



# ACKNOWLEDGEMENT

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We extend our deepest appreciation to the new generation of Cambodian thinkers, whose insightful, creative, and inspiring policy commentaries have been instrumental in shaping this work. Our heartfelt thanks go out to the mentors who have provided their guidance and support throughout this process.

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Founded in 2015 in the aftermath of Cambodia's 2013 national elections and fallout, and officially launched in 2017, Future Forum ("FF") is a think tank with a difference.

Our vision is a just, democratic, dynamic, and prosperous Cambodia shaped by its people's needs. To achieve this, our mission is to nurture new thinkers and researchers, connect them in a supportive community, and partner with them and others to identify and advance policy solutions to mold a better future for Cambodia. To guide our work, we have five core values: Creative, Rightsbased, Inclusive, Supportive, and Positive.

# FORWARD BY THE EDITOR

Contained in this book are pieces by seven young people that paint a picture of a quickly-changing and dynamic Cambodia. These essays are intended to challenge the status quo, to invite debate, to spark important conversations, and to propose novel solutions to age-old problems.

This is a book that looks to the future and asks: What if Phnom Penh were a city built for people, and not cars? What if property and real estate developers saw green, public space as a priority worthy of their investment? What would Cambodian streets and buildings look like if they were constructed with inclusivity in mind?

This is also a book that examines how Cambodia can stay the same-how we can move into the future without losing or diluting what makes the Kingdom unique. Many of our authors have chosen to explore how policy-makers can take what already works well and amplify it to serve more people, more effectively. How can traditional markets, which already connect communities, continue to thrive into the future? How can pagodas, which already sustain our spiritual lives, also serve as spaces help to support young Cambodians' equitable access to educational opportunities? How can Cambodia's bustling street culture continue to keep residents safe? How can Cambodian traditional architecture be adapted for modern buildings to suit a changing climate?

Perhaps most of all, this is a book that serves as a celebration of Cambodian youth. These pieces of writing are a testament to what is possible when young people have the tools, the support, and the platform to develop and share their ideas. This book is the result of asking Cambodian young people, "but, what do you think?" and letting them run with it.

These are young people's perspectives on sustainability, on Cambodia's built environment, on safety, on community, on inclusion, on infrastructure, and on so much more.

> We owe it to them to listen to what they have to say. Quinn Libson, Commentary Editor



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# **RESHAPING HOMES & NEIGHBORHOODS**

*#Street #Public #Space #Neighborhood #City #Traffic* #Residents #Design #Building #Superblock Residential neighborhood developments, typically along Phnom Penh periphery, are massively popular with local residents who wish to live in tranquil neighborhoods.

# 1. PHNOM PENH'S SUBURBS CAN AND SHOULD BE SAFER

By Ses Aronsakda

Picture a modestly sized house with ample rooms for a burgeoning family. Outside, we find a manicured garden and a driveway for the family's two cars. For a growing number of Cambodian urbanites, this vision is the ideal living environment they strive for.

To satisfy this demand, real estate developers are selecting locations farther and farther away from Phnom Penh's urban core. The overwhelming majority of new housing projects are located in peripheral districts like Sen Sok, Chbar Ampov, Dangkao, and Por Senchey.



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Greenfield development along Phnom Penh's periphery is not only car-dependent but often outstrips infrastructure development.

However, this model for housing may not be as flawless as it first appears. The city's rapid suburban expansion has had several negative effects on its inhabitants, municipal resources and environment as a direct result of car-dependency.

# Car-dependent sprawl

Phnom Penh is rapidly expanding outward through low density construction, making residents more dependent on cars. In the long term, it will be destructive — in terms of the financial losses, environmental degradation, and health implications for Phnom Penh's population.

Whether individual developments are well-designed or not, the fundamental nature of low density development means that schools, grocery shops, offices, restaurants and parks are farther apart and farther from people's homes. Furthermore, the poorly laidout street network of outlying districts is causing neighborhoods to be disconnected, requiring commutes to be circuitous and inefficient. This means residents often must use private vehicles for even the most basic necessities.

Low density sprawl also makes it difficult for municipalities to maintain infrastructure and services. Road surfaces, electrical lines, clean water pipes, garbage collection and sewage-just to name a few-are dependent on optimal city density. For example, a high density neighborhood, with more residents sharing the financial costs of maintenance, reduces the cost per capita.

Car-dependency pushes urban sprawl deeper into former wetlands, lakes, and farmlands, damaging the natural environment right outside of Phnom Penh. Driving makes commuting farther much easier, which makes living farther away seem more reasonable. This in turn pushes the demand for urbanization farther outside the city's boundaries.

A built environment designed for cars makes other commute options less attractive. A study in the city of Changchun, China, for instance, revealed that inhabitants make the decision to use cars as their primary means of commute on the basis of the built environment around them. Factors including neighborhood density, the availability of mixed-use development and the distance to the city center all contributed to their decision to primarily travel by car.



More driving means more danger

Apart from the often discussed environmental and financial drawbacks of using private vehicles, car accidents are an even more concerning and often overlooked public health issue.

Car-dependency is killing and maiming us directly through traffic accidents. The Ministry of Public Works and Transportation reported 1619 accidents nationwide for the first half of 2020, with 861 fatalities and 2449 injured. Although the country saw a noticeable decrease in crashes and casualties in 2021, at the height of the Covid-19 pandemic, rates rebounded in the first half of 2022, with 1609 accidents nationwide, 942 fatalities, and 2235 injured.

Although it is tempting to place blame solely on poor driving or lack of enforcement mechanisms, policymakers must be aware that high accident rates are also a direct result of more people driving and street designs that fail to protect vulnerable road users.

Death and injury from crashes are only the start. The lack of physical activity that a car-dependent lifestyle enables is also indirectly harming us in an insidious way.

Physical inactivity has been linked to an increased risk of cardiovascular diseases, obesity, and diabetes. Health experts suggest that adults should do at least 30 minutes of physical activity daily for at least five days a week, including walking and cycling.

Daily commute experience can be enhanced by Transit Oriented Development which encourages dense, walkable, and mixed-use development around public transit hubs.

Walkable neighborhoods make active commuting and public transit usage both convenient and attractive options for residents. In a walkable city, inhabitants get their daily dose of physical activity just by commuting to and from work, school or the grocery store.

Conversely, the same cannot be said for a resident of Phnom Penh's car-dependent neighborhoods, where the absence of pedestrian and cyclist infrastructure makes it very difficult to rely on active commuting. Residents in Cambodia's capital often choose to drive just to buy a cup of coffee.

# Taking car traffic out of our neighborhoods

The factors mentioned above can be rectified through better urban policy and intentional design. There are a few key approaches that would help Phnom Penh get to a healthier, more sustainable way of living and moving.

First, Phnom Penh's city planners should adopt a compact city approach to urbanization. This would involve constructing dense, mixed-use neighborhoods with dwellings, schools, public spaces and places of employment that are scaled for walking rather than for cars. Ideally, these spaces would be well-connected by foot and cycling paths, and served by excellent public transit infrastructure. A compact city approach would discourage development that sprawls far beyond Phnom Penh's current borders.

# **USER EXPERIENCE**

# THROUGH A COMPACT NEIGHBORHOOD Transit and Active Commute

Station Public Trar Commute from other districts via Public Transit line Proprint Manual Contraction of the State of and the second sec ŝ ......

To help drive compact development, several policies in particular should be prioritized.Most crucial are land-use concepts like Transit Oriented Development (TOD), which encourages the development of mixed-use neighborhoods within walking distance of public transit stations. There must be efforts to optimize street networks and road design to serve active commuters as well.

Phnom Penh should look to cities around the globe for creative solutions to some of these problems. Our city could, for instance, look to the low-traffic neighborhoods initiative in London, in which streets in residential areas are being redesigned to restrict car traffic and prioritize active commutes. Researchers from the U.K. think tank Centre for London recently examined data from 10 low-traffic neighborhoods and found that bicycle use rose by between 31% and 172%, while car traffic fell by between 22% and 76%. There was also strong evidence that these schemes reduced road casualties.

Or Phnom Penh could look to Barcelona's superblock schemes, which not only ban automobile through-traffic from non-resident drivers but also add much needed green space to neighborhoods.

"It was amazing when they stopped the cars," Barcelona resident Norma Nebot told Vox in 2019. "The feeling of being with my kids, playing in the middle of the road, that was incredible."

These schemes could be replicated in Cambodian cities with local needs in mind, encouraging more commuters to ditch their cars for short trips and use more active means of commuting.



Total Street Capacity 18,600 People/Hour

Separation of pedestrian, automobile, and motorcycle traffic can be quickly and cost effectively accomplished with strategic placement of bollards, planters, and street trees.

Redesigning roads for greater health and safety

Road diets would also complement efforts to make Phnom Penh's streets safer. This involves reducing driving lane width, decreasing the number of lanes, implementing one-way streets, and using vegetation and street furniture to force a slower driving speed.

Yet, rehabilitating the dysfunctional street network of Phnom Penh on a case-by-case basis alone will not be enough. Without taking systematic action on congestion, cars and motorcycles will inevitably clash with the active commuters and public transit.

Phnom Penh should undertake a process called disentanglement to separate different modes of commute from each other. This strategy would involve carving out separate lanes and streets for public transit, motorcycle users and pedestrians. Disentangling urban traffic would not only increase efficiency, but would also boost safety, as each mode of transportation would not be forced to compete with the others on the road.

Such a transformation may seem daunting and disruptive. However, Paris has shown that changes to a city's street network can be done quickly and at a low cost.

By making use of movable planters, paint and bollards, Paris' bike lanes were set up originally in 2019 when public transit staff were on strike. The lanes helped alleviate disruptions, and were later expanded during covid-lockdowns to help curb infections.

Parisian authorities continued with the rapid expansion of 650 additional kilometers of bike lanes through temporary interventions, using movable planters and bollards. This allowed Paris to rapidly pilot a new public transportation scheme, dramatically improving mobility and increasing ridership.

Phnom Penh could use some similar approaches to turn its car-dependent suburbs into human-centric living spaces.

Car-free neighborhoods

It is crucial that Phnom Penh's suburbs reverse car-dependency as soon as possible because of the harm it is causing citizens, local authorities, and the environment.

A combination of policies and design changes can steer development to ensure easy access to housing, education, work, and other services. New strategies would produce safe and reliable commutes, decreased living costs, and increases in overall public health, while also minimizing the city's environmental footprint.

Despite being car dependent, Phnom Penh's fast expanding suburbs don't have to remain this way. With timely intervention, these suburbs have the potential to become the ideal neighborhoods we envision them to be.

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Phnom Penh's Suburbs Can And Should Be Safer

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Buildings with sustainable features including, passive lighting, passive ventilation techniques, and greenery are making waves. But these features are absent in the vast majority of buildings.

# 2. CAMBODIA NEEDS MORE BUILDINGS PURPOSELY **DESIGNED FOR CAMBODIA**

# By Prak Norak

Phnom Penh is expanding quickly. Construction sites dot the skyline with new building projects seeming to break ground every day. Our city is expanding horizontally and vertically raising more and more demand for electricity and water.

But it isn't just the construction phase of these big projects that exact a toll on our environment. Architecture and design and choices that are being made in these buildings now are setting Cambodia up for a less sustainable future.



Shophouses, despite being built facing different orientations, usually have the same design layout.

Design choices that prioritize maximizing space over maximizing air flow and natural light; choices that privilege trendy western designs over the designs that are better-suited to Cambodia's hot and humid climate; and the lack of initiative in bringing information on sustainable practices to the next generation of designers architects and builders will have implications for how well Cambodia can mitigate and adapt to its changing climate.

The lack of sustainable building will become a burden on our environment and our communities if we don't approach new building development with a more sustainable, and more Cambodia-specific mindset.

Small design choices can have lasting consequences

Seemingly small choices that are made in the early stages of a project translate to less sustainable-and less comfortable-modes of living. These design features are often chosen to maximize profit for developers, but have lasting consequences for quality of life, and for energy cost for consumers.

In many boreys across the country, the houses are built following the same uniform design—with floor plans that lack windows in certain key parts of the house necessitating the continual use of air conditioners to cool and ventilate the space and electric lighting to illuminate the rooms even in the middle of the day.

In some boreys, the houses back straight up against other dwellings, allowing only a sliver of light to enter affected rooms like the kitchen. Users would have to rely on artificial light almost every time they use the kitchen or the inner part of the building which is very inefficient. This also affects the user's privacy as well, as the back window can be too close to the neighboring house meaning most of the time the user would have it remain shut, further limiting available airflow.

In the case of many shophouses, buildings are joined together, meaning only back and front windows can allow light and air in.



This familiar layout of the shophouse appeals to house buyers who value maximizing the size of the space by using every square centimeter of the building. But what these designs make up for in space, they lose out on increasingly important features. What happens in one of these homes during an electricity black-out, for instance? A room with no light and no ventilation becomes useless.

Bigger design choices and trends are set to have an impact as well.

A cacophony of glass skyscrapers has cluttered the Phnom Penh skylines over recent years. Almost all are ill-suited to dealing with the Kingdom's climate.



Phsar Thom Thmey (Central Market) is an excellent example of how even a massive space can be passively ventilated and lit thanks to louvers designed into its roofs and dome.

Don't mimic buildings that aren't built for the cambodian climate

Looking out across the Phnom Penh skyline, at the buildings wrapped in green cloth, currently under construction, it's easy to spot the pattern. These buildings for the most part are enclosed in glass, metal and concrete and look as though they would not be out of place in any Western city in the world.

This trend of copying Western architecture is an unproductive, and unsustainable way of designing buildings in Phnom Penh, Cambodia.

This isn't just socially unsustainable-stripping Phnom Penh of its unique design identity-this is a practice that threatens Cambodia's liveability in the face of climate change.

Buildings wrapped in glass exteriors allow for natural light and expansive views of the cityscape but this also traps heat in the building by overexposing the interior to sunlight which again necessitates the use of costly air conditioners. Not only is this an inefficient choice, it is a damaging and costly way for the building to operate and also exacerbates energy shortages and electrical blackouts.

Cambodia isn't the only country facing the issue of overusing foreign development designs. As India struggles through record-breaking heat, architects and designers there are coming to grips with the consequences of buildings that are poorly adapted to the local climate.

Architects and environmentalists are calling for a return to "vernacular," traditional and locally-oriented designs that are better suited to India's scorching heat and which require less energy to keep cool in the long term.

For India, this means building out of earth, rather than building out of concrete, glass, and metal. Climate-conscious designers are also strategically using their buildings' orientation to minimize sun exposure in the hottest parts of the day and making use of overhanging roofs and walls to shade buildings from heat. Climate-aware designers also make use of traditional features like central courtyards for ventilation.

Cambodian designers and developers must aim to study what techniques are best-suited to our particular climate and then create buildings that work with these needs. This calls for the need to rethink Western design trends. Designers and developers should be encouraged to create designs that are unique for our social and climate context.

It's important to note that "modernization" doesn't have to mean building copies of western buildings, designers can create a modernized version of our culture. Take "Bakong Village" for instance, the development aims to revive the sense of community when living in a village. The village is also sustainability-oriented in that it also prioritizes people over vehicles, creating a walkable neighborhood free of traffic. A walkable and community based neighborhood is a breath of fresh air from the design trend that parodies western architecture.

In recent years, we have also seen the emergence of residential shophouses that break the norm. Kambujaya houses, for instance, have a courtyard in the center of the houses open to the sky allowing light to enter the inner part of the building.

Such a shift necessitates a return to traditional Khmer elements of design. For example, architects might consider stilted buildings which feature public space at the ground level which offers room to socialize, work and rest in the shade below an upper level. These features are already a common sight in rural villages where houses are built in a way that allows occupants to socialize rather than isolate.

But in order for Cambodia to make significant changes in the way designers and architects think, we need to update the ways we train the younger generation preparing to enter these jobs.

By LIVING FORUM



**Create More Educational Opportunities** For Sustainable Buildings

It is paramount that Cambodian students build with the future in mind. This is why creating opportunities for students to explore the concept of sustainability is important.

Currently, Cambodian design schools lack specialized sustainability classes and there are few Cambodia-specific educational resources on the subject. Without Cambodia-specific educational tools, young architects and designers struggle to learn what design techniques, building materials, and building strategies can be employed for Cambodia's specific climate.

And this type of training shouldn't be limited to design students, this is information that needs to reach environmental students and social behavior students as well. Inclusive workshops in which people from different fields of study can trade ideas may create even more opportunities.

Small steps are being taken to bring workshops to young Cambodian building professionals. The "Sustainable Building Arena" organized by the Build-4People projec t team, for example, brings people from different backgrounds and expertise together to form collective sustainability goals and solutions.

The humble shophouse can be redesigned to be more sustainable, with the inclusion of a skyline over the stairwell, roof gardens, louvers, and large windows protected by overhangs.

The same can be done for students in different majors by bringing students from various fields of study together and forming a diverse discussion on sustainable building. Workshops like this can help expose students to the sustainability mindset early on, and better prepare the future of Cambodia's building industry for the ways the climate is changing.

# **Designing for a Sustainable Future**

New development projects are happening. As Cambodia races to meet energy and water demand, designers and developers must aim to create buildings that are energy efficient and sustainable.

Right now, there is a highly limited number of developers that are taking the initiative in making sustainable buildings. But designers, developers should be encouraged to take a new turn.

When it comes to convincing building users to opt for sustainable building design and materials, communication plays a huge role. More campaigns and social media marketing about sustainability should be made so that users are well informed

about the benefits of these sustainable choices. As for students in the design sector, sustainable design classes should be made so students can be exposed to the concept of sustainability.

Transforming our buildings and our cities into more sustainable and liveable places is not easy. But any steps away from climate-ignorant design and toward climate-aware design can and should be made to set Cambodia up for success in both mitigating and adapting to changing climate.

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As new neighborhoods spring up across the further reaches of Phnom Penh they increasingly become more car-centric. Yet this is not an unavoidable trap.

# **3. CAMBODIA SHOULD FOCUS ON PEOPLE-CENTERED URBANIZATION**

By Ses Aronsakda

For Cambodian urbanites, a house in a gated residential community, known as a borey, is the pinnacle of home-ownership.

Yet, it may not be so idyllic, on top of the hefty price tag, for residents might be let down by the environment they find themselves living in. Current trends for residential developments in the Kingdom are dominated by designs that are homogeneous, vehicle-centric, and provide little to no access to public space.

These factors are interconnected. Homogeneity, which means the exclusive presence of a single landuse function, and the deficiency of public space are directly linked to a vehicle-dependent design.

Homogeneity occurs because planners assume that residents will commute by driving. As a result, shops, schools, services and other amenities are placed far from homes. The lack of public space is a direct result of developers allocating more space to vehicle infrastructure. In the average borey, roadways and parking typically occupy 40% of the total development area, leaving little room for public areas.

The consequences of these types of design are bigger than you might think.

Homogeneous land-use places amenities beyond walking distance, necessitating the use of a vehicle for even the most basic tasks. And as a final blow, vehicles dominate the environment with desolate roadways and parking lots.

To rectify these issues, moving away from vehicle-dependent development should be a top priority for Cambodian architects and property developers.



The disadvantages of car-dependent neighborhoods are not a uniquely Cambodian problem; these issues are well-understood in other countries. Lessons learned elsewhere should serve as an impetus for a new design focus and shift the paradigm from vehicle-centric neighborhoods to human-centric ones.

A compact and mixed-use neighborhood built around a public transit hub, an optimal balance between the convenience of walkability and long distance commute.

# Neighborhood emphasizing human activity

The neighborhood of Galgebakken on the outskirts of Copenhagen in Denmark contains about 500 households. Despite its modest size, the neighborhood boasts nine playgrounds, a large park and pedestrian-friendly streets. Each house has a private yard and the front of these houses face cozy pedestrian lanes rather than driveways.

This design is about more than just aesthetics. These choices allow residents to actively commute, enjoy leisure activities, facilitate opportunities for social interactions and allow children to wander around and explore safely.

This arrangement is possible because vehicles are parked along the perimeter away from public areas. One clear benefit of increasing the distance from home to parking spots is people are seven times less likely to choose to drive instead of opting to walk or cycle.

And such a layout not only will dissuade car usage for short trips. By moving such space-intensive structures away from the heart of the neighborhood, planners will also find that freed-up space can be used for more productive purposes to benefit inhabitants.

The next step is providing viable alternatives to private vehicles use. And that's where public transit comes in.

# **COMPACT NEIGHBORHOOD**

# TRANSIT ORIENTATED & MIXED-USE

Neighborhood Level Arrangment



# Transit-oriented neighborhood

The neighborhood of Rieselfeld in the city of Freiburg in Germany is home to 4200 families and is designed around public transit. It boasts a large number of businesses, several schools, a gymnasium, a church and several parks.

Rieselfeld has a tram line that runs through its main street, which connects it to the city of Freiburg, allowing residents to commute to the city easily. The main street also acts as the spine of the community, containing shops, businesses, sports facilities, a school, a church and a large plaza. Multi-story and mixed-use buildings are constructed to house these functions along the main street to ensure that all critical functions are within walking distance for every resident.

In Rieselfeld, residents can fulfill most of their daily needs within the neighborhood and hop on the tram line to go further if the need arises. Access for private vehicles is allowed on a typical street and parking is provided at a multi-story parking structure along the perimeter of the site.

In a neighborhood designed this way, the need for private vehicles is almost entirely eliminated. In Rieselfeld, the design strategy has been so effective the area maintains a ratio of only 290 vehicles per 1000 inhabitants, 30 percent less than the national average of 420 vehicles per 1000 inhabitants for the rest of Germany.

While a fully human-centric, transit-oriented neighborhood does not yet exist in Cambodia, developers are already experimenting with mixed-use projects in innovative ways. Sidewalks must be understood as a fundamental requirement of mobility infrastructure, it should not be treated as an accessory.

Multi-functional neighborhood

Indeed, this is already the case for one such development in Cambodia. Bakong Village is a 4.7-hectare development in Siem Reap containing about 350 residential units. Although it looks deceptively conventional in pictures, the neighborhood layout points at a human-centric and mixed-use approach.

The designers of Bakong Village chose to provide parking space for residents in a dedicated parking building adjacent to the main access road. This parking arrangement is key with the average urban household having a minimum of one car. Combining the parking spaces of every household and moving them to a designated location is a much more efficient way to deal with parked vehicles.

Thus, most houses do not require a parking spot or even need direct access to a roadway and can be placed along homey, tree-lined paths dedicated to pedestrian traffic. The space saved allows public spaces to be dotted across the center of each block; crisscrossing the neighborhood. To reduce vehicle use, the design incorporates the principles of mixed land use with shophouses, which are popular for a wide variety of small businesses, numbering one-third of the total units. Likewise, a market with 60 stalls serves as the dedicated commercial hub of the whole neighborhood. Moreover, an elementary school equipped with a playground and a sports court is also included in the layout.

Deliberate design and careful management have ensured that most of the daily necessities can be taken care of inside the village.Therefore, lessening the need to travel elsewhere, while also improving the convenience and livability for inhabitants.

Thus, more neighborhoods in Cambodia should be inspired by this unique layout, which reduces car use while emphasizing space for leisure, physical activity and social interactions.



Yet, even Bakong Village cannot fulfill all the design principles discussed earlier. Thus, fully visualizing a transit-oriented and human-centric Cambodian neighborhood requires developers to explore how all elements should be combined cohesively.

# A new type of neighborhood for cambodia

Such a neighborhood would incorporate a public commuter line, or as in the case of Rieselfeld, extend existing lines into new developments, forming a spine for new neighborhoods and acting as its main street. This main street would be the center of commercial and civic activities in the neighborhood, where architects could locate multi-functional blocks composed of low-rise buildings that contain shops, offices, restaurants and public facilities.

Just behind the main street, residential units would be more dominant but the good design would maintain some businesses on the ground floors. Avoiding the standard car-centric layouts that most boreys use, this neighborhood could instead be designed with a crisscrossing inner network of cozy, tree-lined foot and cycling paths, connected to the gardens and playgrounds at the center of each block.

