

# CityVoices

## MEMBERS' STORIES

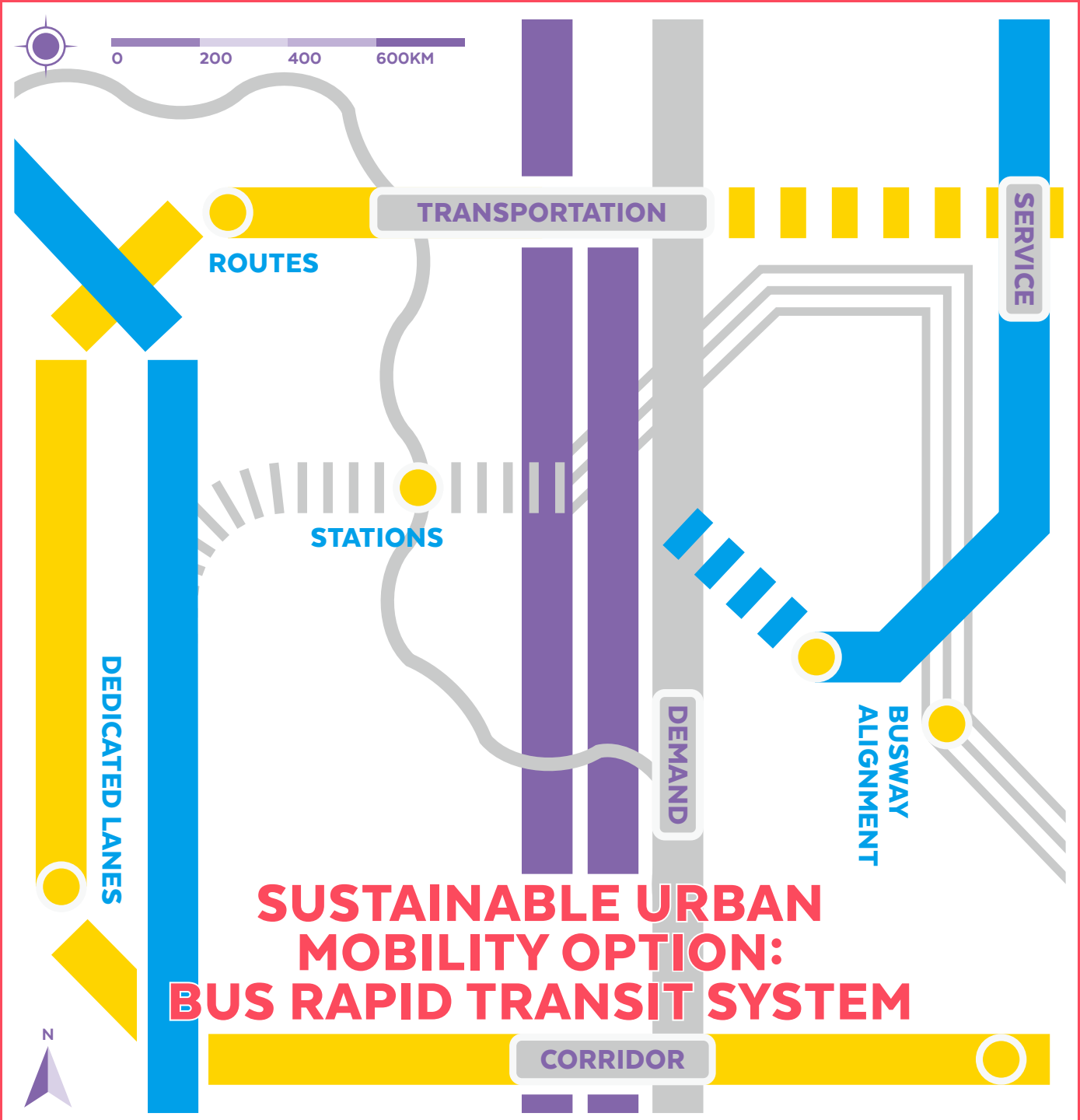
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Editorial  
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EVERYDAY PRACTICE

# CityVoices

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# Editorial from the Deputy Secretary General



Since the beginning of urbanization, mobility has been a key factor that determines prosperity of a city. Urbanization is a driving force of economic progress and social welfare but without an affordable urban mobility, urbanization will drag down the quality of lives and endanger sustainability.

The movement of people to cities has accelerated in the past 40 years and rapid urbanization has become a global trend where more and more people live in urban areas than rural areas. The Asia-Pacific region grows faster than any other regions. This trend is expected to continue in the coming years and, as a result, urban development will continue to face pressing challenges from this rapid urbanization that include serious traffic problems and congestion. Traffic congestion is not just a matter of inconvenience in city life, it weakens city competitiveness by imposing additional cost on the movement of people and freight. Heavy traffic has cost cities in Asia up to 6% of their GDP. Rising commuting cost becomes the most harmful to the poor and exacerbates socio-economic disparity among the communities. In addition to the economic consequences of traffic congestion, it has already been a major cause of climate change and public health concern through negative externalities such as air and noise pollution, and traffic fatalities.

Solution to this challenge is clear - to have a well-organized mass transit system and actions is urgently needed in many Asian cities. But a system of massive scale such as subways is not easy to introduce due to a lack of financial and technical capabilities. That explains the situation in many Asian cities; despite common challenges, there are different levels of responses among these cities that show a gap in sustainable urban transport development, from cities with world-class public transport system to those with minimal or non-existent system. This is the reason why we pay attention to the Bus Rapid Transit system as it could be quickly established in a relatively short period, flexibly operated with other existing traffics and also cost-effective in transporting people.

With this sense of urgency, I think it is very timely that CityNet highlights the BRT issue on this edition of CityVoices. Compiling a set of good practices and success stories of member cities in their efforts of introducing BRT, CityNet initiates another leading role of achieving the SDGs particularly to address traffic congestion challenges by bridging city's vision and capability gap. The World Bank is also keen to collaborate on this effort by establishing a thematic sub-network on BRT services. We extend cordial appreciation to the World Bank for establishing this sub-network on BRT with CityNet. Through this network, CityNet and the World Bank will endeavour to provide substantial opportunities for exchanging best practices, technical expert consultations with CityNet members.

We have high expectation that voices on BRT ripple over all member cities and serve as a momentum of enhancing mobility for their prosperity by advancing the schedule of BRT plan.

