Responding to Urban Sphere's Mobility Challenge: A Case of Nepal's Historic City

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ABSTRACT:

Urbanization is a globally shared challenge and Nepal, a small developing country in the foot of the Himalayas, is no exception. For Lalitpur Metropolitan City (LMC), the country's second ranked city in terms of population density, the situation is complex as numerous historic and artistic monuments including a UNESCO World Heritage property make structural adjustment prohibitive. As a practical and sustainable response to the mobility challenge, then, LMC has teamed up with the City's stakeholders to transform into a cyclable city. Based on a case study that employed in-depth qualitative interviewingof specialized populations, this study attempted to validate City's course ofactions in light of global trend in the use of bicycles, and discussed the movement from the perspective of sustainable urban governance. The study found that the case city is on the right trajectory for tackling urbanization challenges with sustainable means, aided by the collective wit of the political, administrative and citizens' power. Their effort was validated by the initiative's alignment with the global benchmarking on the use of bicycle for sustainable mobility. The study concluded that factors such as collaborative public service design and local government led spatial management are holding keys for sustainable urban governance.

Keywords: cyclable city; sustainable mobility; UNESCO World Heritage; urban governance; urbanization

ABSTRAK:

Urbanisasi adalah tantangan bersama secara global dan Nepal, negara berkembang kecil di kaki Himalaya, tidak terkecuali. Untuk Kota Metropolitan Lalitpur (LMC), kota peringkat kedua negara itu dalam hal kepadatan penduduk, situasinya kompleks karena banyak monumen bersejarah dan artistik termasuk properti Warisan Dunia UNESCO membuat penyesuaian struktural menjadi terlarang. Sebagai respon praktis dan berkelanjutan terhadap tantangan mobilitas, maka, LMC telah bekerja sama dengan para pemangku kepentingan Kota untuk bertransformasi menjadi kota yang dapat bersepeda. Berdasarkan studi kasus yang menggunakan wawancara kualitatif mendalam dari populasi khusus, penelitian ini berusaha untuk memvalidasi tindakan City dalam kaitannya dengan tren global dalam penggunaan sepeda, dan membahas pergerakan dari perspektif tata kelola kota yang berkelanjutan. Studi ini menemukan bahwa kota kasus berada di jalur yang tepat untuk mengatasi tantangan urbanisasi dengan cara yang berkelanjutan, dibantu oleh kecerdasan kolektif dari kekuatan politik, administratif, dan warga negara. Upaya mereka divalidasi oleh keselarasan inisiatif dengan benchmarking

global pada penggunaan sepeda untuk mobilitas yang berkelanjutan. Studi tersebut menyimpulkan bahwa faktor-faktor seperti desain layanan publik yang kolaboratif dan pengelolaan tata ruang yang dipimpin oleh pemerintah daerah memegang kunci untuk tata kelola kota yang berkelanjutan.
Kata Kunci: Kota sepeda; mobilitas berkelanjutan; Warisan Dunia UNESCO; tata kota; urbanisasi

INTRODUCTION

Urbanization is a globally shared challenge, and a small developing country in the foot of the Himalayas, Nepal,is no exception. Although it is the least urbanized nation in South Asia with the urbanization rate of 17.07% according to the latest population census of 2011, the rapid pace of urbanization makes the country to project 30.18% of the population to be living in urban areas by 2031 (Gov-ernment of Nepal National Planning Commission Secre- tariat Central Bureau of Statistics, 2014).Kathmandu Valley, where the country's capital functions are concentrated, is "one of the fastestgrowing metropolitan regionsin South Asia" (Muzzini & Aparicio, 2013, p. Xi) with population density of 17,960 per square kilometer (Government of NepalNational Planning Commission Secretariat Central Bureau of Statistic, 2014). Without any urban transit system such as metro rail and bus rapid transit (BRT), the predominant mobility mode of the Valley is road transport: Like any other urbanizing cities, traffic congestion and environmental degradation are visible, cre ating grave concerns for the government and citizens alike.

For the Valley's one integral constituent, Lalitpur Metropolitan City (LMC), the situation is complex. The City houses numerous historic and artistic monuments including a UNESCOWorld Heritage property, Patan Durbar Square (Figure 1), making structural adjustment prohibitive. As a practical and sustain- able response to the mobility challenge, then, LMC has teamed up with the city's stakeholders to transform it into a cyclable city.