# COMPACT DISTRICT

# TRANSIT ORIENTATED, MULTI-PURPOSE & COMPACT

Paratransit and Active Commute



Paratransit links together compact neighborhoods to a district center which serves as a transit hub, connecting the district to the rest of the city.

Additionally, streets serving these businesses and homes might follow a "shared street" design. These streets would be designed to prioritize active commuters but would still allow necessary vehicle access, which is critical for businesses to get supplies and for public services like garbage collection and emergency services.

Like tendrils expanding from the neighborhood's dense core, footpaths might meander their way to the fringes. Here, detached single-family homes might share pleasant walkways and lively plazas. Streets could ring the area but would not be choked full of parked cars as vehicles would be parked in secured locations next to exit points from the neighborhood.

Lastly, a correct ratio of single-family homes to lowrise residential units should be devised to facilitate the inclusion of housing units for different income levels. Preferably, planners should include at least three price points for houses, with each type not exceeding 50% of the total; to avoid creating a majority.

Although this neighborhood is only a thought exercise, it demonstrates that it does not take much to radically shift and reimagine how we live. The stark contrast between a vehicle-centric neighborhood and a human-centric one is obvious. Inhabitants of human-centric neighborhoods enjoy public spaces, accessibility to daily needs, excellent urban mobility, a better physical environment and more social interactions.

Given the rapid growth of urban populations across Cambodia, the nation's towns and cities should reconsider current trends and shift to principles that prioritize livability over vehicle dependency.

> Originally published 19th of March, 2022 by Cambodianess



Boeng Keng Kong is one Phnom Penh most livable neighborhoods, but its street are dominated by motor vehicle traffic.

# 4. RETROFITTING EXISTING RESIDENTIAL NEIGHBORHOODS INTO SUPERBLOCKS OF LIVABLE NEIGHBORHOODS

By Ses Aronsakda

After a long day, it's safe to say that most Phnom Penh residents would love to be able to step right outside their homes and be able to relax outdoors, in a tranquil space, away from rush hour traffic and the accompanying pollution and noise. Yet such places are exceedingly rare and growing more rare by the year.

One recent assessment of Phnom Penh published by UNDP found that the public space ratio in Phnom Penh has dropped from the already low 1.1 square meters per person in 2014, to only 0.29 square meters per person in 2020. At the moment, most Phnom Penh residents looking to spend time socializing and relaxing outside have no choice but to drive to a handful of prominent parks, like Independence Monument or Riverside, that are too few and too far between. For many more urbanites, including the elderly, young children, and those residents with a disability, making such a journey is difficult or even impossible to do alone.

In an ideal version of Phnom Penh, inclusive and accessible public spaces would be just steps away from our offices and from our homes, spread across every neighborhood of the city. While



this might sound impossible to execute given Phnom Penh's current reality, an innovative urban planning concept could help us get there.

Phnom Penh should consider turning to a concept that retrofits existing streets, shifting them away from car-centric spaces to human use instead, allowing Phnom Penh to increase public space. The design concept I'm referring to, the superblock, has shown great promise when applied in cities abroad.

# Benefits of the superblock

The concept was first pioneered in 2016, when Barcelona converted the Poblenou neighborhood into a superblock composed of nine regular city blocks grouped together into a three by three configuration. In one of these superblocks, vehicle traffic is rerouted to the perimeter streets of the superblock, and the interior streets are pedestrianized with restricted vehicle access.

SUPERBLOCK SCHEME

Many of Phnom Penh's densely packed neighborhoods can reduce the footprint of automobile, as evident by this superblock scheme for Boeng Keng Kong.

The public spaces Barcelona wrestled away from vehicles were converted into gardens, playgrounds, and seating areas. With public space steps away from their doors, neighbors became more sociable, meeting more often, families sat comfortably along picnic tables shaded by trees, and children played freely without worry.Local businesses also enjoyed a boom as increasing levels of pedestrians and cyclists frequented their shops, not to mention the benefit businesses gained from additional seating space for outdoor dining.

Superblock implementation in Phnom Penh would create outdoor spaces neighborhood residents can enjoy — picture seating tucked into public gardens or places where residents could even string hammocks between trees. Spaces like these would allow children to stay active while staying safe from traffic, and would allow residents to socialize in areas flanked by bushes and shaded by awnings.

Within these spaces, neighborhood businesses could even set up additional outdoor dining space outdoors, boosting revenue and offering unique dining experiences surrounded by greenery.

Superblocks also have the potential to make significant improvements to our urban microclimates, making our neighborhoods more comfortable and healthier to live in.







By LIVING FORUM



In a shared street scenario only a small portion of the street, in this case a 3 meter driving lane, is dedicated to motor vehicles. The rest is allocated to public services, greenery and pedestrians.

The superblock layout could cut down on sound pollution, for instance, which is rarely discussed, but has major implications on physical and mental health. By reducing motor vehicle traffic in front of homes, schools and businesses, superblocks would positively impact our well-being, by reducing air pollution and minimizing traffic accidents as well.

Cambodia's sweltering heat can be combated by the additional green space superblock-oriented development would create. Average land surface temperatures in Phnom Penh have risen by 3 degree celsius from 2016 to 2020 in most parts of the city, according to a comprehensive 2022 study.

City areas of high temperature, called urban heat island, are directly linked to negative effects on human health like heat stress, high frequency of intense heat waves, and increasing atmospheric pollution.

Thinking differently about urban space

Shifting Phnom Penh's neighborhood planning strategy in favor of superblocks would also mean shifting our priorities for what we allow to dominate our public spaces.

If you were to take a look outside, there are probably dozens of cars parked at any given time on any given street. Up to three quarters of our street space is usually occupied by these parked vehicles—often at the expense of space available to pedestri-

These endless stretches of asphalt and concrete can and should be reimagined, but cutting down on space for cars doesn't necessarily mean increasing traffic congestion. The typical residential street is mainly used for storage of personal motor vehicles. Using public space for personal benefits deprives a street from being able to fulfill other functions.

Superblocks would reduce vehicle through-traffic and regain space for green space and human activity while addressing unproductive use of space. But, importantly, a balance must be struck between minimizing space for vehicles and retaining vehicle access for freight deliveries, public service and local users.

According to researchers in Barcelona, this planning concept can convert car space to neighborhood public space without exacerbating traffic woes elsewhere. A recent study on the city's superblocks found that "on average, traffic levels on streets with [superblock] interventions diminished by 14.8% relative to streets in the rest of the city."

The study further noted that, crucially, traffic on adjacent parallel streets, which may provide likely alternative routes for displaced traffic, also did not see any significant corresponding increase in congestion.

Phnom Penh superblock - a new neighborhood scheme

Boeng Keng Kang 1 is a perfect location to pilot a Phnom Penh superblock because of its population density and its grid layout. The neighborhood is also flanked by Norodom and Monivong Boulevards to its east and west respectively, and is thus within walking distance of public transit stops.



The interior streets of a BKK superblock should be redesigned to prioritize active commuters and cut down on through-traffic. This helps make the interior streets safer and quieter. Creating a more pleasant environment for residents to utilize as a public space.

Additionally, with less vehicle traffic and more active commuters, it would be possible to convert spaces into gardens, playground and seating areas; rows of street trees occupy where there used to be parked cars adding to the comfort level. For example, Street 57 can be completely pedestrianized throughout its entire length in this scheme, adding 13,500 square meters of public space.

Many shops nestled along BKK's lateral roads, like those on Street 302 and 334, can take advantage of setting up outdoor dining areas. Likewise businesses in the neighborhood as a whole would also enjoy a boost from increasing pedestrian and cyclist footfall because active commuters are more likely to visit at a shop or stall and make multiple visits. Lively shops and stall fronts, active public spaces and a steady flow of active commuters would create an atmosphere of safety and belonging, reinforcing the social bond of the community.

The streets that make up the perimeter of each superblock, in this case Preah Trasak Paem street and Rue Pasteur, would carry unidirectional vehicle traffic to allow business and shops along the periphery better access to freight vehicles, public service vehicles and emergency services. Arterial and collector streets forms the perimeter of the Superblocks, where vehicles can travel.



# Superblock-friendly policy changes

Ideally, a Phnom Penh superblock pilot project should also be accompanied by a few key policy changes, including implementing a mobility-based land use policy. This policy would, for example, place larger stores, restaurants, convenience stores, office, and multilevel mixed-use buildings along superblock perimeter streets where they can have greater vehicle access.

Conversely, the inner streets of a superblock would be the ideal place for buildings that don't require access to large vehicles and will benefit from the quieter environment like residential units, cafes, or small shops.

Another key policy in need of reform is the current parking requirement. By scrapping a parking minimum and introducing a parking maximum instead we could reduce the number of available car parking, thus dissuading users from driving to these locations.

Lastly, on the interior streets of a superblock, new street designs should be employed to calm traffic. Narrowing vehicle lanes and implementing one-way streets would slow drivers down to maintain safe traffic speeds and help to limit through traffic. In addition to creating separate paths for pedestrians and cyclists, adding a small frontage area for local houses and shops, and to gain additional greenspace. Overall, the superblock concept can be retrofitted into existing neighborhoods. And Phnom Penh already has neighborhoods that are well-suited and would stand to benefit immensely.

Adopting this concept would transform Phnom Penh's streets into spaces for people, creating walkable, comfortable, and safe environments for residents. The additional public space on every street would make gardens and playgrounds more easily accessible to children, people with disabilities, and the elderly. Not to mention the social benefits of connecting neighbors, easing the mental health of residents, allowing children to play and stay active, and bringing the community together. If Phnom Penh adapts its urban space to prioritize people, then all of the benefits are possible just in front of every resident's doorstep.

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Bustling with residents hanging around, pedestrians, and local shops even back alleys feel safe.

# 5. FOR URBANISTS, SAFE STREETS ARE LIVELY STREETS

By Prak Norak

The typical image of a "safe street" might conjure an image of a tranquil street lined by high fences protecting houses, not unlike some of the more sought-after gated communities, or borey, in and around Phnom Penh.

Yet numerous studies and real-world examples show that quiet or inactive streets are not the pinnacle of safety that we would otherwise expect them to be. Instead, it's busy streets that signify not only safe neighbourhoods, but socially, mentally and economically positive ones.

Phnom Penh already has many active streets and public spaces, but the right formula can ensure that every street and public space is as safe as possible. Eyes on the street

The renowned urbanist and writer Jane Jacobs was one of the first thinkers to popularise the concept of the lively street as an instrument of public safety.

According to Jacobs, a safe street has several main characteristics. Among these characteristics is the idea of "eyes on the street," a phrase Jacobs coined in her book "The Death and Life of Great American Cities" as a way to visualise the idea that a lively street is one that has people who watch over it.

Her solution for a safe street was to have streets watched over by residents, pedestrians, and street vendors using the street.



In order for occupants to see the street, Jacobs suggested that buildings must face the streets with plenty of "permeable" surfaces, such as windows and doors. This system of street watching deters crime while assuring street users that it is safe for walking.

It should be noted that crime is still possible on a busy street or in a busy place such as a market. Pickpockets and purse-grabbers may still find a chance to hit their marks but with only one shout from the victims, everyone within the vicinity is alerted and ready to help the victims. Compare that to a deserted street where chances of getting help are slim. In the recent case of a street robbery in the capital's Por Senchey district, the thieves preyed on a victim leaving their home but were soon intercepted by bystanders and handed over to the police. And in another case in the city's Sen Sok district, a purse snatcher was similarly nabbed by people in the vicinity. For both of these examples, simply having these "eyes on the street" helped create the means to stop crime immediately after it happened.



Reducing violent crime by livening up a desolate street

A case study from the city of Dallas, Texas, can illustrate the public security impact that transforming a desolate stretch of street into a bustling public space can have.

Malcolm X plaza was once an area surrounded by vacant lots and bad sidewalks.

These desolate streets were one of the most dangerous areas in the city. Before an initiative revamped the plaza in 2019, violent gun crime was 564 times more likely to happen there than anywhere else in southeastern Dallas. In 2021 and 2022, a local non-profit, Child Poverty Action Lab, teamed up with the nonprofit Better Block Foundation to target and "activate" an empty lot in the neighbourhood. The lot went from being empty and vacant to hosting events ranging from Friday movie nights to Saturday basketball tournaments. By turning this empty stretch of property into a lively gathering space, the initiative produced real results in terms of public safety without any increase in traditional policing. Lively streetscape, thanks to a combination of small shops and lively human activity provides a sense of safety.

Data gathered by Better Block following these interventions found that keeping streets lively with neighbours engaged led to reductions in crime. Violent crime fell by 59% compared with 2019, with a 20% decrease in arrests. In total, this area, which had been the highest-risk neighbourhood in the police department's patrol division, dropped to 463rd on that same ranked list.

Malcolm X Plaza shows how the space of lives and activities can be the key to a safer street. As in the words of Jacobs: "A well-used city street is apt to be a safe street."

These efforts to improve street safety through busier and livelier streets can be similarly explored in Southeast Asia.

In Cambodia, a culture of bustling streets

Phnom Penh has several factors in its favour when it comes to street liveliness.

Lively streets are already the norm in many parts of the city. On the streets that run alongside the bustling Orussey Market, people come and go throughout the day to shop at the fish and vegetable vendors which border the roads. Amidst the alleyways nearby, outdoor eateries attract regular customers and passers-by to come for breakfast, lunch, afternoon coffee and more.

The spontaneous and vibrant nature of this type of Phnom Penh street is often overlooked or even regarded as a negative characteristic. This has bubbled up in instances when officials sweep street vendors from their locations for public order reasons, or label such vendors as the reason for traffic congestion. While some Phnom Penh residents may see these kinds of streets as too loud or too bustling, these lively areas are key commercial areas, where the bustle of daily life attracts even more people. Street vendors are often viewed as a nuisance. Yet their role in brightening the street should not be overlooked.

The use of these streets for commerce is one factor in making them lively, but another lies in the buildings that run beside them. Of these, perhaps none are more conducive to life than the shophouse. These ubiquitous structures are row-homes with the ground floor being often a shop or business while the upper level is mainly used as a residence.

Shophouses have long been the most common building typology in Phnom Penh and are an ideal configuration for the "eyes on the street" dynamic while ensuring the vibrancy of mixed-use neighbourhoods.

The capital already has these built-in features keeping streets lively. But there are also several factors Phnom Penh leaders should prioritise for improvement, to better ensure more active and therefore more secure streets.

Room for improvement

The first impediment standing in the way of livelier Phnom Penh streets is the lack of usable sidewalks.

This is because they're often occupied by businesses extending their storefront, or otherwise for parking for motorbikes and cars. The most misunderstood aspect of Cambodian streets is that sidewalks are a private space — in reality, they are within the public realm.

This leads to the privatisation of these pavements that would lead to an inactive street.



Viewed from this perspective, our lack of sidewalks isn't just a mobility problem, it's also a public safety problem. Streets that only experience fast-moving vehicles through traffic and no slower-moving foot traffic are bound to feel less safe.

If Phnom Penh is to incentivise foot traffic, however, another critical point would need to be addressed. In a city where, for parts of the year, the temperatures soar into the high 30s or even low 40s Celsius, more shade coverage is necessary to keep people in the streets. Phnom Penh must also be intentional about avoiding some of the most worrisome causes of street inactivity. One of these factors is the proliferation of empty lots and abandoned, half-completed construction projects. For a cautionary tale that spells out the negative impacts of this urban issue, look no further than the city of Sihanoukville, where hundreds of half-finished buildings have contributed to criminality and other public safety and public health issues.



Street that prioritize parking with very little interaction - betwen buildings and people, people and people - creates an image of a desolate street.

Plain walls and buildings, parked cars on sidewalks and other obstructions conspire to make a street desolate and unsafe for residents and pedestrians.

Sihanoukville has received significant attention from Chinese investors for its casino and hospitality industries. But after the ban on online gambling and the subsequent Covid-19 pandemic, many of the buildings became abandoned, leading to a deteriorating and unsafe look of the city.

For Phnom Penh's existing empty lots, it would be wise to take inspiration from a place like Odom Garden, which repurposed a large lot which otherwise would have sat vacant for several months until construction on the land began. Instead, the lot was converted into a temporary public green space or "pop-up" with a liveliness augmented by commercial activities.

Pop-up gardens such as this one, which make use of an empty or unused space even just temporarily, should be an experimental ground for planners and designers to see what works and what doesn't.

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Healthy arteries for a healthy public
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While safety is an obvious byproduct of lively streets, it's also important to note the less tangible impacts.

When residents feel a strong social bond with one another, they are better able to create lively streets and lively neighbourhoods. But the causal relationship also runs in the opposite direction.



Street that is vibrant and lively foster a network of "natural surveillance" where people watch over one another.

User's perception of streets safety can be enhanced by encouraging a lively shop frontage, greenery, unobstructed sidewalks, and structures with openings.

In one research paper on the "Busy Street Theory", the authors note: "Neighbourhoods where residents feel safe and comfortable being outside are typically characterised by socially active streets. Furthermore, positive street activity promotes socialising between neighbours, enhances monitoring of neighbourhood activity, promotes patronage to local businesses, and helps to maintain the existing infrastructure."

If activities within the neighbourhood foster informal interaction, residents are more likely to be able to connect with one another. For example, parents accompanying their children to a playground within a pop-up garden in their neighbourhood may deepen their ties simply through that regular proximity and the ease of conversation that it creates.

The liveliness and messiness of Phnom Penh is not something that we should seek to get rid of. Rather, it is at the heart of what makes our streets and city safe.

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# 02

# MOVING PEOPLE

*#Traffic #City # Transit #Urban #Road #Public* #Lanes #Bus #Street #Transportation #Mobility #People



A key ingredient of a livable city is sustainable urban mobility.

# 1. PHNOM PENH SHOULD BE A CITY BUILT FOR PEOPLE, NOT CARS

By Ses Aronsakda

The mornings start early in Phnom Penh, the food stalls open for business tucked into allocated spaces along the road as a flow of cyclists and pedestrians begin the journey to work along tree-shaded paths and plazas.

As for the vehicles? They arrive in trickles, mostly transit buses, the occasional car and a handful of motorcycles. The dreaded rush hour wave never arrives.

While an appealing vision of the future, this is clearly not the reality today in Phnom Penh, a city which approaches urban planning from a A portion of street 184 is already pedestrianized. It should inspire more actions to enhance people-centered activities along this street.

car-centric perspective. Driven by the global ascendancy of automobiles after World War II, the car-centric city model encourages urban sprawl along city fringes, larger roads carving up neighborhoods, elevated expressways cutting through historic urban centers and vast deserts of parking lots. It is a model which emphasizes vehicles first and people second.

After decades of global adoption, the true costs and fundamental fallacy of such a model are only recently being understood. Worldwide, relentless urban sprawl has led to increasing costs to city halls and greater inconvenience and cost to commuters, all while compounding severe environmental damage. Additionally, despite cities spending billions to build and enhance vehicle infrastructure, traffic congestion has only become worse in the most car-dependent cities. Larger roads only create more traffic demand — and thus attract even more traffic. Phnom Penh is no different, with rush hour each day bringing with it major arteries going in and out of the city clogged with traffic.

But a better future could become a reality, even in a city like Phnom Penh, if we were to choose to adopt a new urban planning model. A model that is pedestrian-centric, cyclist-friendly, and transit-orientated, leaving behind the issues of a car-centric model. This vision may sound like a dream invented by idealistic Cambodian architects and planners, but these ideas are in fact already being implemented in many major cities around the world.



Removing and reducing roads will reduce traffic congestion

Leading the charge on re-envisioning what urban centers could look like are cities like Seoul and Madrid. Each formerly relied heavily on a car-centric approach, and have since moved away to pioneer more effective planning policies.

During South Korea's economic rise of the 1980s, Seoul constructed multiple rounds of expressways cutting through its urban center. By the beginning of the new millennium, these structures had become dilapidated and did little to alleviate Seoul's problems with traffic congestion. Seoul took drastic measures in 2003 by removing a full section of congested elevated highway from its central district. The expressway's demolition revealed the long buried Cheonggyecheon stream the namesake of the project.

Replacing the space once dominated by vehicles is a one hundred-acre, 5.8-kilometer urban park straddling the restored stream, flowing to the greater Han river. It is a lush and winding greenspace which has helped reduce heat in the immediate surrounding areas by 3.9 to 5.9 degrees celsius, has led to a reduction in air pollution by (35%), and has increased the area's vegetation and marine biodiversity as well. However, the most surprising benefits of this was a reduction in vehicle congestion in the city center, and a marked increase in public transit ridership (15.1% for bus and 3.3% for subway respectively) for the central districts.

Additionally, the park's accessibility increases connectivity between the formerly disconnected north and south districts, with the inclusion of bridges for pedestrians and vehicles. Bus transit lines were added to replace lost commute capacity, but the formerly sprawling ground-level driving lanes were greatly reduced to discourage personal vehicle usage, successfully reducing automobile trips around the central district areas.

Thus, paradoxically for Seoul, the solution to traffic issues was to minimize space and infrastructure which were exclusively reserved for cars. This counterintuitive approach exemplifies the new pedestrian-centric strategy for urban planning.

This same strategy could work in Phnom Penh as Well.

If we were to restrict car lanes on Phnom Penh's roads or remove whole road sections we might assume it would only lead to more gridlock. Yet, as suggested in the case study of Seoul, some evidence points to the potential for an opposite outcome.

To reduce traffic demand, Phnom Penh's urban spaces should be designed to discourage car usage. The elimination or reduction of expressways and large driving lanes, strategic usage of one way roads, minimal placement of parking spots, and the conversion of vehicle roads to pvedestrian thoroughfares can all discourage the over-reliance on personal cars.

Without all these personal vehicles taking up space, unused road spaces could be converted and redesignated for other purposes like sheltered bus stops, bike lanes, stall stands, trees for shading, and wider, safer pavements.

These improvements not only benefit pedestrians and cyclists, but motorists as well. Often overlooked too is that this space saving makes it easier to include dedicated turning lanes for cars at intersections, where extra space for cars is actually critical. Thus, improving the turnaround rate of intersections in turn improves the overall flow of the street, while also making it far more lively, attractive and safe for other commuters and pedestrians.



Street space reconfigured for human usage. Local and service vehicle access can be maintained, but significantly slowed down for safety of residences.

# Neighborhood as mixed-use blocks

Traffic congestion isn't the only negative impact of car-centric urban design. Phnom Penh suffers from fractured neighborhoods split apart by poor road placement and increasing amounts of space devoted to vehicle infrastructure. This issue is compounded by urban sprawl which has increased distance from home, work, leisure, health, and daily grocery, etc for the city's commuters.

Madrid has remedied these issues by evolving around an urban planning principle called the Compact City. It seeks to reduce the need, frequency and length of private vehicle travel by placing all daily essential services within walking or biking distance to all users. It achieves this by developing mixed use city blocks containing residences, grocers, day care, and clustering such blocks around transit stations which will be used by locals for longer commutes.

Madrid has taken a step further by designating carless super blocks — a cluster of several city blocks closed to any vehicle traffic along its inner streets, vehicles only allowed to use its periphery streets to allow for basic freight and waste services.

## COMPLETE STREET Livable Residential Neighborhood



# CROSSING

intersection to the same level as the sidewalks, signaling to also serves as a speed bump to physically slow drivers.







CURB EXTENSIONS & BIO SWALES

improves safety for all users entering and crossing an



**BUS BULB &** SHELTERED BUS STOP

the parking lane, allowing buses to stop and board amount of time lost when merging in and out of traffic.



Seperated lanes between motorized and non-motorized all users. Physical seperation through the use of parked


Urban spaces can be tranquil retreats. What is needed is for citizens to reimagine them.

These formerly congested intersections were converted to lively plazas, greatly improving the walkability of neighborhoods and providing locals with public leisure spaces at their doorstep. Meanwhile, small shops and businesses also gained sales because of the neighborhood's improved attractiveness and ease of commute.

