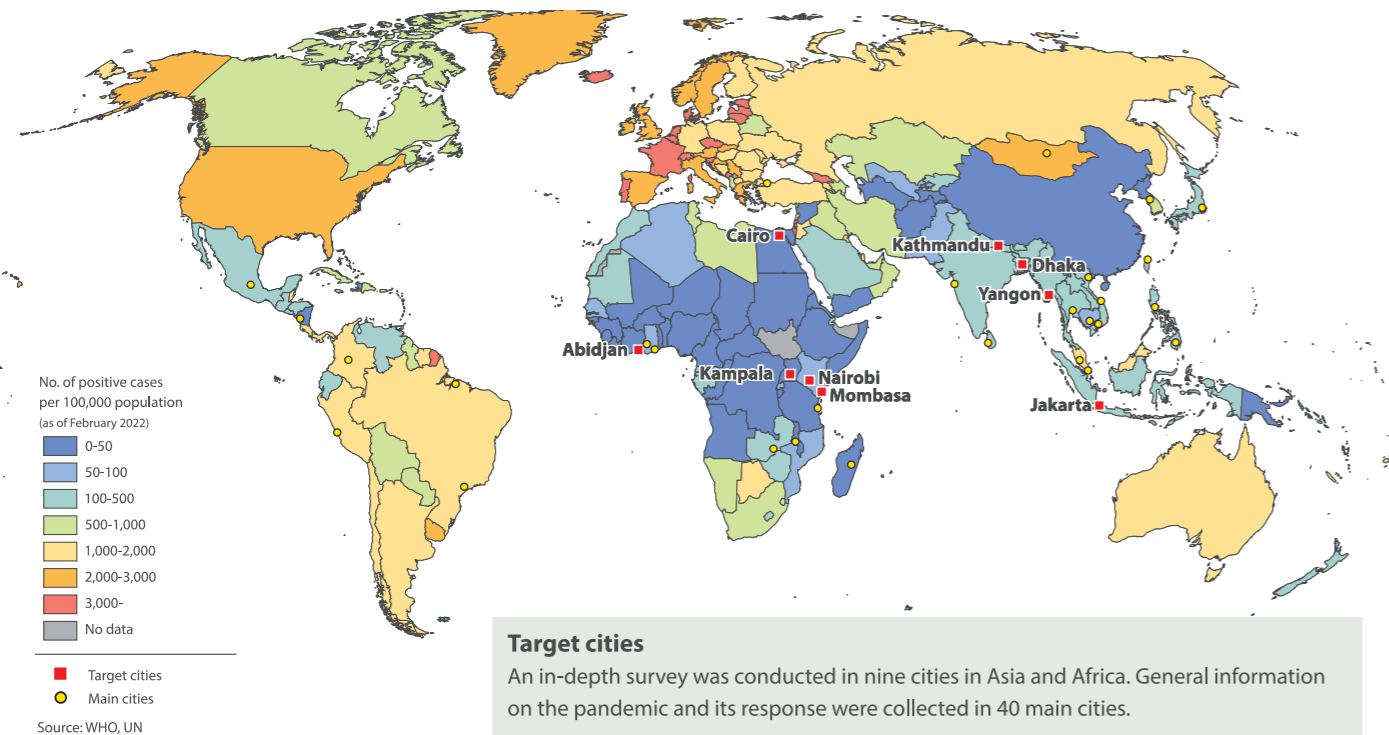# Challenges toward Post-COVID-19 Cities

The COVID-19 pandemic has had an unprecedented impact on socioeconomic activities not only by infection expansion but also through border closure and restrictions on urban activities. In particular, the cities where people and economic activities are concentrated have been hit severely.

The pandemic highlighted the vulnerabilities of cities in developing countries. This includes the high risk of infection in highly dense areas without sufficient infrastructure and the socioeconomic vulnerabilities of informal sectors.

Meanwhile, cities try to resume urban activities with new normal lifestyles and online businesses. How to make cities resilient against infectious diseases has been a big challenge for cities in developing countries.

In this regard, Japan International Cooperation Agency (JICA) conducted the Preparatory Study on Urban Environment Improvement against COVID-19 (CUREIP) from December 2020 to July 2022. CUREIP proposed the image of resilient cities with enriched neighborhoods as an expected status of cities in with- and post-COVID-19 eras and discussed possible cooperation projects of JICA to realize it. This brochure is a summary of CUREIP.

No. of positive cases per 100,000 population (as of February 2022)

- 0-50
- 50-100
- 100-500
- 500-1,000
- 1,000-2,000
- 2,000-3,000
- 3,000-
- No data

■ Target cities
○ Main cities

Source: WHO, UN

Target cities
An in-depth survey was conducted in nine cities in Asia and Africa. General information on the pandemic and its response were collected in 40 main cities.

Supportive Committee members
Dr. Sadatsugu Nishiura, professor, Meisei University
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Secretariat
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Oriental Consultants Global Co., Ltd.
Nippon Koei Co., Ltd.

Cover photo

1	3
2	
4	

1. A crowded train platform like before the pandemic (Jakarta)
2. Children washing hands at school (Kampala)
3. People wearing face masks while waiting for the bus (Nairobi)
4. Children playing in the schoolyard (Kampala)

Japan International Cooperation Agency (JICA)
Urban and Regional Development Group, Infrastructure Management Department
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JICA Japan International Cooperation Agency

Toward the Post-COVID-19 Resilient Cities

~Building well-established neighborhood~

The Preparatory Study on Urban Environment Improvement against COVID-19 (CUREIP)

July 2022

**Japan International Cooperation Agency (JICA)**

Overview

COVID-19 has expanded worldwide but in a different manner from country to country. This section analyzes how COVID-19 expanded in developing countries' cities and how counter-measures and people's movements affected its spread.