FIGURE 1. PATAN DARBAR SQUARE, UNESCO WORLD HERITAGE SITE

Source: Author, 2020

This study attempted to (a) delineate how LMC came to initiate its transformation efforts into a cyclable city, (b) illustrate challenges encountered through the process, (c) analyze how the City, together with the stakeholders, are coping to move forward, (d) validate its course of actions in light of the global trend with the use of bicycles for sustainable mobility, and (e) discuss themovement from the perspective of sustainable urban governance.

RESEARCH DESIGN

This study is an empirical research based on an analysis of asustainable mobility case, employing in-depth qualitative inter- viewing of "specialized populations" (Rubin & Rubin, 2012) as adata collection method. The study is informed by specialist knowledge on the target initiative from city officials and stakeholders who have closely worked on and/or supported the cyclable city initiatives from policy, technical, advocacy, and other dimensions. The study emphasized validation of verbally obtained information by cross checking with print materials. For triangulating validity of the collected data, effort was made to witness stake- holders' relevant actions by the study team attending LMC's cyclelane inauguration event as well as cycle enthusiasts'

meet organized by Nepal Cycle Society (NCS). For contextualized analysisand discussion, the study referenced global trends in the use ofbicycles for sustainable mobility as benchmarks (Jreisat, 2006) and sustainable urban governance as a broader knowledge base.

FINDING

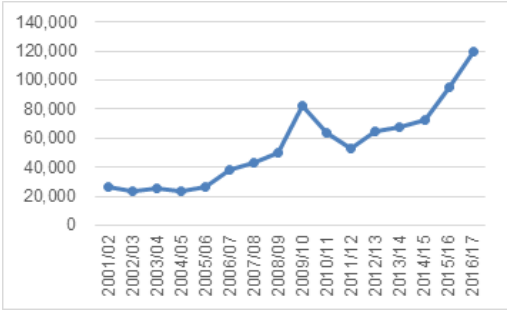
CYCLING AS SOCIAL AGENDA

Filled with rich history that dates to ancient times, KathmanduValley has been host to countless number of temples and religious monuments, found in almost every corner of its cities within. There are three cities in the Valley, Kathmandu, Lalitpur,and Bhaktapur, all heavily populated. These cities have separate administrative jurisdictions but have maintained close socio-cultural interlinkages. Since the construction of its ring-road almost four decades back, Kathmandu Valley has not seen a major strategic road network update. Yet, roads inside the cities were still built as needs arose. Such unplanned road extension has createda layout difficult for sensible further expansion.

As one major constituent of the Valley, Lalitpur Metropolitan City (LMC, previously Lalitpur Sub-Metropolitan City) has seen a rapid growth reflected in the number of population: Over the 10 year period from 2001 to 2011, LMC's annual population growth rate averaged at 3.55%. (Lalitpur Metropolitan City, n.d.). This growth in population made LMC the second most densely populated city of the country with 14,574 people per square kilo-meter, according to the latest National Population and Housing Census conducted in 2011 (Government of Nepal National Planning Commission Secretariat Central Bureau of Statistic, 2014). With the restructuring of administrative divisions after the enactment of 2015 Constitution, then Lalitpur-Sub-MetropolitanCity was reconfigured into LMC, merging

some adjacent areas. This change brought down the city-wide average population density to 7,888 people per square kilometer. However, out of 29wards that are accommodated in LMC, the average population density of the 10 most densely populated wards recorded 34,024 people per square kilometer with the top ward counting 54,220 people per square kilometer (Lalitpur Metropolitan City, 2019).

FIGURE 2. NUMBER OF NEW VEHICLE REGISTRATION IN BAGMATI ZONE



Source: Adapted from Details of Registration of Transport up to Fiscal Year 2046/47-073/74 by Ministry of Physical Infrastructure & Transport Department of Transport Management, not dated (https://dotm.gov.np/Files/NoticePDF/bagmati0730742020-01-17_04-43-33-560.pdf). In the public domain.

Growth in the city over the years was also seen from the number of vehicles registered. The annual number of vehicles newly registered in Bagmati Zone, where LMC is located, was 26,689in the fiscal year 2001/2002, while the corresponding figure went up to 119,956 in 2016/2017, 3.5 times more (Figure 2) (Ministryof Physical Infrastructure & Transport & Department of Trans-port Management, n.d.)

People's amplified preference for motorized vehicles over non-motorized means is clearly shown in a travel mode survey con- ducted on the Valley: While travel by motorized vehicles was recorded at 40.3% in 1991, the corresponding figure went up to 57.8% in 2011 (Ministry of Physical Planning Works and Trans- port Management, Japan International Cooperation Agency, Nippon Koei Co. Ltd., & Eight-Japan Engineering Consultants Inc., 2012).

