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Concept of Urban Renewal and Its Suitability to Kathmandu

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Abstract
Urban renewal can be broadly defined as the amelioration of the infrastructural and socio-cultural system of an urban area by providing new housing, offices and transport facilities to enhance the living as well as working condition of the people therein. Kathmandu,one of the most populated, rather congested cities in South Asia is being developed without a comprehensive set of plans as a result of which unplanned settlements with buildings and offices,built violating the building codes have impeded the overall infrastructural development and marred the elegance of the region, particularly around the antique jewels the place is embellished with. This paper elucidates the concept of urban renewal, depicts some cases of urban renewal in Asia and attempts to explore the prospects of urban renewal in Kathmandu with reference to seismic vulnerability, traffic congestion and poor living conditions.

Keywords
Urban renewal – Seismic Vulnerability – Traffic Congestion

1. Introduction

Kathmandu, the capital of Nepal has been experiencing an unprecedented growth in population pertaining to the availability of job opportunities and economic activities in contrast to other places in the country. The infrastructure on the other hand has not been endowing even satisfactory services to the people in the area.The unplanned and unmanaged settlements have further aggravated the living and working condition of the people in the valley, particularly in the core city area. According to a feature story of The World Bank News on April 1, 2013, the residing population in Kathmandu valley was 2.5 million with a growth rate of 4% which makes this valley one of the fastest growing metropolitan areas in South Asia. However, the heed of the authorities and the public itself in the basic urban facilities like housing, transport, drinking water supplies has been found to be insignificant. The houses built violating the codes threaten the lives of millions of people in a circumstance of a seismic event. The architectural jewels like the Durbar Squares and Pashupatinath are being marred relating to the residential buildings surrounding them,which do not display traditional facade,lack of maintenance and pollution. As per a news article on Republica, dated June 3, 2015, a three and a half storey house in Goldhunga-3(kathmandu) incurred a damage of worth Rs. 1 million during the Gorkha earthquake. The house was originally approved to be of two storey by the Kathmandu Metropolitan City Office [1].This is one exemplification of the violation of codal provisions whcih is rampant in the valley.

It is hereby attempted to put forth the concept of urban renewal in Kathmandu with reference to two major factors namely,seismic vulnerability and traffic congestion,to serve the authorities and government to decide whether the scheme of urban renewal would be applicable in Kathmandu.Urban renewal is an interventionist planning which involves the clearance of a site that is in need of repair and then rebuilding on the sites according to a comprehensive set of plans. Broadly, it is the alteration in the spatial arrangement of different physical components of an urban area in order to address the basic problems of the people living therein. The approaches to urban renewal are:

i) *Reconstruction:* This refers to the demolition of old structures to replace with new ones.
ii) *Re-garnishing:* It is the repairing or remodeling of structures within the renewal area. This approach

is adopted when vernacular structures are to be preserved in their pristine form.

2. Literature Review

Urban renewal is a means of replacing outmoded, blighted areas with sound well planned development, geared towards modern needs [2].A study by Japan International Cooperation Agency (JICA) in 2012 [3] elucidates the results of traffic survey performed for the improvement of traffic facilities in Kathmandu. An increase in use of private mode of transport with a dejection towards public mode has been evinced which corroborates a likely condition that in a 'do nothing' scenario most of the roads inside the ring road would be heavily congested. Pant and Dongol (2009) enlist the following as present problems in Kathmandu Valley:

i) Pollution
ii) Traffic Congestion
iii) Land Speculation
iv) Slum Housing Condition [4]

Urban Renewal in Netherlands began after the Second World War realizing the need of a large number of housing units to accommodate the existing population. As a result, new houses were constructed immensely outside the Central Business District with concentration on renewal, being on the consolidation of city centers with the demolition of old ones. The different phases of the renewal program along with the policies adopted from 1970 to 2007 have been discussed [5]. Tianhang and Tingke (2011) emphasize on the continuation of culture and history of a city as a strong basis for deciding the methods of urban renewal [6]. Wyss (2005) estimates the possible earthquakes in the future in the Himalayas with their location and size on the basis of past earthquakes that have occurred in the region in addition to the loss of human lives.

