units of Nepal. Rural to urban migration is another important factor driving urban growth in Nepal. Unplanned land use, shrinking open spaces, haphazard construction, and poor services have become major urban features of Nepal, which resemble the growth of Kathmandu Valley.

Kathmandu Valley, with an estimated population of 2.54 million, is growing at 6.5% per year, indicating one of the fastest-growing metropolitan areas in South Asia. Haphazard and unplanned urbanization of the valley have degraded the urban environment, increased urban poverty, and exposed the growing urban population to multi-hazard risk. Aiming to balance urban development, develop disaster-resilient cities and enhance urban resilience, the government has formulated the urban development strategy and declared new programs for the development of emerging urban centers and “smart” cities in the valley. However, such centrally-planned infrastructure development activities lack coordination and contradict the formal policy intentions, and are facing resistances in some places, rendering their implementation uncertain. The majority of the urban population lacks resiliency and the government lacks institutional and financial capacities and coordination crucial for undertaking inclusive, equitable, and resilient urban development. The current constitutional provision that restrains the government from imposing any kind of restriction on the use of private property has come up as an additional impediment to urban governance in Nepal and thus making urban areas increasingly disaster-prone and the urban population, primarily the urban poor, vulnerable to multiple hazards. Kathmandu Valley has become an evidence of these processes and their ramifications. The report has concluded by providing key insights that can be useful in making tomorrow’s cities inclusive, equitable, and resilient.

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## Abbreviation

ADB	Asian Development Bank
CBS	Central Bureau of Statistics
DoHC	Department of Housing and Construction
DoLRM	Department of Land Reform and Management
DoR	Department of Roads
DUDBC	Department of Urban Development and Building Construction
GDP	Gross Domestic Product
GoN	Government of Nepal
ICT	Information and Communication Technology
KMC	Kathmandu Metropolitan City
KUTDC	Kathmandu Valley Town Development Committee
KV	Kathmandu Valley
KVDA	Kathmandu Valley Development Authority
LMC	Lalitpur Metropolitan City
MoFAGA	Ministry of Federal Affairs and General Administration
MoUD	Ministry of Urban Development
NLSS	National Living Standard Survey
NPC	National Planning Commission
NUDS	National Urban Development Strategy
TDF	Town Development Fund
UCDI	Urban Corridor Development Initiatives
UN DESA	United Nations Department of Economic and Social Affairs
VDC	Village Development Committee
WSSC	Water Supply and Sewerage Corporation

# Trend of urban growth in Nepal with a focus in Kathmandu Valley: A Review of processes and drivers of change

**RQ1:** What are the drivers and types of change in urban form, governance, investment and demographics that are currently occurring or planned in the Kathmandu valley?

## 1. Background information

Nepal is one of the least urbanized countries of Asia but rapid urbanization in the last decades has been observed as a result of multiple urban transitions (spatial, demographic and economic) that are underway. It is one of the top ten fastest urbanizing countries in the world (UNDESA, 2014). According to Montgomery et al., 2004, an urban transition is a process of shifting population from rural settlements where population is small and dispersed in which agriculture is the dominant economic activity towards one where the population is concentrated in larger, dense urban settlements characterized by industrial and service activities. Urban centers are the centers of economic activities that tend to be associated with enhanced productivity. Industries and services are usually concentrated within urban areas that attract businesses and workers (both skilled and unskilled).

The urban transition and economic growth are interlinked as economic development fuels urbanization. People are attracted to cities that offer varied opportunities for education and employment, particularly in the manufacturing, construction and services sectors. Cities attract diverse forms of labor that economy needs in order to grow. As hubs of business and trade, government, and transportation, cities provide crucial links with rural areas, between cities, and across international borders. Urban economy contributes the largest share to the national economy. Nepal's urban areas contribute about one-third of the national GDP. Estimate of the contribution of urban areas to national GDP of Nepal is 33.1% (CBS, 2012). The contribution of Kathmandu Valley to the GDP has been estimated by the Central Bank to be 23.4% of the national GDP (MoUD, 2017).

The growth of the urban population for the last decade has been very fast due to both political and economic reasons. Until 2013, only 17.1% of Nepal's population resided in 58 designated urban areas (UNDESA, 2014). However, with the addition of 159 municipalities in 2014/ 2015, now, 40% of Nepal's population resides in 217 designated urban areas (MoUD, 2017). Furthermore, in 2017, the Government of Nepal decided to implement a major territorial reform based on constitutional provision through the Local Level Restructuring Commission (LLRC) after promulgation of new Constitution of Nepal in 2015. The commission has recommended a total of 753 local level units, of which 293<sup>1</sup> are declared as urban units (6 Metropolitan Cities, 11 Sub-Metropolitan City and 276 Municipalities) that comprises 56.5% of the urban population (16.5 million) of total population of Nepal (29.1 million) as of 2019 (CBS, 2019)<sup>2</sup>. There have been fluctuations in inter-censal urban growth rates. One of the reasons for drastic change in the percent of population in Nepal who live in urban areas over short period of time is due the

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<sup>1</sup> The Cabinet decision and declaration of 72 new municipalities on 8th May 2014, 61 new municipalities on 2nd December 2014 and additional 26 new municipalities on 18th September 2015 reflects GoN's policy to prioritize urban development. As of 2015, 22% of the total urban population of the country was within Kathmandu Valley KVDA (KVDA, 2015, p7-2). Later in 2017, the Government has restructured the local government with 293 urban units out of 753 local governments (Palikas).

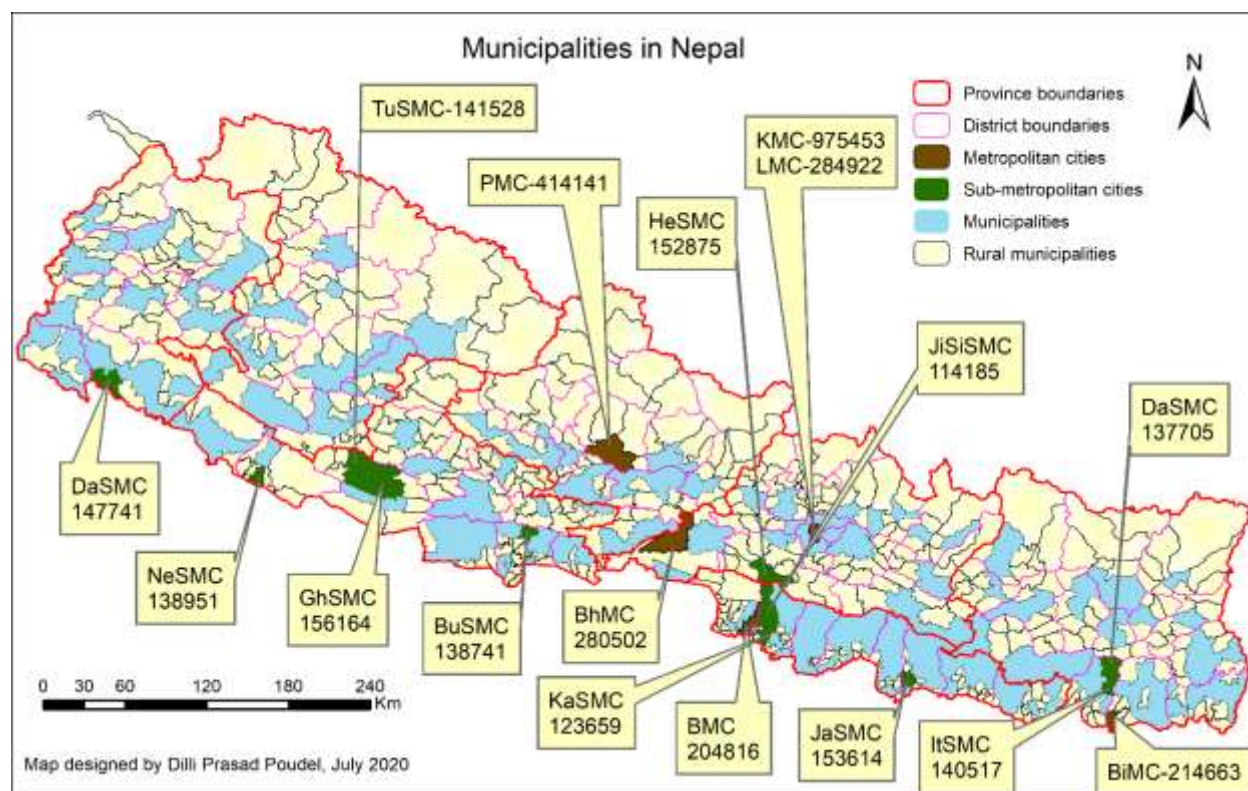
<sup>2</sup> <https://cbs.gov.np/wp-content/uploads/2019/07/Nepal-ko-Tathiyankiya-Jhalak-2076.pdf> (Glimpse of Nepal's statistics)

political decision of the government converting rural administrative units to urban administrative units (Municipalities).

Although the growth rate in the inter-censal decade was 3.43%, the average annual growth between 1981 and 2011 has remained at a high rate of 5.3%.<sup>3</sup> Urban rural growth differential in 2011 was 2.4% (MoUD, 2017). In 2014, the level of urbanization was 18.2 per cent, with an urban population of 5,130,000, and a rate of urbanization was 3 per cent (UN DESA, 2014). The same report forecasts that for the period 2014- 2050, Nepal will remain amongst the top ten fastest urbanizing countries in the world with a projected annual urbanization rate of 1.9%.<sup>i</sup>

33.5% of the urban population is concentrated in 16 urban centers that each has a population of over 100,000 people (MoUD, 2017). The Central Development Region<sup>4</sup> (now Bagmati Province) has the highest proportion of the urban population, followed by the Eastern (Province 1) and Western Development (Gandaki Province) Regions. The distribution of the urban population is relatively low in the Mid-Western (Karnali Province and Far Western Development (Far Western Province) Regions (MoUD, 2017).<sup>5</sup>

*Map 1: Municipalities in Nepal with population above 1,00,000 (Metropolitan and Sub-metropolitan cities)*



<sup>3</sup> MoUD, 2017

<sup>4</sup> The statistics about the urban population belong to the pre-state restructuring situation and hence former five administrative development regions are mentioned in the text.