Sangbum Kim  
CityNet Deputy Secretary General



# Islamabad Bus Rapid Transit

■ The Islamabad Bus Rapid Transit Project provides to its citizens an innovative yet affordable urban transport system and builds sustainable communities by connecting more people and increasing their mobility in Islamabad with a rapidly growing population.



Elevated BRT station

Islamabad, the capital city of Pakistan, is considered to be one of the country’s most liveable cities with a population of approximately 1.3 million with a growth rate of 4% per annum. Islamabad is closely integrated with the adjoining city of Rawalpindi whose population is approximately 3.3 million. Together, these two cities form the nation’s third largest urban conurbation.

There are about 700,000 daily trips originating from and terminating within Islamabad, and up to 500,000 daily trips within the nearby urban areas, primarily commuting from Rawalpindi to Islamabad. This growing demand for a better transportation system, coupled with the city’s unusually wide road alignment and medians, provides an excellent opportunity for developing a BRT system within the city.

While it is estimated that over one million trips are taken within Islamabad daily, including up to half a million trips to and from Rawalpindi alone, the city does not have an urban transport master plan. Furthermore, the level of traffic congestion, while not as chaotic as many other Asian cities, is beginning to have an impact on Islamabad’s clean environment and overall liveability. Despite being the nation’s capital, Islamabad lacks a formal public transport system that adheres to industry service standards. Dissatisfaction with the existing public transport services has been widespread, and more support for services for the vulnerable, including women, the elderly and the disadvantaged, is significantly required. Given this situation, the BRT system will offer the city an inclusive, efficient, and safer transport system for the overall population.

### BRT System Development

In order to address the above challenges, the Cities Development Initiative for Asia (CDIA) supported the Capital Development Authority (CDA) of Islamabad in the following activities:

1. Comprehensive review of the Master Plan for Islamabad
2. Preparation of the pre-feasibility study (PFS) for a BRT system for the city
3. Lobbying potential financiers
4. Assistance to the city in strengthening its own capacity for improved infrastructure provision

Development of the BRT system began in 2012 with the support of CDIA in cooperation with the Capital Development Authority (CDA) and the



Infrastructure Project Development Facility (IPDF) of the Ministry of Finance of Pakistan. Apart from determining the technical and financial soundness of the BRT project, the PFS work entailed the conduct of surveys of public transport passengers, conduct of participatory workshops and meetings with stakeholder groups, including the existing transport operators.

Following the completion of the PFS in 2012, the CDA of Islamabad explored various options for financing the project with international financing institutions. In January 2014, it was decided in a meeting co-chaired by the Prime Minister of Pakistan and the Chief Minister of Punjab that the project should be funded on a 50-50 cost sharing basis by the Federal Government and the Government of Punjab.

The PFS was initially completed in 2012 with the estimated indicative cost (including the bus fleet) of USD 79 million for the BRT project. The annual operating cost (including a provision for infrastructure maintenance) was estimated to be USD 3.78 million.

Construction of the Rawalpindi-Islamabad Metrobus began in February 2014 and was completed in June 2015 with 60 buses. The route consists of a 22.5 km corridor, 24 bus stations, and a bus depot. The total project cost at completion amounted to RS. 44.2 billion (USD 444 million).

## Outcomes and Impacts

In the name of the Rawalpindi-Islamabad Metrobus Project, construction of the BRT system was commenced in February 2014 and was completed in June 2015. The BRT system of Islamabad now serves about 135,000 passengers per day. Passengers pay only Rs 20 (USD 0.20) for a one-way trip with ease and comfort while saving travel time.

Through the BRT system the citizens enjoy increased connectivity and travel efficiency, which also resulted in positive impacts on local businesses and increased value of land properties. Mobility of private vehicles will remain the same. From the climate change perspective, the BRT system will also have a positive impact on the environment as it will reduce greenhouse gas emissions within the urban area. By replacing over 15 million km of car, wagon and motorcycle travel distance annually, the BRT project has the potential of reducing CO<sub>2</sub> emissions by over 4,000 tons per year. It is expected to have significant impact on women, the elderly and disadvantaged groups who rely heavily on the existing public transportation that is inefficient and largely unregulated.

## Replicability

The replication of the BRT project has been developed with the question of “what is logical and practical,” given the economic and operational opportunities and constraints in Islamabad. The successful project development process was guided by a valuable stakeholder assessment and feedback including:

1. Surveys of existing public transport passengers to ascertain their level of satisfaction, suggestions for improvement and willingness to pay more for improved services;
2. Engagement with existing transporters through formal meetings, informed field discussions and workshops to understand and incorporate their concerns;
3. Close liaison with the CDA and other agencies to ensure that the project is well within the capacity of the government to implement and manage sustainability.

A cooperative public-private relationship is a crucial pre-requisite for the successful BRT project development. Likewise, the BRT system design and route selection was developed in response to the growing dissatisfaction of the existing public transport services, prioritising the needs of lower income communities in Islamabad, particularly women, the elderly and the disadvantaged.

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Urban SDG Knowledge Platform <http://www.urbansdgplatform.org>

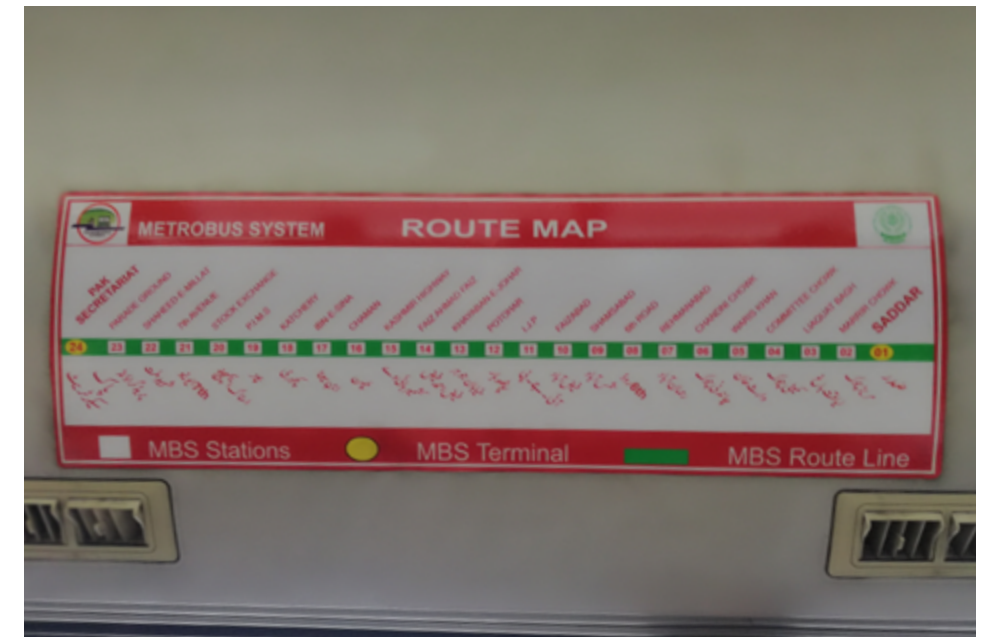
**Qazi Omar, BRT Project Director**

**Capital Development Authority**



Through the BRT system the citizens enjoy increased connectivity and travel efficiency.

