Urban Development in Nepal and the Impacts of Covid-19

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COVID-19 PANDEMIC AND NEPAL: ISSUES AND PERSPECTIVES

Edited by
Basu Sharma and Ambika P. Adhikari

Asta-Ja USA
October 2020
As the Covid-19 virus that began in late 2019 in Wuhan, China, has reached 215 countries and territories infecting 32,083,273 people and claiming 981,219 lives globally as of September 23, 2020, we at Asta-Ja extend our heartfelt condolences to the families who have lost their loved ones. We salute doctors and nurses and all individuals in the front lines fighting against this pandemic. We wish safe and healthy life to every individual.

While the first case of Covid-19 in Nepal was reported on January 23, 2020 on a student who had recently returned to Kathmandu from Wuhan, China, the first case of the local transmission in Nepal was reported on April 4, 2020. Despite serious containment measures that were taken by the Nepali government, such as banning international flights, four-month long lockdown, many restrictions on businesses, social distancing, use of masks, and limit on the number of people in a group, over the past several months, the total number of infections in the country, as of September 23, 2020, is 67,804 with 436 deaths. The disease has spread all over Nepal and the infection rate has been increasing. The Covid-19 pandemic declared by the World Health Organization (WHO) on March 11, 2020, shows no sign of abatement as of September 23, 2020.

relief work in Nepal. Through the generous support of Asta-Ja members and supporters, Asta-Ja USA in collaboration with Asta-Ja Research and Development Center, was able to support 175 needy families with relief packages in Kathmandu Valley.

This book comes as an output of the decision taken by Asta-Ja ICC on March 28, 2020. This book is a collection of twelve articles from Asta-Ja members on Covid-19 impacts. These articles are developed by experts in various discipline, such as, engineering, agriculture, environment, geology, economics, businesses, and planning.

I appreciate the work of all contributors, reviewers, and editors of the book, who took the challenge of developing quality research-based articles during this pandemic and within such a short time.

I would like to congratulate the editors of the book, Dr. Basu Sharma and Dr. Ambika P. Adhikari, and reviewers, Dr. Keshav Bhattarai, Dr. Dinesh Gajurel, and Dr. Prasamsa Singh, for such a timely completion of this high-quality publication. Also, thanks are due to Dr. Rosina Poudel, MD, for designing the cover page of this book.

I am sure the findings presented in this book will benefit the policy makers and other stakeholders in the post-Covid-19 developmental planning and implementation programs in Nepal.

We brought this book as a part of Asta-Ja Occasional Book Series rather than a fully peer-reviewed book to make the important research findings available to the readers in a timely manner.

Dr. Durga D. Poudel
Founding President, Asta-Ja USA
Preface and Acknowledgements

When the board members of Asta-Ja USA asked us to compile and prepare a volume as a part of Asta-Ja occasional book series, they also gave us a short time frame to produce the book. It was done so that the volume could reach the readers quick enough to be of value in the rapidly evolving pandemic scenario. Accordingly, the editors provided shorter than usual deadlines to the prospective authors to submit their papers for the compendium. We are thankful that so many authors were able to provide us their valuable papers in a short period of time.

The editors are grateful to Prof. Keshav Bhattarai, Dr. Prasamsa Singh, Prof. Durga D. Poudel and Prof. Dinesh Gajurel for reviewing several papers in this book. The editors greatly appreciate their contribution also in following up with the authors and finalizing the manuscripts for this book. Without their support, this book would not have seen the light of the day.

Prof. Durga D. Poudel not only helped in the review process, but also in reaching out to the potential authors and ensuring the timeliness of their submissions. He continuously provided encouragement and support in this effort.

The editors are grateful to all the contributing authors, who responded to our requests, and in spite of their busy schedules, submitted their papers on time. They prepared the papers in a short period of time, as the editors wanted to publish the book quickly to offer suggestions and advice to the Nepali policy-makers, academics, students and concerned common citizens.

As the information about the Covid-19 pandemic is rapidly emerging, this book was assembled for a timely publication so that interested readers could refer to the ideas in this book. For this reason, the editors treated each article as an
independent paper with its own formatting, structure and style. The reviewers and editors have edited the language of the papers for clarity only.