To prevent the further spread of COVID-19, governments have introduced a variety of measures, including inter-city travel restrictions, lockdowns, and social distancing measures. Meanwhile, information and communication technology (ICT)-enabled new services have emerged.

How have urban socioeconomic activities changed while COVID-19 has repeatedly expanded and converged, and urban activities have long been restricted? As travel volume and mobility have changed, cities face new challenges.

Based on the changes in urban challenges, this section raises two discussion topics: the short-term urban initiatives with COVID-19, and the expected status of cities in the post-COVID-19 era.

What would a post-COVID-19 resilient city be? Forming socioeconomically self-reliant neighborhoods would be fundamental even in developing countries. Five agenda and urban development programs are presented to realize self-reliant neighborhood.

Egypt

Bangladesh

Cote d'Ivoire

Indonesia

Kenya

Myanmar

Nepal

Uganda

Japan
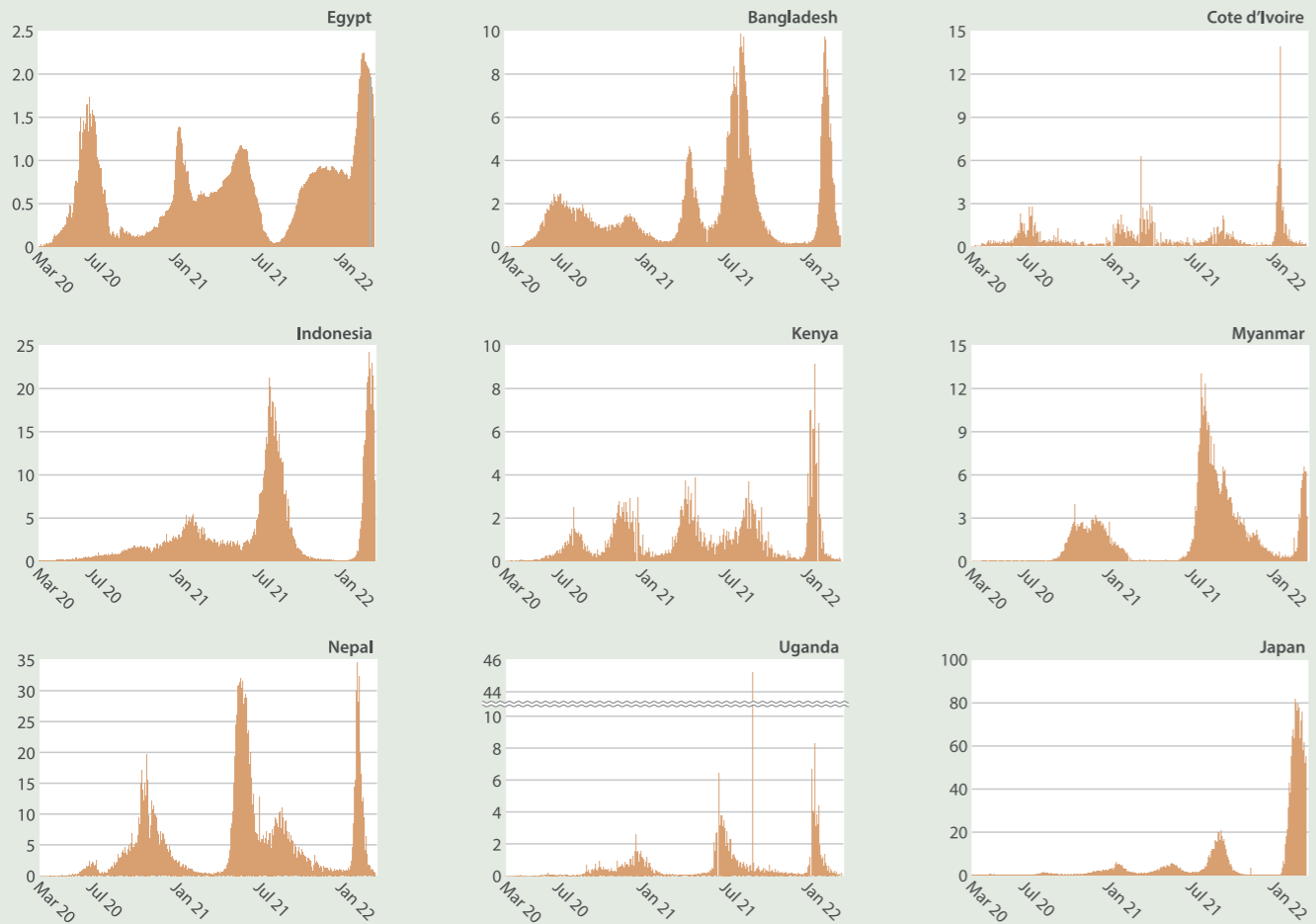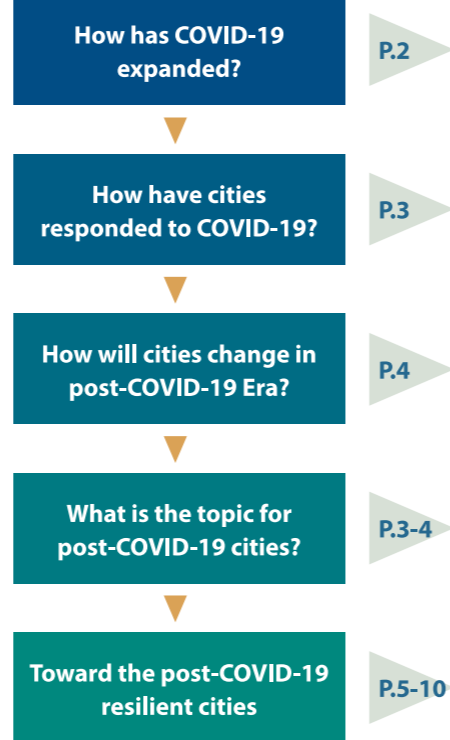
▲ Change in daily positive cases per 100,000 population (Source: WHO)

How Has COVID-19 Expanded?