The route selection is developed in response to the growing dissatisfaction of the existing public transport services.



### Access to the metro station from the bus stop



# Innovative Developments of the Jakarta BRT System

Launched in February 2004, Jakarta BRT system intends to reduce the city's traffic congestion and solve mobility issues. The success of the Jakarta BRT system owes to its constant innovations and development.



Congested traffic on Sudirman Road  
Source: GeorginaCaptures / Shutterstock

Jakarta BRT system was officially launched on 1<sup>st</sup> February 2004, as the first BRT system in the Southeast Asia and South Asia, aiming to reduce the heavy traffic congestion of the Indonesia's capital city. Under the PT. Transportasi Jakarta (Transjakarta) – a city-owned enterprise - the city currently serves the world's longest BRT route of 208 km with the initiative coming from the TransMilenio of Bogota, Colombia. Constant development and innovation are being launched gradually under PT. Transportasi Jakarta.

One of the recent efforts Transjakarta launched is a dedicated bus lane for the Rawabuaya-Harmoni following the success of opening the Rawamangun-Sudirman route to significantly reduce passengers' travel time to only 35 minutes hence better service. This dedicated bus lane separates the buses from mixed traffic that include private vehicles allowing shorter commuting time. Transjakarta is committed to comply with this regulation to optimize its service. This specific policy means it would only need 35 minutes to commute from the East Jakarta to the West through the city's busiest main road during the rush hour.

Before officially launching this important route to the public, Transjakarta ran a trial run to optimize the result. In addition, as securing a dedicated bus lane and avoiding other vehicles to take up this lane is quite a challenge, Transjakarta works in partnership with the Jakarta Transportation Agency and the police agency. So far Transjakarta have allocated 42 units of bus to serve this route which is part of extended route.

One of the success indicators of implementing

BRT system is the ridership. The excessive private vehicle ownership that causes heavy traffic congestion has been the source of headache in the city as well an unsatisfying ridership. A number of initiatives were rolled out by the city government to encourage residents to leave their private vehicles and opt for the public transport instead, which include odd-even rationing coupled with a premium bus line “Royaltrans” through the gate of the Jakarta's satellite city of Bekasi.

Transjakarta operates up to 20 premium buses to cater commuters from this satellite city to Jakarta. Set with a higher fare than the normal Transjakarta route, Royaltrans bus is designed to carry 30 seated and 13 standing passengers with a “premium” feel of its facilities, namely a shared TV screen, USB port and cup holder for each seat, and wider forward-facing cushion-foam seats. To maintain safety and security, it's equipped with 12 CCTV cameras to monitor inside and outside of the bus including the baggage area. Transjakarta doesn't only operate Royaltrans for commuters from and to Bekasi, but also the regular fleets.

On 28 February 2018 Transjakarta hit a record high with 502,389 passengers served in one day thanks to expanded routes established in the bus network, increased bus fleets, and the newly launched programme by the Capital City Government - “OK-Otrip”.<sup>1</sup>

1. OK-Otrip or One Card One Trip is Jakarta's integrated transportation programme that implements a single payment system for three modes of public transportation, namely Transjakarta, Metro Mini buses, and angkot (minivan).



As of today, Transjakarta serves 13 corridors, 113 routes, and 5 OK-Otrip routes with 1300 units of bus operate daily.

For a period of January-February 2018 alone, 26 million passengers benefited from using Transjakarta bus network and this number is projected to increase over the years. Throughout 2017, Transjakarta carried a total of 144.86 million commuters, increased by 17.09% from the previous year with 123.71 million people.

All the above achievements further motivate Transjakarta to improve its service to its passengers through route expansion, integrated transportation modes, and better connectivity.

AN ARTICLE BY  
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Entrance gate of TransJakarta bus shelter in Ragunan  
Source: GeorginaCaptures / Shutterstock



People enter a TransJakarta bus shelter, where buses travel on a separate traffic lane and avoid Jakarta heavy traffic jams.  
Source: AsiaTravel / Shutterstock

# REVIVAL OF BUS: SEOUL BUS REFORM IN 2004

“The Semi-Public Bus System, introduced in 2004, was the first system initiated in the city of Seoul to improve public transport services. It is a system that combines public routes, enhancing management and private efficiency.”

The development of the transportation system of Seoul can be analysed in terms of changes in major means of transport. Until the mid-1990s before subway connection was sufficient, a bus was the most popular mode of transportation in the city. Such popularity was unprecedented, given that the city’s bus system was run by private bus companies. As the city expanded and new satellite cities were developed, new bus routes were added, connecting city centres and the outskirts. In the 1960s and 70s, the modal share of buses was as high as 90%. Essentially, the public transportation system in Seoul was solely dependent on bus.

In the 1980s, it was obvious that the ever-increasing numbers of buses, bus routes, taxis, and private cars overwhelmed the road capacity of the city. Traffic congestion became one of the worst transportation problems even though construction and expansion of elevated highways, underpasses and roadways were built across the city. This led to plans for a new transit system that can carry a number of passengers more safely and swiftly: a subway system, which started its operation in 1974.

Nowadays, more than 30 million trips occur in a day in Seoul. Since the 1990s the Seoul Metropolitan Government (SMG) has been firmly pushing through a mass transit oriented policy. As a result, the modal share of subways steadily increased from 29.4% in 1996 to 35.6% in 2003. More than 60% of trips use public transportation. The modal share of public transit was as high as 65.8% in 2015 (subway 39.3% and bus 26.5%) and was one of the highest in the world.