To provide an overview of the book, the editors have synthesized the main points of each paper in the introductory essay entitled “Issues and Perspective on the Covid-19 and Nepal: An Introduction”.

We owe our heartfelt thanks to the officials and members of Asta-Ja USA for asking us to undertake this task. We also thank them for providing encouragement in our efforts to complete this book on time so that it will have a timely use for the readers.

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Contents

Foreword III
Preface and Acknowledgements V
List of Contributors IX

Issues and Perspective on the Covid-19 and Nepal: An Introduction 1
Basu Sharma and Ambika P. Adhikari

Covid-19 Pandemic and U.S. Food Supply Chains: Disruptions, Resilience, and Beyond 12
Aditya R. Khanal

COVID-19: Impacts and Opportunities for Agriculture and Food Security in Nepal 20
Kalidas Subedi

Mitigating the Impact of Covid-19 Lockdown in Relation to Developing Strategies for Sustained Food Production and Supply: Special Focus on Nepal 36
Suroj Pokhrel

The Impact of Covid-19 on Agriculture Research 52
Dilip R. Panthee and Khusi R. Tiwari

Impact of Covid-19 Pandemic on Nepalese Agriculture 61
Pushpa L. Moktan and Durga D. Poudel

Remote Delivery in Higher Education Following the Covid-19 Pandemic: Lessons Learned 70
Udhab R Khadka and Durga D. Poudel
Urban Development in Nepal and the Impacts of Covid-19  78  
Ambika P. Adhikari and Keshav Bhattarai

Impact of COVID-19 Pandemic on Air Pollution in Kathmandu and Pokhara Valleys  89  
Hari Kandel and Arjun Aryal

Impacts of Covid-19 Pandemic on the Tourism and Hospitality Sector of Nepal  101  
Monika Ghimire and Udhab Raj Khadka

No Wealth, Poor Health: socio-economic impact of Covid-19 on Marginal Communities of Nepal  117  
Romy Das Karna

Economic Impacts of Covid-19: Global and South Asian Perspectives  128  
Kanchan Joshi and Kalpana Khanal
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1. Introduction

The Coronavirus (Covid-19) pandemic has created a public health crisis worldwide and is impacting the way we plan and design cities. While much is still being learned about Covid-19, we have seen that the virus spreads quickly and its fatality rate is also significant. The virus has already seriously impacted the global economies and most urban activities.

During pandemics, regular public interactions in the city can be the cause for spread of communicable diseases. In this context, urban planning should include approached to help mitigate the spread of virus. Designs of facilities should help the residents to physically distance themselves from each other. Cities need to adopt planning and design approaches that help counter the pandemic, promote public health and improve the quality of urban life. Covid-19 will affect the way urban open spaces, transit systems, public amenities, multifamily housing, and urban infrastructure is planned.

Nepali cities and towns already face several planning and management problems as most lack adequate infrastructure, open spaces and many other urban amenities. The pandemic caused by the Covid-19 has exacerbated the problems already faced by the Nepali urban centers.

This article provides a review of some emerging ideas on planning for the pandemic, and offers some recommendations for a public health-friendly urban planning and design that can be applicable in Nepal.

2. Some Emerging Ideas on Planning for Pandemics

As the pandemic spreads around the world, planners, economists, designers, municipal leaders and the concerned policy makers are trying to understand
the implications of the disease on the design and planning of cities and its infrastructure. As a disease with unknown impacts and many other uncertainties related to the pandemic, the new ideas have been often tentative only.

The following paragraphs show some examples of the emerging ideas internationally related to the planning for the current pandemic.

In the New York Times article “Just Because You Can Afford to Leave the City Doesn’t Mean You Should”, author Dr. Mary T. Bassett, argues that the spread of the coronavirus is more than the correlation between population density and viral transmission. “That disease [COVID-19] is devastating cities like New York because of the structure of health care, the housing market and the labor market, not because of their density,” she says. “The spread of the coronavirus didn’t require cities — we have also seen small towns ravaged. Rather, cities were merely the front door, the first stop.”

She further finds that it is not the large number of residents in the cities that creates a fertile ground for the spread of the virus. But the virus ravages the residents mercilessly as many of their residents are poor, and vulnerable minority population.