<sup>5</sup> <http://www.gsdrc.org/wp-content/uploads/2015/11/HDQ1294.pdf>

Urbanization is gaining pace in other cities of Nepal. However, Kathmandu Valley continues to be the “hub” of urban development in Nepal (MoUD, 2017). Various plans for urban development of Kathmandu Valley have been formulated at different times. Implementation of these, however, has largely been poor (KVDA, 2015). Unplanned urbanization in the valley continued engulfing the agricultural lands, adding several physical, social, and environmental problems in the Kathmandu Valley and also significantly increasing vulnerability to disasters, including earthquakes (Muzzini and Aparicio, 2013; Khanal et al., 2017) and urban flooding, among others (KVDA, 2015; Pradhan-Salike and Pokhrel, 2017).<sup>6</sup> More recently, the government is aiming to control urban sprawl and plan the urban expansion in Kathmandu Valley through multiple projects such as satellite cities, smart cities, outer ring road, fast-track etc. The National Urban Policy of 2007 states that “Kathmandu-centric urbanization is a major cause for the imbalance in national urban structures” (MoPPW/DUDBC, 2007: 1). It is yet to see how these ambitious projects change the pace and process of (unplanned) urbanization in this rapidly capital regional and the imbalance in the national urban structures of the country. However, such multiple projects have already given rise to opposition from the local residents and landowners who claim such projects will displace them and destroy the socio-cultural identities; resistances against multiple projects planned in Khokana, our study site, is an example.<sup>7</sup>

This report is prepared based on secondary literature. The report will first discuss on the trend of urbanization in Nepal with a focus on spatial transition and forms of urbanization. Then it will look at on the policies and institutions along with the focus of the periodic plan of Nepal starting from the first plan (156-1961) to the latest fifteenth plan (2019-2023). The concept of smart city in general in Nepal and in particular in Kathmandu Valley is also discussed in the report. The report also reviews the policies and practices of urban resilience and disaster risk management followed by urban transition of Kathmandu Valley along with the land use changes. The report has also discussed major drivers of urban change in Nepal and summarized the major issues to be addressed in relation to urbanization and urban governance.

## 2. Trend of urbanization

### 2.1 Spatial transition

Nepal's demographic transformation is characterized by fast-growing population density in major cities, along the main highways, and close to the border with India. While overall population growth has slowed since 2001, urban population growth has kept its pace at 3.4% per year from 2001 to 2011, compared with 3.6% per year from 1991 to 2001 (reclassification—that is, the conversion of rural areas to urban areas—excluded). Kathmandu Metropolitan City—the only urban center in Nepal with a population above 1 million—is growing at 4.0% per year, medium cities (100,000– 300,000) at 3.5%, and small cities (50,000–100,000) at 3.6%. Pokhara in the Central Hills is the largest and fastest-growing medium city, with growth above 5% per year. Three medium cities have also sustained population growth in excess of 4% per year: Bharatpur (148,000) in the Central Tarai, Butwal (120,000) in the Western Tarai, and Dhangadhi (104,000) in the Far Western Tarai. A number of small urban growth centers are emerging along the main highways of the country and close to the border with India. The fastest- growing urban settlements, with populations below 100,000 and growth in excess of 4%, include Damak and Itahari (Eastern Tarai); Banepa (Central Hills); Byas and Tansen (Western Hills); Gorahi and Tulsipur (Midwestern Tarai); and Birendranagar (Midwestern Hills) (CBS, 2001 and 2012).

The conversion of rural space into urban space is an important contributor to urban growth. The urban population growth rate from 1991 to 2001 almost doubles from 3.6% to 6.5% (MoUD,

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<sup>6</sup> <https://thehimalayantimes.com/kathmandu/flood-alert-issued-inside-kathmandu-valley/>

<sup>7</sup> <https://www.setopati.com/social/210999>



2017). However, Muzzini and Aparicio (2013) argue that in practice, the spatial transformation is not fully captured by the politico-administrative definition of urban areas. On one hand, a number of emerging towns with urban like characteristics continue to grow. On the other hand, a number of urban settlements contain large areas of land with rural characteristics. The disconnect between urban geography and the politico-administrative definition of urban areas is the result of Nepal's legal definition<sup>8</sup> of urban settlements overemphasizing the role of population size, while assigning little weight to other urban criteria, such as essential facilities-infrastructure and services required for urban areas.

The merging and remerging of the Municipalities and VDCs was also the political decisions where many of the rural VDCs were converted into Municipalities. As argued by Muzzini and Aparicio (2013), the reclassification of rural into urban areas is an important reason to increase the number of urban units over short period of time (2013-2016). Moreover, the economic incentives that brought by the construction of new roads and highway in different geographic regions of Nepal have resulted into the increased number of towns and market centers in the country.<sup>9</sup> Nepal's urban population has increased to 17% in 2011 from 13.9% in 2001. Urban population became 38.25% in 2016 and 56.5% in 2017 (CBS, 2019)<sup>10</sup>. But, as mentioned above, many of them are urban by law, which is rendered so through the declaration of a certain territory as a "municipality" by the government on 10 March, 2017. Nepal has undergone momentous state restructuring after the promulgation of new constitution in 2015. Some rural areas are redefined as urban (as municipality) without the basic services, amenities and opportunities that are commonly anticipated in urban areas<sup>ii</sup>.

The rapid increase in number of economically active population in rural areas, their improved literacy status and rising aspiration for employment in the non-agricultural sector has increased the rate of rural to urban migration in Nepal. Urban population growth rate in Nepal is 3.38% where rural and total population growth rates are measured at 1.03 and 1.4 respectively in 2011 (CBS, 2011). The government has provided attention of urban development through new town, smart city, satellite city and mega city development under the Ministry of Urban Development (MoUD), Department of Urban Development and Building Construction (DUDBC)<sup>iii</sup>. Recently, government of Nepal is executing planned intervention in the Tarai Towns of Nepal, particularly in the growing potential towns of Tarai-Madhesh Region. The main objective of developing new towns in Tarai-Madhesh Region is to balance urban development and develop livable cities in Tarai-Madhes area of Nepal so that stagnant areas would be economically active and connected by the newly developed towns of the Tarai-Madhes region (DUDBC, 2018; MoF, 2016).

Natural expansion of urban area due to increased population growth and newly established planned cities put high pressure in the limited resources available in the cities. Water scarcity, solid waste management and lack of other basic amenities are the major problems faced by most urban areas in Nepal.

## 2.2 Forms of urbanization

In many of the cities in Nepal, urban forms are becoming increasingly disorganized. Unplanned land use, shrinking open spaces and haphazard construction with low quality services have been the major urban forms till recent past (KVDA, 201; MoUD, 2017). This has affected both social

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<sup>8</sup> An area having a population of 300,000 and an annual income of Rs. 400 million can be declared a metropolitan city. Similarly, a sub-metropolitan city should have 100,000 people and Rs. 100 million annual incomes. Similarly, in Tarai region, municipalities can be created if they have 20,000 people and Rs. 5 million annual incomes. In the hills and mountains, a village having 10,000 people and a Rs. 500,000 annual incomes are needed to be declared a municipality.

<sup>9</sup> <https://www.nepjol.info/index.php/TUJ/article/view/25346/21219>

<sup>10</sup> <https://cbs.gov.np/province-statistics/> accessed at 9 April 2020.

and cultural environment in both existing and emerging cities.

The traditional core area of city consisted of densely built area comprising of narrow streets. In newly emerging cities these cores are found to be almost non-existent. In the new cities which are built along the highway, the core is formed as ribbon development on both sides of the highway. Small cities have single core, however, large urban centers have multiple cores particularly with the metropolitan and sub-metropolitan cities. The urban expansion is happening from the center to periphery along the connector road that has branched out from the highways. The high density of the core is found to be gradually shifting towards periphery surrounded by a vast expanse of agriculture dominated rural area.

The traditional core areas are quickly occupied by the newly built multi-story concrete buildings (particularly, after the earthquake of 2015). These multi-story buildings are occupied either by multiple families or by businesses and offices. In the large cities, the land use functions are becoming specific and specialized. Banks and financial institutions have now come to locate at the center, while businesses have come to locate in its surrounding—especially along the key arterial roads (MoUD, 2017). Consequently, parking and congestion have come to be critical concerns at the core.

In contrast, there is a consistent trend that the residents of core are shifting to periphery and settled in single family detached residential building (MoUD, 2017). There are a number of reasons for this trend of shifting from core to periphery as in some cases properties at core are sold due to family separation, in some other cases properties are rented and/or sold as the core areas have commercial values. In majority of the cases, the middle class of the city wanted to have detached residential building in less crowded places and hence they shift to detached housing areas developed by real estate. Some of them keep their property intact in core area as they lend in rent and a few sell their properties. As a result, large areas of agriculture land are occupied by real estates. The access is found to be irregular. Provisions of essential services such as waste management, availability of clean and safe drinking water are also limited.

### **3. Policy and Institutional landscape of urban development in Nepal**

#### **3.1 Policies and institutions**

Government of Nepal undertook planned resettlement and urban development programs from the first (1956-1961) to the sixth (1980-1985) period national plans especially in the southern Tarai region of Nepal (Adhikari and Dhungana, 2010). These programs largely benefited those who were close to the ruling elites, and with passage of time, gradually gave way to an autonomous urban sprawl<sup>iv</sup>. The subsequent national plans also promoted policies and programs for developing the urban areas in Nepal. The Town Development Act 1988, Local Self-Governance Act 1999, National Housing Policy 1996, National Urban Policy 2007 and the most recent National Urban Development Strategy 2017 (NUDS 2017) have been the major policy documents for urban development. National Shelter Policy 1996 was enacted to support slums and squatters to provide them housing support.

