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LETTER FROM THE EDITOR

Dear FuturArc readers,

Remember seeing a cartoon or drawing of how people sometimes end up 'making' their own footpath even though a paved one is already available, often because the former is the shorter way?



This image came to mind while doing this issue on mobility and Green transport, because it conveys in a nutshell that urban transport often isn't about moving people based on the most direct or shortest route. Mass transit methods and transportation networks are often created based on economic and political wants, rather than holistic systems that encompass humanistic, social and ecological/environmental factors. So what can we do with the modes of transport and infrastructures already in place? What do we do with disused or old ones? What can we do now to make more Earth-friendly and direct connections while not adding to carbon emissions that will ultimately lead to a climate catastrophe?

The topic of climate change-tightly connected to carbon emissions-is never far from the narrative in this issue. Not because it is 'fashionable' to do so, but because it is the reality of the status quo; even then, we are not moving fast enough. Dinda looks at the ongoing initiatives in our first-ever Climate Feature: why more action and less talking is necessary, and why we can't talk people into moving themselves rather than their cars.

We spoke to Bryant Lu and Elisa Sutanudjaja to explore the intricate relationship between urban planning and infrastructures for moving the masses-the beauty of densification and how providing sufficient, quality public transport needs to be supported by policies to reduce private vehicle usage to set up truly sustainable systems.

Alaskesh Dutta suggests that current road infrastructures should be adapted to give back to society and Nature—he imagines a future where roads are more than just a means to move motors. Speaking of roads and motors, Joanne Marie Camello presents a case for why the upcoming PAREX is a bad idea for the Philippines, while Bhawna Jaimini proposes that the city of Pune be used as a model to create pedestrianfriendly streets for similar cities.

We investigate projects that attempt to do right by the commuters and the environment in Belgium, China, Indonesia, India, Mexico, Taiwan and more.

Ultimately, transport is a means to move; and movement is always more successful when there is a way to ensure a flow. But will this flow come about from widening roads, building more highways, or producing more electric vehicles?

Carla.



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FUTURARC INTERVIEW

The FuturArc Interview

by Candice Lim & Dinda Mundakir

ELISA SUTANUDJAJA

Executive Director of Rujak Center for Urban Studies (RCUS)

BRYANT LU

Vice Chairman of Ronald Lu & Partners



PROJECTS CHINA TAIWAN

REGENERATION OF DISUSED TRANSPORT INFRASTRUCTURE

by Y-Jean Mun-Delsalle

Rather than demolishing and building anew, the revitalisation and greening of deserted transit infrastructure is becoming increasingly commonplace in dense, fast-growing cities. Jiaxing Train Station in China by MAD Architects and Taichung Green Corridor in Taiwan by Mecanoo are two examples of reusing existing infrastructure to rejuvenate the urban realm. By recreating a train station or renovating railway tracks and the surrounding areas, the architects worked towards the goal of achieving urban renewal by upgrading the travel experience of users, improving the quality of life of residents and enhancing the appearance of their respective cities. What were once neglected infrastructures that served as a barrier to movement are now open, welcoming and sustainable spaces integrating and connecting the city. The operational efficiency and aesthetics of the areas are boosted and people's daily lives are enriched.

Redefining the train station in China, Ma Yansong, founder of MAD Architects, was the man behind the country's first fully sunken railway station, which involved both reconstruction and expansion. He pointed out, "We need to learn from such experiences in the development of Chinese cities, that the ultimate objectives of design and planning are driven by cultural understanding and vision. This will allow us to break the boundary of architectural design that only considers the design of a solo building, a single function, one object. Lots of projects now in our cities are complex issues. They need a certain creativity in troubleshooting: we are not designing an object, but renovating a social reality."

1 & 2 Jiaxing Train Station (left); Taichung Green Corridor (right)

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MRT KOTA STATION: CATALYSING A HISTORIC NODE

 O_{ne} of the much-anticipated transportation projects in Jakarta is the mass rapid transit (MRT) expansion. First opened to the public in March 2019 after six years of construction, the railway's first phase spans 13 stations across South and Central Jakarta, passing through the metropolis's largest business districts.