Phnom Penh's existing street layout and city blocks are well-suited for the urban design changes implemented by Madrid.

A limited pilot super block scheme in Phnom Penh's older districts with one way shared streets, and partial vehicle bans during certain times per day, could revitalize neighborhoods and serve as an example to convince other parts of the city to adopt the same scheme.

In addition to converting quiet streets to pedestrian-only thoroughfares, walking and biking can be facilitated by having back alleys converted to green corridors and pocket gardens creating a secondary system of pathways only used by pedestrians and cyclists.

Additionally, to facilitate the growth of mixed use blocks urban planners must formulate zoning codes which encourage a diversity of residences, services and leisure activities within self-contained neighborhoods.

Before it is too late

Some cities around the world are moving away from automobile-centric models to models focused on pedestrians, cyclists and public transit; and it's clear that the sooner cities do so the better. The earlier example of Seoul also proves how difficult and expensive it is to remove already built infrastructure from the middle of the city.

The opposite is true for a city which has yet to build excessive automobile-centric infrastructure, and therefore can more cost effectively adopt a pedestrian centric model. Phnom Penh still just falls into that category and we should capitalize on that fact before it is too late.

The impact of a smaller, denser and cleaner city are obvious. Should Phnom Penh follow these concepts, the impact will be enjoyed by citizens living more convenient, fulfilling and healthy lives, by metropolitan governments experiencing an ease of spending, and most importantly the environment, which will no longer be maligned by urban sprawl.

By reducing spaces for cars in Phnom Penh, it inevitably leads to a fundamental shift in how we design and use urban spaces, a shift which favors the owners of the city. Phnom Penh should be a city designed for humans, not cars.



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An effective public transit system is contingent on more than just clean buses and timetables.

# 2. THE FUTURE OF PHNOM PENH'S PUBLIC TRANSPORT CAN LEARN FROM PAST MISTAKES

By Ses Aronsakda

Along Phnom Penh's riverside promenade, an empty water taxi leaves a passenger pier, continuing its journey along a mostly deserted route. At the city's only train station, empty carriages stutter toward the airport, only to return still vacant. Throughout the city's boulevards, buses run with mostly open seats despite being new and comfortable.

The unused public transportation system was the city's status quo long before Covid-19 forced suspensions. And ever since, the city's 2.1 million residents have been left with few options other than braving the sea of honking tuk-tuks, cars, motorcycles and their combined exhaust.

Phnom Penh remains one of the few Southeast Asia capital cities without meaningful public transportation, which is why the Cambodian government has its eyes set on developing a modern light rail network. The ambitious undertaking reached an important milestone in April when long-awaited feasibility studies and initial proposals for three rail-oriented mass transit solutions were reviewed by the Ministry of Transportation and Public Works, though the government has yet to make a final decision.

With an estimated cost of between \$1 billion and \$1.4 billion, the citywide light rail promises a comprehensive transportation upgrade by the latter half of the decade. Yet the project's success is not guaranteed, while the high profile and cost underline the significance of Phnom Penh achieving sustainable urban mobility.

Phnom Penh's flagship light rail project should carefully consider the mistakes the city made with past public transportation projects, which were hampered by the failure to appreciate the necessity of a cohesive network, resulting in piecemeal application and eventual neglect. Phnom Penh is no stranger to rolling out public transit networks and nurturing them with heavy subsidies, only for them to languish. While previous attempts including bus, water taxi, and train were sensible choices, they were envisioned as separate entities rather than part of a connected and coherent whole — a fatal flaw for any transit system.

Since 2018, the water taxi along Phnom Penh's riverfront has run from north to south, with stops along the way at important destinations. It should have greatly eased pressure on the city's main boulevards. Even though there was early interest due to its novelty, ridership tanked in the months afterwards. This was because each stop was disconnected from other transit, effectively stranding passengers after they left the station.

Around the same time, the Airport Rail Link was inaugurated for public use. It created a critical connection from the city's center to its international airport, alleviating pressure from the congested Russian Boulevard. But Phnom Penh's old colonial train station proved ill-suited to serve as a hub for a wide variety of transport options.



Commuters face a myriad of issues when opting for public transit, but quality of the vehicle themselves is not one of them; being clean, air conditioned and well maintained.

As it currently stands, passengers are required to take another means of transport just to reach the station, while travelers arriving from the airport are left stranded as well. Moreover, the rail was forced to share a route with other vehicles, creating a dangerous environment due to lax traffic enforcement and unseparated tracks.

The most widely used public transit option — the Phnom Penh City Bus, which started in late 2014 — hasn't taken off, even after Japan and China donated fleets of new, comfortable buses. The bus system's 2019 rate of 30,000 daily passengers is marginal when compared to total commute numbers in the city, while being far too small to alleviate traffic congestion.

In hindsight, the bus network failed to reach more adopters because it suffered from poor traffic management, including a lack of bus priority stop lights and separated lanes. The result led to lowered bus speed and inconsistent service, compounded by a lack of sheltered bus stops and the poor walkability of Phnom Penh's streets.

All three networks still lack a unified payment system, which makes it inconvenient and expensive to hop between lines, let alone other transit modes.

The fragmented and disjointed implementation of

each public transit network encapsulates Phnom

Penh's failure in realizing an effective transit system.

Highlighting the city's neglect to adopt a multi-mod-

As described by the US Department of Transporta-

tion, multi-modal transit is planned from the start to

accommodate different forms of transportation by

dedicating infrastructure and support services for

them. Yet questions remain over the practicality of

Fortunately, other cities have found their way out

of this predicament, offering important insights for

Phnom Penh. The Dutch once faced a similar challenge in Amsterdam, ultimately developing an inno-

vative strategy to accommodate multi-modal transit.

applying this theory to Phnom Penh's streets.

al approach to planning its transit system.

In the 1970s, cars choked Amsterdam's narrow streets and the city sought more emphasis on public transit systems and active commute options such as walking and cycling.

The Dutch devised an organizational strategy called 'disentanglement,' a conscious, carefully planned effort to separate the various modes of transit and place them into different street networks designated specifically for them.

Each network then converged at strategic locations to facilitate switching between lines or transit modes.In general, smaller streets, promenades and alleyways favor active commuters and larger thoroughfares favor buses, private vehicles and trams. Doing so enables each road to better accommodate its respective mode of transit, while reducing conflict points and accidents, making traffic safer for all users.

Phnom Penh can employ a similar strategy to manage its transit networks, although Phnom Penh's unique urban context will require adaptation. Any solution must contend with the city's well laid out but dense urban core, its heavy reliance on motorcycles and an acknowledgement of the notoriously low traffic obedience of city commuters.

To start, Phnom Penh must establish transit hubs as the nucleus of a future public transit system. These are strategic intersections of major thoroughfares located across the city's center and immediate ring road. Japan International Cooperation Agency (JICA) has already identified locations in its urban transport plan for Phnom Penh.

Urban planners must then identify and design new routes connecting these transit hubs. In doing so, Cambodian planners should thoughtfully consider which streets best suit a particular mode of transit and apply a focused street design to accommodate the selected option.

In practice, Phnom Penh's dense but roughly orthogonal street layout makes it easier to carve out these distinct routes, in a manner where no mode of transport would be unfairly forced to take a circuitous route for the sake of another.

For instance, north and south travel can utilize the central and expansive Preah Norodom and Preah Monivong boulevards, which are ideal for light rail and city bus service. The more moderately sized Preah Trasak Paem and Pasteur streets can be designated as part of the private car network.

Planners will also have to lean into Phnom Penh's love of motorcycles, preferably by recognising motorcycles as a separate network from cars. Preah Yukanthor street, a quieter route, can be part of the motorcycle network.

This leaves Preah Sisowath Quay, a riverside avenue, as the perfect candidate for a pedestrian and cyclist path.

Proposed urban mobility network. Each mode of commute is 'disentangled' from each other into their own network.

In the latest urban mobility report on Phnom Penh, Cambodian researchers diagnosed inadequate provision for pedestrians and cyclists as a major obstacle holding back public transportation. Encouragingly, the strategy of streamlining streets would retain more space for sidewalks.

Streets that accommodate a mix of pedestrian, cyclist and public transit modes enjoy a number of benefits, including improving public health by encouraging walking and cycling, spurring engagement with local businesses and promoting environmental sustainability.

Additionally, decreasing driving lanes frees space to employ separated lanes for bikes and pedestrians to keep them safe from faster and heavier motor vehicles. Experts recommend utilizing vegetation, curbs and even parking spaces as buffers for cyclists and pedestrians.

At intersections, curbside extensions at corners slow drivers, keep them from cutting into pedestrians or cyclists and retain line of sight and alertness for those crossing the intersection.





Total Street Capacity 42,400 People/Hour

Boulevards that prioritize public transit must integrates separated bus lanes, bus sheltered, street trees, and ample sidewalks.

A pedestrian-friendly city is integral to a mulit-modal approach, as it will facilitate commuters' first and last mile of travel to or from the nearest bus or train station. Short trips with private vehicles will be discouraged, further reducing congestion.

Cambodian planners should go beyond just executing a single system, and focus on developing a multi-layered, integrated and accessible transit system. They can achieve this by building well-designed transit hubs, adopting a unified payment system, disentangling modes of transport into separate networks and using the street space gained to emphasize active commutes.

This outline is a path for Phnom Penh to avoid the empty carriages and open seats of the present and move toward a future where sustainable urban mobility is a reality for every inhabitant.

> Originally published 15th of September, 2021 by Southeast Asia Globe



Heavy vehicle traffic intermixing with motorcycle traffic, and inadequate features for pedestrians is largely responsible for the Kingdom grim traffic statistics.

# 3. CAMBODIA NEEDS SAFER STREET DESIGNS

# By Ses Aronsakda

If a passenger plane crashed and killed 162 people every month, there would be enormous public outrage, an intensive government investigation and a push to reform safety.

Yet similar casualty figures on Cambodia's roads only garner condolences, tired explanations and redundant promises, never real change.

The national police reported 859 traffic accidents with 486 deaths from January through March. Road traffic accidents were estimated to have cost Cambodia \$466.8 million in 2019 alone, equivalent to 1.7% of the country's annual GDP earnings, according to a report by the National Road Safety Committee (NRSC) and the United Nations Development Programme.



Passively designed streets leaves ample space for vehicles, but almost no space for pedestrians.

PENH'S STREETS DE-DESIGN By Living Forum

NRSC Secretary-General Min Manavy urged road users to respect the traffic laws, noting that 866 people involved in accidents involving motorbikes were helmetless.

Helmets and seatbelts only mitigate injuries, they do not prevent a vehicle careening down a street and causing injuries. Instead of blaming victims, Cambodia must enact a comprehensive overhaul to examine the true cause of traffic accidents and make a radical policy shift to solve the issue.

The Ministry of Public Works and Transportation reported that overspeeding accounted for 33% of the 1.619 accidents recorded nationwide in the first half of 2020. The other factors involved in the accidents included right-of-way (23%), incorrect lane use (14%), overtaking (10%) and incorrect turning (10%).

While careless drivers accounted for 90% of all traffic accidents in 2020, the reasons drivers speed and overtake on crowded roads, intersections or sharp turns is rarely discussed.

Asia Injury Prevention Foundation Director Kim Panga highlighted the issue of speed. In a Phnom Penh Post interview, he recommended amending speed limits in previously implemented sub-decrees, arguing that speeds in school areas should be limited to a maximum of 30 kilometers per hour (18.6 miles per hour) while the speed limit for passenger trucks should be lowered to a maximum of 50 kilometers per hour (31 miles per hour).

Traffic police throughout Cambodia have set up checkpoints and a new speed camera system in an attempt to correct the issue, but speed limit reform is a limited, top-down approach. Traffic police cannot be expected to set up checkpoints at every street corner, nor do speed cameras address the root causes of many accidents.

Better road design is the primary tool Cambodia should apply to address driver behavior and road safety.

# **Active Street Designs**

Passive and proactive designs are little-known road engineering philosophies that could significantly change the conversation.



A passive design approach accounts for the worstcase scenarios: crashes and traffic congestion. Using this approach, streets are built to contain multiple oversized driving lanes and generous clear zones to meet high traffic volumes and allow space for potential crashes.

Evidence shows this design strategy has significant flaws, especially when implemented in urban areas where high speed is undesirable.

- Emphasis on wide, simplified, and unobstructed streets causes drivers to lose their inhibitions. Generous and unobstructed driving lanes distorts judgments of speed, causing drivers to subconsciously go faster.
- Driving speed increases as the lanes become wider. A 2001 study in the United States found widening lanes by 1 meter (3.2 feet) increased average speeds by 15 kilometers per hour (9.3 miles per hour).

Actively designed streets limits space for vehicles forcing them to drive slowly and carefully.

The same study illustrated that within a lane of 3.25 meters (10.6 feet), which is Cambodia's urban street standard, driving speeds averaged an alarming 55 kilometers per hour (34 miles per hour).

As the saying goes, "speed kills!" These passive road design choices encourage higher driving speeds and ironically lead to more and deadlier accidents.

A proactive approach to road design would increase safety in the Kingdom's urban areas.

This careful road design strategy involves street elements which guide and influence better driving behavior by enforcing slow and cautious navigation. These measures are crucial in significantly reducing the severity of grave injury and decreasing the chance of an accident occurring in the first place. One supporting example is a 2019 study from Ghana that found "traffic calming devices reduce vehicular speeds and, thus, the incidence and severity of pedestrian injuries in built-up areas."

Another comprehensive American study in 1997 examined risks associated with traffic speed. A vehicle traveling at 20 kilometers per hour (12.4 miles per hour) has an accident rate of only 5% and a fatality risk of 2%. Yet doubling the speed to 40 kilometers per hour (24.8 miles per hour) was shown to triple the rate of accidents to 15% and spike the fatality risk to 5%, the report stated.

As the Kingdom moves to expand and improve its road network, adapting a proactive approach would be more efficient than retroactively modifying streets.



Illustrator Ses Aronsakda

# **STREET 257**



Total Street Capacity 14,100 People/Hour

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Oversized vehicle space, especially at intersections leads to risky driving behaviors and accidents.



Using various techniques referred to as 'traffic calming measures,' Cambodian towns and cities can reduce traffic speeds. Some interventions alter the physical configurations of roadways, while others change how drivers perceive and respond to streets.

The first alteration local designers can make is reducing lane numbers and their width from the usual 3.25 meters to 3 meters (9.8 feet) or less. Reductions help decrease crossing distance and reduce stoplight cycle time without impacting overall traffic flow.

The space gained from road space reduction can be better utilized as dedicated bus and protected bicycle lanes and on-street parking buffers to protect pedestrians. This is sorely needed in Cambodia, as illustrated by an accident in which a careening vehicle on Phnom Penh's Monivong Boulevard killed a pedestrian on the sidewalk. To further reduce motorist speed, streets should be designed with a chicane, or a lane shifting pattern, that slows drivers with shallow turns. This can be done by alternating parking or curb extensions into the desired pattern. Working on a similar principle, a pinch-point design extends sidewalks to narrow roadways, which restricts speeds and expands sidewalk space.

Planners can also utilize roadway center islands. Combined with raised pedestrian crossings and located in the middle of city blocks, islands reduce speeding and provide safe crossings for pedestrians and cyclists.

Psychological cues also can complement physical restructuring. Trees, street furniture and narrowed building lines create visual indicators, making drivers more speed conscious, alert and aware of their surroundings.



# **Protected intersections**

Intersections are by far the most dangerous road locations because traffic flow converges, visibility is limited and conflict points are plentiful. The danger is heightened by drivers often ignoring stop signs, leading to tragic consequences on a regular basis.

One of Cambodia's most infamous hit-and-run incidents occurred at a Phnom Penh intersection in 2019. An underage driver barreled through a Toul Kork intersection with a sport utility vehecle (SUV), killing motorcyclist Dum Rida.

A preferred method of improving intersections is to narrow corners using curb extensions.

This sharpens the turn radius, which encourages slower turning speeds, decreases the distances pedestrians must cross and ensures good visibility for all users as they approach the intersection.

Another effective intersection safety measure is raising crosswalks to the same level as sidewalks, signaling to drivers that they are intruding on pedestrian space and should be alert. The slight ramp also serves as a speed bump to slow drivers.

Cambodian road engineers also should pay more attention to the largest group of road users: motorcyclists. A motorcycle box would allow riders to line up ahead of other vehicles when stopped at intersections and reduce conflict points. TRAFFIC CALMING Livable Residential Neighborhood



Seperated lanes between motorized and non-motorized commuters is essential to ensure safety and smooth traffic for all users. Physical seperation through the use of parked vehicles, street furnitures and planters reduces conflict points and buffers vunerable street users from crahses.



DEDICATED SPACE FOR GARBAGE COLLECTION

Dedicated areas for garbage collection ensure orderly and timely collection of solid waste, while avoiding the garbage overflow, smell, and garbage being dumped haphazardly.



Bus bulbs are curb extensions that align the bus stop with the parking lane, allowing buses to stop and board passengers without ever leaving the travel lane.



## SEPERATED CAR & MOTORCYCLE LANES, PROTECTED BIKE LANE



DEDICATED SPACE FREIGHT VANS

Dedicated areas for freight delivery eases congestion and ensure that shops and businesses are not burdened by the chages to the streets.



Parklets are temporary curb extentions which adds to pedestrain space. It should incoperate planters as buffer from traffic and often incoperate seating areas.



CURB EXTENSIONS & BIO SWALES

Curb extensions at interactions reduce the crossing distance for pedestrians and cyclists. It slows vehicles as they turn and helps improves drivers' visibility to their sides.



RAISED PEDESTRIAN & CYCLIST CROSSING

Raised crosswalk elevates the pedestrian crossing area at an intersection to the same level as the sidewalks, signaling to drivers that they are intruding on pedestrian space and should be on alert. The slight ramp going up and down the crosswalks also serves as a speed bump to physically slow drivers.



Diverters reserve space for active commuters and create additional public space at each intersection. They retain a limited flow of vehicle traffic but is significantly reduced in volume and camed through design features.

# By LIVING FORUM llustrator Ses Aronsakda

has yielded.

for everyone.

NARROW DRIVING

LANES & PHYSICAL

A Pinch point are curb extensions applied at

midblock to slow traffic speeds and add public

space. When utilized at a mid-block location it

can be combined with a pedestrian crossing

CHICANE LANE

The driving lane retains a single narrow driving lane,

with a chicane pattern(bends in the roadway),

installing street furniture, green swales and trees as

obstacles to slow down drivers and make them drive

PROTECTED PEDESTRIAN CROSSING

Clearly raised and demarcated pedestrain crossing areas allow active commuters to safely cross the

vehicle lane. It maybe enhaced with a Pinch Point,

which are curb extensions applied at midblock to slow

traffic speeds and add green space.

more carefully

Traffic calming features can be placed along streets and at intersections to effectively managed vehicles speeds, gain compliance for street users, and minimize the severity of crashes.

Despite decades of top-down enforcement policy, traffic accidents continue to soar at alarming rates. Over the same 30-month period, traffic accidents led to 3,599 deaths compared to 3,056 attributed to Covid-19.

Given this grim reality, the Kingdom's approach to road safety must be reconsidered. Instead of blaming drivers, authorities and city planners must recognise the dangerous environment which the incumbent road design approach

As the current design paradigm kills and maims indiscriminately, the time has arrived to reassess our road priorities. We must stop pursuing speed and volume for motorists and instead place greater value on health and safety

> Originally, published 12th of July, 2022 by Southeast Asia Globe.



Motorists filling up gas may soon become a rare site due to electric vehicles, but over reliance on personal vehicles is not the solution to equitable urban mobility.

# 4. ENSURING CAMBODIANS' MOBILITY AMIDST ROCKETING FUEL PRICES

By Ses Aronsakda

As fuel prices soared over the past months, a spate of vehicle owners driving off without paying their gasoline bills has become a source of anger, disbelief and amusement for Cambodian social media users. But behind these scenes of fleeing drivers and disgruntled gas station attendants, lies the issue of unaffordable mobility, one that is strangling every citizen's livelihood.

The reality is spiking gas prices are impacting Cambodians' ability to earn income, seek education, healthcare and other necessities.



Traffic congestion is a daily occurrence due to an over reliance on personal automobiles for commuting. This is an expensive endeavor for both personal and public finance.

At their lowest point in 2020, gas prices stood at 56 cents (2,300 riel) per liter but increased to \$1.41 (5,800 riel) per liter as of July. This is a 152% increase over a period of 24 months. And such a drastic surge has had a disproportionate impact on struggling, lower-income families earning less than \$2.66 (10,951 riel) per person per day, according to the National Institute of Statistics.

Although the Cambodian government has cut fuel taxes to alleviate pressure, the effort may not be enough to stave off further price increases and the resulting impacts on daily life.

Given the precarious global security situation in the wake of the Russian invasion of Ukraine and China's show of force near Taiwan's coast. prices will likely continue to fluctuate, jeopardizing the fragile economic recovery Cambodia has managed after last year's intensive Covid-19 lockdowns.

But the livelihoods of Cambodians should not be tied to the fickleness of global fossil fuels prices. One way to decouple citizens' lives from fossil fuel prices is to commit to changing the country's urban mobility policies.



Immediate alternatives

An obvious first answer to rising gasoline prices is to switch to electric vehicles (EV), but this alone is insufficient. With citizens already financially struggling, asking them to buy a new vehicle is unrealistic and counterproductive. There's only four EV charging stations installed throughout the country, so in terms of practicality, it's not feasible. And given the slow rollout of EV infrastructure in Cambodia thus far, an effective solution must be usable by all and be implemented within the span of weeks, not years.

Typically, urban mobility interventions take years to implement and decades to mature. But Cambodian planners seeking a timely intervention can look to Paris as a feasible model to accelerate this process.

The French capital made use of temporary bike lanes, originally implemented in 2019 to alleviate disruptions caused by striking public transit staff. During Covid lockdowns, Parisian authorities rapidly rolled out 650 additional kilometers (404 miles) of dedicated bike lanes through temporary interventions, using movable planters, paint and bollards to demarcate new road features.

Paris shifted to alternative mobility solutions rapidly and cheaply, allowing the city to dramatically improve mobility and safety during the pandemic and shield residents from the negative impacts of fuel price shocks that have struck in 2022.

Streets can be quickly and cost-effectively converted using bollards, planters, and street furniture. In this example, a street is coveted to carry unidirectional car traffic, with micro-mobility traffic (motorcycle and cyclist) remaining bi-directional.



# Phnom Penh measures

To ensure equitable mobility, Cambodia's capital city should consider the formation of a cohesive transit network and reclaim streets for pedestrians and cyclists.

Despite its efforts, the Kingdom is not known for the quality, usability and reliability of its public transportation system.

Phnom Penh's public transit network faces issues of disjointed implementation and poor reliability. Public transit issues are compounded by the absence of walking and cycling infrastructure, as sidewalks are occupied by parking and streetside businesses.

Instead of waiting for funding, the government could adopt temporary and movable measures to offer cheap and quick solutions that could create streets conducive to active commuting and public transit. Once successful, these features can be upgraded by investing in permanent and quality infrastructure improvements.

# IPHNOM PENH's STREETS



Fully pedestrianizing quiet streets, especially in the city's walkable core, is an attractive option. It also serves to dampen demand for overall vehicles trips because downtown location can only be reach by foot and public transit.

Smaller thoroughfares can accommodate protected cycling lanes by implementing one-way vehicle traffic and setting up planters, bollards and street furniture as barriers to protect cyclists.

Quiet residential streets should be converted into shared streets, where vehicles retain access, but are restricted from high speeds and volumes.

On important boulevards carrying bus routes, physical barriers including bollards would allow for the quick installation of separate bus lanes. Additional bus shelters should be prioritized, while existing ones can be cheaply upgraded with movable planters and seating furniture.

Temporary measures would enable quick installment of curb extensions, protected crosswalks, road medians, and parklets. These features improve safety and convenience by de-conflicting traffic, providing better visibility and encouraging slow and careful driving.