3. Examples of Urban Renewal Projects

i) Ahmedabad, India (Sabarmati Riverfront Revitalization)
Intended to revitalize the Sabarmati river banks by stopping its encroachment and to endow ample sanitary conditions, this project was envisioned after India achieved economic liberation. It involved the removal of haphazard settlements to provide the public an access to the Sabarmati River in addition to the control of river pollution by construction of adequate sanitary systems. The relocated households were to be provided with permanent housing at other locations. Ahmedabad Municipal Corporation took the charge and established a fully owned "Sabarmati Riverfront Development Corporation Limited" (SRDCL).This organization was expected to plan and implement the project.The Ahmedabad Municipal Corporation (AMC) asked the state government to transfer the ownership of land to itself so that the land could be reclaimed and it would have an agreement with SRDCL to develop the land in return for 20% of the reclaimed land. This agreement helped SRDCL to use the 20% of reclaimed land to be used as collateral for the collection of funds. The project commenced only after 2003 when all preliminary processes of land transfer were completed and 85% of the entire project was completed in June 2014. Most of the relocations have completed but the sales of the pledged lands are yet to take place. This project has also induced the redevelopment of some other adjacent blighted areas.

ii) Shanghai, China (Taipingqiao Redevelopment)
Urban renewal program in Shanghai was a colossal undertaking which was initiated by the Shanghai Municipal Government in 1992 under the program 365, attributing to the removal of old, dilapidated houses in the Taipingqiao area and the relocation of immense number of people in order to convert the area into an amalgamation of residential, commercial and entertainment hub attracting enormous amount of tourists, thereby escalating the economic activities in Shanghai. The project is abode of three parts namely: Shanghai Xintiandi (meaning New Heaven, an entertainment hub boasting Shanghai's peculiar Sikumen houses), a residential area and a corporate avenue. The project is characterized with the demolition of 2800 hectares of housing and relocation of 6,40,000 people [7]. The project also gifted green public spaces with a Taipingqiao lake and park, both being artificial jewels of the area. The construction of Corporate Avenue (office Complex) and Lakeville (residential building) successively followed the construction of Taipingqiao Park, which was actually the inauguration of the construction phase of the project in the year 1999.

The success of this massive undertaking has inspired renewal of other cities in China.

iii) Seoul, South Korea (Cheonggyecheon stream restoration)

The Cheonggyecheon stream in downtown Seoul had been covered with an overhead highway as a result of which it had been converted into a dumping site and as criminal activities got rampant a renewal scheme was introduced. The removal of the overhead highway rendered the place an open, green and clean public space remarkably curtailing the levels of noise and pollution. Transport planning was thus the most crucial factor to be addressed as the six lane highway, which was removed had been providing service to an enormous traffic volume. The biggest challenge thereby was to urge people to incline towards public over private means of transport. Metro transit was already being used but was not successful on reducing car ridership so the bus routes were rearranged, Bus Rapid Transit (BRT) was introduced and smaller buses were provided to enhance mobility of the remote residents. Intermodal passenger transport strengthened with the integration of information and communication technology was thus adopted as a solution. Literally, public transportation scenarios were improved: like the adoption of distance based fare system regardless of mode or number of transfers from one mode to other, which was facilitated by the use of smart cards, in addition to the use of Global positioning system (GPS) which helped in providing real time bus operation information to the public and even the bus operating companies. This helped the public plan their trips effectively and the bus operating companies and even the government to have adequate data on transit conditions. The results of this shift towards public transport were:

i) decrease of road accidents by 25% within a period of one year in 2004
ii) continuous transfer of car users to bus or metro users
iii) an overwhelming passenger trip share of pubic transport, precisely for metro and bus of more than 60% in Seoul in the year 2007. [8]