The National Urban Policy of 2007 seeks to promote a balanced national urban structure, a clean, safe, and well developed urban environment, poverty reduction; and effective urban management by capable local institutions. The policy has also prioritized access of the urban poor to low-cost housing, housing finance, and income-generating activities and also development in excluded regions.

The NUDS 2017's investment strategy stipulates that at least two per cent of GDP will be allocated for urban infrastructure investment between 2015 and 2030. Strategies include a coordinated investment in urban areas involving all sectorial agencies and the private sector. The

strategy also proposes increased investment in the mid and far west development regions, in underdeveloped regions of inner Tarai and southern Tarai. Though different Acts and Regulations such as Town Development Act-1988 and Local Self Governance Act-1999 and related regulations were promulgated with stakes in urbanization, periodic national plans were the main basis of urban development in Nepal (see section 3.2).

The Town Development Fund (TDF) was established in 1989 as an autonomous financial intermediary for providing funds to municipalities. TDF has financed a wide range of urban infrastructure projects in municipalities with the support of the government, GIZ, the World Bank and the ADB. It has recently created an open access fund where municipalities can bid for funding on a competitive basis (ibid.)<sup>v</sup>.

Ministry of Urban Development (MoUD) and Department of Urban Development and Building Construction (DUBDC) implement urban development plans and programs whereas the Ministry of Federal Affairs and General Administration (MoFAGA) is responsible for administering the programs. The MoFAGA is involved in the administrative and personnel management functions of the local government, but it has no mandate to assist in the preparation of physical development plans of municipalities for which it has to rely on DUBDC.

Various national and local institutions are involved in developing settlements and urban development activities of Kathmandu urban areas and the Valley as a whole. Apart from the institutions mentioned above, there are several central government agencies working in Kathmandu Valley. They are the Department of Land Reform and Management (DoLRM), Department of Housing and Construction (DoHC), Kathmandu Valley Town Development Committee (KVTDC), which was replaced by Kathmandu Valley Development Authority (KVDA) in 2012, Department of Roads (DoR), Water Supply and Sewerage Corporation (WSSC) etc. There is a lack of cooperation and coordination between these institutions for effective planning and implementation of urban infrastructure development activities. Inherent conflict and contradiction in mandate, autonomy and jurisdiction of the institution related to urban development are through the overlapping and uncoordinated functions of the institutions.

According to the Local Self-Governance Act 1999, the constitution of Nepal and the Local Government Operation Act, the local governments are responsible to formulate and implement land-use plan within their administrative boundary. They are also responsible to issue the building permit and monitor the implementation of the building permits. Preparing land use plan and enforcing the building bylaws are also among the responsibilities of the district town planning offices (TPO). Duplication of these responsibilities between the local governments and the TPO has undermined the enforcement of the by-laws while formulation of land use plan has remained almost absent. Besides the lack of capacity of local governments, issuing the building permit being the source of revenue for local governments, they often issued building permits even when the buildings violated the by-laws or communal buildings were constructed on open public land (see Karki, 2004). Not only cheaper land, but also weak enforcement of building permit requirements in the peripheral villages of Kathmandu Valley motivated migrants to settle there (ICIMOD, 2007). The repercussion is the rapid expansion of urban sprawl transforming rural areas (or fringes) into urban form without adequate infrastructure to support development. Such haphazard urban expansion is also widespread in the risk prone areas such as flood plains and steep slopes. Enforcing building bylaws, penalizing violators and demolishing illegally constructed buildings are important, yet controversial and equally risky interventions as evidenced in the history of urban planning in Nepal. This continues till date, which has made KVDA and its urban planning approach and activities prone to oppositions and the legitimacy of

KVDA challenged by the elected local governments. For example, Kathmandu Valley Development Authority (KVDA) supersedes and undermines the rights and autonomy of the Municipalities if it comes under the development of large infrastructures in the respective municipalities in Kathmandu Valley (KV). Many plans such as the plan of smart cities, high way and ring roads in KV were developed without considering the role of local municipalities and hence there are numbers of resistances coming from the local governments themselves against the infrastructures to be built. The institutions directly and indirectly linked to urban planning at the federal level and KV are given in the figure 1 below. Province and local governments are independent entities and they have their own institutional arrangements for planning urban development.

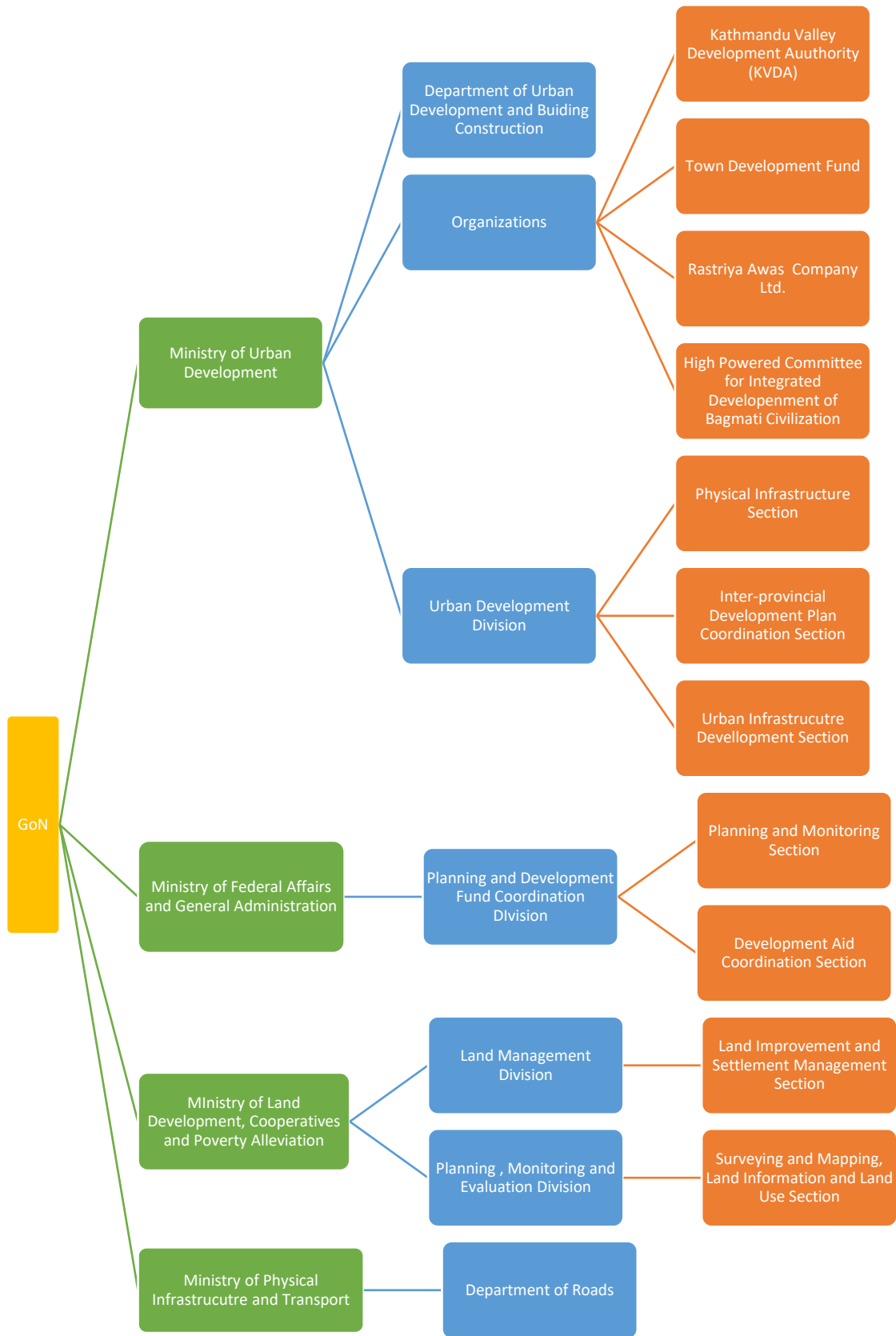


Figure 1. Key Bureaucratic Entities for Urban Development

The Local Government Operation Act, 2017 provides fiscal autonomy to the local governments (Metropolitan cities/sub metropolitan cities, municipalities and rural municipalities). Revenue generated through local government is the main source of their development budget. The figure below illustrates the process of preparation of development plans of local governments. The federal and provincial ministries implement national level development projects that transcend the administrative boundaries. Therefore, such ministries have a designated section to coordinate with the local governments. However, there are gaps and overlaps in institutional linkages and coordination.