These design changes to establish people-centered urban spaces improve safety and accessibility, decrease pollution and enable more active lifestyles, even as gas prices rise.

A web of pedestrian streets and shared streets can span Phnom Penh's urban core. Providing an alternative way to traverse the city without relying on private vehicles.

# Getting it right

Building towns and entire cities around public transit and active commuting creates a transportation model that is relatively immune to fuel price shock. Adopting this model of mobility, can also reduce pollution, improve road safety and create more vibrant and prosperous streetscapes.

In the long-term, Phnom Penh should seek to disentangle its bus routes by moving them onto boulevards prioritized for transit, while private vehicles are placed on alternative routes. Bus reliability can be reinforced through the inclusion of separate bus lanes, sheltered bus stops and bus bulbs, which are curb extensions allowing easy boarding.

At the same time, a full-scale cycling network across the city should be carved out, incorporating routes adjacent to popular sites with direct and continuous paths.

Greenery along routes provides much needed comfort, and planting new trees while allowing existing to grow freely creates a natural canopy over street spaces.



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Active Commuter Way with Commercial and Social Spaces



By LIVING FORUM Illustrator Ses Aronsakda Alleyways can be reconfigured to support active mobility and provide public space for local residents.



This can also reduce street surface temperature by up to 12 to 15 degrees Celsius (21 to 27 degrees Fahrenheit) and the felt ambient temperature by 10 to 12 degrees Celsius (18 to 21 degrees Fahrenheit), according to a 2013 study by German researchers.

These interventions also could provide a cheap, and more importantly, rapid solution to replace fossil fuel dependent transportation with active and transit-enabled mobility.

The degree of mobility of residents determines their access to education, housing, employment, health-care and other crucial services.

Uncertainty of fuel prices adds to the importance of implementing an affordable system of movement now and over the long-term. Cambodian policy makers must help protect citizens from external economic shocks by discarding the current model. In its place, they must adopt a new approach, one that values people over motor vehicles. Originally published 30th of August 2022 by Southeast Asia Globe





Space-efficient forms of commute—for example, public buses, active commute, and micro-mobility—delivers sustainable urban mobility. Contrast this to car-centric infrastructure that is inefficient in terms of both space and finance.

# 5. PRIORITIZING CARS SABOTAGES PHNOM PENH'S TRANSPORTATION POLICY

# By Ses Aronsakda

When evening approaches, Phnom Penh's citizens begin their arduous journey home. Many of these commuters who spend their days in the city center will at some point have to make their way across Boulevard 271.

This street, colloquially known as Plov T'nub, or Dike Road, wraps around Phnom Penh's dense urban core. The boulevard's function as Phnom Penh's first Ring Road makes it one of the most congested thoroughfares in the capital, particularly where the road intersects other major boulevards. Thus far the strategy to alleviate such choke points has been to add flyover bridges to congested intersections. No less than three flyovers have been built over the last several years for Boulevard 271 alone.

Recently, a fourth flyover was announced where Boulevard 271 intersects with Monivong Boulevard and Samdech Techo Hun Sen Boulevard, with an estimated construction price tag of \$36.8 million for the interchange.

Flyover projects like this one double down on a strategy that hasn't lessened traffic burdens in the capital. This car-centric solution is a shortsighted approach that leads to more traffic congestion over time.

We need to focus on moving people, not cars

A solution based purely on increasing car flow will fail due to the space and financial inefficiency of car-centric infrastructure.

A single car lane has the capacity to move 1,100 people per hour, according to the Global Designing Cities Initiative. This inefficiency is not helped by the fact that most cars only carry one to two passengers despite having capacity for more. In c ontrast, a single dedicated bus lane can carry 6,000 people per hour and a two-way bike track can carry 7,000 people per hour. The latest flyover for Boulevard 271 will be a triple stack interchange, 1,200 meters long and 17 meters tall at its apex, according to OCIC, the main contractor. Apart from cost, the project will require thousands of cubic meters of concrete, several hundred tons of steel and asphalt, and a 36-month construction time just to build one intersection.

Ultimately, this colossal structure will fail at its primary task of alleviating traffic congestion in Phnom Penh. This is due to a concept commonly referred to as Braess's paradox, also called induced demand: When you build more of something—in this case roads—consumers use it more

In fact, economists studying road supply and demand in the U.S. between 1980 and 1990 found that road supply and demand move in complete lockstep. If a city increased road surface area by 10%, the amount of driving in the city went up by 10%. If gridlocked Phnom Penh adds more roads, it will only result in a proportional amount of traffic—the status quo will remain, wasting millions of dollars and years of construction time.



Take Texas's infamous Katy Freeway as an example. It became clogged with traffic, so in 2008 the state of Texas expanded it to 23 lanes at a cost of \$2.8 billion.

In the short-term this strategy appeared to resolve the issue. But in the long-term congestion has actually risen. Based on data from 2011-2015, travel time for morning commuters, compared with pre-construction times, has increased by 25 minutes (or 30%) and the time it takes for an afternoon commute has increased by 23 minutes (or 55%).

Policy makers find themselves in this trap, because of a fundamental misunderstanding in measuring transportation solutions based exclusively on car flow. It should be remembered that the purpose of transportation planning is to move people, so let's not conflate cars with people.

It is obvious that a car-oriented solution is bound to fail, hence a new approach which focuses on moving people is needed. In the case of Boulevard 271, city planners should recalibrate their strategy to reimagine the first ring road to be a transit and people friendly thoroughfare.

A Transit and Active Commute-Oriented Ring Road

There are ways to improve traffic flow along this boulevard that don't involve expanding the road or building any flyovers.

The urban fabric along Boulevard 271 is densely built-up resulting in a right-of-way of only 25 meters in most sections: there is no space to expand. To overcome this challenge, Phnom Penh planners can examine cities like Vienna which rehabilitated its first ring road, the "Ringstrasse," into a tree-lined and transit-friendly thoroughfare. The 5.3 kilometer long Ringstrasse was built in place of Vienna's historical defensive walls, effectively surrounding Vienna's historical center. Naturally, the urban fabric around it is densely built and historically important.

Recognizing the space constraints and the need to transport people, Vienna opted to prioritize the most efficient transportation means. Thus, on most stretches of the Ringstrasse there are only three narrow car lanes. Capacity is augmented by two street tram lines with a combined capacity of 16,000 people per hour.

Additionally, by cutting down on car space, planners also managed to incorporate two bike lanes, boosting capacity by another 15,000 people per hour. The space saved allowed the placement of four rows of street trees shading the thoroughfare and adding much-needed greenery.

With 31,000 active and transit commuters passing through every hour, the Ringstrasse further supports this traffic by providing people-centered amensities like wide, tree-covered sidewalks, beautiful public buildings, public parks, and plazas. And this is not just to the benefits of commuters but to the immense benefit of businesses flanking the ring road as well.

The example of Vienna is contextually relevant for Phnom Penh, which has to contend with the same space constraints and heavy transportation demands of its ring road. Boulevard 271 should prioritize public transit which will allow it to move the highest number of commuters, and act as an exchange point for different bus lines.

# A new ring road for Phnom Penh

Similarly, for Boulevard 271 local planners can first commit to reducing car lanes, replacing them with dedicated bus lanes to improve transportation capacity. Currently, Phnom Penh City Bus Line No.7 serves the boulevard but is placed in mixed traffic, degrading its efficiency.

By eliminating two car lanes and narrowing the remaining lane's width to 3 meters, it is possible to add two separated bus lanes. This redesign eliminates two lanes capable of carrying 2,200 people per hour, but replaces them with two dedicated public transit lanes carrying 16,000 people per hour.

Moreover this intervention can be quickly and cheaply done, simply by repainting the car lanes and utilizing bollards and barriers to physically separate the bus lanes. Bus stops along the route can also be upgraded to sheltered bus stops, with additional seating added to facilitate commuters.

In accordance with a revised car parking policy, onstreet vehicle parking should also be reduced significantly. This serves to dissuade cars and motorcycle usage but encourages commuters to use public transit—only leaving a few spots for freight vehicles to unload goods. Reducing space for private vehicles (driving lanes and parking) actively combats induced traffic, by disincentivizing drivers from using Boulevard 271 unless absolutely necessary.





Even with its tight right-of-way, Boulevard 271 can still be configured to carry more than 27,000 commuters per hour just by including two separated bus lanes.

### **PUBLIC TRANSITWAY** BOULEVARD RE-DESIGN

Furthermore, the space saved from reducing parking space will clawback much needed space for wider pedestrian sidewalks, public seating areas and street trees. This will radically transform the beauty of Boulevard 271, from a cluttered and unshaded environment devoid of pedestrians to a pleasantly shaded and vibrant space. Taking advantage of this pleasant streetscape, capacity can be further boosted by adding a two-way separated cycling track, adding another 7,000 people per

around Phnom Penh. Significantly increased foot and cycling traffic will also positively benefit the myriad of businesses lining the boulevard. Many businesses fear losing their vehicle parking spots, yet numerous studies have overwhelmingly indicated that sales and visitors increase when bicycle lanes, sidewalks, and public transit are implemented.

hour. The synergy between active commuting (walking and cycling) for short distances and public transit for longer distance commute can significantly reduce motor vehicles usage in nearby neighborhoods as well. Thus creating a low traffic zone wrapping





Best of all, these transit- and people-oriented solutions will only cost a fraction of what is typically spent on car-centric infrastructure. I have estimated that these design interventions will cost \$14.5 million for the whole 13.3 kilometer length of the ring road. In comparison, this is two and a half times less than the \$36.8 million we are planning on spending on this single interchange, and will result in less congestion, less pollution, a better street environment, and a more prosperous and vibrant streetscape for all users.

Urban transportation is about people

It is possible for Phnom Penh to reverse its worsening congestion. Achieving this requires city planners to reverse the city's reliance on private vehicles.

City planners must heed the well-studied negative cost and ineffectiveness of pursuing a car-centric approach to urban transportation. Only by prioritizing more efficient forms of commutes can congestion be reduced.

In doing so we gain space to envision and reimagine Phnom Penh's streetscape to be more than just places for vehicles to pass through, but as spaces to live, to enjoy, and to share.

> Originally published 20th of September 2022 by VOD English



Prioritizing Cars Sabotages Phnom Penh's Transportation Policy 106



# 03

# **RECLAIMING PUBLIC LIFE**

#Public #Space #Riverside #City #Spaces *#Traffic #Urban #Local #Traditional* #Market #Placemaking

Phnom Penh's rapidly burgeoning population heightens the demands for high quality public parks.

# 1. MORE PARKS FOR PHNOM PENH WILL HELP PROPERTY **DEVELOPERS, NOT HINDER THEM**

# By Ses Aronsakda

Beaming with wide smiles, a family watches their children play across the greenery studded plaza. A group of seniors exercise with their fitness instructor, while walkers leisurely stroll along the promenade; enjoying the fresh breeze after a long day of work. These scenes play out each evening in Phnom Penh's few parks, but as the city continues to grow they are becoming even more scarce.

One recent assessment of Phnom Penh published by UNDP found that the public space ratio in Phnom Penh has dropped from 1.1 square meters per person in 2014, to only 0.29 square meters per person in 2020.





Public green-spaces provide a myriad of benefits to both individuals, and society in general.

This statistic puts Phnom Penh well below other cities in the region like Singapore averaging a ratio of 7.04 square meters per person, Seoul with a ratio of 14.66 square meters per person, and Ho Chi Minh City overall, which in 2019 averaged 13.7 square meters per person.

Any hopes of reversing this trend must take into account the desires and motivations of property developers. With private developers holding the majority of Phnom Penh's land, it is crucial that these stakeholders be convinced of the benefits of public space not only for the public but for their own financial interest as well.

# A jewel of Southeast Asia

Historically, Phnom Penh was known to be a picturesque garden city. So how did it end up in its current state?

After the nation's Independence, Phnom Penh was renowned for its beautiful cityscape which incorporated public parks, riverside promenades, and tree-lined boulevards. This was thanks to carefully crafted public spaces planned and executed, first by French architects, and later by Cambodians who maintained and expanded upon those principles, ensuring that the city remained livable and serviced its inhabitants well.

As Phnom Penh expanded, however, rapid growth and disjointed urban planning have meant that public spaces are an increasingly rare feature of urban development projects. As a result, the outer districts sorely lack the public amenities of the older, central districts.

In the rush for development, public spaces were neglected causing Phnom Penh to sacrifice significant benefits which public spaces contribute to a city, its inhabitants, businesses, and property developers.

Public spaces are a necessity, not a luxury

For city dwellers, public spaces play a crucial role in childhood health development. According to the Design Council of the UK parks and greenery are crucial because they provide a safe environment for children to play by learning, facilitating more creative and stimulating activities. I myself am a parent raising two children, we live in an outer district of Phnom Penh, and finding public space for my son and daughter to play is practically impossible.

Although private residential development tend to include their own public spaces, these are reserved for residents of the private community only.

The fact that parks ease environmental strain is also well established; reducing the heat island effect, flood mitigation, and reducing air and noise pollution. The knock-on side effects include; reduction of energy cost, dampening financial cost of natural disasters, and decreasing healthcare cost - all of which have been measured to indirectly save a substantial sum.

Public spaces also add intangible value to a city's worth and character. They contribute to a city's sense of place (what designers refer to as "place-making") which determines a city's uniqueness. In this manner, parks indirectly contribute to a city's productivity and human development growth by attracting talented individuals to live, study, and work there.

There is no doubt that public spaces are indispensable. However, more public spaces will not be possible without the efforts and commitment from property developers. Fortunately, there are irresistible economic advantages for private developers as well.



The case for property developers

Prevailing beliefs regarding public spaces have left many in the real estate and construction sector reluctant to include these features in their projects. The Cambodian Construction Association, for example, publicly lamented attempts by the government to mandate that green spaces constitute at least 30 percent of the total plot size as wasting valuable development opportunities. This grievance is reflected in action, with many buildings in Phnom Penh ignoring the rule set by the Ministry of Land Management and Urban Planning.

However, property developers must recalibrate their strategy, since it is well-established that parks provide direct economic benefits to the private sector by increasing property prices, attracting tourists and local visitors, creating more opportunities for retail, and luring additional financial investment.

For instance, Chicago's Millennium Park which was converted from a derelict rail yard is now an island of greenery. The urban park also boasts outdoor art exhibitions, a music festival venue, a myriad of recreational facilities, and event halls for rent. The city's investment of 500 million USD has generated 2.6 billion in visitor spending while contributing 1.4 billion USD to nearby properties, by 2014.

Other case studies show that cities can reap big benefits, even from smaller, less costly projects. The Gabriel's Wharf project in London, for example, proved that even a modest initial investment of 125,000 USD can generate outsize economic windfall. The former 1,800 square meter warehouse is now home to a mix of shops, a vegetable market, and performance areas.

# DISTRIBUTED PUBLIC SPACE

# INCONJUNCTION WITH ACTIVE COMMUTE NETWORKS





# DISTRIBUTE

Evenly incorperate Parks & Plazas among individual city blocks, ensuring public spaces is available to all residences.

The space is now a magnet of activity; generating revenue for the renter, shop owners, and adding 60 permanent jobs to the neighborhood, while undoubtedly adding to the financial prospects of nearby properties too.

It is obvious that public spaces provide a number of direct and indirect benefits to urbanites, the city, businesses and real estate owners. However, Phnom Penh's scarcity of public spaces means that it is foregoing many of these advantages. So what could be done to alleviate the issue?

# CONSOLIDATE

Consolidate streets, plazas, and gardens into larger public spaces wherever possible.

Weaving parks into space-strapped Phnom Penh

Admittingly, spawning generously sized parks may not be possible for the city's already cramped districts, but public green spaces can still be woven into its urban fabric through a number of strategies.

Both local and foreign examples of smaller, temporary parks lead the way in illustrating an unorthodox approach. In contrast to traditional parks, they enjoy advantages in flexibility, good place-making value, and low cost, while retaining the same positive impacts.



MESH

Connecting the city with a secondary system of pedestrian and cycling paths, embedded with pocket parks and plazas.

Phnom Penh already has a commendable example of such a concept put into action; Odom Garden is an oasis of greenery at the heart of the city. Although not as expansive as the parks adjacent to the Independent Monument, Odom Garden's cozier, well-shaded atmosphere and provision of small shops and an event area, arguably makes for a more exciting place to visit.

The garden's success is the result of temporarily exploiting a yet-to-be initiated construction site, located in the middle of the city. To include additional public spaces, it is more plausible and beneficial to insert a large number of smaller micro-parks than to create one large park.

The developers cleverly choose to make a small investment and take advantage of a temporary site, which would otherwise be left vacant and unproductive until constitution begins. Thus other property developers should take note, and implement similar projects on their own vacant properties.

In the meantime, Odom Garden provides an unparalleled opportunity for visitors, and is a proof of concept that smaller and temporary parks have a place in Phnom Penh.

For larger public space interventions, Phnom Penh's efforts to transplant its industrial facilities elsewhere inevitably opens up opportunities to conduct brown-field development—redeveloping former industrial zones.

The Shanghai Houtan Park provides an inspiring blueprint for a unique and impactful redevelopment. The park restored a portion of the Huangpu riverside, reclaiming that space from a steel mill, a garbage dump and a shipyard. It incorporates pleasant walkways, scenic viewpoints along the River, and nurtures a natural wetland ecosystem. Thus, fulfilling all the programs of a public space, generating unique place-making value while also doubling as a natural water treatment infrastructur-filtering 1,900 cubic meters of polluted water every day.

# Government policies to incentivize private developers

A key part of the government's response to getting Phnom Penh's public spaces back on course took shape in Sub-decree No.42 ratified in 2015 which laid out provisions for public spaces in urban areas of Cambodia. Crucially, in order for the real estate sector to act, the municipal authority must attain their cooperation through a combination of stricter enforcement and incentives.

The first step is to strictly enforce already codified building laws. With regards to open space, two important ratios codified in building regulations come to mind; OSR or Open Space Ratio and Floor Area Ratio or FAR.

FAR determines the total floor area of a project in relation to its plot size. Thus, FAR acts as a restraining component, to prevent a building from becoming too large and too tall, with respect to its land plot. Meanwhile, the OSR requirement ensures that a specified percentage of ground-level space remains open.

To ensure that such critical ratios are followed, the Ministry of Land Management and Urban Planning should do more than passively informing design companies, construction contractors and real estate developers. Instead, it should actively engage and advise them of the shared benefits of following such laws and hold technical training seminars to familiarize all relevant parties with the nuances and technicality of the newly adopted law.

Promoting awareness followed by stricter enforcement is just half of the strategy, incentives are also needed to keep developers keen and even induce them to compete in producing better public spaces.



Already heavily urbanized, it will be difficult to incorporate large public spaces. However smaller microparks and gardens can be more easily retrofitted.



Existing public spaces should also be better utilize, in this case along the riverside walk away behind the Chaktomuk Conference Hall

A proven method that has been implemented in other cities, is to relax restrictive requirements in exchange for adopting additional green space. For example, if a project exceeds the minimum OSR requirement, then they would be eligible to build higher, have more FAR, or be allowed to have less parking space—thus providing builders with more development space.

Furthermore, to allay fears that these open spaces will not be accessible to the general public, the OSR rules could be expanded upon, defining that the open space must be accessible to the public.

Hence, convincing developers to include public spaces can be realized through a combination of active engagement, strict enforcement, and easing restrictions in exchange for exceeding set criteria.



## What's at stake?

The value and utility of public spaces to Phnom Penh are indispensable. Therefore it is paramount that city planners and developers alike adopt a new perspective on parks; recognizing their benefits, investigating practical application of unorthodox park ideas while also formulating, accepting and undertaking policies which are public space-orientated.

What is at stake isn't just opulence and grandeur, but a city that is livable, vibrant and competitive which is well within our grasp. After all, parks should not be a luxury but a necessity.

Under-utilized area should be reconfigured to be multi-functional and support a combination of social and cultural activities

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Even with the rise of modern shopping malls, traditional markets should be recognized for being indispensable parts of the city

# 2. TRADITIONAL MARKETS ARE A PILLAR FOR CAMBODIA'S SOCIAL COHESION

# By Oung Ty Keithya

Morning starts early for local vendors at Tuol Tompoung Market in Phnom Penh. In one corner, sellers offload raw meats and fish onto platters as the aroma of a fresh catch circulates. The din of merchants calling across the aisles gets louder as the day grinds on. Narrow alleyways are lined with low table stalls filled with a variety of goods as customers wind their way through, attempting to nab the freshest produce at a bargain.

Sellers stock a huge variety of products ranging from fresh vegetables to meat, to fabric and jewelry. But customers can also find other items like watches, electronics, household appliances, and even get a haircut on the way out. Modern shopping centers also compete with traditional markets by providing visitors with amenities such as gardens.

In Phnom Penh, the most prominent traditional markets are Central Market also known as Phsar Thmei, Toul Tompong, Orussey, and others. These traditional markets are among the most vibrant public spaces Cambodian cities have to offer. Some say one can get to know a city through its traditional markets, as they best reflect the city's identity.

But as Phnom Penh changes and modernizes, the city may be at risk of losing these culturally important spots. If these social spaces disappeared, it could result in a bigger divide between members of these communities.

# Modern consumerism

New amenities and designs, a variety of luxury retail and food options, and arcade sections with a bowling alley and movie theaters make modern malls a growing popular destination for shopping and entertainment.

With the country's rapid economic growth, Cambodians are experiencing a new level of consumerism. Since Cambodia transformed from a low-income to a low-middle-income country in 2015, its GDP rose constantly for the past decade. Largely due to garment exports and tourism, Cambodia's economy maintained an average annual growth rate of 7.7 percent between 1998 and 2019, becoming one of the quickest-growing economies in the world.

Consequently, this brings about benefits for its people. The population enjoys an influx of new and modern goods and services in the retailing industries. More and more Cambodians are flocking to modern shopping centers and other more convenient and 'modernized' alternatives.

There is a clear increase in shopping mall construction in Phnom Penh, such as Aeon, Eden Garden, and Noro Mall.



This increase is partly due to population growth, increases in disposable income, the growing convenience of shopping, and ease of access interest rate for loans from microfinance institutions.

Beside the various formats of modern markets, e-commerce is also battling its way to be part of the equation in redefining this new norm for Cambodian consumer habits.

With the Covid-19 pandemic resulting in city lockdowns and the extended closure of physical markets, more people are turning to the convenience of using their mobile phones to order food and other products delivered to their doorsteps. This movement is shaping a new form of consumerism in Cambodian society. The slow yet steady switch from traditional to modern retwail poses a potential threat to the existing shopping traditions of traditional markets.

But there is value that traditional markets can provide that can't be found as easily in flashy shopping centers, and some of these benefits are much more abstract than expensive clothes, jewelry or designer bags. Traditional markets provide neighborhoods and residents with a sense of identity, feelings of community, and a space to connect. Scenes inside a traditional market are often lively and hectic with vendors and shoppers making business. It is a social transaction as much as it is a financial transaction.

## A social asset

Despite the cluttered and sometimes dilapidated pathways, dense with goods on all sides, traditional markets remain an integral social asset, one in which strengthens the cohesion of Cambodian communities.

The physical environment of traditional markets enable close and personal connections among the vendors and also between vendors and their customers. The compactness of the market's interior, the narrow walkways, the close proximity from one vendor's allocated space to the other—these features naturally generate social interactions within this community.

Among vendors who sell the same products, there is not always a competition. Sometimes vendors are happy to direct their customers to a neighbor's stall nearby for items that are not available at their own store. Regular shoppers of any traditional market usually make their daily visit to the same stalls, developing close friendships with their fellow customers.

In Khmer, a frequent customer is called a "moy" ( $\mathfrak{Y}\mathfrak{W}$ ). And "moys" sometimes make a request to their sellers to pay later and sellers often happily accept as they know their "moys" will return back to their stores. This unspoken, special trust, between the vendors and the customers is quite typical within these markets.