Moreover, social connectivity is also an inevitable aspect of pedestrianization that grew considerably after the renewal project which converted the blighted area into a walkable, environment friendly stream corridor. This project had massive positive impacts not only in Seoul but even in central policy level, as the success of this project urged the Korean authorities to adopt Green Transportation Policy. The Cheonggyecheon stream restoration thus turned out to be a substantial ground for changing perceptions from expanding roadways to developing transit oriented cities. [7]

Other prominent examples of urban renewal are:

i) Mission Bay, San Francisco, California
ii) Melbourne Docklands, Australia
iii) The Metropolis Project, Downtown, Los Angeles, California
iv) Coolongata renewal project, Queensland, Australia

4. Factors demanding Urban Renewal in Kathmandu

4.1 Seismic Vulnerability

Kathmandu lies on the lap of the Himalayas which is a seismically vulnerable zone and a number of intimidating events of earthquake has already been experienced in the past. It is just a question of time as to when and where a next large seismic event would take place. The first record of earthquake dates back to 1255(B.S 1298 Magh), resulting in the death of a large number of people in the valley which was even followed by the ignominious death of people out of epidemics that got rampant shortly after the tremor. Fourteen years later in B.S 1312, Asadh, next large tremor killed one third of the valley's population including the king Abhay Malla [9]. Another event of massive earthquake was 1934 Nepal-Bihar earthquake which had its epicenter in the eastern part of Nepal. It had a magnitude of Mw-8.2 and it rendered around 8500 people dead throughout the country[10]. JICA (2012) mentions that the 1934 earthquake produced a MMI IX-X shaking in the valley and destroyed 20 percentage of buildings within the valley. This earthquake crippled the properties like Dharahara, Taleju temple, clock tower (colloquially called Ghantaghar) and enormous number of residential buildings. A recent event of a large earthquake is the Gorkha earthquake on April 25, 2015 with its epicenter in Barpak (Gorkha).

The Gorkha earthquake inflicted heavy damage in different parts of the country rendering 8856 people dead and 22,309 people injured[11] which is a very high figure compared to similar events in other countries.This explicates that the losses were because the country was not prepared for such an event albeit the predictions that were available to expound the damage that an earthquake would render. Wyss (2005) estimates that an earthquake of magnitude Mw-8.1 in western Nepal within a depth of 25km would lead to death of 11000 to 22000 people. Further, it is mentioned that Kathmandu is one of the 47 cities which would have at least 2000 fatalities in one of the 'scenario earthquakes' (likely earthquakes with their location and size) in the Himalayas mentioned thereby [12].

Nevertheless, death toll in Kathmandu valley is not as high as expected, most probably, because the event took place on Saturday which is a public holiday in Nepal because of which schools and offices were closed. 1746 people were recorded to be dead in the three districts of Kathmandu valley [13]. As per the study of 'National Society for Earthquake Technology', on a scenario of MMI IX shaking, 66% of the schools within the valley would be completely destroyed and if the event were to take place during school hours it would lead to around 29,000 deaths(inclusive of students, teachers and staffs) and 43000 injuries [14]. The subjective observation depicts that the death of people and structural damages were mostly concentrated in and around the old settlement areas like Bhaktapur, Basantapur, Khokana, Bungamati, Sankhu, and Kirtipur where most of the buildings were made of mud and mortar without any structural heed. Thus, these are the places which entail renewal in the first stage as they also abode architectural and cultural property of the valley.