Now Seoul has 9 subway lines (302 stations, 327.1km in total), carrying more than 5,000,000

passengers per day. Seoul also has a high bus usage with 394 bus lines and more than 7,000 bus operated. This, however, was not always the case. Bus share in the past had declined, as the efficiency of subway system was highly recognized by citizens. Throughout the latter half of the 1990s, the bus industry was beset with numerous problems such as frequent strikes, increased fares, and deteriorating services. All these problems originated from the fact that it was losing its competitive edge to the subway.

The whole bus system of Seoul was left to the private market. More than 60 private bus companies were operating the system. These companies competed with each other to attract passengers. Over a profitable bus route, more than one bus company operated their buses, creating a cutthroat competition. Citizens complained about poor bus services. Among those, irregular intervals, aggressive driving, passing stations without stopping were common complaints from citizens. Furthermore, buses were suffering from heavy traffic congestion.

Rapid urbanisation and strong economic growth throughout the 1980s led to an increase in the number of vehicles to 1.19 million in 1990 (currently there are about 3 million cars in Seoul). In addition, the rise of traffic influx into Seoul from the surrounding metropolitan areas made the traffic situation even worse. The city had to do something for bus transport improvement.

In 2002, the SMG formed the “Task Force for the Activation of Mass Transportation” to search for effective solutions to improve the bus system. The “Citizens’ Committee for Bus Reform” was formed to garner the opinions of various interest groups. It arrived at a consensus for the reform of Seoul’s bus system. The



fundamental philosophy of the reform was to find a way in which the entire bus service network served the public good in an efficient and fair manner while still maintaining the bus companies as private entities. The goal was not only to reduce congestion but also to find a fair system for citizens who had varying degrees of access to public transportation.

**The Quasi-Public Bus Operation System**

To solve the bus problem, the SMG proposed the idea of “quasi-public” bus operation system. The SMG officials entertained the possibility of “joint management of fare revenue”. In 2004, a revenue sharing system was devised. The joint transportation revenue system collects all bus transport revenues and redistributes the profits according to the performance of each bus company. The performance is measured by the SMG.

Korea Smart Card Company (KSCC) was set up to manage and redistribute fare revenues in a transparent manner. Then the SMG compensates for any deficits incurred by bus companies that have abided by the guidelines of the system. Moreover, bus companies

are guaranteed with a certain rate of profit. With this sort of system, bus companies did not have to worry about competing for passengers revenues. Through the quasi-public operation system, financial assistance was provided to struggling bus companies. Without financial difficulties, bus companies could focus on providing more efficient and safer mass transit service. Because the SMG covered all the operating cost, new bus routes were introduced in areas of poor access as well.

**Integrated Fare System**

Before 2004, the bus and subway operated separate fare systems. An additional fare had to be paid for every transfer. The SMG introduced an integrated public transportation fare system that waives off the fare on transfer from bus to bus, bus to subway. This system minimizes the burden of fare on the citizens by applying a “distance scale system” that combines a single continuous trip into a single fare. The distance scale system applies a uniform rate to each bus/subway trip of 10km or less. There is an additional charge of 100KRW (less than 10 US cents) for every additional 5km in case



The green bus serves the transfer between the blue bus and subway and it covers transportation needs within the region and secures accessibility.  
Source: [www.alphawiki.org/w/%EC%84%9C%EC%9A%B8%20%EB%B2%84%EC%8A%A4%207720](http://www.alphawiki.org/w/%EC%84%9C%EC%9A%B8%20%EB%B2%84%EC%8A%A4%207720)



Exclusive Median Bus Only Lane



Bus service in the past  
Source: Seoul Institute

Year	05	06	07	08	09	10	11	12	13
Financial Support	2,221	1,950	1,636	1,894	2,900	1,900	2,224	2,654	2,343

SMG provides steady financial support due to the expansion of new transportation system segments that is not accompanied by transportation revenue. (Unit: USD 100,000)  
Source: Urban SDG Knowledge Platform - Semi Public Bus System

the trip is over 10km.

In 2004, taking advantage of the consolidated bus network, a new smart card system was introduced. Payment is made when a smart “T-money” card is read at a bus, taxi, or subway entrances. Credit cards are also accepted with a mode of payment. T-money terminals then share all travel information with the SMG. If a bus reaches a given distance from the garage, transaction information is sent to the collection system by wireless access points. The revenue information transmitted to the traffic card management system would process all calculation from 2:00am to around 7:00am the next day. This system, the first of its kind, has made taking transit easier. Citizens did not have to carry cash to take transit and no one needed to take the exact change when boarding.

**Bus Speed Guaranteed by the Median Bus Only Lanes**

To address the problem of fierce competition between companies over the same routes and unexpected detours, a new bus routing system was implemented. The system has four types of buses: red, blue, green and yellow. The main line buses consist of a regional bus (red) and a city bus (blue). The red bus runs between the outskirts of the city and the downtown areas. The blue bus runs between downtown and sub-centres or between sub-centres. The green bus connects blue bus stops with the subway stations. Finally, the yellow bus takes charge of a short-distance travel within the downtown and sub-centres. The different bus colours allow users to identify what buses to take with much more ease.

Exclusive median bus only lanes were newly installed to improve bus speed and let buses escape from traffic congestion. By 2002 64 lines with a combined length of 219.1km were operating as exclusive bus lanes. However, most of them were shoulder lanes on the street side. To improve bus speed and to increase punctuality, 115.3km of exclusive median bus only lanes were installed by 2012. This has enhanced bus speed from 17.2km/h in 2003 to 19.5km/h in 2011. Furthermore, the SMG has created smart transfer centres at key points in the downtown area.

This article is sourced from  
Developing Transport Infrastructure in Seoul: Planning Implications on Jakarta, Manila, and Ho Chi Minh City  
By Chang Yi, Chaewon Lee, Yoon-Joo Jung  
The Seoul Institute



# BRT: an Affordable Urban Mobility Solution

How can fast growing cities plan and implement an ideal BRT system? One of CityNet members, the Institute for Transportation and Development Policy (ITDP), offered the BRT Standard and BRT Planning Guide to help urban practitioners plan a BRT system. Each city's unique condition and characteristics, however, determine innovations or criteria needed to implement one of the sustainable mobility options.

A bus zooms down a city street in its own lane, oblivious to traffic, stopping briefly to pick up and discharge passengers who enter and exit from every door with just a step forward. Those are the telltale signs of a well-run bus rapid transit (BRT) system that meets ITDP's best practice standards.