Another distinct form of social exchange that can only be found in traditional markets is bargaining.

Despite bargaining being an act of self-benefit, buyers and sellers have longer interactions through bargaining as compared to a typical purchase and paying at a counter in a supermarket.



Such bonds and social exchanges between sellers and customers are not commonly found in other commerce settings. Modern shopping centers have wide doorways and large floor plans, each store is partitioned with a glass enclosure, making it hard for close, meaningful social interaction to be formed.

Another important factor is the affordability within a traditional market, which helps to minimize the social gap between people from different income brackets. A monthly rental fee of a stall in Central Market ranges between \$300-\$600 depending on the location and the size of the stall.

The price may be as low as around \$140 for a lesser known market. At AEON mall in Sen Sok, on the other hand, a lease for a ground-floor unit of 112 square meters can cost up to \$2,500 per month.

From a customer's perspective, the price gap at a traditional local market and at a shopping mall is also significant. For instance, a 350ml can of Coke sells for 1 dollar at AEON mall, while the exact same drink can be bought for about 30 cents or even less at traditional markets.

Their accessibility makes traditional markets are place where people from all walks of life gather.

The future of traditional markets

These low-costs establish a space for communities to meet regardless of their socio-economic status. In contrast, the communities with lower income are unlikely to be frequent visitors of the bigger higher-priced malls.

This is partly due to the perceptions associated with modern shopping malls, which make these places less approachable, especially for people from lower socioeconomic status. These glitzy shopping centers are usually filled with high-end retail businesses and luxurious international brands whose stores are designed to exude sophistication, with an intent to appeal to a certain target group of customers.

These modern structures embed social norms that force visitors to feel that they should appear a certain way to enter the malls.

In this sense, traditional markets present an equitable environment with no protruding sense of intimidation or discrimination due to classes or age groups, making it a safe space that is socially accessible to all members of society.

As Cambodian society turns further towards Western forms of commerce, it's important to consider whether and how these traditional markets might retain their place in our lives.

In moving forward, there are two possible courses of action. The first is to address some of the issues within traditional markets that could enhance the shopping experience and make these spaces more convenient, even more inclusive, and safer, without losing out on the more charming aspects of these markets.

One study proposed a redesign and renovation of one traditional market in the city of Bandung in Indonesia. The redesign cleaned the muddy floors, the strong smell from food and wet sections of the market, as well enhancing natural light and ventilation. The study proposed installation of a water supply network to flush waste water from stores, and walls with lattice facades inviting natural ventilation and light.



Although they can sometimes be claustrophobic and maze like, well conceived design and thoughtful management greatly enhance shopping experience.

Traditional markets in Phnom Penh also encounter similar issues and could draw from these solutions to improve the safety and comfort of our traditional markets. Any renovations or redesigns should also include accessibility features so that Cambodians with disabilities can also navigate these spaces easily.

The second course of action would be to make use of the best of what traditional markets have to offer within the new markets and shopping malls.

Future retail development should explore ways to conserve the identity and social values embedded within these traditional markets. In Bangkok's biggest and finest shopping center, ICONSIAM, one of the mall's prominent highlights is SookSiam, a huge zone in the middle of the modern structure. The space aims to preserve the country's traditions of floating markets, including stores and stalls reflecting the traditional settings of old Thai markets. But preservation does not have to look this extravagant and it does not require millions of dollars. Preserving traditional markets can come in different forms. Fundamentally, any future projects that attempt to modernize and simplify shopping must seriously consider the protection of the underlying social and communal fabric embedded in markets. Even as retail modernizes, it's a part of life that can and should connect members of our society together.

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Preah Sisowath Quay is cleaved by a four lane road. A more ideal situation would be the pedestrianization of the area for park goers and locals

# 3. RIVERSIDE'S REINVENTION: THE CASE FOR CAR-FREE SISOWATH QUAY

By Ses Aronsakda

In its founding myth, Cambodians are said to be the descendants of Nagas who dwell underwater in lakes, rivers, and oceans. These Nagas of old were a benevolent force, but now a new race of mechanical, polluting serpents is choking Cambodia's lands.

The challenge I refer to is the never-ending lines of motor vehicles that snake their way across Cambodia's towns and cities. Phnom Penh is especially afflicted. Even the city's most beautiful public spaces are designed not with humans in mind, but planned in a way that caters to traffic instead.


Evaporating traffic

Preah Sisowath Quay, the promenade along the riverside, is a prime example of a public space and a crucial anchor point for the city's civic life. But even in this place vehicle traffic dominates, with four fast-moving lanes disconnecting the riverside promenade from the lawn of the Royal Palace, and from the area in front of Wat Ounalom.

Imagine a future scenario where Sisowath Quay is pedestrianized from the Chaktomuk Conference Hall to the Night Market, offering a continuous 1.4 kilometer-long public space, brimming with social, economic, cultural, and leisure activities. Driving lanes clogged with cars and motorcycles could instead be replaced by a large pedestrian and cycling thoroughfare. Where instead of dangerously dodging traffic to catch a breath-taking glimpse of the confluence point of four rivers, anyone-be they young, old, riding a bike, or using a wheelchair—could casually stroll to view the scenery.

Although such a radical transformation may seem daunting and obstructive, it is crucial to unlock the full potential of urban space. And it is possible to achieve this kind of change-on the riverside, and elsewhere in the city-without sacrificing the overall flow of movement around the capital.

The most often cited argument against pedestrianization effort is that traffic would worsen in the affected area. In reality, follow-up studies on various pedestrianization projects in cities across the world have proven that the contrary is true. Pedestrianization can actually help a city's traffic woes.

Whether one examines Seoul's Cheonggyecheon park, Shanghai's Nanjing road, or Paris's rapid shift to reduce space for cars, traffic has consistently decreased in places that have prioritized space for pedestrians. These cities have managed to replace cars by increasing usage of public transit and making room for a surge in active commuters, as locals and visitors change their commute behavior.

A recently completed study examining how Barcelona's car-free super blocks have impacted traffic concluded that "On average, traffic levels on streets with interventions diminished by 14.8% relative to streets in the rest of the city."

Encouragingly, traffic on adjacent parallel streets, which may provide likely alternative routes for traffic to displace to, did not see any significant corresponding increase in congestion. This suggests that vehicle space reduction triggers a combination of shifting choices in modes of transportation for commutes, reducing vehicle trips and road users' trip destinations.

These are crucial findings for Phnom Penh, as the city struggles against widespread traffic congestion. A comprehensive plan to create a car-free riverside zone has the potential to positively impact traffic in adjacent areas, increase the share of riders on Phnom Penh's beleaguered bus line, give the city's water taxi a new lease on life, and increase the number of active commuters.

Phnom Penh should reinforce its prioritization of pedestrians along the riverside by enacting policies that decrease the convenience of car usage. As evident in Barcelona, traffic can only be curbed by cutting driving lanes, parking lots and boosting alternative means of transport.

For example, the number of parking lots available in the city's center can be reduced by reforming parking policy to require parking maximums, reducing and cooling demand for vehicle traffic. Moreover, a congestion charge for cars entering the city's historical core, between Norodom Boulevard and the riverside can significantly dissuade car trips as well.

To supersede car trips, the Norodom Boulevard bus line should be enhanced by disentangling its route and placing it on a dedicated bus lane. Nearby roads, like Preah Ang Yukanthor Street, can be turned into low-traffic one-way roads, calming the streets to be better suited for locals.

Heavy urbanization along the riverside has led to a scarcity of large trees to provide shade and cool down urban spaces.





Pedestrianizing a 1.9 kilometer stretch of Phnom Penh's riverside will provide a multitude of positive impacts and most importantly will improve traffic in the area. Congestion concerns can be alleviated by the implementation of a tram or bus line and ample space for active commuters.

#### A car-free riverside

Apart from curbing congestion, pedestrianizing urban waterfront locations opens up additional space for economic, social and cultural activities.

Cambodia would not be the only country to undertake a considerable project to pedestrianize a waterfront space. Pedestrianization projects along waterfronts elsewhere have already been carried out elsewhere with successful results.

Rio de Janeiro's Waterfront Promenade is in many ways similar to Phnom Penh's Sisowath Quay's case.

In 2016, a radical transformation of Rio's waterfront was completed, removing an elevated highway that had cut the Brazilian city's urban fabric off from the beautiful Guanabara Bay. It restored the physical connection the city once enjoyed with its waterfront, encouraging the creation of a more inclusive, productive and active waterfront public space.

The highway was replaced by a pedestrian promenade beginning from Rio's bustling downtown Centro district, and added a large public plaza that complements the 18th-century Paço Imperial, the former royal palace. The promenade's wide walkways and plazas connect historical buildings like the São Bento Monastery, museums, a cathedral, cultural centers and public institutions, tying these features together into a cohesive urban fabric straddling the waterfront. Warehouses were renovated into event spaces suitable for hosting exhibitions, performances, and commercial activities.



As anchors for a city's civic activities, pedestrian thoroughfares add much-needed green space, contribute to placemaking, and improve livability. They help diversify the economy, giving locals opportunities to open businesses, make a living, and be creative. Best of all, as public spaces they are inclusive and open to all.

Unless Phnom Penh wishes to forfeit these benefits, pedestrianizing its waterfront should be a priority. Let's explore a possible scheme that would allow the city to maximize these benefits without sacrificing urban mobility. Reimagining Preah Sisowath quay

Preah Sisowath Quay is the obvious candidate to be pedestrianized, but more can be done to create a cohesive network of walkable streets beyond just one stretch of road. Smaller nearby streets like Street 5 and lateral roads from Street 110 near the Old Market to Street 184 beside the Royal Palace should also be pedestrianized.

These smaller side streets are even better-suited for pedestrianization, because they do not carry heavy traffic and are at times informally closed off due to street side activities. Formalizing this arrangement would not be a huge leap, and by making pedestrianization permanent these streets can be redesigned to better meet demands of local users.

Needless to say, access to vehicles providing freight and public services should be maintained by incorporating a clearway wide enough for vehicles to pass through during off-peak hours, and act as the main pedestrian and cyclist thoroughfare during peak visitor hours.

To augment traffic capacity, a tram line is proposed from Samdech Choun Nath roundabout heading north into Russey Keo district. With two tram tracks, the new Preah Sisowath Quay can carry 36,000 passengers per hour, significantly boosting carrying capacity compared to its current configuration.

Local shops are allowed to add additional seating in a 3 meter wide shop frontage zone. Space gained can also be allocated for trees and rain gardens, providing shade and reducing stormwater runoff. Additionally wide and comfortable sidewalks leading to plazas and vendor hubs would complete the new Sisowath Quay.

#### A thoughtful alternative

Phnom Penh's riverside can be reimagined to benefit people. The city should commit to pedestrianization of Sisowath Quay and nearby streets, introducing new public transport and boosting old ones,

and encouraging active mobility. Meanwhile policies like congestion charges and reduction of parking space contribute to cooling vehicle trip demand.

These efforts are crucial in significantly reducing traffic congestion in the affected area. While transforming Phnom Penh's riverside into an economically productive, environmentally sustainable, socially active area welcoming to locals and visitors.

Fighting congestion requires us to plan for the traffic we want—public transit and active commuting—not the traffic we have. Let's avoid using the city's most valued urban space for the purpose of driving and parking, and instead open it up for people.

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Riverside's Reinvention: The Case for Car-Free Sisowath Quay 140 Reallocating vehicle space for economic activity and pedestrians creates a more attractive riverside, which in turn generates economic benefits.

# 4. PEDESTRIANIZING PHNOM PENH'S RIVERSIDE COULD BE ECONOMIC MASTERSTROKE

#### By Chan Pichmonyka

Imagine a future Phnom Penh where active commuters are able to breeze through the riverside, where local businesses enjoy high foot traffic at all hours of the day, where the government can keep road maintenance costs low, where tourists can find new and exciting experiences, and where the city is more vibrant and sustainable.

All of these things can be jump-started with one step—if we choose to eliminate all car traffic on Preah Sisowath Quay where it runs along the river from the Chaktomuk Conference Hall to the Night Market, and replace it with a pedestrian-only thoroughfare.



High foot traffic and additional space for local shops to set up seating, plus a major upgrade to attractiveness will increase the economic activity for the area.

As Phnom Penh's first pedestrian street, "Preah Sisowath Quay: Riverside Heritage Walk" would be an ideal option due to its strategic urban geography, existing historical heritage, and already-vibrant natural surroundings.

At present, Phnom Penh lacks pedestrian-only streets that can generate these benefits. For the future, Phnom Penh should offer more pedestrian-friendly environments to bring economic value, leisure opportunities and environmental benefits. The riverside is an excellent place to start.

Benefit to local businesses

Clearly, a pedestrianized riverside has the potential to be a beautiful space, but a decision to cut out car traffic is about more than aesthetics alone. Pedestrianizing an area like the riverside makes economic sense as well.

The new riverside heritage walk would be a boost for the local economy. Around the world, when cities have invested in pedestrian-heavy or pedestrian-only infrastructure, local economies—shops, restaurants, etc.—have benefited.



Firstly, this is thanks to active visitors: Pedestrians and cyclists have been shown to spend more on local businesses than drivers. Researchers studying spending habits by cyclists and pedestrians compared with drivers in Oregon, in the United States, found that while pedestrians spend less per visit than drivers, they actually frequent businesses like restaurants and retail stores more, which adds up to more spending over time.

Results from similar research in London further bolstered our understanding of this phenomenon. This research by Transport for London on improved streetscapes prioritizing pedestrians and cyclists found that visitors not in cars spent 40% more each month in neighborhood shops than drivers did.

Similarly, in Seoul, South Korea, after Yonsei-ro, which had been a traffic-logged four-lane road, was redesigned as a pedestrian-priority and bus-only corridor—meaning car traffic was eliminated altogether—the local economy got a boost. Commercial businesses saw an 11% increase in revenue-generation and a 4% increase in total revenues compared to when the street had been designed for cars.

Preah Sisowath Quay was temporarily pedestrianized during Water Festival holiday and proved to be extremely popular with citizens.

#### **Real estate benefits**

Redesigning the riverside around pedestrians and cyclists only also has the potential to create significant growth in the real estate market in that neighborhood. The "placemaking" value—a way of describing the uniqueness of a neighborhood—of walkable streets has been a key driver of investment within this industry. Urban Land Institute scholar Edward McMahon explains: "Decisions such as where to invest, where to work, where to retire, and where to vacation are all made based on what a community looks like."

Pedestrian-focused infrastructure has raised real estate values. Redfin, a U.S. real estate company, developed an algorithm to measure the walkability of every neighborhood in the country on a score from 0 to 100. Using their "Walk Score," they found that a one point increase in walkability translated to an average \$3,000 rise in house values.

Researchers from George Washington University also found that "walkable urban places" (WalkUPs) account for a growing percentage of commercial development in large metro areas in the United States. In Washington D.C., for example, Walk-UPs attracted 48% of the area's new office, hotel, and rental apartment square footage. In Atlanta, 27 WalkUPs account for 50% of recent commercial development. Increasingly, businesses and jobs are moving to downtowns and mixed-use, walkable centers—both in cities and suburbs.

But it's important to note that this phenomenon has proved to be true outside the United States as well. According to Travel China Guide, Jiefengbei pedestrian street, at the heart of Chongqing, is also one of the best investment areas with a total social consumption retail value of 41.4 billion yuan, and 47 of Fortune 500 companies have established branches there.

#### Pedestrianization for tourism

Creating a pedestrian and cycling-only space along the riverside would also be a boon for Phnom Penh's tourism. It doesn't take much searching among tourism-recommendation resources to see that pedestrian-oriented streets are an attraction in and of themselves.



Lists of these streets include thoroughfares like the Boulevard Saint Laurent in Montreal Canada, which is completely closed to cars in the summer months, or Las Ramblas in Barcelona, Spain, a central pedestrian promenade that is synonymous with the city's overall image and appeal. Other lists highlight streets like Strøget, in Copenhagen, Denmark, which is one of the longest pedestrian-only shopping streets in the world, and Qianmen Street in Beijing, which received a massive renovation before the 2008 Olympics. In the wake of the Covid-19 pandemic, as the tourism industry begins to make a recovery, now is the time for Cambodia to make big moves to redefine how the outside world sees it.

Currently, urban leisure time in Phnom Penh is primarily spent in shopping malls, cinemas, cafes and restaurants, due to a lack of well-designed urban built environment. Adding a well-designed streetscape, including a pedestrianized riverside, would in turn encourage activities such as street performance, street art, street food and street shops, and can make the city more attractive and vibrant overall, to the benefit of locals and visitors alike.



Space is also dedicated for mobile street vendors who are an indispensable part of the riverside. Such a revamp can change the face of Phnom Penh.

Typically, pedestrians and cyclists can more easily buy from vendors and shops compared to motorists who must first find parking.

#### Reducing public costs

Closing Preah Sisowath Quay off to cars can also reduce street maintenance costs in the long-term as pedestrian and cyclist street wear and tear is minimal compared to traffic-clogged car-oriented streets.

For instance, research from 2008 in Portland, Oregon, found that the city's entire bicycle network, consisting of nearly 500 km of bikeways, would cost \$60 million to replace, whereas the same cost would be able to create just 1.6 km of a four-lane urban freeway.

And, according to a report from the Institute for Transportation and Development Policy, it costs nearly \$1.5 billion per 1,000 passenger kilometers globally to construct and maintain car-related infrastructure. That's compared with the \$10.4 million it costs to construct and maintain cyclist infrastructure to carry the same number of passengers the same distance.



Conclusion

At present, the riverside area is a leisure space for people to relax, walk around, exercise and enjoy food. During the evenings, people park their vehicles, take a break from the city's traffic and walk around. People are clearly interested in using this space to its full potential.

With even more effective design, giving priority to pedestrians and cyclists, rather than cars, this space could contribute even more to the local economy, increase creativity, increase convenience and value for local residents, and create a new urban life experience for residents and tourists alike.

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Thoroughfares and squares once lost to motor vehicles can now be designated for human usage. Placemaking offers a strategy to ensure vibrant and lived-in public spaces.

# 5. PLACEMAKING POSSIBILITIES ARE ENDLESS IF RIVERSIDE IS TRANSFORMED

By Keth Piseth

The process of pedestrianizing Phnom Penh's Sisowath Quay has the potential to eliminate four lanes of fast-flowing motorized traffic and hand that space over to human-centric use. What all this space would become leads to critical questions: What would this space look like? What would this place feel like to visit? And, perhaps most importantly, how would people decide to use this space?

The urban planning school of thought which concerns itself with these important questions is called "placemaking." There are many historically and culturally important locations along the riverside that should embrace placemaking to elevate their standing.



The overall goal of placemaking is to shape a built urban environment so that it facilitates social interactions and improves the quality of life for communities. The placemaking movement, which combines urban planning, architecture and design, as well as community organizing, was sparked as a reaction against trends of top-down car-centric planning and a lack of human-centric public spaces in cities around the world.

As we explore the logistics, the economics and other benefits of a pedestrianized and revitalized Sisowath Quay, it's useful to consider what placemaking as a school of thought and placemaking as a practical mode of design can bring to this space. Learning from New York city's Corona plaza

One case that illustrates the principles, process, and benefits of placemaking particularly well is Corona Plaza in the borough of Queens in New York City, an area identified as a neighborhood lacking public space.

Corona Plaza, which was created out of a former service road, began in 2012 as just a paved triangle of ground in a bustling neighborhood. Planners added temporary features—planter boxes, sun umbrellas and movable furniture—that allowed people to congregate and meet. What's noteworthy about the temporary set-up is that it allowed architects and the people in the neighborhood to see how people wanted to interact with and use this space. This illustrates a critical aspect of placemaking, that the process itself can be just as important as the outcome. Ideally, a placemaking process would prioritize designing with a community, rather than for a community.

In the case of Corona Plaza, community feedback to designers uncovered information that otherwise might have been missed. The feedback, for example, included requests for a baby diaper changing station, more shade, and seating facing multiple directions. In 2017, five years after work first began on the Plaza, permanent features were built, and in terms of use and improved value to both the residential and business community, they were a huge success.

It's a place that's become central not just for those who enjoy the space for recreation, but it's also become vital to the local economy. As many as 89 vendors regularly sell food and goods inside the 1,200 square meter plaza and along adjacent streets, and this economic activity was cited as a crucial factor in keeping the community resilient during the worst of the Covid-19 pandemic.



The smaller streets in the area should not be overlooked, their potential for arts, food and beverages, leisure, and commercial activity should be heighten and intertwined.

Research from the Massachusetts Institute of Technology in the U.S. found that with placemaking efforts like Corona Plaza, places can grow out of the needs and behaviors of their communities—but, likewise, places can also shape the way these communities behave and grow.

How would placemaking efforts shape life along Sisowath Quay and beyond?

Placemaking along Phnom Penh's riverside

Given its popularity, Preah Sisowath Quay is an example of a public space that promotes the connection between urban spaces and residents. Despite the intrusion from vehicle traffic, the urban landscape along the riverside is well-utilized and longs for a transformation to reach its full potential.

Removing the vehicle traffic entirely could open up even more opportunities for the riverside to become a center of tranquility and well-being. Pedestrianizing the area can enhance its sense of belonging for local residents, making it easier for them to establish social bonds with neighbors and visitors alike and allowing cultural identity to be proudly displayed. For placemaking to be successful, the riverside must focus first and foremost on human-centered design, human scale, social interactions, and inclusion. Research by Project for Public Spaces, a nonprofit dedicated to placemaking in public spaces, found that placemaking efforts are most successful when they manage to succeed in a strategy they call the "power of 10+." The case study evaluating this theory studied public spaces in New York City, Melbourne and elsewhere.

The idea behind this concept is that places thrive when users and communities have a range of reasons to be there—ideally, at least 10 of them. These reasons might include: a place to sit, playgrounds to enjoy, art to see, music to hear, food to eat, history to experience, and people to meet. If we look at the riverside area, it is a perfect place to implement the "10+" concept as there are already vibrant local spots that create or attract activities beneficial to the site. The wider riverside area offers local markets like Phsar Kandal, artistic and cultural areas including the Royal Palace, National Museum and art galleries. In addition to that, there are also monasteries including Wat Ounalom, Saravoan Pagoda, and Wat Botum. The riverside also offers obvious modes of recreation and exercise—cyclists, roller-skaters, badminton players and more already congregate there.

Implementing the "10+" model of placemaking along the riverside would simply mean building upon the reasons people already flock there, and enhancing those features. And in order for Phnom Penh to stay true to the ideals of placemaking,

local residents must be able to give their input on which of these activities to prioritize, and in what way.

But it's clear that the possibilities are endless. Building on the spiritual side of Sisowath Quay, for instance, might mean inserting a meditative garden that local religious and spiritual practitioners are able to access at any time of the day.



Currently closed and left of the elements, the Renakse hotel is an important landmark which overlooks the riverside.

Building on the physical beauty of the riverside might mean placing viewpoints along the riverside to extend the opportunity for visitors to get spectacular views of the surroundings. Building on the physical activity side of Riverside might mean expanding the areas where users can jog and run.

Building upon the commercial side of the space might mean installing comfortable eating areas so that local vendors and customers can easily access one another. And building upon the cultural side of Sisowath Quay might mean creating temporary spaces for art shows for locals and tourists to keep the riverside active and lively.

One feature that is sure to set riverside apart and define it as a space would be to build upon the area's connection to history.

Building on Sisowath quay's history

The name "Chaktomuk" refers to the confluence of the Mekong River's four branches, located in the heart of Cambodia. Consequently, it is an area of historical importance with multiple points of interest that make the locale fascinating. Historical buildings that could be turned into galleries and museums, such as the Renakse hotel, are a prime example. The iconic hotel sits empty at the moment opposite the Royal Palace on the waterfront at the Tonle Sap and Mekong junction. A placemaking effort along the riverside could see this particular building offer huge value to the local community.