More use of vehicles contributes to air pollution, a major

environmental risk to health. In terms of Particulate Matter (PM), a common proxy indicator for air pollution, Kathmandu Valley'sannual average PM10 (a diameter of 10 microns or less) reached 117 ìg/m3 in 2007, almost six times higher than WHO's guide- line value of 20 ìg/m3 annual mean (World Health Organiza- tion, 2018). A survey of three environmental pollutants including PM2.5 (particulate matter with a diameter of 2.5 microns or less, tiny level that can penetrate the lung barrier and enter people's blood system) conducted in 2015 shows that the air pollution situation has not improved in Kathmandu Valley. It was a survey based on daily monitoring at three different locations in the Valley over a course of one year. The results showthat PM2.5 measured at 49.1 ìg/m3, far surpassing the WHO guideline value of 10 ìg/m3 annual mean (Nepal Health ResearchCouncil, 2016; World Health Organization, 2018).

Tired of aggravating traffic congestion and pollution, a group of students at Kathmandu University started cycle city campaign in 2009 to promote cycling as environmentally friendly and sustainable mobility means, branded as "Kathmandu Cycle City 2020" (Kathet, 2009). The group started to organize cycle rallies,cycle workshops and different activities which expanded the group to count 700 active members within a year. Although the groupconducted a variety of activities, it did not draw wide public attention and the movement seemed to gradually wane. In 2011, however, one traffic accident re-ignited the cycle movement in the city. A truck killed a cyclist who happened to be one of thecountry's most well-respected conservationists. General public, cycle activists, celebrities, journalists, human rights activists, environmentalists and many more gathered for a rally demandingjustice for Dr. Prahlad Yonzon and creation of dedicated cycle lane

throughout the city (Figure 3 and Figure 4).

FIGURE 3. RALLY DEMANDING CYCLE LANE AND JUSTICE FOR DR. YONZON

FIGURE 4. MASS GATHERED FOR THE RALLY.

Source: "Hundreds Cycle Users Rallied Demanding Cycle Lane," by Clean Energy Nepal (http://www.cen.org.np/index.php?page=news_detail&nid=270). In the public domain.

BIRTH OF NEPAL CYCLE SOCIETY

Until 2017/18, although there were various cycle enthusiast groups in action, their scale of activities was small with limited impact commensurate with the scale. Acknowledging the limited scope a small group can perform, activists gathered in 2018 to establish Nepal Cycle Society (NCS). The initial agenda forforming NCS was to promote urban cycling in a larger scale. Cycle enthusiasts with different professional backgrounds voluntarily came to connect with NCS. Members' diverse professional background has become an asset for NCS. Having engi-

neers, architects, urban planners, health workers, legal experts, and many other professionals on board as its members, NCS started to conduct regular campaigns with an elevated sophistication to promote cycling culture in the neighborhoods.

NCS was aware that it will not be an easy task to influence the whole of the government policy. Hence, it strategically startedfrom local level by approaching different major cities (then municipalities) in the country.

CYCLING AS CITY'S AGENDA

Mr. Chiribabu Maharjan, then-candidate for LMC Mayor, vowed to make Lalitpur a cyclable city in his election campaign. His vision well accorded with the goal of NCS and led to the tie-up of the two parties. For LMC, NCS had a team of all the re-quired technical manpower which the City was in need of. After being elected for the mayoral position in May 2017, Mr. Maharjan tenaciously led LMC authority to take up on foundational activities towards making Lalitpur a cyclable city, whichgained visibility by 2019. NCS was appointed as technical advisor cum consultant. NCS has brought in an interdisciplinary team consisting of urban planners, designers, transportation engineers, civil engineers, architects, legal experts, among others. Major tasks of NCS being advising and consulting, NCS team designed, supervised and supported LMC's cycle city campaigns. NCS's involvement also included LMC's master planpreparation on cyclable city component. The first phase of the master plan included construction of cycle lane, cycle stands, and establishment of Cycle Act by April 2020 with the total annual budget of five million Nepalese Rupees for fiscal year 2018/2019. This amount corresponds to 0.21% of City's capital expenditure and 0.11% of its total budget. The small but symbolicallocation

continued for 2019/2020 budget, although only 3.7 million Nepalese Rupees (74%) of annual allocation was spentby the end of 2018/19 period (Lalitpur Metropolitan City, 2019).