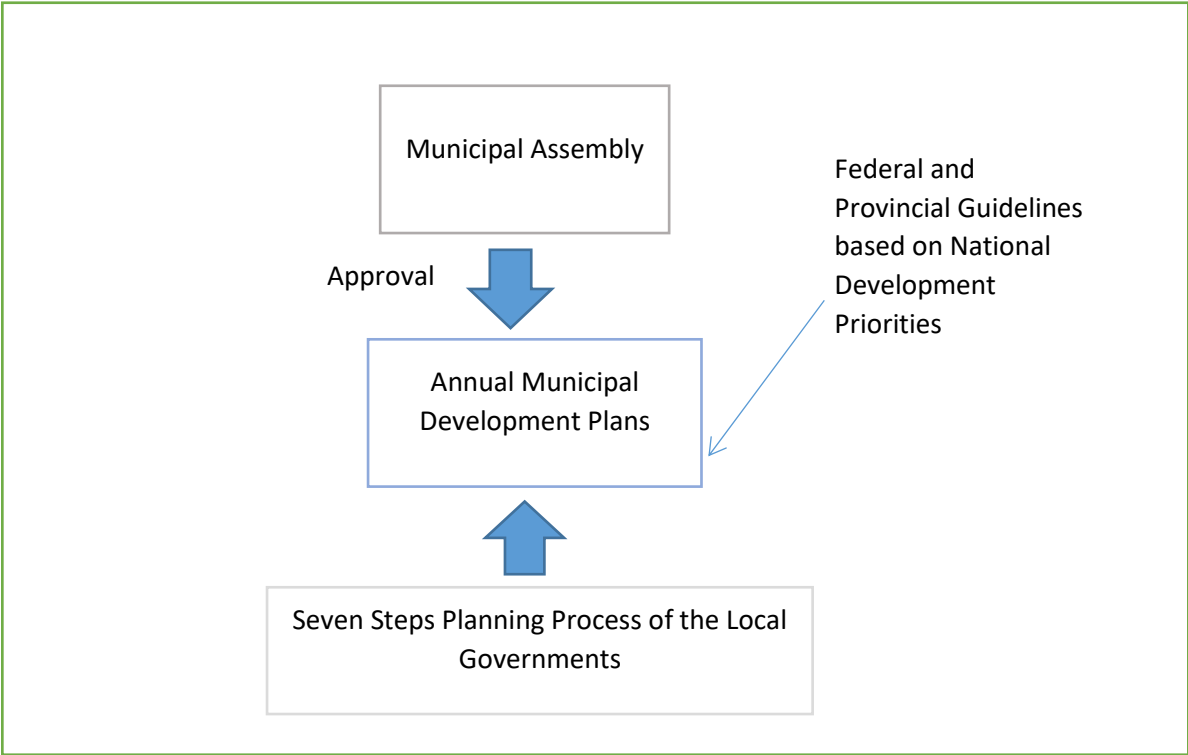


Figure 2. Local Level Development Planning Process

### 3.2 Periodic development plans and urban development

Nepal Government started its planned effort for urban development since 1944. Eradication of malaria in Tarai region and the construction of east-west highway,<sup>11</sup> expedited migration from mountain and hilly regions to Tarai after 1950 in Nepal found to be driving factor for developing cities and towns in the Southern border of Nepal (Adhikari and Dhungana, 2010). First periodic plan (1956-1961) has initiated the resettlement and government housing policy in Tarai region of Nepal and that has promoted migration from Hills to Tarai region resulting into the growth of towns. Expansion of bureaucracy and military sector and trade of imported goods to the peri-urban centers are considered to be the factors that promoted urbanization in the mid hills (MoUD, 2017).

Nagar Panchayat Act 1962 (Municipality Act) was enacted during the second plan period (1962-

<sup>11</sup> East-west highway, as the name suggest runs throughout east of Nepal to the west. It is 1,027.67 k.ms. in length.

1965). Plan for the construction of the East-West highway and Kodari highway (linking to China) in this planning period were major milestones to the development of towns in Tarai and Mid-hills in Nepal. Third plan (1965-1970) incorporated the regional development policy in Nepal. Town planning and building constructions in the regional headquarters was also the target of this plan. Fourth plan (1970-1975) has mentioned the housing plans for new settlements prepared in the areas delineated in the master plan for physical planning in places that have commercial and industrial importance like Pokhara, Biratnagar, and Birgunj. It was aimed to help develop urban areas in a planned way and by a coordinated regional approach during the fourth plan. Fifth Five Year Plan (1975-1980) came up with regional planning objectives that had promoted the urban centers in the regional headquarters of the country. Seventh plan (1985-1990) has incorporated the concrete vision of urbanization and habitat policy by emphasizing development of urban centers along the East-West highway and in the corridors that link the north and south of the country (NPC 1985, Seventh Plan, page 227-234). This plan aimed to properly manage urbanization, create opportunity for productive employment and increase income to develop urbanization as a supplement to rural development based on a multi-sectorial approach. Private sectors were also encouraged towards urban development in this plan. Town Development Act 1988 was enacted in the same plan period. In the existing laws relating to town development were replaced by municipal development law (1988/89). The Kathmandu Valley Development Authority Act 1988 was also prepared to expedite the development of the valley through an authoritative body. The government also provided loan assistance to some Municipalities for implementing the land development programs.

During Transitional Phase<sup>12</sup> (1990-1992), institutional arrangements such as establishment of Ministry of Housing and Physical Planning, Ministry of Local Development as well as the formation of their line departments were made to promote the urbanization. Separate acts for local bodies along with the Municipality Act were enacted in 1992. The Ninth plan (1992-1996) not only recognized the growth in urbanization in Nepal as the expansion of physical facilities, but also regarded it as a major contributor to the national economy. For this purpose, emphasis was given on the implementation of urban development program with strong participation of the private sector. The Tenth plan (2002-2007) further recognized the urban centers to be the backbone of economic growth and catalyst for change in the country. The plan took an approach of replicating the urban development activities to the rural areas that led to the development of a number of urban centers in different regions of Nepal. Mobilization of means and resources from private sector and the local bodies for the construction, operation and management of urban infrastructure was strategized in the tenth plan. In 2007, the Government of Nepal enacted National Urban Policy for balanced urban development in Nepal (DUDBC, 2007). The policy aims to develop balanced urban growth in the country by prioritizing investment to the regions for development of regional cities and intermediate towns.<sup>13</sup> Digital maps of all municipalities, healthy city program, urban environment improvement project and environmental improvement were also emphasized in this plan. Urban-rural linkages were largely emphasized in the tenth plan.

The Eleventh Plan (2007-2010) has stipulated its objective of urban development under the overall notion that urban development promotes rural development. It aims to invest in urban infrastructure and other services through inter-agency coordination to build a clean, safe and

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<sup>12</sup> The period is called transitional phase because in this period through People's Movement-I (mass uprising) the absolute monarchy was replaced by multiparty constitutional democracy.

<sup>13</sup> <https://www.nepjol.info/index.php/TUJ/article/view/25346/21219>

prosperous urban environment, and to progressively guide rural settlements towards urbanization by expanding rural-urban inter-relationship<sup>14</sup>.

The Twelfth Plan (2011-2013) aimed to develop secured, clean and economically dynamic cities with basic facilities needed for cities. It also intends to maintain a balanced national urban form through-out the country. It included 25 small cities to be developed in this period and 10 cities in the hills particularly in the corridor of mid-hills highway<sup>15</sup>.

The Thirteenth Plan (2013-2016) has continued the policy and strategy of urban development adopted by the twelfth plan such as developing small, medium and large scale cities across the country to accelerate the economic growth through providing employment opportunities and economic incentives. Involvement of private sector in urban development was emphasized in this plan<sup>16</sup>.

Under the balanced regional development, the Fourteenth Plan (2017-2019) envisioned the development of small towns around the peri-urban areas to minimize the pressure on urban areas. This plan has aimed to establish secure and economically balanced cities with required basic urban facilities.<sup>17</sup> The same plan came up with a concept of “one city, one identity” in order to establish uniqueness of each city. Likewise, the plan stipulates that some of the selected cities will be developed under the criteria of “Smart Cities” and some are developed as “Food Green Cities”<sup>18</sup>.

The Fifteenth Plan (2019-2023) approach paper aims to achieve sustainable economic and social development through urbanization. Moreover, the plan has set objectives of developing disaster resilient, human centered, economically dynamic, hygienic and clean and well managed cities in the country. It also focuses to develop balanced national urban system and improved urban structure. It also promotes urban-suburban inter-linkages and green economy in the cities to be developed. The approach paper also highlights the institutional development of urban infrastructure governance, particularly strengthening the capacity on planning, management of urban infrastructure. The approach paper also includes the concept of “Urban Corridor Development Initiatives (UCDI)” to be developed in all seven provinces’ urban corridors. It also introduces a new concept of “Value Capture” in the context that price of land in the urban areas is increased due to the development of urban infrastructure, of which government aims to establish an urban development fund through charging some tax in income gained from the land. Likewise, the approach paper stipulates that Kathmandu Valley will be developed as cultural city of Nepal by conserving Valley’s historical, cultural and natural resources. It also aims to develop Valley’s all Palikas’ as cultural cities by protecting their unique characteristics.

### **3.3 Smart City- a new approach for managing urban development**

In Nepal, concept of smart city has entered into discussion among the planners and development practitioners recently.<sup>19</sup> Literature shows the idea of smart cities came from two urban thinking. First, new urbanism, which focuses on people-centered designing and making cities eco-friendly and inclusive. Second, the technology-friendly cities those promote the use of information technology to deal with urban issues (Harrison and Dunnely, 2011).<sup>20</sup> However, the smart city

<sup>14</sup> [https://www.npc.gov.np/images/category/11tyip\\_eng.pdf](https://www.npc.gov.np/images/category/11tyip_eng.pdf)

<sup>15</sup> [https://www.npc.gov.np/images/category/TYP\\_2012.pdf](https://www.npc.gov.np/images/category/TYP_2012.pdf)

<sup>16</sup> [https://www.npc.gov.np/images/category/13th-Plan\\_nep.pdf](https://www.npc.gov.np/images/category/13th-Plan_nep.pdf)

<sup>17</sup> [http://asd.org.np/wp-content/uploads/2015/03/dynamics\\_of\\_urbanization\\_in\\_nepal.pdf](http://asd.org.np/wp-content/uploads/2015/03/dynamics_of_urbanization_in_nepal.pdf)

<sup>18</sup> <https://www.npc.gov.np/images/category/14th-plan-full-document.pdf>

<sup>19</sup> <http://therisingnepal.org.np/news/19609>

<sup>20</sup> <http://journals.iss.org/index.php/proceedings55th/article/view/1703>



envisioned by the government of Nepal is an urban development vision to integrate information and communication technology (ICT) in a secure fashion to manage a city's assets (MOUD, 2017). These assets include local development information systems, schools, libraries, transportation systems, hospitals, power plants, water supply networks, waste management, law enforcement, and other community services (DUDBC, 2018). Moreover, the push for smart cities seems to be linking to coping with disasters. Smart cities are thought to be disaster resilient, eco-friendly and people centric cities.<sup>21</sup> The devastating earthquake that hit in 2015 triggered the idea of smart cities.