A key philosophy behind placemaking is that places are intrinsically linked to the cultural values of the communities they serve. Enhancing and highlighting the historical buildings and cultural landmarks along the riverside ensures visitors linger and deliberately engage with monuments and activities.

Enhancing the use of street art displays along this part of the city could change the community's narrative of the Phnom Penh quayside, could serve as aspirational beauty, or could help pedestrians navigate the city and keep the public space vibrant and alive.



Sculptor workshops flank street 178, giving it a unique feeling compared to other streets.

High levels of cultural participation are a leading signal of a neighborhood's regeneration, and can be critical in creating a positive attachment between people and the space. One example in the region is Hoi An in Vietnam, the UNESCO world heritage center where people-centric spaces and historical environments have been melded together.

Historical buildings in Hoi An have been preserved through the collective effort of turning the area into a cultural heritage, so that the communities within the area can be used for economic activities. Communities are able to build reliable pedestrian traffic patterns along underutilized corridors by grouping together various sorts of art spaces. As member of the public shop and eat on these routes, the pedestrian infrastructure improves public engagement and stimulates the local economy.

In the case of Sisowath Quay, culture and the arts can be used as a vehicle for economic growth, but also for regeneration, integration, and inclusiveness. The distinctive and attractive riverside walkway can draw attention and can help to reinvent a city's narrative and put it all on show.

The way local residents and tourists alike experience the riverside can be significantly altered through the efforts of placemaking. The Phnom Penh quayside is a good example to showcase the transformation of tactical urbanism by highlighting the potential of these types of functional public spaces.

The importance of public spaces for quality of life cannot be understated. Therefore, Phnom Penh must encourage more inclusive and more human-focused approaches in the design of these types of spaces. If an investment is made in the placemaking of quayside public space, this could be the site of even more meaningful human exchange and interaction.

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Although a popular public space, the riverside often lacks shades making it difficult to enjoy.

# 6. BEYOND BEAUTIFICATION: RIVERSIDE MUST ADAPT TO CLIMATE'S HEAT

By Prak Norak

After months of standing relatively empty during the height of the pandemic, Phnom Penh's riverside is once again bustling with activity. If you visit in the evening you will see people jogging, biking and walking, and street food vendors selling to passersby. Each day around sundown, the space in front of the Royal Palace is packed with children running and playing on the grass, people coming to buy food, to picnic, and to feed pigeons.

While the city's riverside and the Royal Palace lawn are spaces that are clearly beloved by locals and visitors alike, it's hard to ignore the existing limitations of these spaces. One of the most critical problems is, of course, the torrent of vehicle traffic that runs alongside these zones. Four lanes of cars, motos, and trucks run alongside the park on the riverside. These high-speed vehicles increase the chances of traffic accidents and pose risks to pedestrians.

But the other major issue that prevents the full use of these spaces is their climate-unaware design. There is a reason that the riverside and the Royal Palace lawn are only bustling at sunup and sundown. Phnom Penh's often-blistering sun and heat render these places virtually unusable at all other times of the day.

We must redesign these spaces to make them more human-centric. One critical step to humanizing Preah Sisowath Quay, would be to pedestrianize this thoroughfare and turn into a destination for people to come to, rather than a place for traffic to come through.

But any pedestrianization efforts to increase the share of public space along the riverside must go hand in hand with a more sustainable, climate-aware design. In short, these spaces must be designed in ways that work with the local climate, rather than against it.

Creating climate compatible infrastructure

Walking during the afternoon along today's riverside is quite a scorching experience. In its current state, the riverside is made up of large swaths of mostly uncovered, bare pavement. There is little shade available for riverside-goers and for vendors.

While this issue may seem like an afterthought to policy-makers and planners in Phnom Penh, rising urban temperatures are being taken very seriously in cities around the world. Cities around the globe, for instance, have begun appointing "Chief Heat Officers" whose roles revolve around heat mitigation policies. The Chief Heat Officer in Miami in the United States., for instance, is working on a canopy effort with a goal of covering 30% of the county she serves with shade trees by 2030.

Likewise, Eugenia Kargbo, who serves as Chief Heat Officer for Freetown, Sierra Leone, has flagged the issue of women vendors at informal markets in her city that lack access to shade. Kargbo is undertaking an extensive tree-planting campaign, and a project to build 48 urban gardens with the goal of cooling her city.



The steep river bank should be enhanced by adding step seating, shaded by flood resistant trees placed along the descending steps.

The disadvantage of a manicured lawn design is obvious when visitors can only use such public spaces in the evening.

Likewise, Eugenia Kargbo, who serves as Chief Heat Officer for Freetown, Sierra Leone, has flagged the issue of women vendors at informal markets in her city that lack access to shade. Kargbo is undertaking an extensive treeplanting campaign, and a project to build 48 urban gardens with the goal of cooling her city.

A Chief Heat Officer in Phnom Penh would certainly be concerned with the long-term usability of this city's public spaces and how to make them livable at all hours of the day in all seasons of the year.

In the long-term, in order to make the riverside comfortable at all hours of the day, the bottom line is that the area needs more trees. Native tree varieties with large canopies that can provide extensive shade must be planted and allowed to grow all along the riverside.

But, as we know, trees may take decades to fully mature to be able to provide this kind of canopy cover. In the meantime, Phnom Penh should consider undertaking other measures to combat high afternoon temperatures in these public spaces. Design features like awnings, umbrellas and canopies could be one way to protect this part of the city from the sun.

It's also important to note that sun protection isn't the only climate-aware benefit that could be gained from devoting more space along the riverside to native trees and plants like Derm Chhat (Terminalia catappa). Plants, and their beds, can also help to absorb urban heat and to soak up excess rainwater runoff.

Cities around the world have turned to innovative landscaping designs like rain gardens, which are shallow depressions in the ground planted with deep-rooted plants, as a way to absorb excess rainwater run-off from the hardscape pavement or road.



Cambodia's rainy season with its heavy rains and floods clearly present a unique urban design challenge. A system of rain gardens, on the riverside or even throughout the city, would allow native plants such as reeds that grow in wetlands to sustain themselves through the excess water and to absorb that water into the ground. The rain gardens along the river could even be connected via a system of pipes that would eventually flow into the river after it has been filtered by the plant roots.

Greener infrastructure is multifunctional infrastructure

While green infrastructure along the riverside has obvious practical uses, it's also important to recognize that adding these features can serve many purposes. The open area in front of the royal palace and the area in front of Wat Ounalom, for instance, if built to be usable at all hours of the day has the potential to become a multifunctional space for local vendors or a venue for art exhibitions or outdoor concerts.

Currently, the intersection in front of Wat Ounalom is used as parking for cars but if the street along the riverside becomes a walkway for pedestrians, the space between Wat Ounalom and the river could, for instance, become a green space with trees grown in the Miyawaki method—or relying on a diversity of native species—to provide shade and promote biodiversity in the area. If this space becomes a green public square, this stretch of the city could also serve as a space for meditation and ceremonial activities for monks.





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Part of the square could also be turned into a mini wetland, increasing biodiversity, and fighting floods more effectively. Wetlands provide a cooling effect to the area and also attracts migratory birds creating an opportunity for bird sighting and a space to relax in.

The garden in front of the Royal Palace, on the other hand, is already enjoyed by riverside goers but it can be further enhanced by incorporating a pond that lets the beauty of the royal pavilion cast its image onto the reflective pond. Furthermore, the pond would also contribute to keeping the space cool.

Stretching from this pond to the river could become a paved plaza flanked by trees on either side, creating a symmetrical view to the pavilion and from the pavilion to the river. The plaza could be used for festivals and ceremonial activities.

Currently, this area is designed with the geometric look of a typical French garden and is covered with grass. Grass lawns can be used for picnics and a myriad of activities but in Cambodia's hot climate, it is only there to consume water daily while creating no biodiversity and using pesticides.

During day time, visitors scramble to rest under the few spots of shade they can find. Although a discomfort to some, this posses accessibility issues to children, the elderly, and people with disabilities.

What if, instead, this area featured organically free-flowing walking paths and was surrounded by lush vegetation, creating a shaded space for vendors and riverside goers connecting the people to the landscape?

Within the deep shaded area, a hammock garden might even allow riverside goers to rest and relax. And what if, toward the river, children were able to enjoy the space with a playground dedicated to them under the trees, cooled by the river breeze?

A landscape that breathes

The riverside is a major landmark in Phnom Penh, but its potential can only be fully achieved if it is pedestrianized in a way that allows all manner of activities—economic, social, and cultural—to flourish within Cambodia's unique environmental context.

With the creation of natural shade and rain gardens, the riverside could become a lively space for both vendors and riverside goers at all hours of the day.

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Historically, streets were more than just transportation corridors, they were places to socialize, make business, and enjoy food.

## 7. REVITALIZING PHNOM PENH'S STREETS AS DESTINATIONS

By Ses Aronsakda

The old adage goes: It is not the destination that matters, it is the journey. But for a city, the exact opposite is true-it's not the trudging commute that matters, it's the destination.

This holds true for Cambodian urbanites. To them, busy streets and thoroughfares are just something they grudgingly deal with on the way to where they actually want to be. After all, a city's road network mundanely carries traffic, goods, and people and are rarely if ever seen as more than just that.



Human-scaled places are welcoming, narrow alleyways can delve into this aspect more strongly with eye-level signage, and windows.

But the importance of city streets hides in plain sight. For Phnom Penh, streets often represent the only fully public space left. And their correct utilization holds the key to a more vibrant, livable and prosperous city.

#### Street as destination

The concept of revitalizing streets as destinations may seem strange. Yet some of the most memorable, and celebrated spaces of a city are often its streets. The Champs-Élysées in Paris, the Passeig de Gràcia of Barcelona, New York's Broadway, and even Phnom Penh's very own Sisowath Quay are just a few examples.

The most obvious factor for a vibrant street is space for pedestrians and cyclists. If streets are to be a destination then there must be space to leisurely walk, cycle or do some window shopping, and parklets for passersby to rest, have a conversation or do some people-watching.



This means motorized vehicles must give up some space, although this does not necessarily mean user volumes have to be decreased. In fact, the opposite is true.

Footpaths and cycling lanes on average carry more people per hour than a driving lane, while the inclusion of a public transit line (bus or tram) makes a street more accessible for visitors who are further awav.

Take New York's Broadway, particularly Times Square, as an example. Well-served by public transit, this section of the avenue benefits from a road diet redesign, which replaced space for motor vehicles with pedestrian footpaths, cycling lanes and a public plaza—converting what was once a highly congested intersection into a lively public square.

A well-designed street must also maintain a sense of enclosure and protection against the climate-in Cambodia this would mean protection against high temperatures, and strong rains. This is where buildings and trees play a crucial role, providing shading, an interesting backdrop and a sense of enclosure.

A portion of street 178, between the Royal Palace and National Museum, is already closed off to vehicle traffic.

In short, appealing streets are people-friendly, well connected by public transit, and are beautifully framed and shaded by trees and buildings. But these changes don't just benefit the people who use the streets. There is also reason to believe businesses benefit as well.

Destination streets are great for business

In a number of research papers studying the direct economic impacts of designing streets to reduce vehicle traffic and increase cycling and foot traffic, the results collectively illustrate a positive impact for local businesses.

Spending differences between motorists and active commuters are relatively small with drivers spending \$47 and cyclists spending \$43 per trip. But it's important to remember that pedestrians and cyclists spend more time along retail areas, are more likely to visit the shops they pass by, and revisit them more frequently than drivers. Hence, overall they contribute to more sales revenue over time.



Lastly, businesses can accommodate more active commuters compared to drivers. A single car parking spot can be used to park six bicycles, and of course no parking is needed for pedestrians.

And let's not forget that the by-products of a well designed street goes beyond just good business.

Vibrant streets benefit society by establishing spaces for socio-cultural activities, like having social interactions, promoting architectural and historical heritage, while contributing to place-making value for a city.

They benefit the environment with the addition of trees and other greenery, contributing to urban biodiversity and improving local microclimate-191 from reducing urban heat gain to noise and air pollution, as well as improving water infiltration, and more.

Lastly, well-designed streets are beneficial to public health, with the reduction or complete absence of motor traffic creating a safer environment for all users, reducing air and noise pollution, and getting more city dwellers to stay physically active.

#### **MAP OF STREET 178 & 184** STREET RE-DESIGN





Street 178 & 184 are both prime candidates to be pedestrianized and reconfigured into destinations.

#### Better streets for Phnom Penh

Phnom Penh certainly has the potential to develop attractive, lively, and activity-rich streets. One such street is Street 184, which stretches 1.4 kilometers east to west from the riverfront to Monivong Boulevard.

The first step would be to prioritize active commuters. The stretch between the National Museum to Norodom Boulevard has the potential to be fully pedestrianized. Since it is mostly flanked by large public buildings, and small food and beverage shops which will be easier to convince of the full benefit of pedestrian traffic.

The last stretch starting from Sisowath High School toward the Institut Français du Cambodge should be redesigned using a shared street concept. Such a street would be designed for pedestrians as the priority user, while still allowing for limited, slow-moving motor traffic for local drivers only while preventing through traffic. This can be done by retaining a single narrow driving lane, introducing a chicane or bends in the roadway, installing street furniture, green swales and trees as obstacles to slow down drivers and make them drive more carefully.

Finally, with a suitable environmental setup, local planners should strive to encourage activity along the street and generate place-making value. Efforts could be made to not only expand economic activity but to encourage identity, thus making street 184 into a true destination.



Indoor activities should be allowed to spill out onto the street, supported by seating shaded by trees, flexible spaces, and art display areas.

At the eastern end, the section of street 184 that runs past the Royal University of Fine Arts and National Museum could serve as a nucleus for cultural and artistic-related endeavors. Apart from the alreadyestablished art houses and studios, the street can be further designed to feature semi-permanent street furniture, like seating, stages, etc. allowing indoor cultural activities to spill out onto the walkways. At intervals, small plazas could be incorporated to host events like local art shows, festivals and exhibitions.

As a budding artistic and creative destination this would put street 184 on the map for both locals and visitors, while also highlighting the benefits of a fully pedestrianized street.

The second half of the road consists of a few schools. several office blocks, and residential buildings. In this latter half, urban designers should design spaces for pedestrians to rest, relax, or enjoy a meal. Again, street furniture is crucial this time with a focus on creating cozy seating areas and gathering places.

This will encourage locals to open shops catering towards office workers, students, and locals for their daily needs. Architects and local authorities should also incorporate street vendors into the streetscape, providing them with designated spots, adding to the variety available.



The other half of street 184, flanking Sisowath High School, should accommodate existing vendors and local shops by adding stalls, and seating.

These two separate but complementary focuses would give Street 184 a well-balanced mixture of functions to accommodate the needs of both locals and visitors, while converting it into a vibrant destination.

Conclusion

Street 184 is just one possible candidate. Many other suitable streets exist across Phnom Penh, which stand testimony to the excellent urban planning heritage the city has.

Therefore, Phnom Penh should not ignore its streets' potential to revitalize the city. When well-designed and carefully managed, the humble city street can be more than just a piece of transportation infrastructure. It can ensure that inhabitants will enjoy a more livable, vibrant, and prosperous urban environment. It only takes us to rethink the roles these streets can play in all our lives.

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# A fair and equitable built environment ensures that all citizens benefit.

# 04

# BUILT FOR ALL CITIZENS

#Design #Public #Vendors #Women #Young #Disability #Pagoda #People Urban spaces should facilitate people from all walks of life and of all capability.

# 1. BUILDING CITIES FOR EVERYONE IS CRUCIAL FOR FAIR, COHESIVE SOCIETY

By Ses Aronsakda

Imagine a city where the elderly can travel unassisted to a local shop, where a person with a visual impairment can easily travel across the city to visit a friend, where a pregnant person can commute for regular check-ups without difficulty, where children can travel to school and back home without worry, and where even the most disadvantaged person can affordably commute for fair employment.

In such a city, mobility is equitable for all citizens, regardless of their mental or physical capability, their gender, their socioeconomic status or their age. For Cambodians, at present, fully equitable mobility is not the reality. This is because the country's towns and cities are heavily dependent on, and are built around, private vehicles.

Automobiles and motorcycles are the least inclusive option

In a city designed around the use of cars and motorcycles, not being able to drive means not being able to get around independently. When a city is only inclusive for motorists, then non-drivers are equivalent to second-class citizens.



In order to qualify to drive a car, motorists must be over 18 years old, pass a driving test, be physically and mentally fit, and possess good vision. Although there is no driving test needed for a motorcycle and age is less restricted, one still needs to be in good physical and mental form to brave chaotic traffic on a motorcycle.

These sensible requirements, however, exclude those with mental or physical disabilities, the elderly, children, those who don't have access to or can't afford to attend driving schools, those who can't afford to buy and operate a car or a motorcycle, and many others. Recent reforms have broadened driving eligibility to include some forms of physical disabilities and have allowed motorcycles modified for disability users to be legally registered.

Although encouraging, it only treats the symptom of inequitable infrastructure rather than the root cause. Not to mention it only places the burden of driving and the associated risks onto vulnerable individuals. Depending on private vehicles as the primary means of mobility fails those who are unable to safely operate vehicles and endangers others.



Apart from accessibility, there are other disadvantages in primarily relying on cars and motorcycles. Traffic accidents are the leading cause of death and injury among Cambodians, with motorcycle users being acutely at risk.

Lately, sharp increases in fuel prices have also underlined the economic cost of motor vehicles. Among Southeast Asian nations it has been estimated that ownership of a medium-sized sedan imposes an average annual cost (including fuel, maintenance and taxes) of \$5,261, while the annual cost for a motor scooter is \$353 as of 2020.

Currently, fuel price hikes have pushed that cost even higher for Cambodians. Thus with the cost of private transportation eating into meager incomes, it places a disproportionate financial burden onto lower income families.

From an equity-oriented perspective, a city designed around the use of private vehicles hampers the mobility of a sizable portion of its inhabitants, puts them at increased risk and saddles them with disproportionate financial strain. Therefore, it is obvious that private vehicles are not the basis of an accessible, safe and affordable transportation system. Prioritizing active commuting and public transit

In contrast to a vehicle-centric city, a city which is designed around active commuting—biking and walking—and public transit is better at providing equitable mobility for all of its citizens.

First, designing urban areas around walkability and bikeability has many tangible benefits. Walking and cycling—the most basic forms of travel—are virtually free, so those who can't afford private motor transport can safely, conveniently and affordably commute. Moreover, well-designed pedestrian and cycling infrastructure also well-designed pedestrian and cycling infrastructure also allows people with disabilities, who rely on mobility devices or tactile surfaces, to safely navigate the city unassisted.

For more distant commuting public transportation is paramount. Likewise, it is space- and cost-efficient, as well as being sustainable and accommodating for citizens with disabilities.

Neighborhoods and districts planned around public transit stations offer inhabitants unparalleled access to the rest of the city, while being cost efficient to construct and operate relative to vehicle-centric infrastructure. Over-emphasis on motor vehicles leads to vulnerable users being displaced by private vehicles.

These factors ultimately make public transit more affordable to citizens, opening the possibility of regular commute to even the most disadvantaged communities.

Additionally, public transit systems can be much more easily modified to accommodate for disabilities compared to smaller private vehicles. Buses can be equipped with wheelchair lifts to allow mobility device users to board safely, while transit stations can be designed with lifts and ramps to enhance accessibility.

Walkable and bikeable streets in combination with robust public transportation offers equitable mobility for both short and long distance commute. Individuals with disabilities, children, teenagers, women, minority groups and low-income families can enjoy better access to employment opportunities, housing, health care and other crucial services when these features are in place.



Beyond equitable mobility

The impacts of equitable mobility also go beyond the obvious tangible benefits. Less concrete factors, like inclusion, trust and belonging in a community, are also enhanced in a walkable and transit-oriented city.

Meaningful interactions are virtually impossible when people are zipping about in their own portable private spaces, i.e. cars and motorcycles. Think about the experience of meeting friends, neighbors or strangers on a sidewalk. Now compare that with the feeling of driving past each other.

This problem is further compounded by desolate streetscapes that are the result of private vehicle dependency. The resulting landscape has a negative impact on the sense of belonging in towns and cities, further reinforcing the stratification of Cambodian society. In contrast, when more space is dedicated to people and activities, the quality of the public realm improves. This is because it opens up the chance for social interactions, commercial activities, leisure and recreation. More interpersonal interactions and connections foster a deeper sense of sharing such spaces, of belonging to them and of building a community around them.

Trust and safety also becomes a concern where vehicle-centric roads become clogged with traffic during rush hour, but are far too devoid of human presence when traffic passes. To build an inclusive city, street space must be allocated fairly to serve all users.

This is not how urban spaces feel when people are able to mingle about. Lively streets with constant foot and cycling traffic, activated by shops, parklets and small plazas exude a friendly and welcoming atmosphere. This is because spaces with active human presence are perceived as being safer and the residents there more trusting, due to the number of fellow citizens nearby.

A sense of belonging and trust is achieved through these small but decisive differences. They are what distinguish people-centered environments from vehicle-centered ones.

Due the absence of these factors in urban areas, many Cambodian urbanites yearn for the connectivity of rural villages. Perhaps what is keeping us apart may not be the concrete and steel, but our motor vehicles and the desolate spaces they encourage.



What Cambodian cities are missing

Equitable mobility allows a city's inhabitants to travel inclusively, affordably and safely. A commitment to public transit and active commute can ensure that residents of various ages, genders, capabilities, and socio-economic statuses all have the opportunity to gain the benefits cities have to offer. Additionally, walkable and bikeable urban environments contribute to building social connections, engendering a sense of belonging to a community.

Equitable mobility is a crucial ingredient to creating a cohesive society. A city which achieves equitable mobility not only gives its residents a fair chance, but it is also a city that brings people together. Originally published 28th of July, 2022, by VOD English





Buddhist pagodas are a common sight in Cambodia and form the nucleus of communities.

# 2. BUDDHIST PAGODAS CAN **BE ACTIVE PART OF GENDER** EQUALITY EFFORT

By Chea Sameng

Historically, most of Cambodia's pagodas provide young men who are monks with housing to continue their studies, while women are not able to access monkhood or even have access to live in pagodas in exchange for work or as a way to continue their higher education. This inequality is partly due to old normative beliefs-including beliefs promulgated by the "Chbab Srey"—as well as long-held pagoda rules.

Notably, however, studies have shown that people don't see Buddhism in Cambodia as being at odds with a push for gender equality-and that is true even within pagodas, where monks and nuns have shown a surprising openness to progressive ideas.

The Cambodian government has set a goal for 2050 to ensure equal rights for women in all sectors, at all levels, in every institution under the blueprint of Neary Rattanak V, the five-year strategic plan for strengthening gender mainstreaming and women's empowerment. As part of this, Cambodia must have a conversation about the role of pagodas to promote and support women, and the current gendered gaps in these spaces.

Women in Buddhism

Buddhism has been a deeply influential force within Cambodian society since the 13th century, and in the present-day, the wat remains central to maintaining the ideas, norms, traditions, culture, management structure, social function and education set by the religion. Much of the infrastructure of these pagoda spaces revolve around monkhood-and therefore are in service of men and boys.

But a 2020 study by feminist group Klahaan found a high degree of openness within pagodas about gender equality—even on the question of female monks.

"The data did not reflect an ideological pushback from either laypeople or Buddhist monks to the idea of women serving as monks," Klahaan says. "The explanation for women not being able to be ordained centered around technicalities."

One such technicality was the lack of women monks to ordain the next generation, according to Klahaan.

"The respondents in this study did not refer to any ideas of women being inherently spiritually unsuitable for ordination in Buddhism," the study says.

The openness extended to the roles of male and female nuns-ta-chi and yeay-chi-who currently take on stereotypical gendered tasks, such as the women doing most of the cleaning and cooking.

"Monks reported that such roles are not fixed, and that barriers preventing yeay-chi from taking on more substantive tasks are cultural rather than religious," the report says. "This may provide an entry point to encourage yeay-chi to take on more substantive roles within the pagoda, and for ta-chi to share in cleaning and cooking tasks."