These standards, and the technical components that create an international BRT best practice, can be found in ITDP's BRT Standard and the online BRT Planning Guide. The BRT Standard is a highly technical resource that scores BRT corridors in more than 30 categories, from basics, such as off-board fare collection and a dedicated right-of-way, to infrastructure quality, service planning, and communications. The BRT Standard Technical Committee, convened by ITDP, awards the highest quality systems with a gold, silver, and bronze rankings.

The BRT Planning Guide is the most comprehensive resource for planning a BRT system, beginning with project preparation all the way through to implementation, which is not an easy process. This Guide, which originally started off in printed form, aims to make the process a little easier. It is intended as a guidance document mainly for planning and engineering professionals. However, others, such as non-governmental organizations, national and regional policymakers, and business groups, will find it a valuable resource as well, when advocating for their issues and finding solutions to the problems that they are addressing. The new, online edition is the culmination of years of efforts to document and improve the state of the art in cost-effective public transport solutions for cities. It includes contributions

from a wide range of professionals and practitioners with direct experience in designing and implementing BRT systems that are becoming an increasingly common sight in cities around the world.

Currently, the lowest numbers for BRT ridership are in Africa, at around half a million per day. However, this is a rapidly growing region, and over the past 10 years, BRT has started making an appearance in cities like Johannesburg, Lagos, and Dar es Salaam, which is home to DART, the first BRT system in East Africa. The most prolific region for these systems is Latin America, with BRTs and priority systems serving more than 19 million people per day, but Asian cities are seeing the most rapid development of BRT. Inspired by the success of BRT in Bogota, Colombia, Transjakarta and Seoul BRT systems started operating in 2000. Now BRT is currently serving around 10 million per day in Asian cities, half of which are in China.

Even though BRT systems seem to be the popular choice for public transport, carving out an entire lane exclusively for buses can still be a political challenge. As a result, some cities are adding a new twist, with mixed results: elevated BRT.

Xiamen, a southeastern Chinese city, opened an elevated busway in 2008. It consists of three main corridors serving 42 stations along 53 kilometers, including a 5.5-kilometer bridge and tunnel section with dedicated BRT lanes. With such elaborate infrastructure, Xiamen is home to the first genuine "trunk and feeder" BRT system in Asia. The city opted for elevated BRT largely because its light-rail plans didn't get central government approval. Instead, it built elevated BRT



The DART BRT in Dar es Salaam, Tanzania

corridors with the intention of later upgrading to light rail; once the BRT proved successful, however, the upgrade plan was shelved.

As with most Chinese BRT systems, Xiamen provides user-friendly passenger information, smart-card fare collection, and shiny new vehicles that are a radical improvement on earlier bus systems. So far, the elevated busway is delivering strong results. With 9,850 passengers an hour per direction, it has the second-highest passenger flow of any BRT system in Asia behind Guangzhou. What's more, peak period operational speeds are very high—around 27 KPH.

However, Xiamen is still plagued with problems that have nothing to do with the elevated nature of the system. The transfer mechanism between trunk and feeder is still rudimentary. Information on feeder routes is provided in system maps, but there is no physical integration other than the close proximity of the feeder bus stops, and passengers transferring from trunk to feeder routes have to pay twice, with no transfer discount. Also, the BRT stations have relatively small platforms, which severely limits both carrying capacity and the number of buses that can serve passengers simultaneously at the same station. The small number of access ramps to the elevated busway constrains the

operational options, too. Elevated or on the street, any transit system without proper integration is not going to provide the best service.

Elsewhere in Asia, the massive metropolis of Jakarta started riding BRT in 2004. Since then, the Indonesian capital has developed a citywide mass transport system with 12 BRT corridors, more than 1,500 buses, and over 400,000 passenger daily. But dedicated lanes are not always respected, and the police have been known to direct private car drivers into bus lanes during peak hours. That makes an elevated system an enticing prospect.

Transjakarta, the city-owned BRT system, opened its first elevated lane this year, called Corridor 13. The project began in late 2014 and was due to be finished in 2016, but land disputes pushed completion to mid-2017. Corridor 13 connects the transit hubs of Ciledug in Tangerang and Tendea in South Jakarta, and it is built almost entirely as an elevated corridor. Transjakarta buses travel on an elevated road an average of 12 meters above street level and in some places up to 25 meters.

However, the first elevated BRT lane in Indonesia is not without issues. The elevation means slower bus speeds—negating one of the key advantages of BRT. Three different contractors worked on the project,





BRT Planning Guide

which created some design and color differences that might confuse passengers, though the entire system is structurally fine. While Corridor 13 overlaps with the four other Transjakarta corridors, there is no actual integration or connecting link to the other corridors. As this corridor is built without an exit and entry ramp in the middle, buses will only be able to enter the corridor from the very beginning or the end. Without physical integration, passengers cannot easily change their route in the middle of their trip, which discourages them from using this corridor. The corridor also has accessibility issues, especially for disabled and elderly passengers. There is no elevator, and a picture of a steep access staircase went viral on social media.

These drawbacks appear to be hurting ridership. Projections of 40,000 daily passengers have fallen way short—the number of passengers in September 2017 was just 9,500 per day. These poor numbers are evidence that BRT should not be elevated if it all possible. On the other hand, some transit is better than no transit, so as an absolute last resort, Xiamen and Jakarta show that elevated BRT is at least possible. However, BRT works well because it's a swift mode of surface transportation that's easily accessible for people at street level and when BRT is done right, it can compete with the capacity, speed, and comfort of metro systems.

Not only can BRT compete with metro on these aspects, BRT systems have proven to be catalysts in transforming cities into more livable and human-friendly environments. The appeal of BRT is the ability to deliver a high-quality mass transit system within the budgets of most municipalities, even in low-income cities. This makes BRT an even more attractive public transit choice

for cities. To increase accessibility to BRT, late last year, ITDP announced a collaboration between two of the world's best resources on bus rapid transit and bus priority systems: the aforementioned BRT Standard and Global BRT Data.

Global BRT Data, an online database created and maintained by the World Resources Institute and the BRT Center of Excellence, is an interactive platform that tracks the growth and evolution of high performance bus systems worldwide. The goal of the database, available at [BRTData.org](http://BRTData.org), is to improve the sustainable transport community's access to reliable and current data about bus priority systems. Global BRT Data provides easily-accessible data from a variety of sources including research institutions, transit agencies, municipalities, and NGOs.