A team of researchers working on modeling of the earthquakes in the UK's Centre of Observation and Modelling of Earthquakes, Volcanoes and Tectonics suggest that the rupture of the fault line that caused the recent Gorkha Earthquake stopped 11km beneath Kathmandu heralding the event of another massive seismic event that would put the life of the dwellers of the capital at stake once again lest the city is not well prepared. There could be two instances of seismic strain transfer namely creep (slow and continuous rupture along the un-ruptured parts without a large earthquake) and slip the latter being the case of another massive earthquake [15]. Thus, the valley is under a great threat as, in the future, the rupture of the remaining unbroken portion would be much closer to the surface of the valley. Though the building codes are being reviewed and a sense of awareness has evoked in the public regarding structural safety of buildings, a number of settlements are still prone to being completely flattened, particularly the old settlements within the valley which are highly congested and where houses are built of rudimentary building techniques

The risk the valley is in, with respect to seismicity asserts the requirement of reconstruction of an enormous number of building units to assure safety to the public particularly in areas having old settlements. Thus, urban renewal with regards to seismicity would pertain to both reconstruction and refurbishment. However, it is now intrinsic that a new comprehensive set of plans be developed incorporating green policies and endowing enough public spaces, particularly around the architectural jewels like the Durbar Squares and even the blighted areas around bus terminals.

4.2 Traffic congestion

Traffic congestion has escalated in Kathmandu over the years parallel to the population growth. As reference to a quote in the report of traffic survey by JICA in 2012, 80 % of the roads within the ring road would be heavily congested by 2022. Severe problem of congestion has already commenced pertaining to the poor condition of fixed facilities and control units. Urban renewal is when demand overcomes supply, which is corroborated by the meagre traffic conditions in the valley. A part of this can be attributed to the limited road density explicated by the data:

Table 1: Table for road area, Pant and Dongol (2009)

Cities within Valley	% of road area
Kathmandu Metropolitan City	7.29
Lalitpur	6.17
Bhaktapur	4.97
Kirtipur	2.61
Madhyapur Thimi	4.53

Further, the share of total land area by the aforementioned cities is shown by Table 2.

Table 2: Table for total land area, Pant and Dongol (2009)

Cities within Valley	total land area(ha)
Kathmandu Metropolitan City	5303.3
Lalitpur	1543.78
Bhaktapur	676.506
Kirtipur	1581.02
Madhyapur Thimi	1146.88

Thus, the weighted average percentage of roads in the valley with respect to total land area would be 5.94% which is a very low value compared to that in developed cities like Seoul (13.6%), London (25%), Inner London(18.3%), Inner New York (25.7%) [16]. With this limited road network within the valley, severe traffic congestion should not be an issue of consternation.

Further, JICA survey team also discovers that walking trips decreased to 40.7% of total trips in 2012 from 53.1% of total trips in 1991, the space being filled by motorcycle mode from 9.3% to 26% in the stipulated period. On the bright side, use of public vehicles has found to be increasing albeit not satisfactory (27.2% in 1991 to 27.6% in2012). This meticulously depicts the growing preference of people towards private means of transportation. Even though walking trips dominate other modes of trip in the valley, the pedestrian services even in the core urban areas are rudimentary. Due to unplanned housing the sidewalks are also quite haphazard and through subjective observation it can be asserted that they are inadequate to serve the walking trips efficiently. Further, due to increasing pollution and discomfort in walking along the sidewalks people resort to the use of private vehicles even for short walkable trips which would further lead to increase in congestion and pollution.

Though the recent works of widening the roads are appreciable, they are never a permanent solution to the problem of congestion. Within a few decades it is intrinsic that Mass Rapid Transit (MRT) be introduced to address the demand of growing population and economic activities for which the roads within the ring road are not wide enough and it does not seem feasible to widen the roads therein because the right of way taken is inadequate and the number of houses built within the ring road encroaching the ROW is also quite high.

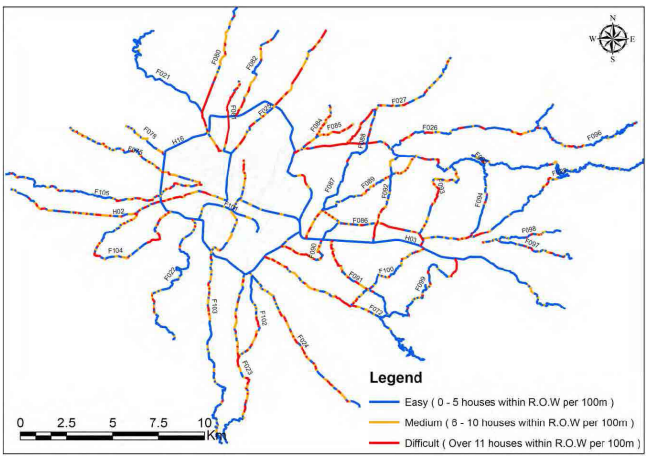

Figure 1: Classification of road network by the extent of difficulty for widening (source: JICA 2012)