The government of Nepal started putting the idea of Smart City into practice in 2016 when the Government came up with the policy and program by including master plan to be prepared for Palungtar of Gandaki Province to develop as smart city in the surrounding areas of Marsyangdi River (MoF, 2016). The same policy and program has also declared that 10 other cities will be developed as modern and prosperous smart cities. Moreover, National Planning Commission of Nepal has developed concept paper on smart city in the same year with the rationale that Nepal needs smart cities to cope with rapid urbanization and climate change. The paper focuses on information technologies that are used to: (i) provide services to citizens; (ii) manage infrastructures such as water, electricity, waste, public transportation, telecommunication; (iii) promote green energies and (iv) promoting citizen's participation in the decision making process. The concept paper came up with the four pillars to be included in smart cities: smart people, smart governance, smart infrastructure, and smart economy.

In late 2016, New Town Project Coordination Office took initiative to prepare master plans for Palungtar, Nijgadh, and Lumbini to develop as smart cities. In addition to these three smart cities above which are already entered into planning process, government has declared other 10 smart cities to be developed in future namely: Dhankuta, Mirchaiya, Kavre Valley, Chandrapur, Bharatpur, Waling, Tulsipur, Dullu, Tikapur and Amargadhi (DUDBC, 2018). Altogether 40 growing cities of Nepal are in priority focus of the government for planned intervention and execution for urban development to foster balanced urban development as mentioned in the National Urban Policy of Nepal (ibid).

Kathmandu Valley Development Authority (KVDA) has planned to improve upon the existing urban space within valley into four "smart cities". As mentioned about the characterization of smart cities in the section above, KVDA plans to equip the smart cities with smart energy, governance, technology, healthcare, water, education, waste management, green buildings, infrastructure, transportation, public safety, citizen service, stadium, large-size ponds, greenery, town centers, etcetera.

The smart cities will span over a total area of 130,000 *ropanis* (16342 Acre), with the biggest smart city located in North-East (it is called *Ishaan*) of Kathmandu Valley covering 100,000 *ropanis* (12571 Acre) of land and other three cities spread over 10,000 *ropanis* (1257 Acre) each. The biggest smart city will span from Nagarkot of Bhaktapur, Talkot road, Jorpati, Mulpani cricket ground in Shankhu, Bhaktapur Purano Bato, Nepal Army Training Academy and will be linked to Araniko Highway. The second smart city- South-East (*Agneya*) will cover Gundu (located to the south of Araniko Highway) and Balkot area and will be located in east side of Kathmandu Valley. The third smart city-South-West (*Nairitya*) will be located in the south side of Kathmandu Valley and cover Ranikot, Bhaisepati, **Khokana**, Bungmati and Chhimti. The fourth

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<sup>21</sup> [https://www.academia.edu/33684114/SMART\\_CITY\\_IN\\_NEPAL\\_CONCEPT\\_AND\\_INDICATORS](https://www.academia.edu/33684114/SMART_CITY_IN_NEPAL_CONCEPT_AND_INDICATORS)

smart city- North side of the Valley (*Uttar*) will be located at the northern side of the Valley and cover Samakhusi, Tokha and the areas of Balaju by-pass, Kavresthali, Greenland Chowk<sup>22</sup> (The Himalayan, 27 June, 2019).

For the project of smart city, the Government of Nepal in the fiscal year 2019/2020 (2075/76) had allocated Rs 180 million out of which Rs 120 million was given out to Bhaktapur city project and the rest Rs 60 million was distributed among the other three proposed smart cities equally with Rs 20 million to each of the three city projects within the valley. Kathmandu Valley Development Authority in 2019 demarcated land areas and kept aside for laying the foundation of the infrastructure of proposed four smart cities<sup>23</sup>.

However, there are resistances coming against the concept and plan of smart cities including the large infrastructures such as outer ring road and fast track among others in Kathmandu Valley. For example, in Khokana and Bungmati in Southern part of Kathmandu Valley, the local people have been resisting the government's plan of the fast track and outer ring road construction project with a rationale that they will be displaced from their land and will lose livelihoods including agricultural lands. Moreover, they are much concerned about the destruction of their historic culture and ethnic identity<sup>24</sup>.

#### **4. Urban resilience building and disaster risk management**

NUDS 2017 has considered urban resilience as the capacity of urban areas and systems to tolerate, cope and withstand natural, social, economic and technical shocks. A resilient city is adaptable with the capacity to anticipate and plan for future vulnerabilities. Resilience involves planning and designing strategies and institutions to meet the challenges of the future (MoUD, 2017).

NUDS 2017 has included resilience as one of the guiding principles of national urban development strategy of government of Nepal (MOUD, 2017). The concept of resilience referred in the NUDS 2017 is about both physical and social resilience so that cities are safer and adaptable to changes, both environmentally and economically. The major focus of the strategy found to be on physical, social, economical and institutional resiliency that is pivotal for mitigating short or long term vulnerability resulting from disaster or the regional/global impacts of climate change. The strategy also introduces the concept of multi-hazards by stipulating that planning and urban development should enhance capacity to cope with different types of hazards (multi-hazards) and absorb shocks and risks.

NUDS 2017 has weaved the strategy in the four basic elements of resiliency:

1. Physical status: It deals with physical planning such as building codes, land use zoning, etc. based on hazard maps and geological feature of the area to minimize the effects of natural disasters.
2. Social status: It considers social capital of the community, which has direct implication on their preparedness to and response during disasters, which is a critical factor of vulnerability.

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<sup>22</sup> <https://english.khabarhub.com/2019/25/40175/>

<sup>23</sup> <https://english.khabarhub.com/2019/25/40175/>

<sup>24</sup> <https://cemsoj.wordpress.com/2020/04/01/unesco-ilo-and-un-nepal-office-called-to-take-actions-against-displacement-of-newars-in-khokana-and-bungamati-due-to-fast-track-highway-and-other-projects/>

3. Economic status: The economic condition of people is also critical in determining their vulnerability as it is directly proportional to levels of poverty.
4. Institutional status: The strength of local and national governments, and institutions both in the government and non-government sectors to plan, prepare, respond and recover from the disaster is vital in reducing vulnerability of the people.

NUDS has adopted **multi-hazard approach in dealing with disasters including climate change** through preparation of risk sensitive resource mapping identifying high risk areas in all urban areas based on available information, preparation of multi-hazard map of all urban areas, incorporation of disaster risk management component in urban development plans, formulation of National Adaptation Plan (NAP) on urban settlements and infrastructure. The strategy also **promotes integrated safer settlement** through allowing settlement and urban infrastructure development only in safer locations-excluding risk prone and environmentally sensitive areas. Government of Nepal takes an strategy of **establishing system of periodic review to strengthen building code, building regulations and guidelines and planning by-laws on the basis of lessons learnt with mechanisms to enforce and monitor them in all urban areas** to the level that building guidelines and planning is simplified so that they can be understood by the people at grass root level. The National Urban Development Strategy also introduces the approach of **build back better after any disaster**. This approach was implemented after 2015 Earthquake in Nepal in rehabilitation and reconstruction. This approach aims to provide technical support for safer building practices at household level among other support.

Moreover, NUDS 2017 also makes a provision for **establishing institutional framework for Disaster Risk Management (DRM)** by establishing institutional framework and Operating Procedures identifying key actors and their roles and responsibilities for during any disaster and developing adequate capacity, legislative base and financing mechanisms for the institutional framework to function immediately after any disaster. This provision is complemented by the Disaster Risk Reduction and Management (DRRM) Act 2017 as Palika and Ward Level Disaster Management Committees in all Palikas and Wards are legally recognized. The NUDS also has a strategy to **enhance preparedness and adaptive capacity of the government and local bodies** through developing capacity building tools and training programs in order to enhance capacitate human resource and institutions of the government and local bodies. The NUDS also aims to **build awareness and capability of the community and civic bodies based on volunteerism to reduce vulnerability** through preparation of awareness material, educative tools and infrastructure and capacity building tools for communities and civic bodies and also by mobilizing the community organizations. This provision is also linked to Local Government Operation Act 2017 to be implemented by MoFAGA as this Act has authorized local government to develop and implement DRR related local level policies, legislation, and programs (MoFAGA, 2017). Government of Nepal has also developed Disaster Risk Reduction National Strategic Plan of Action 2018-2030 (MoHA, 2018a), and the National Policy for Disaster Risk Reduction 2018 (MoHA, 2018b). The plan and the policy are designed to facilitate the Sendai Framework, and the Sustainable Development Goals.

KVDA in 2016 has developed 20 years Strategic Development Master Plan (SDMP) for Kathmandu Valley, which is taking the lead to prepare the Risk Sensitive Land Use Plan (RSLUP) for KV in coordination with Department of Survey. The plan would be in line with National Land Use Policy 2015 to contribute to risk resilience development of Kathmandu Valley through development, implementation and enforcement of RSLUP and Building By-laws. The plan aims to produce a comprehensive RSLUP for the entire Kathmandu Valley, develop Palika level RSLUP for the municipalities of KV, revise and update the existing building by-laws to correspond to the

RSLUP and to enhance the capacities of the stakeholders on RSLUP and by-laws implementation through training programs for Training of Trainers and engineers/ planners. This corresponds to the MoUD's strategy (NUDS) of capacity building.