While the BRT Standard began as a global effort to very clearly define what makes a world-class BRT corridor from a technical perspective, with Global BRT Data, it's easier to relate that to what's happening on the ground. Global BRT data is a great resource that can expand the benefits of BRT to even more cities around the world so that elevated or not, BRT becomes a top choice for fast, efficient, and enjoyable transportation.

#### AN ARTICLE BY

The Institute for Transportation and Development Policy (ITDP)

The Institute for Transportation and Development Policy (ITDP) works around the world to design and implement high quality transport systems and policy solutions that make cities more livable, equitable, and sustainable. Learn more at [itdp.org](http://itdp.org).

The BRT Standard is available for free download at [itdp.org](http://itdp.org), and for online reading at [brtstandard.org](http://brtstandard.org). The BRT Planning Guide is available in full at [brtguide.org](http://brtguide.org).

## Hanoi at a Crossroads to a Sustainable Future

- Hanoi, like many Asian cities, has been experiencing rapid population growth that brought economic development and the rise of the middle class aspiring for better quality of life. This has created higher demand in mobility needs that are primarily served through more private vehicle ownerships causing various urban challenges from traffic congestion to pollution. The government is investing in developing sustainable urban transport infrastructure including the BRT system amidst its struggles.



Source: Transport Management and Operations Center (TRAMOC), Hanoi City



## A BUDDING METROPOLIS

The view of Hanoi from its highest skyscraper is truly remarkable. Added to its centuries-old charm are numerous high-rise buildings that are springing up like mushrooms after the rain, a construction site spotted in just about every few blocks. Hanoi has seen construction boom in the recent years and now has a large stock of high-end office spaces, at 1.2 million m<sup>2</sup>, and middle-class-targeting residential units. The city is experiencing rapid population increase from just over five million people in 2005 to about 7.5 million in 2016. Incomes have even more dramatically increased, more than doubling just in 6 years from 2010 to 2016.

The mobility needs of the growing and richer-than-ever population are served primarily by private motor vehicles, especially by the city's more than 5 million motorbikes (increased from 2 million in 2005), which make up 65 percent of all trips in the city. Also notable is the upsurge in car ownership, which has grown almost six-fold from 56,000 in 2005 to 328,000 in 2016. Such rapid motorization is a marked contrast to the stagnating or even decreasing bus ridership which carries about 7 percent of all trips. As a result, traffic congestion in the city has been exacerbated, costing the city about \$600 million per year in time and productivity losses<sup>1</sup>. Air quality deteriorated significantly, with recent readings of fine particle PM2.5 in Hanoi averaged 6 times greater than the WHO standard. Traffic management, despite much improvement, is still unordered in general, posing safety concerns.

Faced with these challenges, the city authority has long recognized the need for an attractive, convenient, safe, and sustainable alternative to motorbikes. This vision is articulated in the city's "master plan for 2030 with a vision to 2050", which envisaged 8 urban rail corridors, totalling 318 km in length, as well as 8 Bus Rapid Transit (BRT) and several monorail corridors. The master plan targets steady increases in the modal share of public transport to reach 35-45 percent and reduction in private transport mode by 30 percent, by 2030. This goal to expand the extent and capacity of the public transport network is coupled with various complementary agendas of the city, including its effort to improve traffic management, traffic safety, and institutional capacity to develop and manage public transport systems.

1. [https://saigoneer.com/vietnam-news/10570-traffic-jams-are-costing-hanoi-\\$600m-annually-studies](https://saigoneer.com/vietnam-news/10570-traffic-jams-are-costing-hanoi-$600m-annually-studies)

## FROM VISION TO REALITY - SUCCESS AND STRUGGLE TO DATE

Turning this ambitious vision into reality, however, is a challenging journey that requires a serious amount of financial and organizational resources as well as alignment of interests from various players, including everyday commuters, transport operators, land owners and developers, and many more. The city has invested a large sum to improve its connective infrastructure, to expand and upgrade its road network, to develop its first urban rail lines and BRT system, and to improve its traffic management system. The length of its road network has increased by about 4 percent every year since 2011, and about 700 signalized intersections have been added over the past 10-year. Notwithstanding the progress, the investment needs are estimated to be a lot more than what has already been put in, as much as VND 555 trillion (equivalent to US\$24 billion) during 2020-2030 period.

Even after the funding issue is sorted out, implementing large-scale infrastructure projects in a growing city poses great challenges, and Hanoi is not an exception. The mass transit projects that have recently been completed or are currently under construction have experienced long delays. Difficulties range from issues with land acquisition and resettlement, technical complexity, cost overrun due to factors unforeseen during design phase, rapidly changing landscape along corridors, and so on.

After extensive delays, Hanoi's first bus rapid transit line (BRT Line 1), financed by a World Bank IDA Credit, was launched on the last day of December 2016, and the two urban rail projects (Line 2A and 3), funded by other bilateral and multilateral creditors, are making steady progress towards opening their services in 2019 and 2021, respectively. Primarily due to the protracted implementation that took several years longer than what had been planned, the context in which the projects were assessed has much evolved, rendering the estimations and forecasts made during project preparation a lot less accurate or relevant than they would have been had the project been delivered on time.

Most powerful antidote to the above on-the-ground challenges of implementing a complex project is strong political will and public support for it; its corollary is that a lack of political will or public support for a project would magnify other problems and can ultimately lead to its failure. In a rapidly growing city, both with respect to population size and their incomes, motorists collectively keep gaining more influence over decisions

on transport and traffic management, over those who rely on public transport. There are a hundred or so more passenger cars registered on each day in Hanoi, which roughly translate into a daily increase of a hundred or so more citizens who would demand the city to make car-oriented urban mobility policies or investments. Despite the vision set in the city's master plan for sustainable and affordable urban mobility solutions and the ambitious targets for modal shifts to public transport, its fight for dedicating road spaces and resources for public transport becomes a bit more challenging on every passing day as a result of the growing constituency of motorists.

## THE MISSION OF THE FIRST BRT IN HANOI - CHANGING ATTITUDE AND BEHAVIOUR ONE PASSENGER AT A TIME

After 9 years and US\$33 million spent since the approval of the IDA credit in 2007, Hanoi's first BRT line was launched on the last day of 2016. This first BRT line consists of a 15-km long exclusive busway (one bus lane per direction) from the city centre to an interurban bus terminal in the southwest of the city. It includes 21 BRT stations, two BRT terminals (Kim Ma and Yen Nghia), one depot at Yen Nghia, 9 pedestrian overpasses, 35 BRT vehicles, and BRT traffic signals. A BRT bus comes every 5 minutes during the peak hours, every 7 minutes in the daytime off-peak hours, and every 10 minutes in the evening. After one month of free ride for all passengers, a one-way BRT ticket costs VND 7,000 (about 30 US cents) and monthly tickets valid for all bus services are also accepted on BRT.