FIGURE 5. CYCLE LANE IN KUPONDOLE

Source: Author

Construction of cycle lanes is one of the major challenges for LMC, not just as technical but also as policy matter. Road width more than 8 m falls under the jurisdiction of the federal government through Department of Road (DoR). LMC frequently askedfor approval from DoR to construct cycle lanes in the existingroads, but DoR simply ignored by not responding. Hence, LMC initiated lane construction work with the expectation of acquiring retroactive approval. The first phase included constructionof 4.7 km length cycle lane inside the City (Figure 5).

The lanes would consist of two types: dedicated or shared. Dedicated lanes would be solely for cyclists, and other vehicles are not allowed to drive inside. Shared lanes can be used by othervehicles depending on the level of traffic congestion. LMC has a plan to construct a total of 65 km of cycle lanes inside the City infive phases, including surrounding area of UNESCO World Heritage site, Patan Durbar Square, to allow cycles and pedestrians only.

FIGURE 6. CYCLE STAND AT LALITPUR METROPOLITAN MUNICIPALITY OFFICE

PREMISE

Source: Author

For ease of cyclists, the total of 100 cycle stands in 10 different locations in the City are being constructed. Sixty stands have been installed (Figure 6) with 40 more in process. LMC is alsoplanning to request commercial and public entities to constructcycle stands at their properties and to obtain City's approval for design when they plan new infrastructure development.

Another important initial agenda for the City was the enactment of the Lalitpur Cycle Act. The draft Lalitpur Cycle Act wasprepared, and its adoption is eminent once the City Assemblyhas a chance to discuss for approval. The Cycle Act will include different provisions such as lane categorization, insurance forcargo cyclists, rules for lane, penalty, rights and responsibilities of cyclists. The Act will be mostly referenced as promotion forcyclists. No strict rules and/or penalties will be enforced. Oncecycling culture matures in the City, the Act is anticipated to also incorporate violation rules for cyclists through the amendment(Ojha, 2020).

The further phases will be more focused on expansion of cyclelane throughout the City. Promotion of cycle use for short com- mute is also envisaged. However, specific plan for later phases isstill under consideration, according to LMC. It will be important for the City officials to put forward well-grounded plans and arguments as it has been difficult

to make local representatives understand the value of cycle project. Pro-infrastructure development mindset that favors large scale, traditional infra- structure was referenced as the reason.

CYCLING AS KATHMANDU VALLEY'S COMMON AGENDA

Mr. Maharjan, the Mayor of LMC, envisions that a further project effort to connect city's open spaces, river corridors, ancient heritage sites and trails on the southern rims of Kathmandu Valley will help restore its historical glory and revitalize the city (Shrestha, 2019). During the inauguration of the cycle lane construction in Lalitpur, Mr. Maharjan announced his commitment in cooperating with neighbor cities to construct cycle lanes that connect throughout the valley. Findings can be equipped with tables, graphs, illustrations and the like to facilitate explanation. Kathmandu Metropolitan City (KMC) had already begun to construct cycle lanes back in 2014 but could not proceed further. An LMC stakeholder views that a push from a neighboring city such as LMC can serve as a positive trigger for KMC to pickup on the motion to designate more cycle lanes in the city. May-oral interaction conducted among LMC, KMC, and Godawari Municipality to connect the Valley by a linked cycle lane also suggests there is a positive direction setting towards the Valley wide cycle lane establishment.

At the federal level, Minister for Culture, Tourism and Civil Aviation also announced about construction of a cycle lane that runs through the Valley, for the goal of connecting all of its UNESCO World Heritage sites (Onlinekhabar, 2020).

CITY'S EFFORT IN LIGHT OF GLOBAL TRENDS

LMC's challenging experiences described in the case can

be interpreted as necessary steps towards sustainable mobility. Suchinterpretation is made possible because of the active movementon the global scale that has created benchmarks on the use of bicycle as a measure.

One validation reference is the Copenhagenize Index, that rates world cities based on bicycle-friendliness. It allocates scores exactly for the issues LMC is now fighting for, such as "bicycleinfrastructure" (level of protected and separated bicycle infrastructure network), "bicycle facilities" (ease-of-use availability of bicycle racks), and "traffic calming" (traffic congestion relief measuresand campaigns towards motorists). Another validation reference is Sustainable Mobility for All (SuM4All), a principal platform for international cooperation on sustainable mobility, that adopted greenness (termed as "green mobility") as one core con- cept for sustainable mobility (Sustainable Mobility for All, 2019). These benchmarks endorse that LMC is on the correct trajec- tory for tackling urbanization challenges with sustainable means, aided by the collective wit of the political, administrative, and citizens' power.