It was reported that COVID-19 is spread in "3C" situations (closed spaces, crowded places, and close-contact settings), and gargling and handwashing can prevent infection. This section analyzes the actual infection spread in developing countries' cities in relation to crowdedness and movements that cause 3C and the hygiene environment that guarantees gargling and handwashing.

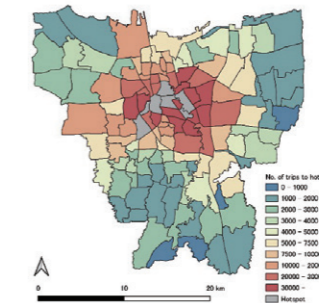## Weak relationship between population density and the infection

Building-scale "dense" situations have led to cluster infection cases in many cities; however, few direct relationships have been observed between city- or district-scale density and positive cases.

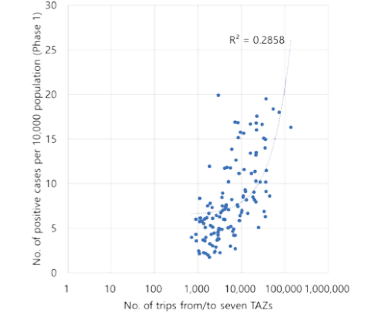## People's movement can cause initial infection expansion

Some relationship was observed between people's travel and COVID-19 infection, especially in the initial stage of the pandemic. Reducing the travel volume might be effective in containing infectious diseases.

▷ **Travel pattern and positive cases/Jakarta**

In Jakarta, COVID-19 has spread from the city center. A correlation was found between the number of positive cases per population and the number of trips to/from the city center, especially in the first stage of the pandemic.

▷ **Migrant workers and infection/Nepal**

The first outbreak in Nepal was found in the southern part, where migrant workers carried the virus from India. It is said that after the lockdown in Kathmandu, people from rural areas carried the virus from their hometowns, which caused a severe outbreak in the city.

▲ Positive cases per 10,000 population in Jakarta (Mar 2020–Jun 2020)

$R^2 = 0.2858$

▲ Relationship with the No. of trips to the central area of Jakarta[1]

Kathmandu

Kathmandu

Positive cases per 10,000 population

Jun 2020–Aug 2020　　Sep 2020–Nov 2020
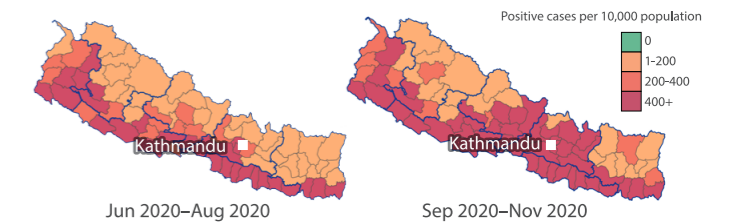
▲ Positive cases per 10,000 population by district in Nepal[2]

Contribution of primary health care system

Lack of availability to hygiene facilities was considered vulnerable to infection. However, no relationship was confirmed between the hygiene environment and infection status, partly because of the lack of data. On the other hand, the primary health care system has contributed to containing the disease in some cities in developing countries.

▷ **Public/Village Health Volunteer/Thailand**

Thailand has had well-developed primary health care system at the community level since before the pandemic. During the pandemic, the public or village health volunteers contributed to containing COVID-19 by raising awareness, following up those under quarantine, and aiding the patients. This effort is highly evaluated by WHO.

▲ Activities by public/village health volunteers in Thailand[3]

1. Based on the positive cases by Kelurahan (source: DKI Jakarta) and the result of the OD survey in JABODETABEK Urban Transportation Policy Integration Project Phase 2 in the Republic of Indonesia (JICA). This study selected seven Kelurahans with high infection cases per population as of June 2020 and analyzed the correlations between the number of trips to/from those Kelurahans and positive cases per 10,000 population.
2. Source: Ministry of Health and Population, Nepal (https://covid19.mohp.gov.np/)
3. Source: WHO

How Have Cities Responded to COVID-19?

Movement restrictions and lockdown

As a countermeasure against COVID-19, many countries imposed inter- and intra-city movement restrictions in a variety of ways, such as lockdown, promotion of work- from-home (WFH), and stay-at-home order by time and area. These measures have been continuously relaxed and strengthened, causing stagnation of urban economic activities.

▷ **Step-by-step movement restrictions/Jakarta**

PSBB large-scale social restrictions	Restrict public and religious activities, Shift to WFH and online classes
PSBB Transisi Transitional period of PSBB	Resume office and public activities with reduced capacity
PPKM Community Activities Restrictions Enforcement	Set restriction measures by area according to the infection status
PPKM Mikro Micro-scale PPKM	Apply restrictions only on areas with many positive cases

4. Source: Kampala International University

Use of ICT and online services

Many countries have developed smartphone apps for information provision and contact tracing. Online services like e-commerce and e-payments have also been put out to avoid movement and physical contact.

▷ **Motorcycle taxi delivery service/Kampala**

Kampala Capital City Authority developed a system for the motorcycle taxi drivers to deliver food and commodities. This mitigated congestion at markets, and secured job opportunities for motorcycle taxi drivers.

▲ A motorcycle taxi driver delivering food[4]

How Will Cities Change in Post-COVID-19 Era?