In addition to RSLUP, KVDA has a strategy to develop risk resilient urban infrastructure considering natural disaster and climate change risk. The strategy undertakes a disaster and climate change risk assessment for existing urban infrastructure. KVDA strategy also takes an approach to undertake site selection for new urban infrastructure to promote development in lower hazard areas while meeting level of service requirements. It also aims to enhance the capacities of local bodies to support societies and communities to develop coping capacities to climate change and disaster risk. However, there are number of issues when the policies and strategies are come under implementation. Most of them remained to be unimplemented. The concern authorities lack capacity and resources for implementing the policies and regulations. Weak enforcement of the laws and monitoring mechanisms has also undermined the intended resilience building with the urban development (MoUD, 2017; KVDA, 2016).

## 5. Trend of Urban growth in Kathmandu Valley

### 5.1 Level of growth of Kathmandu Valley

Surrounded by the Himalayan mountain range, the valley of Kathmandu is comprised of three districts: Kathmandu, Lalitpur, and Bhaktapur, together with expanding an area of 899 km<sup>2</sup>, whereas the area of the Valley as a whole is 665 square kilometers (Pant et al., 2009). The Valley encloses the entire area of Bhaktapur district, 85% of Kathmandu district and 50% of Lalitpur district<sup>25</sup>. Fig 3 shows the local Palikas of Kathmandu Valley.



Figure 3: Districts and Palikas in the Kathmandu Valley (Source: KVDA, 2016)

As discussed in the section above, The KV symbolizes this extraordinary urban growth occurring in the Nepal's Himalayas. With an estimated population of 2.54 million (CBS, 2012), the Kathmandu Valley is growing at 4.3% per year in the past decade with the highest growth up to 6.5% (KVDA, 2016). This indicates that KV is one of the fastest-growing metropolitan areas in

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[https://www.eastwestcenter.org/fileadmin/resources/seminars/Urbanization\\_Seminar/Kathmandu\\_Valley\\_Brief\\_for\\_EWC\\_KMC\\_Workshop\\_Feb\\_2009\\_.pdf](https://www.eastwestcenter.org/fileadmin/resources/seminars/Urbanization_Seminar/Kathmandu_Valley_Brief_for_EWC_KMC_Workshop_Feb_2009_.pdf)

South Asia, and facing the unprecedented challenges of rapid urbanization and modernization at a metropolitan scale.<sup>26</sup> Figure 4 below shows the population growth trend of Kathmandu Valley.

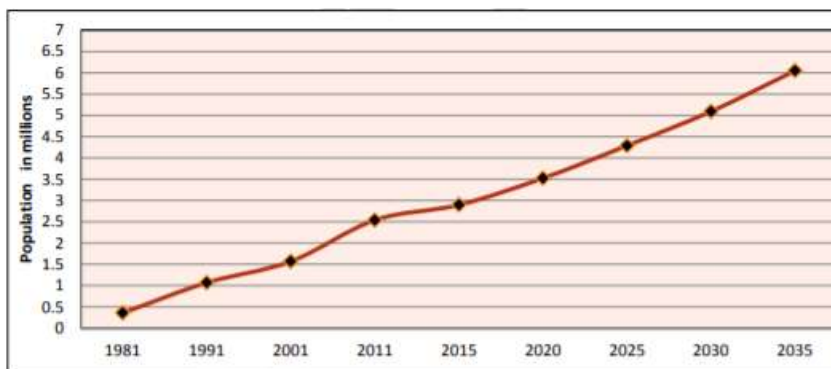


Figure 4: Population growth trend of Kathmandu Valley (Source: Adapted from KVDA, 2016)

The Kathmandu Valley accounts for nearly about one fourth of the country's urban population (22% of urban population) and continues to sustain a fast pace of population growth. The valley is characterized by high and sustained population growth in the urban core and fast urban sprawling at the periphery. Figure 5 shows the trend of urban expansion in Kathmandu Valley. Studies projecting urbanization trend in Kathmandu Valley indicate urbanization will continue expanding in northeast and southwest direction (Thapa and Murayama, 2012). The population of the valley is projected to reach 3,794,866 in 2020 and 6,249,958 by 2030 (KVDA, 2015).

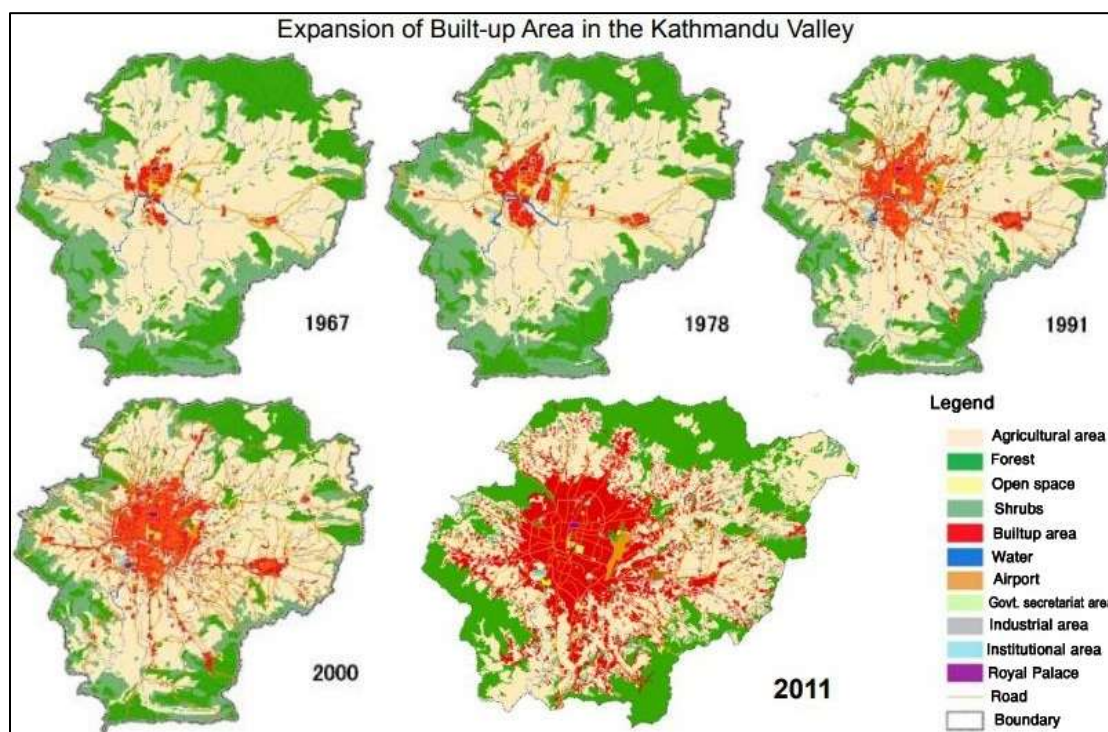


Figure 5. Expansion of built-up area in Kathmandu Valley (Source: JICA, 2012).

<sup>26</sup> <https://www.worldbank.org/en/news/feature/2013/04/01/managing-nepals-urban-transition>

The 2011 census recorded the population of the Kathmandu Metropolitan City alone nearly at one million and is projected to be doubled by 2030 (CBS, 2011). Lalitpur Metropolitan City is in third position in Nepal comprising the urban population (Pokhara is in second position). Population growth is very high in the peripheral municipalities of Kirtipur (5.0% per year) and Madhyapur Thimi (5.7% per year) and in the peri-urban areas where population growth reached 4.8% per year from 2001 to 2011 (Muzzini and Aparicio, 2013).<sup>vi</sup>

The Kathmandu Metropolitan City (KMC) has a population density of 19,726 (MoUD, 2016) people in 2011 and 20,288<sup>27</sup> people as of 2020 per square kilometer (52,550 residents per square mile). KMC's 2020 population is now estimated at 1.3 million. In 1950, the population of Kathmandu was 1.04 million. KMC has grown by 2.44 million since 2015, which represents a 3.84% annual change<sup>28</sup>. These population estimates and projections come from the latest revision of the UN World Urbanization Prospects<sup>29</sup>. These estimates represent the urban agglomeration of Kathmandu, which typically includes Kathmandu's population in addition to adjacent suburban areas.

## 5.2 Land use changes in Kathmandu Valley

Data on the changes in land use in Kathmandu Valley (KV) varies study to study as they are carried out in different time period and through different methodologies. A study conducted by Thapa and Murayama 2010 show that over the period of 20 years (1990-2010), urban morphology has drastically changed in KV. The built-up area of KV has increased from 38 sq. km in 1990 to 119 sq. km in 2012 over the period of 22 years, with a 211% increase. Consequently, cultivated land has decreased from 421 sq. km to 342 sq. km, a decrease of 19% over the period of 22 years. Within the built-up category, the same study presented that the proportion of mixed residential/commercial has increased by 524% and that of residential has increased by 331% over the last two decades. The decade of 1990s showed a significant increase in built-up (51%) in ward number 20 of Lalitpur Metropolitan City<sup>30</sup> which was closely followed by ward numbers 12 and 5 of Lalitpur and 2 and 10 of Kathmandu, which were within the range of 40 to 50% (KVDA, 2016).

Similarly, a recent study conducted by Ishtiaque et al. (2017) shows that Kathmandu Valley's urban area is expanded up to 412% in last three decades and the most of this expansion occurred with the conversions of 31% agricultural land. The majority of the urban expansion happened during 1989–2009, and it is still growing along the major roads (ibid). The centrality feature of Kathmandu valley and the massive surge in rural-to-urban migration are identified as the primary proximate causes of the fast expansion of built-up areas and rapid conversions of agricultural areas.<sup>vii</sup> This study too shows that Kathmandu and Lalitpur Municipalities experienced substantial growth in the built-up areas. The built-up areas were further expanded into the Madhyapur Thimi and Bhaktapur Municipalities, and also in the southern parts of Bhaktapur and Lalitpur Municipalities. This growth of built-up area was primarily obtained by converting agricultural lands (ibid).