What happened during the few-month period leading up to the launch was a clear testimony on how public transport could attract a great deal of attention from decision-makers and public alike. The initial design, which featured dedicated lanes with physical barriers and priority at intersection, was questioned by several policy-makers and opinion-leaders, who maintained that the BRT should not negatively impact the traffic situation for the rest of the road users. Permanent physical barriers were argued against, first for soft, movable barriers, then partial segregation, and ultimately no barrier at all (just lane markers on the surface), driven by concerns over safety and inflexibility to utilize surplus capacity on the BRT lanes for the benefit of other vehicles. Limiting U-turns and left-turns along the corridor, given their obvious conflicts with BRT operation, was only hesitantly considered due to their possible inconvenience to other motorists. This is understood in the context that, after extensive delays in implementation, traffic



Source: Transport Management and Operations Center (TRAMOC), Hanoi City



volume on the BRT corridor already reached at a level much higher than what had been anticipated at the time of project approval. With ever-increasing demand for motorized transport, allocating road space and signal time was considered by many a zero-sum game with clear winners and losers. Politicians had to make a difficult choice between BRT users, the number of whom was still unknown, and tens of thousands of motorbike users who were set to anger over their decisions.

Hanoi was lucky to have believers who thought that this was not a zero-sum game, among the policy-makers, academicians, mass media, its international partners, and most importantly among its citizens. They were behind the launch of the system, however imperfect it was, reaching out to the broader public for their support for this “pilot” operation. This 16-month old system now carries a stable number of 14,000 passengers each day, a small number for a BRT but higher than ridership on any existing bus route in this city still lacking public transport. Bus punctuality rate is at 99 percent. Three surveys carried out in February, March and September 2017 shows that over 96 percent of all sampled passengers are either satisfied or extremely satisfied with the services. The transport authority of the city is reviewing to increase the frequency during the peak hours to accommodate the demand. The BRT saves an average rider 14 percent of their travel time (including walking time to the station and waiting time at the station) per trip and much more (37-87%) for those who shifted from regular buses. Probably the most striking number from the surveys is that about 24 percent of the BRT users have shifted from their private transport, strong evidence that this certainly is not a zero-sum game.

There still is a long way to go. Needless to say, one 15-km corridor cannot solve traffic problems of a city with 7 million people – it needs a lot more extensive, integrated network of public transport systems, supported by much improved walking conditions. The BRT passengers are not very satisfied with the access to stations, integration with other bus routes, and the limited accessibility for those with impaired mobility. But the city is working on those issues, no longer against all odds, but motivated by strong demand for improvement. The land developers are also noticing the potential of these new systems – a new apartment complex along the BRT corridor recently put out advertisement on their proximity to BRT presented as one of the main perks to potential buyers. A local news article<sup>2</sup> published in October 2017 declared, “The first

BRT has successfully carried out its role in verifying the right policy for public transport development. Once the service quality is improved, people are willing to switch from private means to public transport... Changing the view on public transport, that’s the mission of the first BRT of the capital city.” Might I say, the mission is being accomplished.

AN ARTICLE BY  
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2. “Transport”, October 10, 2017



Source: Transport Management and Operations Center (TRAMOC), Hanoi City

# Spring/Summer Highlights

The first half of 2018 has been very fruitful for CityNet with several programmes tailored for the needs of its members and collaborations with prominent partners.

## CityNet-World Bank BRT Sub-Network



Representatives of CityNet and the World Bank experience the newly relaunched Bogor City's public bus route.

CityNet and the World Bank are collaborating to provide greater benefits and opportunities to cities in the Asia Pacific region developing, operating or considering Bus Rapid Transit (BRT) Services. Development of public transport systems, such as Bus Rapid Transit (BRT) and metro systems does not end when physical elements are constructed; continued efforts to maintain service quality, infrastructure condition, and customer relations are critical for success. There is a need for city authorities to gain access to readily available assistance to support the BRT systems during its operation.

To provide this, CityNet and the World Bank are designing and implementing a network of cities already possessing BRT systems, or in the midst of developing BRT systems. Through this network, CityNet and the World Bank will endeavour to provide opportunities to exchange best practises, building opportunities for cooperation between cities, as well as facilitating

technical expert consultations and visits to enhance the quality of BRT networks in the Asia Pacific region. This collaboration was made possible with funding from Korea Green Growth Trust Fund (KGGTF), World Bank Group.

Bogor City, as one of the initiating member cities of the sub-network, sent a request to CityNet for a technical expert visit to assess the challenges in the city's BRT network service provision to improve Bogor's BRT service provision. Receiving Bogor's request, CityNet and the World Bank agreed to provide Bogor with technical expert visit for an initial assessment of Bogor's BRT system, effectively launching the very first collaboration activity for the CityNet-World Bank BRT Cities Network.



# CityNet's Contribution to the 9<sup>th</sup> World Urban Forum



The session on "Unlocking the Potential of Local Leadership for Sustainable Urban Development"

The 9<sup>th</sup> World Urban Forum was held from 7-13 February in Kuala Lumpur, Malaysia. Together with the Seoul Metropolitan Government, CityNet co-organised a session on 'Unlocking the Potential of Local Leadership for Sustainable Urban Development' as part of the Listen to Cities Room, which was held for the first time at the World Urban Forum to give a space for the sub-national authorities bringing their examples on the implementation of the New Urban Agenda (NUA), as well as city-to-city (C2C) collaboration and national-subnational experiences.

The session featured CityNet President and Vice President cities, Seoul and Kuala Lumpur, Climate Change Cluster Lead, Jakarta as well as CityNet partner CDIA and C40. The CityNet Deputy Secretary General Sangbum Kim emphasized the importance of city-to-city cooperation in regard to sharing, replicating and adapting sustainable urban solutions, that the Deputy Mayor of Kuala Lumpur, YBhg. Datuk Hj. Mahadi bin Che Ngah concurred with. The role of city network like CityNet plays a crucial role in making this idea happen.