Figure 1 expounds vividly that road extension within the ring road is a difficult task, particularly in the northern and the western parts and these are actually heavily congested areas both in terms of settlements and traffic. Thus, even for road extension in these areas relocation of people may seem to be essential. Its time government resorts to using its power of eminent domain endowing the affected with adequate compensation. Land pooling in Kathmandu has been primarily to assure comfortable housing plots with necessary infrastructure. Land pooling schemes are being used and should be used for enhancing road network in areas away from core urban area which are slowly gaining residential attraction but the commercial areas and the vicinity of ancient structural monuments seem to entail land acquisition. Enhancing pedestrian facilities and consolidation of public transport infrastructure as well as services are invariably entailed in Kathmandu. Two highways namely, Prithvi Highway and the Araniko Highway connect Kathmandu to the western and the eastern part of the country respectively and with the addition of linking highways like Fast track being constructed it is intrinsic that this problem be solved sooner than later because in due time, as Kathmandu gets linked with Terai via these expressways the problem of congestion would further exacerbate. Thus, this is the right time to start enhancing the transport services in Kathmandu.

5. Challenges

A myriad number challenges are certain to be encountered both in the planning as well as implementation phase relating to the immensity of this project. A number of challenges that are possible to be faced grossly are:

5.1 Social Consensus

It is the most significant challenge that would arise while undertaking a scheme that would involve relocation of people from their place of residence. People are well aware that the value of the area would remarkably escalate after the regeneration process and they would certainly ask for a share. Moreover, the involvement of political parties for their vested interest can be assumed. People who are going to be affected are to be invariably brought to consensus through discussion because the Constitution of Nepal 2072 considers property rights to be fundamental rights and the discord of some individuals has the potential to impede this program.

5.2 Financial problems

Urban renewal is certainly a massive undertaking demanding large sum of money. The collection of funds in the initial phase is something to be looked after deeply. Funds will be required for the demolition of poor structures, relocation of people, feasibility study, detail planning and construction of infrastructure. People who are going to be relocated are certainly not likely to be settled for just relocation and compensation. The concerned authority has to involve them in the process. Apart from relocation they will have to be considered to be the beneficiaries of the revenues that would be collected by the project for a certain period of time. Since, inadequacy of fund during any phase could lead to delay in projects and further increase in project costs the authorities which would be set up for the project need to have clear opinions as to the amount as well as the sources of fund. In the planning phase itself, it would be a great debate as to whether or not to undertake this colossal project as there would be questions regarding whether it would generate enough revenue.However, this undertaking should not be solely judged just on the basis of financial analysis by considering only direct monetary value as this undertaking has a much larger scope.

5.3 Problems regarding relocation

Provision of relocation is a must for people whose houses and corresponding lands will be acquired for renewal but the question arises as to where the people would be placed and if they would accede to being displaced in any location given by the assigned authority.

6. Strategies

6.1 Institutional formation

An authoritative body has to be formed with a motive of urban regeneration which should be designated with the responsibility of selecting the areas which are to be considered immediately for renewal. The areas are to be classified in accord to their importance and need of renewal. The authority may be appointed by the local government literally the municipality which would be composed of members from town planning committee, building design authority, the representatives of the affected people and the stakeholders who would invest in the project. The authority would be allotted the task and responsibility of deciding the consultants which would deal with detail design of renewal and the contractors which would build the designed infrastructure.