Two-thirds of survey respondents said they believed when it comes to religion, they should be equal.

This gives Cambodia's pagodas untapped potential to make a difference in promoting gender equality. One area in particular—pagoda housing for youth is currently a major source of inequality, but has already seen small signs of being a potential agent for change.

Apart from serving a religious purpose, pagodas are also centers of education and social interaction for the community.





Dormitories are a common sight, typically used by nuns, apprentice monks, and even students.

#### Unequal access to pagoda resources

Not having access to some of these aspects of pagoda life—for example, the safe, free housing that boys and young men in the monkhood have access to while completing their religious and secular education—has serious consequences for Cambodian girls and women.

"Not having a place to live is a critical problem—it's the weak link in the chain," Harpswell Foundation director Alan Lightman said of the lack of similar housing for girls and women.

Lack of dormitory support has long been a struggle for young Cambodian women, especially women from remote or rural areas who are trying to pursue their higher education in Phnom Penh. Speaking on this issue with the Cambodia Daily in 2007, for example, young women brought up fears around personal security, as well as concerns about being able to afford housing.

"We all here have the same problem, which is safety," said Lam Bopha, 24, from Ratanakiri province. "The second [problem] is economic. In the provinces the living standard is still low. Money is a problem" when it comes to living in the capital, she told the Cambodia Daily.

Too often this means that young women are excluded altogether from higher education.

As recently as 2019, Royal University of Phnom Penh was still lacking adequate space for women students. Pen Sophany, the manager of female dormitories at the University, told Newsroom Cambodia that the university had three buildings for Cambodian female students. These three buildings can house 480 students, and around 300 students apply every year for only 120 spaces to replace the senior students who are graduating.

There are several groups that have tried to step in to fill this gap by providing housing on an application basis to young women with leadership potential who are looking to study in the capital. One notable group is the Harpswell Foundation, which operates two residential centers in Phnom Penh to house women pursuing higher education. But while groups like Harpswell are providing necessary assistance for Cambodia's young women, they are not able to fully meet the level of demand.

In 2019, Moul Somneang, the manager at the Harpswell Foundation told Newsroom Cambodia that the foundation accepts 15 to 20 new students every year and that the foundation has two dormitories currently housing 70 students.

In 2018, in a speech to graduates of University of Law and Economics in Phnom Penh. Prime Minister Hun Sen acknowledged the unequal challenges women pursuing higher education were facing and likewise expressed awareness that the challenge of finding housing was impacting women's access to university-level learning.

"We can see that the number of female undergraduates has increased, but the gap is still too far," the prime minister said. "The numbers are equal across grade levels, but at higher education there are fewer females enrolled."

In this same speech, the prime minister also acknowledged the unfair advantage men are given due to their ability to access pagoda housing. "Male students could stay at a pagoda but not female students," he said. "We should prepare dormitories for female students."

But since this speech, there has not been proactive action on this issue.

Pagodas in urban areas also serves as public spaces for residents, incorporating pounds, gardens, and greenery.

#### Buddhist institutions should unlock access

Buddhist institutions can and should take a proactive role in helping to address this issue. The abbots of pagodas, especially those pagodas in cities like Phnom Penh where they can provide access to high schools or universities, could take a lesson from groups like the Harpswell Foundation and explore the ways in which they can offer equal support to young women who lack financial means or family resources to continue their education.

Buddhist monks and temples have been at the very forefront of other aspects of educational innovation. But what if pagoda's could also serve as a safe place for young women to stay and pursue their higher education under the support of pagodas? Some individual pagodas are already giving this role a try.

One pagoda in particular, Wat Preah Ind Samaki Dhama in Kandal province has done a good job supporting both young women and men in separate dorms.

"In the pagoda, we had two dorms separately for males and females, one with 18 rooms that served more than 120 young females who came from rural areas to stay and continue their secondary and high school studies in pagodas," Mai Peareak, a personal assistant to the abbot, told me.



The abbot of this pagoda also said in an interview with Fresh News that the pagoda would plan to build two more dorms for those students, especially young women, who are interested in continuing their university education and have no place to stay. He also added that the university will give them a full scholarship for the whole four years, and those who will stay in the dorm will only contribute a small budget of \$10 for electricity and water payment to the pagoda. More pagodas should strive to follow this model.

The Cambodian government should also consider taking a collaborative approach with Buddhist institutions by supporting urban pagodas which

fill the demand for this type of housing for young women, as these pagodas have long-provided for young men.

Moving Cambodia's gender equity movement forward will require diverse input, energy, and enthusiasm from all stakeholders, including religious actors who have the potential to play a particularly influential role in Cambodian society. To ensure the prosperity and well-being of the country, it is vital to end gender gaps and social stereotypes that contribute to the marginalization of women. Buddhist pagodas have the potential to be agents of progress and change on this front.

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Smart city is often used as a catch-all term that distracts planners from identifying specific policy solutions. Despite the buzz talk, sound urban policy must come first.



# 3. CAMBODIA NEEDS PEOPLE-CENTRIC PLANNING BEFORE 'SMART CITIES

By Ses Aronsakda

In the "smart cities" of the future, Cambodian urban spaces would be designed around digital infrastructure. Our cities might, for instance, analyze and optimize the flow of digitally tagged cargo. Traffic control systems, which use artificial intelligence, may shepherd flows of driverless vehicles through thoroughfares lined with sensor-equipped traffic lights.

These futuristic so-called smart solutions may seem like they're years away from becoming a reality, but some versions of these systems are already being actively explored and implemented. Siem Reap city authorities, for instance, have installed a city wide CCTV network focused on data collection and analysis to monitor traffic and ensure public safety with assistance from the Japanese development agency. Six more smart city projects are planned for Siem Reap alone.

Phnom Penh is also steadily expanding its own CCTV network, while also implementing a logistic management system in the planned Phnom Penh logistics complex. This system utilizes digital trackand-trace solutions to achieve better inventory visibility within a supply chain. And authorities in Battambang have plans to use technological solutions to manage waste disposal. Provincial governor Sok Lou has said he envisions a system where garbage bins and trucks will be tracked and monitored using chips. He also added that parking is an area that could use a smart solution.

These examples and many other digital solutions, are part of a larger effort by the "Asean Smart City Network," a platform of 26 cities in the region, collaborating toward the common goal of smart and sustainable urban development. Phnom Penh, Siem Reap and Battambang are all members of this network of cities. Yet Cambodian city planners would benefit from some degree of caution in just how much they prioritize these tech-focused solutions. Our planners and policy-makers must not let the adoption of digital technologies overshadow simpler, cheaper and more sound urban policies that can offer practical and scalable solutions.

What is the Asean smart city network's purpose?

The objective of the ASCN is to ensure that cities achieve three strategic outcomes: high quality of life, competitive economy and sustainable environment, and it does so mainly by leveraging digital technologies.


Ubiquitous data collection forms the basis of smart tech solutions, although this raises concerns of privacy.

According to the "Asean Smart City Planning Guidebook," published in 2022, "Smart cities in Asean aim to address such issues and challenges and provide new value to the citizens, by leveraging digital infrastructure and data as an enabler."

Interestingly, one of the key principles in the guidebook is "Focusing on the vision; aim not only to implement new technology, but focus on solutions which resolve the issues."

However, this point is not reinforced nor emphasized anywhere else in the guidebook. Just as when your only tool is a hammer, everything starts

to look like a nail, the majority of priority actions exemplified under the guidebook only focus on technology-based solutions.

For example, in the civic focus area, the introduction of digital payment solutions is identified as a priority action. Similarly, in the mobility and urban resilience focus area, digital management systems for traffic and flooding are prioritized. And the majority of suggested actions mainly focus on technology as an enabler.

Since the ASCN is a non-binding guide, it cannot enforce solutions, nor provide details and regulations to ensure consistent implementation. This leaves a lot of room for individual countries and cities to pick and choose which solutions to adopt and how to implement them, decreasing effectiveness and making a shared integrated solution impossible.

Moreover, this deliberate vagueness in combination with a heavy emphasis on digital infrastructure and technology have the potential to unintentionally lead Cambodian policy makers to become over-reliant on smart technologies and to overlook effective urban policies.



The positive impacts of digital technology in monitoring, analyzing, and managing cities is undeniable. But smart technology implementation must be built upon the firm footing of sound urban planning policies.

> Over emphasis on smart solutions may blindside planners to subtle yet crucial factors that make a city more livable.

# COMPACT CITY

### TRANSIT ORIENTATED CITY ARRANGMENT

Public Transit Corridors & Existing Road Network



A compact city will decrease demands to urbanize outlying natural areas, thus minimizing greenfield development.

Cambodia first needs smart and sound urban policy

Before implementing smart city solutions, Cambodian urban planners must first adopt urbanization policies which prioritize people, environmental sustainability and inclusive economic opportunities. Let's examine some policies which can do just that, at a fraction of the time, cost and complexity compared with digitally-enabled solutions.

First, Cambodian cities should adopt a compact city approach to urbanization. This means implementing policies which incentivize developers to construct homes, schools, shops and workplaces in comfortable, human-scaled spaces located in mixed-use and optimally dense city blocks. Ideally these spaces would be well-connected by foot and cycling paths, served by excellent public transit connections.

Several policies in particular should be prioritized to help Cambodia's cities develop in this way. Most crucial are land-use concepts like "Transit Oriented Development," which encourages the development of optimally dense mixed-use neighborhoods within walking distance of public transit stations. Urban planners can assess users' "mobility profiles" to tailor a building's placement to fit with the local street network and allows planners to account for how users commute to and from different types of buildings, and to gauge the intensity of traffic generated by users of that space.

Walkable mixed-use neighborhoods still require an effective transit system for long distance travel. This remains a challenge for Cambodian cities as poor walkability, a disjointed network, and poor reliability plagues the capital's public transit system.

A possible solution is to disentangle public transportation and active commuters from private vehicle traffic. This strategy would entail carving out public transit priority lanes and designated lanes for pedestrians and cyclists. Disentangling urban traffic not only increases efficiency, but also boosts safety, as each mode of commute is not forced to compete with the other. A disentangled street network should prioritize public transit and active commuting by designating them into the most direct routes.

The disentanglement of Cambodia's urban streets would be even more successful when paired with policies which actively combat traffic congestion. Parking policies should also be revised to replace our current parking minimum with a parking maximum requirement. A policy based on parking maximums would reduce the number of parking spots available, and significantly reduce trips by motor vehicles.

Other approaches could be designating car-free zones within the city center-like the city of Ljubljana which is car-free in its historical city center-or to levy a congestion charge on vehicles which enter the city center, further dissuading private vehicles usage and mitigating traffic congestion.

To achieve a holistic approach, Cambodia should also consider reforms to street design, in favor of an active street design philosophy. Actively designed streets prevent motorists from undertaking dangerous maneuvers by narrowing driving lanes, utilizing chicane patterns for vehicle lanes, placing curb extensions, raised crosswalks, and other physical interventions. Such efforts also allocate more space for public transit and active commuters, while improving road safety for all.







Pedestrian Street with Commercial Spaces, Tram Line, and Public Spaces

### IPHNOM' PENH'S STREETS RE-DESIGN

### By LIVING FORUM Illustrator Ses Aronsakda



Replacing vehicle traffic with efficient forms of commute and human-centric spaces improves the livability of cities.

This dovetails with efforts to reduce space for private vehicle traffic, and to pedestrianize streets and give back space to citizens. Interventions like adding parklets to increase public spaces, provide public amenities like seating, vendor space, public art displays and playgrounds.

Former vehicle space could be converted into bioswales-a combination of storm water drains and gardens-to improve our cities' microclimates, to help capture flood water, and to reduce urban heat islands to the benefit of all citizens. By repurposing space for people, the urban landscape becomes more inclusive, safer, less polluting, more pleasant and welcoming, helping to build an inclusive economy and cohesive society.

This is not an exhaustive list of practical urban policy solutions suitable for Cambodian cities, there are many more interventions that are appropriate. Compared with digitally enabled solutions, these interventions offer less complexity and less cost, while also tackling the root causes of the issues they are meant to address. Moreover, these policy and design changes can be achieved without relying on outside assistance and funding.



As Cambodian towns and cities continue to evolve, planners must emphasize sound urban policy.

# Urban policy first

Cambodia must avoid falling for the notion that smart technology is the answer to everything. After all, cities are complicated, interconnected machineries which require well-balanced stewardship. Getting tunnel visioned into implementing only digital technology-enabled solutions is blinding us to practical and scalable policy solutions which address many fundamental problems.

Cambodia must first focus on sound policies before it can turn to smart technologies. In the future, Cambodian cities can be-and should eventually bebuzzing with technological marvels. But before we can get there, Cambodia first needs to enact simple, scalable, human-centric urban policies.

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Street vendors are a critical facet of urban spaces, efforts should be made to fairly include them.

# 4. ANY REDESIGN OF RIVERSIDE MUST INCLUDE STREET VENDORS

By Prak Norak

Picture Phnom Penh's riverside without its street hawkers. It would be a lonely place lacking in the activity, vibrancy and personality that makes this space special. It would be a street without life, lacking spontaneity and convenience.

Although some may prefer this alternative in theory, in practice both sellers and visitors would be worse off if this becomes a reality. Vendors are a critical factor in bringing the riverside to life. They are indispensable to riverside activities and act as linchpins in multiple unique riverside social and economic ecosystems.

As part of the informal sector, vendors and hawkers support themselves economically and their service also provide much convenience to citizens.

To serve visitors who come to the riverside looking for spiritual fulfillment, there are vendors who sell lotus flowers and other offerings at Preah Ang Dorngkeu shrine. For visitors of all ages there are vendors who sell food and beverages, num banh chok, and other snacks. These vendors make scenic dusk picnics and gatherings of friends possible. And for families with children, there are vendors who sell corn to feed the pigeons, as well as toys, games and balloons to entertain the youngsters. Even if you buy nothing from these vendors, you still benefit from the ambiance they attract and create.

Any redesign efforts of this public space must include infrastructure that supports these street vendors and enhances their livelihoods. Phnom Penh should consider creating a brick and mortar "vendor hub" to organize groups of street vendors into one location, thus creating a lively de facto market, and solidifying the vendors' position in this part of this city.

Vendors are undervalued

Historically, beautification efforts in public spaces throughout Phnom Penh have involved cracking down on or even removing street vendors.



In 2017, for instance, Phnom Penh city hall doubled down on calls to enforce bans on vendors who work on the streets and parks of the capital, leading to a protest by dozens of sellers who were based near the Council of Ministers headquarters. Reasons put forward for this crackdown were hygiene, safety, public order and traffic congestion.

In 2020, a vaguely worded draft law on public order was proposed that included measures purportedly meant to clean up Phnom Penh's streets.

"This law aims to ensure public order management by maintaining order, aesthetic value, sanitation, cleanliness of the environment, quietness, social stability, preservation of national tradition, and the dignity of citizens," Article 1 of the draft law read. Rights groups, however, worried the law would effectively criminalize the businesses of street sellers, among other far-reaching impacts.

But instead of prioritizing these types of initiatives which rid public spaces of vendors, Phnom Penh should instead lean into the role vendors play in our lives, and provide them with clean, orderly, dedicated places in which to do their work. This would not just be in line with what civil society has been calling for, but also would correspond with goals authorities have set for making the work of street vendors more official, as well as safer and more hygienic, for the vendors themselves, for their customers, and for the spaces they occupy.

Instead of viewing vendors and hawkers as a public nuisance they should be recognized for their service and integrated into public spaces.

### A high street for vendors

A conversation about the needs of riverside vendors fits in nicely with what has already been discussed around the benefits of riverside pedestrianization. A car-free riverside would allow even more visitors to walk and eat in this public space, or leisurely browse and shop for items.

By making a once traffic-heavy road into a walkway for riverside goers, the owners of existing shops along the riverside would be the first stakeholders to benefit, particularly restaurants and cafes that are able to arrange for shop-front seating. This not only allows shoppers to have a safer and fresher experience free of vehicle smoke and traffic, it also creates a multisensory experience for people walking by.

But another group which clearly stands to gain from a more vibrant riverside free of car traffic are mobile street vendors and hawkers. Unlike physical shop owners, these sellers have never had space dedicated to them in this area. Let's imagine a dedicated, fully serviced, brick and mortar vendor hub along the riverside where vendors are able to sell their goods under shade, and imagine the benefits this hub might contain for both vendors and for their customers.

Vendor hub in detail

Obviously a chief concern when it comes to street food vendors, for authorities and consumers alike, is health and safety. A dedicated vendor hub for these types of sellers is an excellent way to address this issue head-on. A vendor hub would not just provide a seating area for buyers to sit and enjoy their food once they've purchased it, but as part of this kind of hub there would also be running water and sinks for them to wash their hands before and after eating, as well as trash cans to dispose of waste.



There are many ways to inclusively incorporate vendors into public space, providing a shaded structure with seating is just one option.



To maintain separation between the vendors and the seating area, these washing sinks could be designed as a double-sided bar. One side for the riverside goers to wash their hands and another side for the vendors to wash their hands and their utensils.

In order for this space to provide the maximum value to the riverside promenade, it should be located in an area that gives vendors their pride of place and allows visitors to come and go with ease. Ample bicycle parking and e-bike charging stations next to the vendor zone would mean customers could pull up at any time of day and stay for as long as they like. Cyclists and pedestrians can make a stop at each vendor zone to browse their wares or purchase food, or use public restrooms that could be built adjacent to the vendor zone.

To avoid feuds over selling spots, vendors might be asked to acquire a permit at a very low price. And each vendor zone could be dedicated to selling only one category of products. For example, food vendors sell food in a food zone while cloth vendors sell in a clothing zone.

# A public space for all

Street vendors dotting riverside's promenade give the space a life of its own. Since mobile vendors are already part of the riverside, fully embracing them and intentionally incorporating them into a public space through the creation of a vendor hub would elevate this location. Street vendors and shops along the riverside, as well as their customers, should be able to reap the benefits of a humanized riverside. Originally published 1st February, 2023 by VOD English.



Well thought out accessible spaces in Cambodian architecture are still a rare sight.

# 5. CAMBODIA CAN BUILD AN INCLUSIVE URBAN LANDSCAPE

By Ses Aronsakda

The built environment in Cambodia is often a hostile environment for people with disabilities. Put yourself in the position of a wheelchair user, for example. To even get into a building you must be lifted over raised landings and several steps. Once inside, your situation does not improve as there is no restroom stall that is wheelchair accessible, while interior stairwells and the absence of elevators further limits your mobility.





Large and unobstructed sidewalks form the backbone of accessibility in outdoor spaces.

Pay close attention to the spaces you move through —in your home, your workplace, your school, your neighborhood market-and you will notice that features like steep ledges, uneven surfaces and numerous other hazards are bountiful. These design elements form an obstacle course that is difficult, or even impossible, to navigate for those with mobility, visual, hearing or cognitive impairments.

And to be forced to rely on the assistance of others in everyday situations, while out in public, makes it impossible for those with disabilities to be fully included into society and be functional members of it. A built environment which unintentionally excludes a group of individuals, through design—or the lack of it-reflects the larger apathy Cambodian society all too often displays toward people with disability.

This apathy is perhaps partially explained by the fact that most people think that this problem will never affect them. But evidence suggests that everyone may have to rely on accessibility provisions at some point in their lives.



Whether it is due to mobility, cognition, hearing or vision impairment, half of all individuals will temporarily suffer from one type of disability for at least three months before the age of 65. And the odds of a permanent disability only increase the older one gets, affecting 1 in every 4 people over their lifetime.

Thus, designing and building spaces with disabilities in mind ends up benefiting almost everyone, be it temporarily or permanently. But more

importantly, the creation of a truly inclusive society for people with disabilities, which allows them to be full and productive members of society, hinges on three factors.

Firstly, designers' and builders' awareness and consideration toward the needs of disability users. Secondly, a well formulated and coherent disability design standard. Lastly, the codification into practice the prioritization and assessment of accessibility features throughout the design process.

The current law provides only a basic framework

According to the 2014 Cambodia Demographic Health Survey, 1 in 10 Cambodians experiences at least some degree of difficulty in performing basic tasks, while 2.1% are severely affected by disabilities. More recent admissions by Minister of Public Works and Transport Sun Chanthol indicates the number of citizens with serious disabilities is closer to 1 million Cambodians.

Given the scale at which disabilities impact citizens, it is unfathomable that most buildings and public spaces in Cambodia do not accommodate individuals with disabilities. As I prepared to write this piece, I spoke to a few Cambodian architects to try to get a sense for how the local design community views the current state of disability-accessible spaces. I spoke with two architecture practitioners, one based in Siem Reap and one based in Phnom Penh.

"The primary issue is that users with disabilities are almost invisible to most designers, developers and builders," the Phnom Penh-based architect told me. "And when we eventually think about them it is usually too late to implement the features they need," he added.

As a practicing designer myself, I observe that this fact is only exacerbated by a disability law which provides a very basic guideline.

The 2009 "Law On The Protection And Promotion Of Rights Of Persons With Disabilities", built a broad framework on this subject, but lacks the minute details which are necessary for practical implementation by designers and builders.

More recently, the 2018 "Technical Standards on Physical Accessibility Infrastructure for Persons with Disabilities" provided further guidelines on this topic, but lacks practical examples for designing buildings such as pagodas, parks, multi-storey residential buildings, commercial buildings or office buildings. Another important point is that the document mainly focused on wheelchair users, ignoring the needs of other types of disability.

Being a technical standards document it is understably long (over 190 pages). Yet, it poorly summarizes the most important content, and fails to provide adequate, easily understood visualizations which makes it difficult for designers and builders to use.

Coupled with lack-luster dissemination, this has resulted in difficulty for designers and builders who don't have the necessary information to make their projects inclusive for all Cambodians. And for Cambodians with disabilities, the resulting spaces make the prospect of going anywhere alone extremely difficult or even completely out of the question.

Yet given the scale and likelihood of a temporary or permanent disabling condition happening to everyone, improving accessibility in all spaces is indispensable.

A new design standard

Creating an accessibility standard for Cambodia isn't a straightforward task. We cannot simply import foreign standards word-for-word and apply them for Cambodian users. This is because in manuals related to human dimensions, every centimeter matters. Dimensions that are perfectly ergonomic for a European body might not be ergonomic for a Cambodian body. And recommendations that are viable for a temperate climate might not work for a tropical one.

What we need instead is a disability design manual researched and authored by Cambodians for Cambodians. And the new design standard must include all spectrum of disabilities from mobility and cognition to hearing and vision impairments.

The government should fund local designers and disability advocates to study and formulate this design manual. Only by taking a proactive approach that combines knowledge from the design sector and the advocacy work of disability organizations will it be possible to account for the acute challenges faced by individuals with disability and have their needs fully articulated in a design response.

Mobility impairment is the most obvious and common condition, requiring adequately wide corridors for wheelchair movements, gently sloping ramps, accessible parking and restrooms, etc. There must also be careful consideration on the limited physical reach of wheelchair users, thus the placement of switches, sinks, water fountains, door handles and faucets must reflect this fact.



Tactile surfaces in public areas are crucial accessibility aids, yet in the few places where are implemented they are often blocked by parked vehicles and other objects.

Those with hearing impairments require generous spaces to communicate effectively with sign languages. Straight stairs and corridors are preferred over U-shaped or dog-legs stairs and sharp corners, because a person with a hearing impairment will have fewer cues to realize that someone is coming around a corner. Similarly, the use of frosted glass rather than opaque walls is preferred as it allows for better visual cues while maintaining division of internal space. Additionally, seating arrangements in a circular format and good lighting are critical in facilitating communication with sign languages.

The visually impaired require tactile surfaces for navigation and the elimination of tripping hazards. Due to their reliance on the auditory sense, minimalist aesthetic and hard finishing should be avoided since they generate a lot of background noises, degrading the primary senses of the visually impaired.