Change in urban issues

The pandemic highlighted the existing issues in cities in developing countries. This includes adverse effects of the unipolar urban structure and urban vulnerability in the informal settlement. While traffic congestion was mitigated in some cities, public transport services had difficulty continuing operations since people avoided using public transport to reduce the risk of infection.

Change in urban activities

The pandemic has triggered WFH and widespread online services, therefore establishing a new normal lifestyle.

COVID-19 has not converged as of July 2022, and developing countries need to respond to these changes in urban issues and activities.

COVID-19 positive status (left axis)
■ No. of positive cases per 10,000 population (7-day average)

Change in travel volume for facilities by each category (right axis)
— Residential — Grocery and pharmacy — Retail and recreation — Workplaces — Transit stations — Parks

▲ Change in positive cases and travel volume in Jakarta[5]
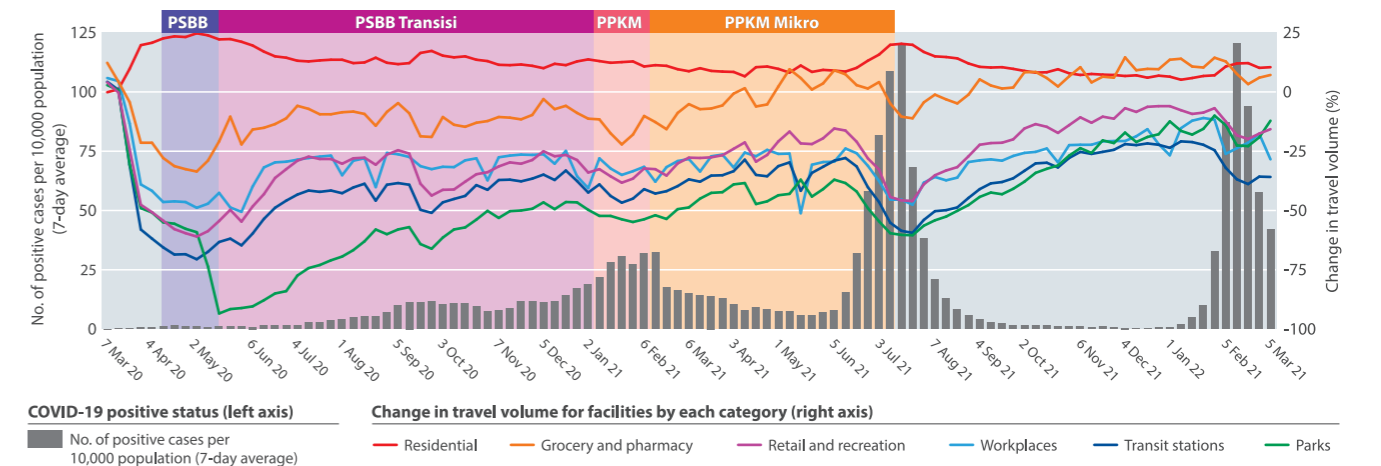
5. DKI Jakarta and Google Community Mobility Report (data showing the change in the number of visitors to each facility category based on the pre-pandemic period)

Key Points for With- and Post-COVID-19 Cities

Prioritize containment of infection
Accept inevitable restrictions on urban activities

Health care   Hygiene

Urban Activity Control / Lockdown

Take measures to resume urban activities while preventing infection
Provide support for the vulnerable groups

Avoid Crowdedness   Improve Hygiene Environment   Ensure Safe Mobility

Support Vulnerable Groups

Share Information

Make resilient cities against infectious diseases
Create cities ready for future pandemics
and able to recover quickly from its impacts

Urban Structure
Mobility
Inclusive Access
New Neighborhood
Urban Administration
Urban Society & Community

Emergency Response ▶ With-COVID-19 (short-term response) ▶ Post-COVID-19 (mid- and long-term response)

Post-COVID-19: Mid- and Long-Term Program to Make Resilient Cities against Infectious Diseases

Attention to neighborhood

Some developed countries have been discussing a new way of urban reorganization focusing on the neighborhoods. For instance, the City of Paris has the concept of a 15-minute city, where all citizens can meet their daily needs and activities, such as living, working (studying), and recreation, within a 15-minute walk or bicycle ride.

As movement within a city was restricted during the pandemic, this concept has attracted interest as the future image of cities. The socioeconomically self-sustaining neighborhood would retain urban activities while minimizing people's movement, thus contributing to making cities resilient against infectious diseases.

New Neighborhood concept in developing countries

CUREIP proposes the New Neighborhood concept, a neighborhood-oriented urban development approach in cities in developing countries.

The cities in developing countries lack sufficient basic infrastructure and will continue to expand, which is quite different from those in developed ones. While various efforts have been made to develop a core infrastructure network and improve basic infrastructure in the living quarter, the New Neighborhood concept aims to secure basic urban activities, such as shopping and working, and provide necessary services within each neighborhood. In self-sustaining neighborhoods, people can easily access those services and facilities by walking, cycling, or using public transport.

Toward deconcentrated and connected city

Many cities in developing countries have made efforts to shift from a unipolar urban structure to a multipolar one. Creating self-sustaining neighborhoods and linking them with infrastructure and ICT networks contribute to the formulation of deconcentrated and connected cities in the medium- to long-term.