Serving over 60,000 commuters daily on average, the MRT is estimated to reduce emissions by around 85,000 tonnes of carbon dioxide equivalents (CO_2e) a year¹ or the same as removing 19,000 cars off the road. As of 2022, 10 per cent of Jakarta MRT's electricity needs reportedly come from new and renewable energy sources.²

Two more phases of expansion will connect the railway to West and North Jakarta near the coast, supporting trade, commerce and heritage tourism activities in the area. Considering how the MRT's connectivity has helped reinvigorate older neighbourhoods such as Blok M, it is also aimed to revitalise historic and cultural spaces in its next phase, notably the Batavia old town, also known as Kota Tua. A design competition was held in 2022 for the MRT Kota station, and the winning design by LABO. is currently under development with completion expected by 2027.

A LIVELY VISION

Following urban design guidelines, the upcoming MRT Kota station will be in the south part of Kota Tua, designated as a transit-oriented development (TOD) zone. The station sits along the main street of Jalan Pintu Besar Selatan in Pinangsia, West Jakarta, with a tunnel extending towards Beos Plaza that faces a 90-year-old heritage building: the terminus commuter train station.

Currently, streets in the Kota Tua area are not considered appealing or enjoyable for public access due to their cars-first approach and dilapidated condition. The area is dominated by old and empty shophouses, where people merely pass through to reach a handful of key destinations like the Glodok Chinatown Market, Bank Mandiri Museum and Pantjoran Tea House.

Hence, the new MRT station design by LABO. also takes into consideration the liveability of its surrounding area, aiming to enliven both Kota's presentday needs and historic character. The design does not aim to be extraneous, but rather, it will be defined based on its functional components.

EFFICIENT DESIGN

As a public facility, the station is designed to present a modern interface that will be easily maintained. The proposed design primarily incorporates transparent materials, such as glass canopies for the underpass entrance and reflective surfaces for the underground spaces. Transparency was chosen to befit the context as it would not visually block its surroundings. In addition, it allows natural daylight into the spaces to reduce energy consumption for

1 Timeline showing the transformation of the Beos Plaza area with its heritage train station building; the proposed design by LABO. is called Dwara Batavia, which means Gateway to Batavia 2 Energy-saving strategies



PROJECTS PHILIPPINES









THE RISE OF PAREX IN MANILA: AN ANTITHESIS TO GREEN MOBILITY

by Joanne Marie Camello

 S_{oon} , Manileños will see a new addition to the skyline of the capital. The linear vista of the waterfront of Pasig River, the most significant waterway crossing several cities of Metro Manila, anticipates a change that will unveil drastic outcomes on the quality of life of Filipinos.

Pasig River Expressway (PAREX) is a 19.37-kilometre six-lane elevated expressway infrastructure that is soon to be built on top of the Pasig River, linking Laguna de Bay and Manila Bay. Estimated at P95.4 billion (SGD2.3 billion), the infrastructure is a joint venture between Philippine National Construction Corporation (PNCC) and San Miguel Holdings Corporation (SMHC). This high-valued investment, deemed safe and reliable, aims to contribute to the efficiency of the country's transportation system.

Amidst the myriad scenes of traffic jams in Metro Manila, the project attempts to divert traffic volume to alternative faster routes that lead to the core business districts including Makati, Ortigas Center and Bonifacio Global City (BGC). By establishing a direct connection between western and eastern cities of Manila, PAREX claims to be able to decongest the amount of traffic on the major roads in the metro like EDSA, R-10 and C-5 through the provision of ramps on its distributed segments in Buendia, Mandaluyong, Makati City, Pioneer and BGC. Adding to this link in all corridors of the National Capital Region, SMHC plans to integrate a high-quality bus rapid transit (BRT) system, comparable to those in cities like Jakarta and Guangzhou.

UNMASKING THE 'SOLUTION'

PAREX seems to be a bed of roses running along the banks of Pasig River, a solution to add connectivity in the capital, ease the traffic, and provide a public transit at par with international standards. So, what could go wrong? A lot.

After the approval of technical and financial aspects of PAREX by the Toll Regulatory Board in 2021, arguments from cultural and environmental advocates and planners started to emerge, outweighing the possibilities of the 'beneficial' infrastructure. Despite the supposed selling points, the project drew immense flak due to the foreseen threats on the environment and cultural heritage sites within the segments' vicinity.