Represented by Aisa Tobing who also holds the position of CityNet Deputy Secretary General, Jakarta shared the city's Development of Integrated Child-Friendly Public Spaces (RPTRA) through Community Development Based Strategy. The Director of Global Urban Partnership Division of Seoul Metropolitan Government also had a chance to share their best practices that could be replicated in other cities. The discussion that was moderated by the C40 Regional Director of Southeast Asia and Oceania, Milag San

Jose-Ballesteros, concluded that cities do not have to reinvent the wheel when it comes to localizing NUA and SDGs. Sharing urban solutions through city-to-city cooperation and strong leadership are key to overcome urban challenges.

In a separate session hosted by the World Future Council, CityNet explained about several challenges facing Asian cities in making inclusive, safe, resilient and sustainable cities, one of which is that there is no single urban story line. This session focused on Improving Urban Planning for Regenerative City Development: Experience Sharing of One Belt One Road Country Cities. The discussion ranged from planning for smart and green cities, sponge city case from China, and south-south & south-north cooperation, to regenerative & low carbon cities.

During the World Urban Forum that convened around 22,000 participants, CityNet also delivered a training session in collaboration with partners – GIZ, CDIA, UNESCAP, ICLEI, and UCLG. This training session tried to answer the question "How do I implement the Global Agenda in my city? – Examples and entry points for action". Many urban stakeholders are still struggling to really understand the implementation phase of the agenda that was agreed upon at the Habitat III conference in 2016.

This interactive training session that was successfully delivered to 76 participants who came from various backgrounds – from local and national government to the private sectors and NGO – concluded with a list of recommendation for implementing the Global Agenda in the city level that included to develop and apply the Agenda with different stakeholders and at all levels, to improve data gathering and reporting system, to identify areas of actions and priorities, and to ensure good governance and leadership.

In addition to the three sessions, CityNet was also represented by Special Adviser Mary Jane Ortega in several panel discussions namely Multi-Faceted Approach to Implementing SDGs, Safer Cities session, Get Projects Ready to Match Global Agenda Financing Criteria, Building Peaceful and Just Society, and Inclusive Multistakeholder Partnership, among others.

# Jakarta Cross Learning Visit to Seoul on Urban Resilience



The main objective of this visit is to improve the capacity of the Jakarta officials to create a more resilient city.

A delegation from Jakarta Capital City Government visited Seoul Metropolitan Government (SMG) for a Cross Learning programme focusing on "Youth in Action for Urban Resilience" from 19-23 March 2018. The visit that was designed specifically for the delegation consisting of 9 members, led by the Deputy Governor of Jakarta for Spatial Planning and Environment Oswar Muadzin Mungkasa, aimed to improve the capacity of the Jakarta provincial government to achieve a more resilient city through the participation of community, children, youth, and women.

A number of sessions, discussions, and site visits with various stakeholders were conducted to experience first-hand and get the insights from their sister city, Seoul. These included discussions on Seoul's urban planning policies, Cheonggye stream restoration project, public-private cooperation, disaster operations, and Seoul's innovation policies. The visit that was facilitated by the CityNet Secretariat is a part of the Plan International Indonesia program, which is aligned with one of the discovery areas of Jakarta's Preliminary Resilience Assessment conducted by 100 Resilient Cities Jakarta team on creating the culture of preparedness.

During this visit, the head of delegation, Deputy



Governor Mungkasa had a chance to meet 2<sup>nd</sup> Vice Mayor of Seoul Kim Joon Kee and deliver the Jakarta Governor's intention to strengthen the cooperation between the two cities through city-to-city cooperation. He suggested to formalize the cooperations of the two metropolitan areas through a grand design that would include a comprehensive urban development plans.

This cross learning programme was wrapped up with a discussion led by Jakarta the Deputy Governor Mungkasa and CityNet Deputy Secretary General Sangbum Kim to develop and formulate the lesson learnt to be followed-up in Jakarta as well as to encourage collaboration between SMG and Jakarta.

# World Cities Project Encourages Smart-City Initiatives in Busan, Seoul, Suwon and Gwangju



World Cities Project 3<sup>rd</sup> Meeting  
Innovation for Smart and Green Cities

Busan hosted a closing review of cooperation between four Korean cities – Seoul, Busan, Suwon, and Gwangju – and four European counterparts – Barcelona (Spain), Tampere (Finland), Eindhoven (Netherlands), and Scottish Cities Alliance on Friday, 20 March 2018. The cooperation between these cities was made possible by the World Cities project of the European Union that aimed to promote long-term working relations and short-term pilot projects between the cities within the EU and cities in other countries including the Republic of Korea.

The day-long conference was the third meeting of the project and will serve to further strengthen the ties between the EU and Korea, and will help to develop the way forward for the EU-Korea cooperation on sustainable urban development. In the conference, over 30 representatives from the EU and Korean cities focused on the way forward regarding smart city (mobility, ICT, safety), urban economy (innovation, clusters, start-ups), climate change (low-carbon, green energy, resilience) and urban regeneration (cultural heritage, green spaces, affordable housing).

The overall aim of the project implemented by CityNet and Ramboll is to promote better urban policy and thereby improve the quality of life in participating cities. Experts from local authorities involved have identified a variety of topics including urban data

management (smart-city), innovation and start-ups promotion, low carbon development, mobility and energy efficiency – just to mention a few.

The World Cities project is driven by bottom-up thematic proposals elaborated and implemented by the cities. City managers from Korea and the EU jointly develop toolkits to mainstream the international urban sustainable development framework (EU and UN Urban Agenda) into concrete projects for the cities. Actions are designed to increase so-called ‘triple-helix cooperation’ between governments, research and business. World Cities has also created concrete opportunities for business while pursuing the sustainable development of the cities involved.

Following bilateral meetings in Korea and Europe in 2017, cities representatives have – for example – developed Letters of Intentions (LoI) or Memorandum of Understanding (MoU) to ensure long-term cooperation.

## CITYVOICES

**CityNet magazine, CityVoices, is published twice annually. It is a collection of experiences and reflections on CityNet's partners and member cities projects, policies and programmes. Each issue focuses on a particular theme related to CityNet's mission to connect urban actors and deliver tangible solutions for cities across the Asia Pacific region. CityVoices is also available online in PDF format on the CityNet website.**

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## CITYNET

**CityNet is the largest association of urban stakeholders committed to sustainable development in the Asia Pacific region. Established in 1987 with the support of UNESCAP, UNDP and UN-Habitat, the Network of cities has grown to include more than 130 municipalities, NGOs, private companies and research centers. CityNet connects actors, exchanges knowledge and builds commitment to more sustainable and resilient cities.**