A rapid urban growth in the KV happened between the period 1999 and 2009, which also coincides with the booming period of the real estate market largely fueled by the influx of migrants from the countryside displaced by political turmoil (Rimal, 2011; Thapa and Murayama, 2011; Ishiaque, 2017). During this period (1999–2009), the KV saw 117% growth in built-up areas. Only, in 10 year period (1999-2009), 18% of agricultural land is converted into non-

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<sup>27</sup> <https://worldpopulationreview.com/world-cities/kathmandu-population/>

<sup>28</sup> <https://worldpopulationreview.com/world-cities/kathmandu-population/>

<sup>29</sup> <https://population.un.org/wup/Country-Profiles/>, UN World Urbanization Prospect 2018

<sup>30</sup> Geographical boundaries of Wards have been changed after LMC declared Metropolitan City.

agricultural land (Ishiaque et al., 2017). In this decade, new built-up areas were established in the southeastern part of the Valley (e.g., Balkot, Tikathali, Sirutar and Lubhu), and along the major roads connecting the valley to the rest of the districts. During this period, the valley also observed a substantial loss of private forest cover whereby about 36% of the tree-covered area was cleared up for agriculture purpose. The rapid growth of built-up areas pushed the farmers to clear up the forest in the private land and expand agriculture on the foothills (ibid).

Urban growth has seen a slight slowdown in certain parts of the valley in recent years. Between 2009 and 2016, the built-up area increased only about 8%. The most noticeable growth was in Kirtipur municipality and the built-up areas in the KV were mostly expanding only along the major roads, radially growing outward from Kathmandu metropolitan area<sup>viii</sup>.

A study conducted in 2009 looked at the land use in the five municipalities of the valley has also found rapid increase in built up areas. Dominant land use type in KMC and LMC found to be mixed which mostly comprises residential and commercial areas (Pant and Dangol, 2009). This trend in urbanization indicates that these cultivation areas are most susceptible to haphazard urbanization.

## **6. Drivers of urban growth**

The rapid urban growth in Nepal is attributed to various socio-political, economic and development factors. The MoUD (2017, 3) states that urban growth and urbanization in Nepal are consequences of three mutually reinforcing transitions: i) a demographic transition that means more people are entering the labor force than leaving it, ii) a spatial transition due to increased rural-urban migration and iii) an economic transition due to the demise of the traditional subsistence economy, the declining contribution of agriculture to the GDP, and the search for new livelihood options. Choe and Pradhan (2010) argue that the extension of municipal boundaries and the addition of new urban areas is also a key factor for urban growth.

The in-migration of the population from rural areas in seeking economic opportunities, the political and conflict situation during the decade of 1996-2006 and political turmoil after 2006 has somehow directly or indirectly influenced the socio-economic and development trends of urban centers in Nepal. Because of the population influx, the form of urbanization is characterized by haphazard and unplanned development due to lack of effective planning and its implementation.

The drivers of urban growth are multi-dimensional in nature and reinforce each other. For instance, economic opportunities give rise to the population growth (in-migration), which in-turn influence increase in building constructions and infrastructure development, while specifically road construction leads to increase in built-up densities along the road.

### **6.1 Economic Opportunities**

Economic opportunities include wide varieties of economic activities like- job and business opportunities, industries, land value etc. (Thapa and Murayama, 2010). The cities centralize the commercial and financial activities that will provide jobs in both formal and informal sectors for a large number of people. All the facilities for businesses and trade are created in urban centers. Due to these pull factors, urban development is considered to be concentrated around and spreading outwards from the core of the city. A survey conducted by Nepal Rastra Bank (2012) estimates that the total value of the economic activities taking in Kathmandu Valley accounts 31% of total GDP. This suggests that about one-third of the country's economic activities are concentrated in Kathmandu valley alone.

Population growth is a direct indicator of economic opportunities and other factors such as political and security issues, which has accelerated the rural migration into Kathmandu Valley. Lack of economic opportunities, low living standard, and an absence of basic amenities in the rural areas are considered to be push factors for rural to urban migration.

25% of non-farm employment (Service & Manufacturing) equivalent to 0.63 million employees in Kathmandu Valley shows that it is the center of economic opportunities which has been pulling huge proportion of migrants (KVDA, 2016). The rural inhabitants moved to the capital in search of employment, education, security, shelter and economic opportunities. The highest contribution of population growth in KV comes from rural to urban migration. For instance, during the 1990s as high as 40% population growth happened due to urban in-migration. Currently, the net inflow of migrants accounts for 36% of KV populations. In 2001 lifetime migrants made up 38.4% of the urban population. In 2011, the valley had a total of 46% inter-district migrant population, 74% of which were born in rural areas. Kathmandu district had the highest percent (54.2%) of life-time migrants in Nepal (KVDA, 2016). As such, to accommodate the increasing population, there is an increasing trend of horizontal outward growth in KV.

## **6.2 Road networks, development infrastructure and services**

The level of urbanization and level of development is closely related with accessibility to infrastructure and services such as clean drinking water, electricity, education, health facilities and sanitation. Educational and health facilities are considered to be as driving factors of urban growth in Kathmandu Valley. The expansion of urban areas in Nepal are mainly along the major road (highway), ring roads, feeder roads and corridors and major nodes and all these facilities enhance accessibility of that places. Transport related facilities have greater tendency to grow in future in the peripheral areas and will have potential benefits such as ease of access, economic opportunities, social services etc. The growth of the road network in valley in the 1970s and 1980s was 62% and 50% respectively. Growth phenomenally picked up in the 1990s with a record of 154% and it slowed down in between 2001 to 2012 with an average of 31% (KVDA, 2016). These trends of increasing road networks and accessibility have helped in establishing industries, education institutions, and hospitals in peripheral areas that have expanded service, business and market outside of the core of Kathmandu Valley.

KVDA has a plan to develop the outer ring road to expand the urban areas from Nayapati to Bhatedhikhuro and the south of Araniko Highway to Satungal. Outer Ring Road on the north-west would be abandoned due to risk sensitive area and topographical difficulty. With the opening of these two stretches of outer ring road, KVDA expects to have following outputs:

- The linkage of south to the east and the north to the south would be enhanced
- The urban extension could be guided towards east or south
- The land development component alongside the outer ring road would create a significant space for accommodating the future population. It is expected to hold about 1.05 million populations along these 42km of stretches.
- The linkage to fast track and Hetauda Tunnel road would be much more convenient

However, the local people, particularly in the Newar ethnic communities' areas particularly in Khokana and Bungmati, have been resisting the projects that KVDA is planning to implement-outer ring road linking to fast track and Hetauda tunnel roads as they originate from Khokana. They are expressing the fear of being displaced from their original place, destruction of their fertile agriculture land livelihoods and their cultural and religious assets and practices.



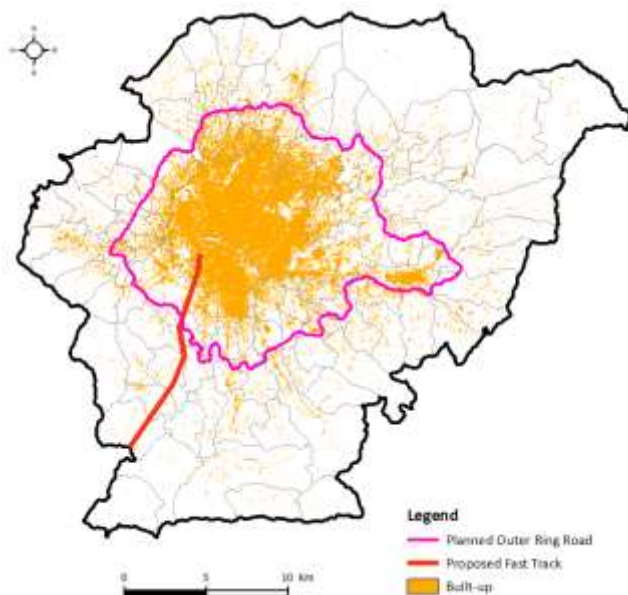


Figure 6: Figure showing Outer Ring Road and Fast Track in Kathmandu Valley (Source: Adapted from KVDA, 2016 (KVDA Master Plan 2015-2035))

### 6.3 Land Market

Land use change in urban centers is directly correlated the value of land. Most often, the increase in land value is directly proportional to the increase in density. The land gets converted into more profitable use as its value increases. Kathmandu Valley is an example of a peri-urban area that has come under enormous pressure from urbanization. As discussed above, the lands of the valley have come under pressure from the rapid growth of the urban area, including from migrants attracted by economic development skewed towards the city. Commercial pressures have also come from inflows of remittances, capital flight from rural areas and a dramatic expansion of credit by financial institutions. All these factors have led to huge rise in land values, land speculation and uncontrolled urban development<sup>31</sup>.

Nepal in general and KV more specifically, experienced a real estate boom in the recent decades, especially between the mid-1990s to the late 2000s. From 1990-2006, the land value in Kathmandu was increased in many folds and the price of the land are fixed through speculation (KVDA, 2016). Most of the middle class of Nepal have bought the land for house construction in Kathmandu valley in this period. The increasing number of middle-class families in the KV is demanding new modern facilities such as, housing sub-divisions and colonies with modern amenities (e.g., private parking, modern grocery stores, restaurants etc.) in the suburbs.

According to Nepal Land and Housing Association, the land price in the KV risen by 300%<sup>32</sup> since 2003, one of the key drivers of urban growth. There has also been an increase in the number of estate agents in the capital city, Kathmandu. Moreover, the land value is gone up in outside of Kathmandu Valley particularly in the headquarters of provinces and Palikas after 2015. The land values are also high in around ring road and highways throughout the country.