6.2 Selection of areas requiring renewal

Urban renewal scheme has to be applied in a ‘part to whole’ approach achieving small goals at a time within a specified time-frame. The regions which need this scheme are to be listed first by the municipalities or the local authorities and this process may be overlooked by the central government itself. Though the areas requiring renewal are to be decided through extensive studies it can be assumed that areas which are to be emphasized are the old settlements in the vicinity of the Durbar Squares pertaining to the poor housing condition of the people, the impairment of the structures and the abatement of the antique elegance due to unplanned housing. Since, these heritages are of national pride and entail continuous maintenance, it is justifiable to relocate the people around them upto a certain area,

demolish the residential units (that do not exhibit the vernacular tradition, which can later be reconstructed in traditional fashion under government subsidy) and to regenerate such areas into tourist hubs boasting typical culture. Thus, the renovation of the area around the Durbar Squares would be of a similar model to that of Shanghai Xintiandi. It would incorporate the renovation of antique structures (both public and residential) as wells as demolition and reconstruction of various new units. Since, a number of antique structures have been completely or partially damaged in the recent earthquake reconstruction or at least renovation of these properties is significant this would be the right time to resort to regeneration of the area surrounding these properties. Further, the small alleys and congested housing around Durbar Squares exacerbate their exquisiteness in addition to the lack of proper lighting, ventilation facilities which would put the lives and properties under threat even in cases of fire outbreak. The success of this small scale would automatically induce even more and large scale renewals. Further, there would be a healthy competition between the local bodies regarding this issue.

6.3 Financial arrangement

There can be a number of methods to allocate funds for the project. A model similar to that of Sabarmati revitalization project can be adopted pertaining to the similarities in the structure of the authorities. Another method used widely for this kinds of project is the Tax Increment Financing (TIF) widely adopted in United States for redevelopment projects whereby the any increase in values of property taxes in TIF area is transferred to the TIF fund once the TIF period has begun. This would certainly attract private investors in this sort of project. However, attributing to the unavailability of ample laws regarding TIFs in Nepal the adoption of this method would require drafting of laws relating to TIF through a detailed study of what impact it may have in Nepalese macro economy. Moreover, since decades the national budget has been under spent which surely should motivate these projects. The initial funding to the authorities undertaking this responsibility should be directly through the government. A project at once, is certainly feasible to the government after which there would be a healthy competition between the municipalities and the people living therein to promote such schemes. In order to aggrandize the traffic conditions in the valley it is important to establish new link roads and maintain the old ones(which have also started experiencing congestion) for which the existing institutional capacity has to be amplified for which increase in budget in the transport sector is intrinsic.

6.4 New technology

Since, Nepal is a country with immense possibilities in hydropower, it is necessary to bring a remarkable shift in the way transport and industrial sector use raw power. Nepal suffers trade deficit each year because of the scale in which petroleum is imported. The introduction of transport means based of electric power would curtail pollution not only in the valley but throughout the country. In addition, it would also inspire the development of hydro power considerably, thereby leading social and infrastructural development towards a virtuous circle. Technologies that would not depend on just fossil fuels for energy are intrinsic to not only the Kathmandu valley but the entire nation. Though, the vision of introduction of means of transport based on solar power and electricity was included in the National Transport Policy, 2058 considerable achievements are yet to be realized[17]. Incorporation of information and communication technologies for smooth operation of physical infrastructure is intrinsic. The use of smart cards for commuters in Seoul is one learning example and its time Kathmandu looks for a similar, context based appropriate solution in facilitating its residents by connecting transport and even other infrastructures with information and communication technology.

7. Conclusion

Though the renewal schemes in Kathmandu seem to be a herculean task for the present it seems to be necessary, pertaining to the miserable lifestyle people therein are bound to live. Its time to consider the methods to avert the increasing urban sprawl and have a focused planning towards building a transit oriented urban area. The technical aspects of this scheme are nevertheless much easier compared to the social aspects. Nevertheless, it is upto the authorities to ponder upon the solutions put forth by the academics and select the best options on a broad perspective.

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