Michael Hooper of Harvard University in the article “Pandemics and the future of urban density” speaks about the concerns that the current Covid-19 pandemic may influence people’s attitudes away from urban residential density. He cites a study that suggests that residents’ density preferences are not significantly altered by the public health concerns. However, because of the perceptions of the citizens, planners may find it difficult to propose higher density development in light of the pandemic concerns.

In the piece “Pandemics Are Also an Urban Planning Problem” published in City Lab, Ian Klaus talks about the importance of the digital response during the current pandemic and that it didn’t exist at the time of most of our historic pandemics. Digital response existed a little bit during the Ebola crisis, but not in the current scale. The digital system now can help track the covid-19 cases, and pinpoint areas where the disease has already spread. The data and information provided by the internet, phones and computers is now being used by the authorities and professionals to treat patients, to contain the transmission, and to focus on certain areas aggressively for quarantine and other methods of slowing the spread of the virus.
Klaus states that “modern planning and civil engineering were born out of the mid-19th century development of sanitation in response to the spread of malaria and cholera in cities. Digital infrastructure might be the sanitation of our time.”

Glen Miller in “Density can work post-COVID-19, with good urban planning” published in Policy Options, IRPP, Canada, emphasizes the role of transit during the pandemic and says “concerns about the next pandemic should spark a push for good city planning and policy rather than a backlash against density and transit upgrades”. He believes that providing for physical distancing will result in the transit vehicles carrying fewer passengers. He recommends that the transit system in urban areas such as Toronto must be given the financial flexibility to maintain or even increase service levels during the public health crisis. He recommends staggering the workday in shifts to ease the traffic and provide flexibility to the workers. Such arrangement will help deflate the pressure on office spaces, and provide both the employees and employers different choices to get the work done.

The Government of Singapore, National Parks has been promoting the value of “Therapeutic Gardens” in helping the residents to de-stress during the public health crisis like the current one. Singapore has been actively building “outdoor gardens designed to meet the physical, psychological and social needs of park users, incorporating design principles derived from scientific evidence”. Singapore experience has shown that the therapeutic gardens and horticulture programs that offer plants and nature can impart “a range of health benefits such as the relief of mental fatigue, reduced stress and an overall improvement to emotional well-being.”

Cities should support the mobility for the essential workers to safely travel to jobs, home and shopping. As the pandemic can also cause mental problems to the residents, urban areas should provide enhanced opportunities for outdoor activities and recreation.

3. An Assessment of the Situation in Nepal

Nepal has been rapidly urbanizing in the past three decades. The official number of municipalities has increased from 105 in 2014 to 256 with 3,176 Hamlets (Wards) in 2017 (LLRC 2015). The 256 urban jurisdictions include 241 municipalities, 9 sub-metropolitan cities and 6-metropolitan cities. Of these metropolises, 3 are in province 3, and one each in provinces 1, 2, and 4.
These metropolises have several high-density settlements with limited amount of urban open spaces in them. Likewise, the sub-metropolises are mainly concentrated in the inner-Tarai and outer-Tarai plain areas where the population density is already high. Provinces 1 and 3 each has three sub-metropolises, provinces 3 and 7 each have one, while province 5 has four.

According to Nepal’s official definitions, a metropolis consists of a minimum 300,000 people, whereas a sub-metropolis must have a minimum 150,000 people. Likewise, to be a municipal unit, the size of the population would vary. The minimum population threshold for a municipality in the Mountains is 17,000, for Mid Hills 31,000, and for Inner Tarai and Outer Tarai, it is 60,000 (LLRC 2015; MoUD 2020).

The geographic size of the urban area varies in different geographic regions depending upon the land availability. Often, some residents may exert pressure on politicians to annex their areas with the municipality. They would do so to increase the property valuation and to have urban facilities. However, low-income people are generally reluctant to annex their lands with the municipalities because they have to meet certain urban standards, and possibly pay additional taxes. Details of the population and revenue income thresholds for different geographic regions at various urban hierarchy are given in Fig. 1, Map of Nepal showing provinces, districts, and data related to the municipalities.