LE PARIS DU ¼ HEURE

▲ 15-minute city concept in Paris, France[6]

▲ Open space in a neighborhood (Hanoi, Vietnam)[7]

Neighborhood

- Living Quarter
- Park
- School
- Clinic
- Commercial facility
- Workplace
- Walkability enhancement
- Park
- Living Quarter
- Living Quarter
- Non-motorized transport infrastructure
- Community-based management
- Basic infrastructure
- Park
- Workplace
- Community mobility
- Transportation hub
- Commercial facility

Toward district center

neighborhood

District center

Urban railway

LRT/BRT

Office

Intra-district mobility

District center

Shopping mall

City center

University Research institute

Regional hospital

Multipurpose public space

District center

▲ Shopping street attracting residents (Cairo, Egypt)[8]

District-level planning and implementation

The new neighborhood concept should be incorporated into administrative planning. To fully consider the neighborhood-level living environment, planning and cross-sector coordination on a smaller scale would be required. Furthermore, effective operation and management of urban facilities and services would require the involvement of local communities.

6. Source: Cities Forum
7, 8. Source: Photo by JICA Study Team

5

6

Five Agenda for New Neighborhood

CUREIP established the five agenda as a basis of the New Neighborhood concept. Urban development programs would be formulated considering the agenda in the context of each city.

Mobility
Transport Network with Diversified Mobility Services

- Introduce new technology (MaaS, etc.)
- Trunk transportation network
- Inter-modal connectivity improvement
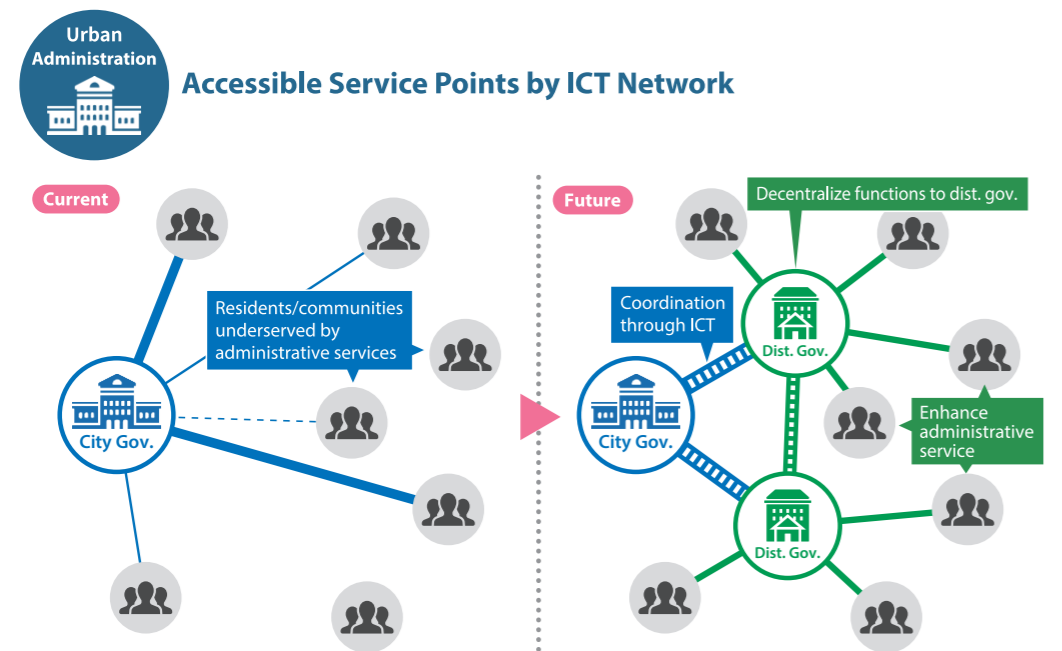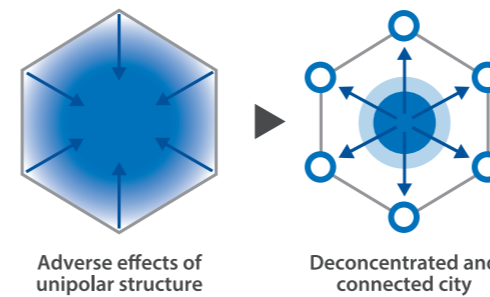- Develop inter-transfer facilities
- Enrich mobility within a neighborhood
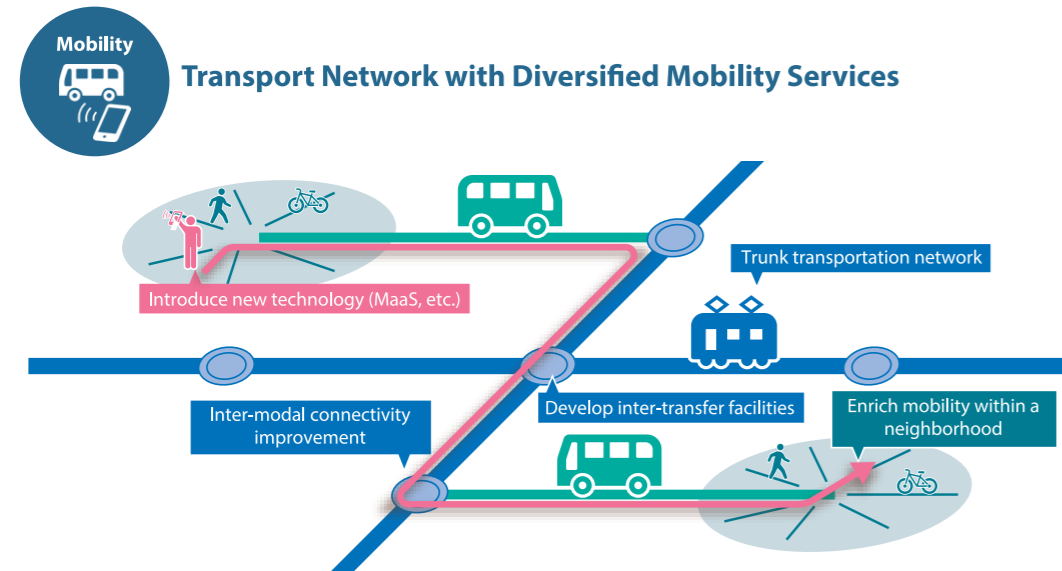
During the pandemic, traffic demand was dispersed, and walking and cycling became more popular. The pedestrian and bicycle network should be enhanced within neighborhoods while developing a trunk transport network. Provision of diversified public transport services and inter-modal connectivity would also be required.