### 6.4 Political factor

From 1996-2006, one of the contributing factors for rural to urban growth is the political conflict in the country that led to displacement of people from the rural areas (KVDA, 2016). The destination of the displaced people depends on various factors as some have chosen the

<sup>31</sup> [http://indiaenvironmentportal.org.in/files/WEB\\_CDS\\_Nepal\\_final\\_layout.pdf](http://indiaenvironmentportal.org.in/files/WEB_CDS_Nepal_final_layout.pdf)

<sup>32</sup> <http://www.1ropani.com/News/Default.aspx?ID=25&AspxAutoDetectCookieSupport=1>

proximate cities and some have migrated to Kathmandu Valley. The lack of economic stimuli combined with the insecure political situation has resulted in a massive exodus of the Nepalese productive workforce from the rural areas to Kathmandu Valley. Internal migration to KV drastically increased as it was relatively safe place to live in political conflict period, which ultimately increased the rental units and housing units in the city. The city felt a tremendous urban growth at the expense of prime agriculture land around ring road during the period.

## 7. Discussions

This review reveals a number of issues in urban development of Nepal. While a number of policies, acts and other legal instruments of urban development are in place, their implementations observed to be too weak. Particularly, participation of poor and vulnerable groups appeared to be less effective as they are the most vulnerable groups to be considered while developing and implementing the urban development plan. Urban development continues to be haphazard, unplanned and the monitoring and capacity development aspects of the government authorities seems to be weak.

Unplanned urban growth led to a loss of open spaces that adversely impacted the urban environment. The proportion of open space in major municipalities shows a bleak picture with only 0.48% in Kathmandu and 0.06% in Lalitpur<sup>33</sup>. The trend of rapid depletion of open spaces in urban areas is continued with urban expansion in marginal lands such as steep slopes, flood plains and other hazardous areas that will result into increased vulnerability of the people. Given that the KV is projected to grow bigger in the future, failure to formulate sustainable urban development strategies and implement effectively could create severe socio-environmental consequences, including stagnant economic productivity, poor infrastructures, low quality of life, and rise in urban divide.

Despite the policies and acts on urban resilience and DRR in place, majority of the local governing bodies lack post disaster preparedness plans, such as reconstruction and debris management, which are critical for speedy recovery of the society from a disaster (MoUD, 2017). Local level efforts in disaster preparedness and management are not enough. Even though Disaster Risk Management (DRM) has been incorporated in Periodic Plans of the municipalities, the support system is inadequate and the internalization of Disaster Risk management activities in municipal planning is quite slow. DRM framework lags the linkage with other sectors and the relationship between mapping, planning, land use and building code is not established prominently. There is no national seismic standard for lifeline facilities such as bridges, water supply etc. (MoUD, 2017).

Poverty in urban areas is on the rise. Based on the data of CBS (2012), the percent of people below the poverty line in the urban areas of Nepal increased from 9.55 in 2004/05 to 15.46 in 2010/11. There are enormous differences between urban areas – Pokhara has only 1.3% below poverty line while in Gulariya it is 50%<sup>34</sup>. The rise of poverty in urban area is an indicator of decrease in resiliency of urban population to disasters. A survey in Ratnanagar Municipality in Chitwan elucidated that while 27% are below poverty level; nearly 41 percent of the population are vulnerable and can easily be pushed into poverty (MoUD, 2017). This shows low level of resiliency in majority of population with weak economic status, primarily the urban poor in many urban areas in Nepal. From the perspective of holistic urban management, this may be a major

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<sup>33</sup> MoUD, 2017- NUDS

<sup>34</sup> MoUD, 2017-NUDS

hindrance in the future that needs urgent attention from government and other stakeholders.

Not only have increasing areas of fertile farmland been converted to residential and other urban land uses, the huge increase in price of land due to increasing demand for land for development, combined with a supply of financial capital from remittances and transfers of savings from less secure rural areas, has resulted in consolidation of the urban lands with a few real states' hands. In the context of weak governance structures, speculative activity and poorly controlled development has become rife, with various negative consequences.

The discussions in the sections above show that institutional arrangement for implementing urban development plans are not well coordinated as the institutional arrangement are fragmented. Urban planning and infrastructure development are supported by MoUD, while urban governance and administration come under MoFAGA. There is lack of strong coordination mechanisms between MoFAGA and MoUD, though they share same urban space for action. Often, there is temporary coordination in place at the project level. There seems to be inadequate legal basis to manage and govern large urban region such as clustered city region and urban industrial corridor comprising several local municipalities. Both KVDA and Town Development Acts seem to be inadequate to deal with the emerging issues of urban development particularly to address the rights of urban poor and slums, and resilient livelihoods and environment (both cultural and natural environments). From 2014 onwards, Government of Nepal keeps declaring new programs on the development of cities; for example, megacities, satellite cities, smart cities, new town developments, corridor cities etc., but their implementation seem to be too weak. Many of the projects developed by the government as part of the smart city seem to be not as fully matching to the concept of smart city (for example constructing multi-story building in open space available in the core of the Valley etc.)<sup>35</sup>.

While the local governments (Palikas), provincial government and federal government have already passed more than two years of their tenure after the first election held under the new constitution, there are issues particularly about the relations between the federal government, province and the Palikas particularly on mandate, authority and resource sharing.

In some places of Kathmandu Valley where Newar ethnic groups<sup>36</sup> are predominant, there are resistances coming in against the centrally-planned infrastructure development activities. For example, fast track, outer ring road, satellite city, river basin improvement project and transmission line are planned that will pass through Khokana and Bungmati of Lalitpur Metropolitan City by the federal government without consulting the local people as they are the most affected people by these projects. A fear with the local people for undermining their history, culture, environment and livelihoods seems to be rampant that may lead to the displacement of local people. This seems to be a contradiction between what the major policy documents on urban development (NUDS 2017 and KDVA, 2016) stipulate about the protection of the history and culture of Kathmandu Valley and what the government brings into implementation. These policy documents stipulate that the cities in the Kathmandu Valley will be protected and developed as cultural cities. There are a number of protests happened across Kathmandu valley against the government's push for the fast track project affecting their settlements that have cultural and historical importance and calling for withdrawing of the project<sup>37</sup>. However, despite all those efforts, their concerns and demands are yet to be

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<sup>35</sup><http://english.lokaantar.com/articles/making-nepali-cities-smart/>

<sup>36</sup> <https://kathmandupost.com/visual-stories/2018/12/20/khokana-bungmati-locals-protest-against-governments-move-to-demolish-historical-settlements>

<sup>37</sup> <https://www.recordnepal.com/wire/fast-track-brings-fear-of-displacement-to-khokana/>

effectively addressed.

## 8. Conclusions

Drawing on the lessons learnt from the implementation of the policies and programs in the context of state restructuring, the lessons provide important avenues to rethink urbanization policy in new light. This would include consolidating the positive gains in such areas as inclusive process of policy making and city planning through local governments, resolving the inter-departmental competition over mandates and resources, and engaging the members of the community both in planning and implementation process. The Periodic Planning Guidelines should be updated linking risk sensitivity with land use planning. Operational Guidelines for code compliance and monitoring of apartment, hospital, schools and other institutional buildings need to be prepared and operationalized. A multi-hazard approach that deals with different types of disasters through physical, social, economic and institutional perspectives needs to be pursued.

The growth of settlements in the Valley is generally spontaneous, and there is very little planned intervention on the part of government. The government does not have the financial resources to acquire huge parcels of land where planned urban development can be promoted and the current constitutional provision does not allow the government to impose any kind of restriction on the use of private property. Therefore, the government has only one legal tool to regulate and use— the provision of infrastructure. This tool, however, has been grossly misused in Kathmandu Valley mainly due to political mismatch (Pant and Dangol, 2009).

Kathmandu Valley will continue to grow in the future. If rational planning and development strategies are not formulated and implemented effectively, its growth will create severe consequences. Policies need to be updated where required for the sustainable development of the Kathmandu Valley at both valley and local levels. Valley-wide strategies should address basic infrastructures (drainage, water, road, solid waste management, etc.). Local level strategies should address development of city or ward infrastructures drainage, water, road, solid waste management etc.). The cooperation and coordination between national and local institutions are essential in promoting and implementing activities in an effective manner.

For an inclusive and equitable urban development in Nepal, all level of governments including Municipal government should properly account for the urban poverty particularly focusing on the urban poor – landless, slums, informal sector workers, women, people with disabilities, senior citizens and youth in order to enhance disaster resilience. This needs to be further explored in order to develop methods and process for tomorrow cities to be developed.

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<sup>i</sup> <http://www.gsdrc.org/wp-content/uploads/2015/11/HDQ1294.pdf>

<sup>ii</sup> <http://www.sias-southasia.org/wp-content/uploads/2018/07/Challenges-of-Urbanization-in-Nepal-pdf.pdf>

<sup>iii</sup> <https://www.nepjol.info/index.php/TUJ/article/view/25346/21219>

<sup>iv</sup> <http://www.sias-southasia.org/wp-content/uploads/2018/07/Challenges-of-Urbanization-in-Nepal-pdf.pdf>

<sup>v</sup> <http://www.gsdrc.org/wp-content/uploads/2015/11/HDQ1294.pdf>

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vi <https://www.semanticscholar.org/paper/Urban-Growth-and-Spatial-Transition-in-Nepal%3A-An-Muzzini-Aparicio/522af4df52ff7dda876c7dd46dbcb6fe5dd54465>

vii <https://www.mdpi.com/2076-3298/4/4/72/htm>

viii <https://www.mdpi.com/2076-3298/4/4/72/htm>

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