**Figure 1.** Map of Nepal showing provinces, districts and data on municipality.

Map by K. Bhattarai with data from LLRC and others.
Figure 1 is created using the basic data published in LLRC (2015), and the periodic updates available from some national newspapers such as MyRepublica, The Kathmandu Post, Onlinekhabar, Naya Patrika and Setopati.

It is seen that many Nepali towns and cities are quite new, and many among them are just nominal urban centers as they still retain village characteristic and lack urban infrastructure, services and amenities.

Since most Nepali cities face planning deficiencies, their vulnerability to pandemic disease like Covid-19 is high. Covid-19 spread quickly in high density settlements meaning that when the population of virus increases in per unit area, its spread can accelerate. The multiple layers of social, economic and spatial inequities among the urban dwellers also contribute to enhance vulnerability of the city dwellers.

The mobility of people is another factor that is contributing to the spread of the disease. Further, large urban areas are already overburdened with pollution, and weak infrastructure and service levels. This situation has exacerbated the rapid expansion of Covid-19 pandemic in Nepal.

Though Covid-19 was slow in its spread in Nepal until the end of March 2020. Many political leaders were claiming that the Nepali people perhaps enjoyed high levels of the high immunity against the virus. Unfortunately, the Covid cases have increased over 10-fold since the last week of July 2020 partly as migrant workers began returning home from India (Gill and Sapkota 2020). Many middle-class youths took to the streets in Kathmandu and other cities to “protest perceived government apathy, incompetence, and corruption” (Gill and Sapkota 2020). The urban areas became the hub of the returnees and Covid-19 got a favorable environment to spread quickly. With rapid spread of the Covid-19 in Nepal, people are experiencing rising levels of anxiety and frustration regarding the government’s healthcare and economic response to the pandemic. Assemblies in religious centers and in social gathering without following physical distances has contributed to the increase in the virus density per unit area infecting thousands of people.

The pandemic has added numerous problems to the long-standing problems in the public healthcare system of Nepal. Many health centers are understaffed and under-resourced. Government medical personnel who are assigned to work in such areas have abandoned their jobs for fear of being infected.

The designated isolation centers have poor facilities. These designated isolation centers themselves are contributing to the spread of Covid-19 among people
who inhabit them. These ad-hoc isolation centers, often set up in schools lacked cooking and bathing facilities and where detainees often have to sleep on the floor or on students’ benches. Many facilities lack trained medical personnel or ambulances to take patients to a hospital if needed. It is likely that many would die without treatment (Gill and Sapkota 2020).

Most Nepali urban areas lack safe drinking water, sewerage services, and open areas for safe escape from crowded urban areas in case natural disasters like earthquakes happen. Many residential units are not easily accessible by life-saving service, such as fire and ambulance vehicles. Since many residential units are overcrowded, possible spread of the Covid-19 virus has become a serious issue.

Overcrowding of residential units is caused by many factors including the issue of housing affordability by the residents. While renting apartments in urban areas, a family can spend up to 60 percent of its annual incomes on the rent because the supply if urban dwelling units is limited. As a rule, housing is considered unaffordable if the housing cost exceeds 30 percent of the gross income of a family.

Rental regulations to protect the renters are almost non-existent in Nepal. Since many urban residents cannot afford to rent a dwelling unit with adequate space for the family, they are bound to share smaller units creating an overcrowding situation. Anecdotal information suggests that in several cities such as Biratnagar, Kathmandu, Janakpur, Birgunj, Bharatpur, and Pokhara, in extreme cases, up to six individuals can be found sharing a dwelling unit of less than 500 square feet.

Though open spaces are abundantly available in rural settings, most urban areas lack adequate amount of open spaces. Most Nepali cities have high densities and only limited publicly accessible opens paces. For example, Kathmandu has a population density of 53,000 residents per square mile in 2020 according to the World Population Review website. This is comparable to highly dense cities such as Mumbai and Kolkata. High density and overcrowding in the Nepali cities coupled with the rampant inadequacy of sanitary services can help accelerate the spread of communicable diseases such as Covid-19.