Urban Administration
Accessible Service Points by ICT Network

Current
- City Gov.
- Residents/communities underserved by administrative services

Future
- Decentralize functions to dist. gov.
- Coordination through ICT
- City Gov.
- Dist. Gov.
- Dist. Gov.
- Enhance administrative service

Deconcentrating administrative services with a strengthened network can provide urban services tailored to the local needs and increase responsiveness in case of a pandemic or disaster. This requires the development of an ICT network connecting administrative agencies.

New Neighborhood
- Urban Structure
- Inclusive Access
- Urban Society & Community
- Urban Administration
- Mobility

Adverse effects of unipolar structure ▶ Deconcentrated and connected city

Urban Structure
Deconcentrated and Connected City

Deconcentrated and connected city requires dispersing urban functions, such as administrative, commercial, and business functions, and enriching each neighborhood The hierarchal transport network is inevitable to improve linkage among districts. The ICT network should support information dissemination.

Inclusive Access
Inclusive Cities with Universal Access to Urban Services

Coordination between communities and government
- Support community-based living environment management and improvement activities
- Enhance ICT-based coordination

Urban hygiene environment improvement
- Connect with water supply, develop communal taps
- Improve sanitation facilities (toilets)
- Develop sewage and wastewater facilities
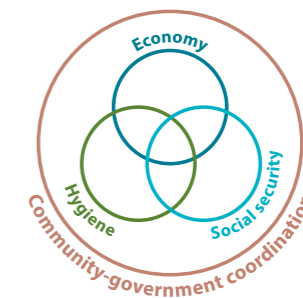
Economic empowerment
- Create jobs, support entrepreneurship and employment
- Ensure financial access
- Promote tourism industry

Strengthening Social Security
- Provide and ensure education opportunities
- Secure the right to housing
- Develop affordable housing

Economy / Hygiene / Social security / Community-government coordination

To deal with the urban vulnerable group, a comprehensive living environment improvement is required, including not only the development of basic infrastructure but also economic empowerment and the enhancement of social security. The coordination system between the government and communities is essential for the effective promotion of these activities.

Urban Society & Community
Self-supportive and Responsive Community

Existing community (local community, social organization, etc.)

Project
- Living environment improvement project
- Solid waste management system

Form and activate community

Normal times
- Urban management (security, communal toilet and tap, cleaning, etc.)
- Place-making
- Primary health care (hygiene awareness)

Enhance response capability

Emergency
- Social and economic support for the vulnerable groups
- Thorough infection prevention measures

Grasp citizens' needs — Support — Citizens — Municipality — International organization, NGO

Grasp citizens' needs — Empowerment Support — Citizens — Community Social Worker — Appointment — Grasp citizens' needs — Municipality

Citizens

Communities that already had a regular responsive system even before the COVID-19 pandemic could handle the situation efficiently. The government should support the daily activities of the communities so they can respond to emergencies voluntarily and flexibly by themselves.

Mid- and Long-Term Program for Resilient Cities against Infectious Diseases

Deconcentrated and Connected Cities Development Program

Deconcentrated and connected urban structures can be resilient against infectious diseases and the socioeconomic impacts of containment measures. It requires comprehensive approaches, including urban structure planning, core infrastructure development, and strengthening urban administration. This section provides necessary actions for each urbanization stage.

(USD)

GDP per capita (current)

- Ulaanbaatar
- Colombo
- **Jakarta**
- **Cairo**
- Manila
- Hanoi
- **Abidjan**
- Accra
- **Mombasa** — Nairobi — **Dhaka**
- Managua
- Mumbai
- Kathmandu
- Phnom Penh
- **Yangon**
- Lusaka — Dar es Salaam
- **Kampala**
- Lilongwe
- Antananarivo

Urban growth

Municipality population / Metropolitan population
Target city
Main city

Population (mil.)

| Initial urbanization stage | Metropolitan expansion stage | Megalopolis stage |