Contrary to its intention to reduce traffic congestion, PAREX will soon become another instigator of drivers' nightmare. By the concept of induced traffic leading to induced demand, this means that an additional expressway in the heart of the metro, expanding road network and capacity, will lead to increased driving demand, conflicting with the intention to mitigate traffic jams. Similar to water pipes—the bigger the pipes, the higher the volume of water they carry—having more roads will lead to more traffic.

The anticipated heavier traffic congestion may only just be the tip of the iceberg as the detrimental consequence to the environment is another story. The construction of PAREX and the potential increase in the volume of vehicles within the Pasig River corridor would result in higher concentration of air, noise and light pollution, and aggravated urban heat-island effect. This



CLIMATE TARGETS AND THE TRANSPORTATION SECTOR: WHAT INITIATIVES ARE ONGOING?

Another example on the macro scale is the global supply chain that relies on air and sea freight. Disruptions due to geopolitical crises, along with the rise of e-commerce, contributed to a spike in international trade that the network had to meet by morphing in scale and diversity. During the global pandemic shift of 2020 and 2021, emissions from the maritime fleet (making up 80 per cent of all cargo) did not reduce like some other forms of transportation, but rather increased by 4.7 per cent.4

There are irreversible environmental and social damages due to vehicle pollution, reliance on fossil fuels, and even the sourcing of raw materials for new innovations. Transport comprises nearly a quarter of all direct CO, emissions,⁵ and as the world began to escalate post-pandemic activity in 2021, emissions from the transport sector soared by 8 per cent compared to pandemic levels, totalling 7.7 gigatonnes.⁶ This massive number is second only to the entire carbon emissions of China, and is more than triple India's. To meet 2030 carbon targets that are necessary to keep climate change in check, transport needs to dramatically reduce its emissions by 20 per cent, to less than 6 gigatonnes within the next seven years.7

By growing too big and too fast, transportation's problems have far outweighed its merits. Transportation is, by definition, movement-but which direction should it take?

1 An indubitable effect of climate change is the increase in intensity of storms: the resultant frequent floods and their impediment on transport such as waterlogged roads seen here in Dhaka, Bangladesh, has become too common in Asia

CABLE CARS AS FEASIBLE URBAN TRANSPORT OPTION?

An exchange between Mexico and Vietnam

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by Dr Ann Deslandes

With the inauguration of its new 10.6-kilometre cable car route in August 2021, the government of Mexico City hoped to lift the spirits of residents in the large peripheral municipality of Iztapalapa by cutting commute times and exposing them to murals custom-made to be only visible from the sky.

The electric-powered cable cars, also known as gondolas, were also intended as a cleaner transportation option, placing less pressure on the environment than cars on the roads of one of the biggest cities in the world, which has also been among the most polluted in recent history. Similar goals have been pursued via cable cars in other cities of Latin America such as Medellín, Colombia¹ and La Paz, Bolivia. They also make up public transport options in American. African and European cities.²

In Southeast Asia where urban transit is also an important challenge, cable car systems are more commonly used for tourism.

Indeed, thousands of miles away from Mexico City, the cable cars of Hon Tre Island in Vietnam³ began a nationwide craze in 2007 when they were constructed to feed the booming tourism industry and are now replicated all over the country. The cable cars have driven considerable economic development in Vietnam, but some have started to question whether there is an environmental cost.

Island's cable cars, could they be a feasible urban

Between Mexico City's gondolas and Hon Tre

transport option to alleviate the common issues that these two places-and others like them in Latin America and Southeast Asia—face?

I took a ride on the Mexico City skyline, and thereafter spoke to architects Eduardo Ugalde and Alejandro Isaac Guardado, as well as Ho Chi Minh City-based Dr Ngô-Viết Nam-Sơn, to discuss this transport phenomenon and its prospects for sustainability

EL CABLEBÚS

Line 2 of the Mexico City cable car system, known as el Cablebús, runs east from the underground metro station Constitución de 1917 to Santa Martha Acatitla, a county that borders Mexico City and the State of Mexico. In August 2021, the lengthy ropeway was added to Line 1, running north from Indios Verdes to Cuautepec, that had been opened one month before.