DISCUSSION

The case revealed that LMC's challenge of converting the City to a sustainable one through the promotion of bike-ability has been approached as a social movement. The original idea, conceived by the locals out of a quest for having a livable city, led themovement to evolve, and it was seized by the mayoral candidate as a winning political agenda. Looking at the case that captured citizen group originated, non-structural city management endeavor coming from Nepal, the following sections discuss its value, significance, and implications from three aspects of what under- pin sustainable urban governance: (a) public service design, (b)

local government led spatial management, and (c) an empiricalknowledge from a developing country.

PUBLIC SERVICE DESIGN

Service design is a concept that places both the user and the service provider at the heart of the development and testing process through co-designing (Junginger, 2013; Whicher, Swiatek, & Cawood, 2013). With a human-centered approach focusing on user experiences, this approach is envisaged to develop an optimal service product leading to "increased desirability, usability and efficiency" (Whicher et al., 2013, p. 3). The concept has entered in public service domain as "a method of user engagement in public governance" (Whicher et al., 2013, p. 14), and is advocated in public service reform (e.g. Service Delivery Reformin Australia) as "a formal acknowledgement of the role services have in shaping the relationships between a government and itscitizens" (Junginger, 2013, p. 19).

The courage LMC had in acknowledging its inability to spearhead towards the goal of city conversion into a bikeable one by own effort ignited a constructive partnership with NCS, who could bring in the missing skill set to attain the objective. By the tenet of public service design, such foresight in collaborating with prospective service users with vested interest in the city's future is an assurance for a durable service that will be used and appreciated by the citizens.

LOCAL GOVERNMENT LED SPATIAL MANAGEMENT

While capacity to plan, manage and finance is considered as a fundamental aspect of effective urban governance, it is also widely recognized that many local tiers of the government do not adequately possess the

skills, capacity and resources to meet those obligations (Avis, 2016). A major challenge comes from the difficulties to embed such expertise in bureaucratic routines: Technical training is not sufficient but the required strategic planning experiences does not come automatically with the governing authority. Then, (Romeo and Smoke, 2014) state that learning from working together with relevant stakeholders is a practical way out.

If single city management is already challenging for local tiersof the government, the situation of LMC is far more complex, as it sits in the heart of Kathmandu Valley where crossing of administrative boundaries makes arrangement of public services spanning jurisdictions difficult due to lack of effective mechanisms for coordination at the metropolitan level (Muzzini & Aparicio, 2013). Nonetheless, the case revealed that there is an undisputable common agenda which could trigger the collabo-ration among the cities located in Kathmandu Valley. That is to construct a cycle lane that runs through the Valley not only forthe residents but also for tourists drawn for the UNESCO WorldHeritage sites.

Spatial management across jurisdictions will not materialize unless all the concerned parties have their own benefits met by the collaboration. From this perspective, Kathmandu Valley widecycle lane establishment has a good potential for city level local government led, spatial management initiative for better livingenvironment as well as for economic benefit arising from tour-ism. For the latter, the government stakeholder at the federal level also has own reason to engage, making it a collaborator with vested interests in the initiative.

EMPIRICAL KNOWLEDGE FROM A DEVELOPING COUN- TRY

Under the global phenomenon of urbanization, how to bet ter manage own environment is a common agenda for the whole world, yet, the gravity of seriousness for developing part of the world has been widely remarked. For example, (World Bank, 2016) refers to South Asia as a struggling region in the context of urbanization. (Avis, 2016) points out that managing urban growthis particularly a daunting task in the poorest and most fragile countries because of the weak municipal capacity. More specifically on the ability to manage and respond to escalating demands for urban travel in the context of developing countries, (Cervero, 2013) attributes to shortcomings in local governments' institu- tional setup, which might explain about an observation by (Andersson, 2015) that good developing country examples of metropolitan governance across jurisdictions are rare.

Such observations call for sharing of problem-solving experiences from developing countries as they hold a key for the world's urbanization challenge. This study then provides a much sought- after empirical evidence that showcases an illustration of urban governance though the collective effort making of local government with the relevant stakeholders of the society in creating public service for sustainable city, a defined tenet of sustainable urban governance (see, for example, Avis, 2016).

CONCLUSION

This case study captured citizen group originated, nonstructural city management endeavor coming from Nepal. The study found that the case city is on the right trajectory for tackling urbanization challenges with sustainable means, aided by the collective wit of the political, administrative, and citizens' power.Their effort was validated by the initiative's alignment with the global benchmarking on the use of bicycle for sustainable mobility. The study concluded that factors such as collaborative public service

design and local government led spatial management are holding keys for sustainable urban governance.

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