Urban structure Planning

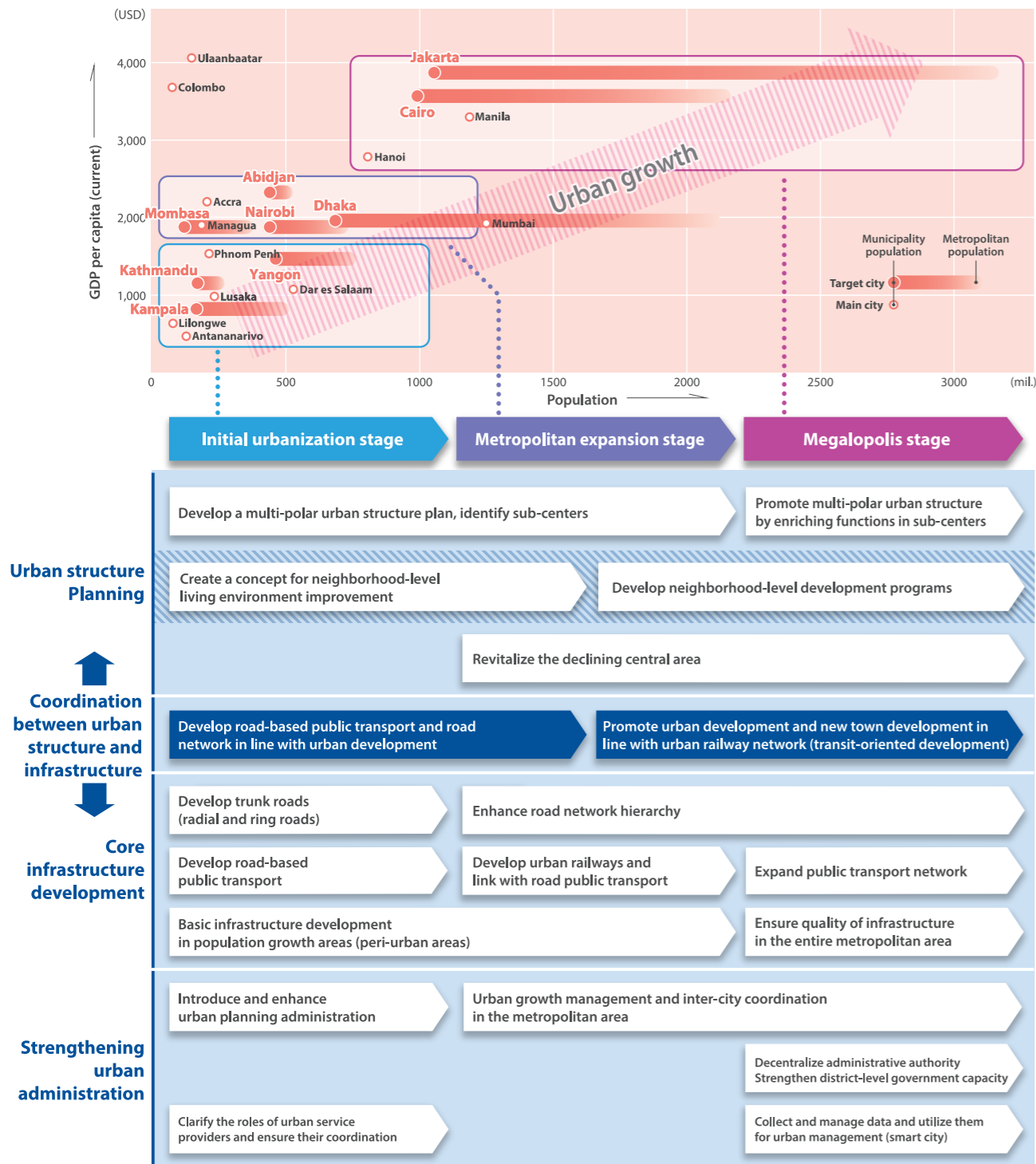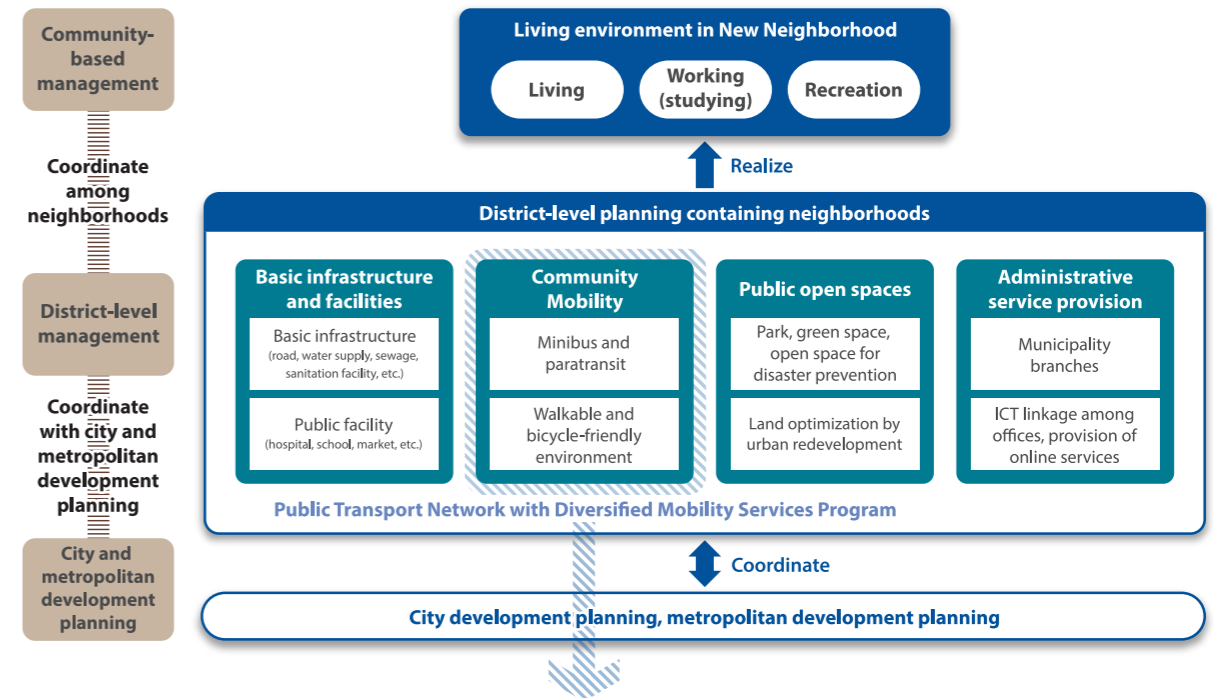| Develop a multi-polar urban structure plan, identify sub-centers | Promote multi-polar urban structure by enriching functions in sub-centers |
| Create a concept for neighborhood-level living environment improvement | Develop neighborhood-level development programs |
| Revitalize the declining central area | |