A generally successful initiative, the cable cars guickly became a fixture of the urban vista in this part of Mexico City. Indeed, director Tanu Muino chose the line to be featured in the music video for Britney Spears and Elton John's track Hold me Closer,⁴ released September 2022. In the video, dancers dressed in colourful outfits moved fluidly against the Iztapalapa landscape while the cable cars of Line 1 glided overhead.5

1 The Mexico City cable car system runs electric-powered gondolas as a cleaner transportation option in one of the world's biggest cities



CAN PUNE BE A CASE STUDY FOR INDIAN CITIES TO IMPROVE PEDESTRIAN INFRASTRUCTURE?

by Bhawna Jaimini

Pune used to be a quaint town known for its pleasant weather, shaded streets with overarching trees, and the heritage old city quarters till the 1990s. Unlike the closely situated Mumbai, which is a post-industrial city established by the British during the colonial era, Pune was established in the 8th century, according to archaeological sources. It was the headquarters of the Maratha empire, remnants of which can be seen all over the city. In the last three decades, the description of Pune has rapidly changed since the IT boom reached Indian shores after the liberalisation of the Indian economy in 1991. Cities like Pune. Bangalore, Hyderabad and Gurgaon became the choice for these companies as the land was cheaper than the metros, but their size would still guarantee a steady supply of cheap human resources needed. To boost job growth and the economy, the Indian government supported the companies to create infrastructure for their base. In the late 1990s, the Government of the state of Maharashtra began developing Raiiv Gandhi InfoTech Park over an area of 2,800 acres to invite multinational companies to set up their base in Pune. The IT park now has 250,000 employees travelling to work daily.

This growth, though hailed as a success story of transforming a sleepy town into a throbbing metropolis, has not come without its challengestransport being one of the major ones. According to a report on traffic index that came out in 20201 Pune was ranked as the fifth most congested city in the world. "Though the IT companies definitely contributed to the exponential expansion of Pune City, the change started much earlier in the 1980s when the Maruti 800-the affordable car modelwas launched and made the case for private car ownership amongst the growing middle class of the country," explained Ranjit Gadgil, Programme Director of Parisar, an organisation working to bring environmental consciousness into the heart of every development policy since 1982. Set up by the environmentalist and public transport expert Sujit Patwardhan, who recently passed away, the setting up of Parisar coincided with the launch of the Maruti 800, which Patwardhan rightly predicted would change the fabric of Indian cities.

Before the Maruti 800, cars were not only unaffordable, but also had long waiting periods. Now families could acquire a car within a short stipulated time period. The car was targeted at the aspiring middle class with increasing purchasing power, and its success made car ownership a non-negotiable part of urban India. According to the data collected by National Family Health Survey (NFHS), the number of car-owning families have gone from 1.8 per cent in 1998 to 8 per cent—1 in 12 Indian households—in 2022.² Though the percentage seems rather small compared to the US, where 93 per cent of families had access to cars in 2019, the socio-economic implications of the steadily rising car ownership are deep and wide

Car ownership and road building have become the development markers of both Indian cities and the economy. According to the Ministry of Road Transport and Highways, public expenditure on roads increased 4.5 times between 2014 and 2019. In the city of Mumbai, from where I am writing this, one could argue that there are more flyovers than pedestrian ways. Against this common backdrop where road building seems to be on steroids, the city of Pune has been able to steadily reclaim and redesign footpaths for public activity. And such was the impact that one such redesigned street-Jangali Maharaj Road (JM Road)-made it to the list of top five achievements of an elected politician on the basis of which they were fighting a re-election campaign. For a developing country like India where elections are mostly fought on the promises of basics such as food, water and electricity, this was both amusing and astonishing. Even so, this did not happen overnight-it was the result of advocacy work from many civil society organisations and citizens of Pune who have been relentlessly working towards the goal of inclusive and environmentally friendly development.

AUTONOMOUS URBAN LOCAL BODY AND ACTIVE CITIZENRY

Pune is perhaps the only city of its size—in terms of both area and population—that is not a state capital, which means the city has a large and independent Municipal Corporation with steady inflow of taxes, but does not have presence of the state or central government making parallel decisions and thus leading to contests. This is in stark contrast to Mumbai and Delhi, where multiple government bodies have varied jurisdiction over different parts of the city, which makes it difficult to get approvals to implement citywide policies. "I don't think we would have been able to succeed if this was a state capital. Pune has an informed and independent Municipal



 The city of Pune changed from a quaint town of heritage to an IT metropolis in the last three decades following the IT boom
The expansion of Pune came about even before the IT companies; when the Maruti 800 became the affordable car model that triggered an increase in private car ownership amongst the growing middle class