In the long term, investment in improving the water supply, sanitation and housing quality and affordability should be the top priorities for the Nepali cities and towns.
4. Some Recommendations

As Nepal is a rapidly urbanizing and a low-income country (2019 per-capita income $1,090/capita as per the World Bank), Nepali cities face several challenges related to infrastructure, investment, housing, economic development and urban management. Nepali policy makers and leaders have realized the importance of the cities, and have been working to increase the investments needed for the infrastructure sector. However, the investment is still inadequate.

For the long-term health of the urban areas, such infrastructure investments need to be kept at a high rate. The current pandemic has shown us that a clean and regular water supply and reliable sanitary services are top priorities to help manage public health during the pandemics.

Some recommendations for public health friendly urban planning and design approaches for Nepal can include the following.

Continue to make significant investment to improve urban infrastructure, especially for mobility, water supply and sanitation. Explore ways of harvesting and collecting rainwater for on-site and community water supply systems.

Urban residential densities are important to promote compact development, encourage walking and biking, support mixed use, and public transit, and make
more public spaces available to the residents. However, from a public health perspective, proper space configuration and design of buildings is important to allow enough space for a physical separation of at least six feet between individuals to reduce the spread of communicable diseases. Adequate space to facilitate physical distancing should be provided in buildings that include communal living spaces.

1. Create affordable housing programs for the cities. The federal, provincial and local government agencies can cooperate to develop housing programs by leveraging public lands, and utilizing public funds to support the development of affordable housing. Provide walk up residential units when feasible, touchless technologies in elevators, and interior common spaces to enable physical distancing of at least six feet. When possible, design the common exterior walls and floors with washable materials that can be easily disinfected and washed to reduce the spread of any communicable diseases.

2. Handwashing stations are recommended throughout the urban areas and should be strategically placed in areas where people gather such as in parks, public bathrooms, transit stations, public and private plazas, courtyards, squares, sidewalks, and terraces of public buildings. To organize adequate water supply for these uses, the Nepali cities and towns will need to promote on-site water harvesting systems.

3. Providing adequate open space throughout neighborhoods, and commercial, office and institutional areas is particularly important to promote public health. Open spaces provide opportunities for people to seek recreation, obtain fresh air, and to ease their mental health burdens. Open spaces could also be used as staging grounds for make-shift medical facilities such as testing, vaccination and distribution areas when necessary. In warmer climate, open spaces must include shaded areas for the comfort and health of the users. Open spaces are severely lacking in many big Nepali cities, especially in the Kathmandu Valley cities. An aggressive policy and regulatory regimen need to be implemented to create adequate opens paces in new develop and redevelopment projects.

4. Some publicly accessible open spaces including urban parks, plazas, community gardens, and public squares can be designed as “Therapeutic Gardens” having aesthetically pleasant combination of flowers, greeneries, water elements, opens spaces and seating areas to provide a relaxing and stress reducing ambience for the visitors. See Fig 3 for an example of a Therapeutic Garden with elements that can help people de-stress.
5. Promote increased self-sufficiency in the cities for fruits, vegetables and some grains such as through roof gardens, urban farming, and community gardens. On-site production of food is valuable during a pandemic. Nepali towns evolved with agricultural production. This should help in continuing the agro-friendly urban planning.

6. Promote the concept of a 20-minute city, creating localized and self-sufficient communities where residents can access amenities such as shopping, recreation and other daily needs (except the places of employment) that can be reached within 20-minutes by biking, walking or riding public transit. This will help in making cities more self-sufficient and resilient during pandemics and other disasters.

7. Promote public transit while implementing stringent sanitary protocols such as cleaning the vehicles frequently, disinfecting the surfaces, requiring passengers to wear masks, and reducing the passenger load per vehicle to help maintain physical distance.

8. Nepali cities are already mostly walkable and bike friendly. Continue to promote walking and biking as a critical component of an urban transportation system. Walking and biking also help improve public health and quality of life for the residents. Wide sidewalks are encouraged in urban environments that allow people to physically distance themselves from others, and also to queue outside essential businesses and at transit stops. Detached sidewalks are recommended for the safety of the pedestrian. See Figure 4 for an example of a wide, shaded and detached sidewalk.
Fig. 4. A detached and wide sidewalk in urban Honolulu, USA. Pic. A. Adhikari
References