Coordination between urban structure and infrastructure

| Develop road-based public transport and road network in line with urban development | Promote urban development and new town development in line with urban railway network (transit-oriented development) |

Core infrastructure development

Develop trunk roads (radial and ring roads)	Enhance road network hierarchy
Develop road-based public transport	Develop urban railways and link with road public transport	Expand public transport network
Basic infrastructure development in population growth areas (peri-urban areas)	Ensure quality of infrastructure in the entire metropolitan area

Strengthening urban administration

Introduce and enhance urban planning administration	Urban growth management and inter-city coordination in the metropolitan area
	Decentralize administrative authority Strengthen district-level government capacity
Clarify the roles of urban service providers and ensure their coordination	Collect and manage data and utilize them for urban management (smart city)

▲ Urban growth stage and projects in each stage for deconcentrated and connected cities[9]

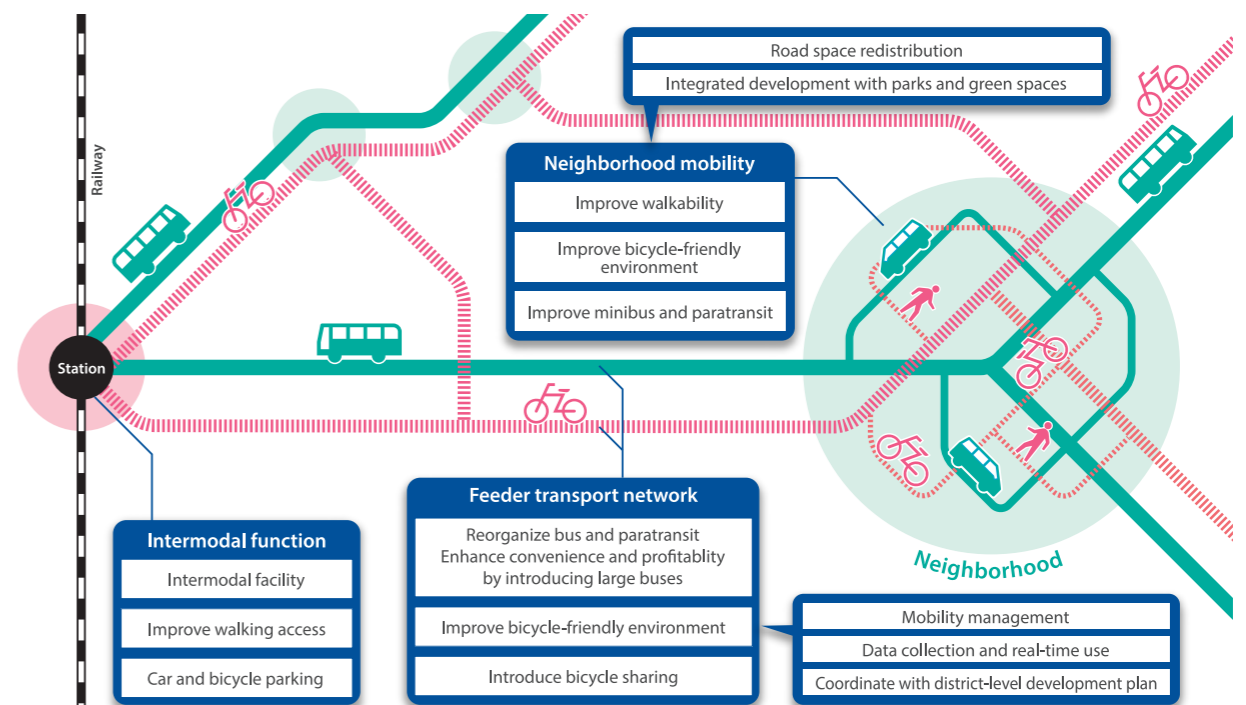9. Source: UN and World Bank

9

New Neighborhood Improvement Program

New Neighborhood requires systematic planning and development for basic infrastructure and facilities, community mobility, public open spaces, and administrative service provision. Community ownership should be promoted for neighborhood management while ensuring relevance with the city/metropolitan development planning.

Community-based management

Coordinate among neighborhoods

District-level management

Coordinate with city and metropolitan development planning

City and metropolitan development planning

Living environment in New Neighborhood
- Living
- Working (studying)
- Recreation

Realize

District-level planning containing neighborhoods

Basic infrastructure and facilities
- Basic infrastructure (road, water supply, sewage, sanitation facility, etc.)
- Public facility (hospital, school, market, etc.)

Community Mobility
- Minibus and paratransit
- Walkable and bicycle-friendly environment

Public open spaces
- Park, green space, open space for disaster prevention
- Land optimization by urban redevelopment

Administrative service provision
- Municipality branches
- ICT linkage among offices, provision of online services

Public Transport Network with Diversified Mobility Services Program

Coordinate

City development planning, metropolitan development planning

Public Transport Network with Diversified Mobility Services Program

The transport services should be developed and improved, focusing on public transport and non-motorized transport (NMT). This includes feeder services and bicycle lanes connecting train stations with neighborhoods and an NMT-friendly environment in each neighborhood. The intermodal function around train stations should also be enhanced.

Railway

Station

Road space redistribution
Integrated development with parks and green spaces

Neighborhood mobility
- Improve walkability
- Improve bicycle-friendly environment
- Improve minibus and paratransit

Feeder transport network
- Reorganize bus and paratransit Enhance convenience and profitablity by introducing large buses
- Improve bicycle-friendly environment
- Introduce bicycle sharing

Intermodal function
- Intermodal facility
- Improve walking access
- Car and bicycle parking

Mobility management
- Data collection and real-time use
- Coordinate with district-level development plan

Neighborhood

10