This is by no means an exhaustive list of design provisions, but it demonstrates the particular design solutions required to meet the needs of people with disabilities. And such provisions are only identifiable by having input from those who experience disability firsthand and combining it with architects' design knowledge relating to line of sight, material acoustics, human dimensions, etc. collaboration is therefore a crucial step for formulating an effective disability design manual.

Another architect I spoke with reminded me that to be fully inclusive for all Cambodians this manual will need to contain solutions that look beyond large, urban-centric buildings and touch upon rural life as well.

"We should not just focus on urban buildings," the Siem Reap-based architect told me. He suggests that there should be a strong focus on rural and traditional structures as well. The manual should cover structures that are more common in the Cambodian countryside, like wooden houses, pagodas and public halls.

This architect pointed out that traditional stilt houses are not ideal for elderly people and those who are physically impaired. Thus, adaptation in traditional wooden houses must be made to allow easier access, such as moving the bedroom for the elderly to the ground floor or building houses with more manageable heights. Other structures like the main halls of pagodas should incorporate slopes and gentle landscape features for easier access.

This process of assembling and formulating a design standard is crucial as Cambodia is in the process of drafting a new disability law. However a design manual must ultimately be implemented to be impactful. And the process of implementation may be the most challenging aspect.

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How will it be applied?
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When it comes to implementation, the Phnom Penhbased architect I spoke with floated an idea where "training workshops should be organized by disability advocacy groups to make designers and developers aware of the issue and train them on the usage of the aforementioned disability design guideline."

Accessibility is not just about dimensions, factors like shading, lighting, and sound are all crucial to making a space more accessible.

This bottom-up proactive approach can make the issue more prevalent in the construction sector, while ensuring that every designer eventually becomes familiar with the regulations.

This is crucial, considering the observation made by the Siem Reap-based architect. He pointed out that if designing for disabilities is not prioritized early on in a project, then it is more likely to be inadequately provisioned or even left out entirely later in the design process.

Thus, any training on this issue must inform design firms on how to incorporate disability-focused design as early as possible in a design project. Even better, as the project cycles through its review stages, a thorough assessment should be made on the implementation of disability features at each milestone.

This, however, puts a lot of pressure on the part of the designers to stand up and protect disability design features. In a strained, three-way relationship between designers, contractors and client/developers, the voices in favor of implementing features for disabilities will not always prevail.



So when rules are not followed, where does the burden of enforcement lie? Should the Ministry of Land Management, Urban Planning and Construction get involved to enforce and sanction rule breakers?

When asked, the architect from Siem Reap urged that it must primarily be the responsibility of the ministry and local authorities to enforce rules and sanction any party that does not follow the code. The Phnom Penh-based architect also agreed: "Construction regulations must be applied equally, including the disability standard when it's ready."

However, there is also an admission from both designers that this may not be enough, especially given the rate and scale of construction and the limited resources of the government.

"There should also be pressure from ourselves, as designers," the Siem Reap architect elaborated. Even when working in a field where the client's opinion can seem unassailable—after all it is the client who commissioned the work—there are still lines drawn in the sand.



Accessibility should be a process thought of from the beginning, not a compromise or a tack-on solution.

He stressed, "Let's take for example fire safety. If our client suggests a design change which compromises fire safety, it is the duty of the architects and engineers to warn them of the consequences." We never compromise on the safety of buildings; it's time we elevate designing for disability to the same level.

And I agree with this statement. Our profession is based on our integrity and reputation. If a particularly egregious design error is made, it is ultimately our responsibility.

A systematic change

There must be a systematic change in how we prioritize designing for disability.

Government intervention to fund and introduce a disability design manual, informed by the Cambodia-specific knowledge of disability advocates, and designers, is imperative to ensure correct formulation and implementation across the board.

Nevertheless, beyond simply relying on government enforcement, designers, builders and developers must take it upon themselves to enhance their design process. Placing accessibility provisions in a higher priority and, more importantly, incorporating these provisions as early as possible in the design process.

Lastly, it is also the architect's duty to highlight the indispensability of accessible spaces. We may take great pride in designing buildings that are celebrated in photos and awards, but the main aim of architecture is to design spaces that are inclusive for people—all people, regardless of their abilities.

> Originally published 7th of July, 2022 by VOD English





# 05 LIVABLE CITIES

#Street #Parking #Urban #Building #Planning #Canal #Water #Land #Space



Street, public spaces, and city blocks are a physical manifestation of urban planning and policy.

# 1. HOW PHNOM PENH CAN **RECAPTURE ITS MID-CENTURY GLORY**

By Oung Ty Keithya

The Cambodian capital of Phnom Penh was once considered the Jewel of Asia. "I hope, one day, my city will look like this," Lee Kuan Yew, Singapore's first prime minister, reportedly told his host, Prince Norodom Sihanouk, as he cruised along the capital's elegant boulevards in a Mercedes convertible during his visit to Cambodia in April 1967.

Phnom Penh was founded as the capital of the Cambodian kingdom in 1434 but was abandoned

several times before being reestablished again as the capital and center of royal power in 1865. Under the French protectorate (1863-1953), Phnom Penh was used as an experimental blueprint for French architects and engineers. The French planners carefully crafted a modernization plan for Phnom Penh by laying out roads, designing public buildings, and locating urban spaces via a thorough analysis of the city's physical characteristics

Colonial buildings dots the old district of Phnom Penh marking urban areas which were planned in the French way.





Gazing at a map of Phnom Penh from the 1960s, one cannot ignore the order and the alignment that characterizes the street networks in the central part of the city. A series of almost-identical city blocks are hugged by networks of small streets that run parallel between the boulevards and the main streets, creating an order and a strong connectivity of roads, and a good flow of traffic. The city's highly organized numbered street system and defined hierarchy of urban spaces were designed to integrate the rural areas with the urban as the boulevards and the main roads stretched toward the outskirts.

Interestingly the combination of immaculate buildings and wide boulevards—when closed off to vehicles creates a pleasant public realm.

The design not only focused on highly-planned street networks but also took careful consideration of other vital urban amenities, including public parks, greenery, and supporting infrastructure. The streets were equipped with broad sidewalks, and lined with trees and candelabra streetlights. Networks of roads featured full-fledged systems of water supply, drainage, infrastructure, and electricity network.



Despite constant investment, Phnom Penh new district lacks the same level of livability.

### The era of urban sprawl

Modern-day Phnom Penh is playing witness to a rate of urbanization that can be best described as relentless. Urban sprawl and haphazard development along the city's edges stretch out in all directions. Uncountable numbers of condos, villas and housing projects are expanding the suburbs and exurbs to accommodate more and more people migrating to the city in search of better opportunities.

Rural farmlands are being transformed into commercial and housing projects. Lakes and wetlands with ecological and hydrological importance are being filled to meet the growing demand for land.

But, while these other topics have been well-explored, an element of this sprawl that is particularly troubling, and largely ignored, is the planning-or lack thereof—of the new city streets.

Taking a bird's-eye view of the modern map of Phnom Penh, focusing in particular on the outer districts west of the center, we see that the network of streets is fragmented and patchy.

These outer sections are completely devoid of boulevards and main streets, and the smaller streets lack connectivity with one another, resulting in weak road connectivity between the outskirts and the downtown.

The likely cause is that these streets were built as an afterthought. Real estate developers who buy land in these areas have a myopic focus on building housing and commercial spaces, and only consider the logic of the road placement after. The result is that road systems in these areas exist purely to serve the accessibility of these individual real



estate projects, for obvious profit-based reasons. This piecemeal mode of urban development results in a lack of broader public-facing road connectivity and coordination throughout the edges of the city.

However, Phnom Penh can change course and regain its order with proper urban planning and implementation. One of the first and most important steps to take is better street network planning.

*Increasing reliance on private vehicles is straining* Phnom Penh street network which were not designed for current levels of motorization.

# **CITY BLOCKS**

### **OPTIMAL SIZE & WELL CONNECTED STREET LAYOUT**

### **OVERSIZED BLOCK**

City Block dimensions are above 150 meters. making it difficult for active commuters to navigate and redcucing alternate paths.

The importance of street network planning

Street network design could influence the development of Phnom Penh in a number of crucial ways. First, street network design determines the level of traffic safety, mobility, and transport efficiency within the city. One study analyzing the street networks of ASEAN cities has shown that street networks with longer street lengths and many intersections tend to promote a better flow of traffic due to the formation of a square-like structure with a high degree of street connectivity. This allows commuters to travel faster, more safely, and more efficiently to their destinations. Applying these findings to Phnom Penh, we can understand

why these peripheral parts of the city lacking street density are more prone to traffic disruption and congestion.

Second, street network design determines commuters' behavior and the choices they make around modes of transportation. A well-connected system of street networks makes streets more accessible for walking and biking. A study on Phnom Penh's street networks, drivability, walkability, and bikeability shows that the street networks in the central districts are more accessible to walking and biking than the peripheral ones. More walking and biking ability would lead to



City Block dimenstions are less than 150 meters, which facilitates walking and cycling.

less vehicle dependency, resulting in less congestion and less consumption of fossil fuels. Evidently, many Cambodian people decide to own private vehicles at least partly because of the city's disconnected streets, long distances, and unreliable public transport services.

Third, street network planning is also strongly linked to the economic activities of urban spaces. The study on ASEAN cities indicated that a high degree of street accessibility provides a boost to urban business activities. For instance, businesses

# **CITY BLOCKS**

**OPTIMAL SIZE & WELL CONNECTED STREET LAYOUT** 

### **OPTIMIZED BLOCK**

Dimension of city blocks determines connectedness and walkability of a neighborhood.

that are located on more interconnected street networks attract more sales opportunities as these streets attract more visits and through-traffic. Shops located in disconnected areas with streets that are harder to navigate force people to visit those shops only with purpose, instead of via natural encounters.

Given the importance of a well-executed street network, it's important to ask how Phnom Penh can get this critical component of urban planning back on track.



Urban policy should encourage optimal city blocks sizes, well-laid street networks, and walkability, all of which are critical factors of a city's urban mobility.

### The challenge of enforcement

It would be incorrect to say that Phnom Penh currently has no master plan for the city. At the end of 2015, in collaboration with development partners, City Hall issued Phnom Penh Land Use Master Plan 2035, providing broad strategic directions for the capital.

How much the plan is actually being implemented is another question.

There is some ambiguity regarding whether private developers consult the master plan before planning to build a project. The overall lack of enforcement and unclear construction and real estate development policies lead the city's urban development into a devastating combination of illegal construction sites and implementation loopholes as the capital continues to progress into an urban mess. The lack of enforcement and coordination in urban planning have clearly taken a huge toll on the city's street networks, the planning of which falls among the city's least-prioritized tasks.

This clearly shows how badly Phnom Penh needs an improved and updated master plan. Such a plan must include thoroughly-studied land use and zoning policies with built-in practical enforceability and well-designed street networks, and must consider the infrastructural and architectural identities of the city.

Perhaps most importantly, any land or construction permit granted to developers must be in strict compliance with the city's land use master plan. Street networks cannot be an afterthought that follow profit-driven decisions by real estate developers. City authorities must act to collaborate with, and monitor these projects on the outskirts to be sure that they adhere to the larger vision for our urban space.

If the status quo continues unchecked, we will be left with a tangled mess of disconnected streets, wondering how our city lost its character and order. A more coherent street network design alone is not likely to fix all of Phnom Penh's mounting problems. It is, however, a critical starting point. Only by focusing on this issue, by prioritizing long-term planning over the single-minded profit needs of real estate developers, can we establish a stronger foundation for the urban development projects to follow.

> Originally published 12th of August, 2022 by The Diplomat



Availability of ample parking spaces significantly contributes to a commuter's decision to drive rather taking an alternative commute mode.

# 2. LESS PARKING SPACE IS ACTUALLY GOOD FOR A CITY

By Ses Aronsakda

The end of 2020 saw more private vehicles in Phnom Penh than people: a total of 2.53 million private passenger cars and motorcycles compared to its 2.18 million population. With about one car and four motorcycles for every household, this is a clear indicator that Phnom Penh is heavily dependent on private vehicles.

As Future Forum's urban policy researcher, I spent the past year examining Phnom Penh's urban mobility. A part of that study involved digging into Cambodia's current parking policy and the impact it has on the city.



Every square of meter vehicle parking imposes a direct cost to residents and businesses, as well as externalized cost.

According to my estimation, the parking area required for all private vehicles in Phnom Penh is 22.8 square kilometers, which is roughly the size of Russey Keo district. But currently the city has only 0.98 square kilometers of registered parking space, which is severely inadequate.

Building a parking lot the size of Russey Keo district is obviously not possible. But even putting aside the logistical and financial constraints, adding more parking to a city isn't a cure-all. In fact, too much parking can lead to just as many problems.

A minimum parking requirement is not the solution

Although an overlooked topic, parking policy significantly impacts urban mobility, affordability, growth and the environment of a city. Despite being such a multifaceted topic, current efforts of the Cambodian government focus solely on gaining more parking space for cars.



In 2015, the Ministry of Land Management, Urban Planning and Construction devised and adopted a minimum parking mandate. In this scheme, for example, restaurants and cafes are required to have one car parking spot for every 20 square meters of retail space.

This seems like a reasonable solution. But in practice, it subjugates the city to the needs of cars rather than the needs of people, and there are hidden costs to this decision as well.

The economic cost of a minimum parking requirement is severe, making construction and operation of property more expensive. The average cost of building a single ground-level parking spot is \$500 as the cheapest option without even counting the cost of land, which would be exorbitant in Phnom Penh's core.

For large retailers, spending millions of dollars to provide enough parking is not overly detrimental. But for small and medium-sized businesses, even a modest size parking lot may prove untenable, thus serving only to stifle growth.

More nefariously, minimum parking requirements also harm home buyers, as money spent on building the appropriate parking will be pushed back on to buyers as a hidden cost within the property price.

Lastly, there are also environmental costs to parking lots. They are impermeable surfaces and their concrete or asphalt construction-which in itself is an environmental concern-contributes to heat gain in urban areas, prevents the infiltration of groundwater and makes flooding run-off worse.

As a result, with a portion of any investment absorbed by parking, the city cannot build more affordable housing nor boost small shops and business, and is racked by the environmental impacts of parking structures.

Yet this is not all. As a whole, traffic in Phnom Penh will become worse if parking becomes more widespread.

On public streets, vehicles parked along the sidewalks and on-street take up valuable public spaces, block sidewalks, and contribute to unsafe traffic by blindsiding commuters.

### An oversupply of parking will hurt urban mobility

Not only does an oversupply of parking occupy valuable urban space, it also causes further vehicle dependency, which ironically makes traffic worse. This is because with an abundance of parking, commuters gain a perception that it is always easier to drive.

Phnom Penh's Sen Sok district perfectly encapsulates this phenomenon, where the construction of large big-box commercial centers like, Makro, Aeon 2, Global House, Design Village and such all contain large swaths of parking space. Traffic congestion is a common occurrence in this area despite larger roads criss-crossing the district.

Additionally, parking lots lining the streets dissuade active commuters. The absence of buildings closely flanking streets, providing shade and a sense of enclosure creates desolate and uncomfortable thoroughfares for pedestrians and cyclists to navigate. With active commuting no longer an option, public transit also fails, which leaves only one choice-even more drivers on congested roads.

An oversupply of parking encourages vehicle usage, displaces other commuters and induces traffic congestion, which-taken as a wholeultimately degrades urban mobility.

Solution lies in responsiveness and adaptability

In light of this realization, instead of mandating minimum parking, city planners globally are moving toward systems which regulate the maximum amount of parking a property can have.



For example, in Portland, Oregon a parking maximum ordinance was enacted. Each category of building is given a formula to determine the parking minimum as well as the parking maximum. In some cases, the minimum and maximum lot requirements are reduced if a development is located close to a public transit system.

Vancouver chose to implement parking maximums as well, but went a step further in recognizing the reduced needs of parking in dense

urban areas. Thus the city mandated a total parking cap in the downtown areas to prevent parking induced traffic congestion.

The city of Mainz, Germany gives a significant parking requirement reduction to properties that are in walking proximity to a bus station or tram station, the city even takes into account how well-serviced by trams and buses those stations are. This is to incentivize public transit usage and discourage vehicle usage in areas already well served by public transit.



Meanwhile in Singapore, the Range-Based Parking Provision Standards are based on urban density and proximity to public transportation. For example, Zone 1 (City Center and Marina Bay area) offers developers the freedom to reduce parking to only 50 percent of the minimum standard and capping maximum parking to 20 percent above the minimum standard, while other areas have their maximum parking capped at the previous minimum standard.

And these efforts can make a difference. A study on how the availability of parking impacts driving behavior illustrates a significant association between free and generous parking and the choice of driving a car to work—with the odds of driving quadrupling in this case. It also showed that no parking availability at work reduces the odds of driving most effectively.

Because it is considered a public space, street space should be allocated fairly to all users.

### Cambodia's case

In this regard, Cambodia is a step behind. As mentioned above, the country clings to a conventionally fixed parking requirement ratio. More importantly, it does not distinguish between property in dense urban zones and property located in the suburbs.

requirement system.

This tiered system should be designed to take into account a number of characteristics like mobility access (is the location best served by public transit, active commuting or motorcycles?), utilization of space (does the space need frequent freight vehicle access?), centrality of location, urban density, existing street network capacity and related concepts.

It will then be possible to tailor parking requirements according to the local context. The densest parts of Phnom Penh with well-connected street networks should require the least amount of parking, which will make the areas less vehicle-dependent and encourage active commuting.

Dense areas with heavy commercial activities, like Phnom Penh's traditional markets O'Russei and Toul Tompong, should introduce total parking caps to dissuade visitors from relying on private vehicles, while still preserving enough spaces for freight vehicles.

The way forward for parking policy is a more responsive and adaptable system. In this regard Phnom Penh can be bold and innovative by not just replacing parking minimums with maximums, but by formulating a context-based, multi-tiered parking When streets are devoid of private vehicles, it is obvious that only a minuscule amount of space is located for active commuters.

Reducing traffic congestion through curtailing parking space will also boost public transit speed and efficiency, making it a more viable alternative to driving. Thus, locations close to public transit should require even less parking to encourage public transit usage, particularly if this is combined with additional improvements to Phnom Penh's public transit system.

For example, Phsar Thmey is the nexus of several bus lines, spanning all the way to its outskirts. But on-street parking around the market slows traffic and encourages visitors to drive there, thus negatively impacting the effectiveness of the buses.

Given its context, Phsar Thmey will benefit from eliminating on-street parking and using the space gained for bus shelters and pedestrian paths, boosting public transit effectiveness, gaining more space for visitors, and reducing congestion in its vicinity.

Meanwhile, Phnom Penh's residential suburbs should retain minimum parking requirements to ensure enough parking for neighborhoods that are not covered by public transit. This is crucial for less fortunate residents who have no commuting alternative. It is, however, still possible to simultaneously impose maximums to curb overabundance of parking which is common in more affluent neighborhoods.

Likewise, suburban commercial streets should enact parking caps, and fee schemes for on-street parking to reduce reliance on private vehicles and to encourage the city's development in a more sustainable direction.



Furthermore, to avoid creating a desolate streetscape for pedestrians and cyclists, parking lots above a certain size should not be placed between the street and a building. Instead the building should be brought forward as close as possible to the street—while still respecting site setbacks and the parking lots be placed behind the building.

A human-centric city

Parking policy is often overshadowed by public transit, urban parks or affordable housing discussions, but it is just as crucial in progressing toward a sustainable and livable city. Only through thinking beyond conventional rationale can Cambodian cities avoid the calamitous cost of outdated parking concepts.

More importantly, this is a chance for Phnom Penh and other Cambodian cities to be bold and innovative, replacing their vehicle-centric approaches with a human-centric ones.

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Car-centric development has sprawled into Phnom Penh's last few water bodies.

# **3. ACTION NEEDED NOW TO REDUCE PHNOM PENH'S FLOODS**

By Chanvoitey Horn

Don't let the humorous memes featuring soggy commuters trudging through water-laden Phnom Penh streets fool you; urban flooding is a serious problem, and one that receives regular discussion but sparks little concrete action.

Typically, if flooding in Cambodia is discussed at all, it's brought up in relation to its rural impacts. Rural flooding affects large swaths of agricultural land and homes and threatens the incomes of these communities. Urban flooding, by comparison, gets relatively little coverage despite the large number of people affected and the damage to property it causes.



Flooding is an omnipresent issue for Phnom Penh's resident impacting their livelihood and health.

One aspect that makes urban flooding so problematic is how unpredictable it can be, with sudden heavy downpours swamping many communities in Phnom Penh, and rendering roads impassable. Heavy deluges, for instance, have caused flooding in Por Senchey district's Kakap commune among many other urban neighborhoods.

There are direct and immediate economic impacts of urban flooding. Inundated roads paralyze transportation, preventing people from reaching their workplaces, disrupting local and national supply chains. These impacts are particularly harmful for small and medium-sized businesses that are already susceptible to other kinds of shocks.

Urban flooding is also a public health issue. Waterborne diseases-particularly diarrheal diseases such as viral and bacterial gastroenteritis, dysentery and cholera—appear to increase during flooding.

Looking beyond the immediate impact, Phnom Penh's floods can lead to extensive property damage, which in turn erodes savings and increases indebtedness, thus deepening cycles of poverty vulnerable urban families are already exposed to.

Flooding events are expected to get worse. The Mekong River Commission warned in May that between June and July of this year Cambodia would experience more rain and flash floods, an issue that is certainly linked to climate change.

However, urban flooding is not entirely a natural disaster. While Phnom Penh's floods are exacerbated by the increasing frequency and intensity of precipitation patterns, human decisions-rapid, unchecked land development, the reliance on aging, outdated and inadequate urban infrastructure, and failure to invest in infrastructure improvement-only serve to worsen outcomes.

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Pushing Environmental and Infrastruc-
ture Boundaries
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The past two decades have brought rapid economic growth and structural development to Cambodia, and it's a trend that isn't expected to slow down. Phnom Penh is continuing to expand. In February, the government announced that after the construction of bridges is completed, the Arey Ksat and Svay Chrom areas will become a satellite city. Phnom Penh's population is expected to nearly double to 2.86 million inhabitants by 2035.

Rapid urbanization requires investment in infrastructure, inadequate investment in public infrastructure makes urban flooding especially acute.

Flashy high-rises and glittering air-conditioned malls are popping up at an ever-increasing rate. The Ministry of Land Management, Urban Planning and Construction issued permits for 728 new projects in the first two months of this year alone. That's an increase of 28.1% from 568 in the same period last year. These projects cover a total of 4.2 million square meters, which is an increase of 34% year-onyear compared with the first two months of 2019.

The city's aging and inadequate drainage systems simply cannot keep up. Existing infrastructure is being stretched past its limit by an increasing population and unchecked development. Making matters worse, Phnom Penh lacks a comprehensive drainage and flood-protection system.

Only four central districts-Charmkar Mon, Doun Penh, Prampir Makkara and Toul Kork, which have benefited from donor assistance-have sufficient drainage and wastewater collection. The rest of the city relies on an outdated sewage system, and broken water supply lines. Even a small amount of rain overwhelms this infrastructure.



Lack of investment on the part of the government is part of the problem. Yong Kim Eng, the director of non-governmental organization the People's Center for Development and Peace, told The Phnom Penh Post that historically, the government has prioritized road infrastructure, rather than focusing on drainage systems.

For example, the Cambodian government devoted 13,031 million riels, just over US\$3 million, to water drainage-related initiatives in Phnom Penh in 2014, which equals just 0.3% of the 2014 national budget of \$3.4 billion.

Another factor of the flooding is waste management, or lack thereof. Phnom Penh Governor Khuong Sreng identified the source of the issue as the "indiscriminate disposal of rubbish, which flows into the drainage system."

Phnom Penh produces 3,000 metric tons of solid waste per day, and much of that waste winds up clogging critical water-drainage systems. The government removes as much as 10,000 tons of waste from the city's sewage canal every year, a fraction of the waste that likely remains in these waterways.

A third factor keeping Phnom Penh flood-prone are the land-reclamation projects that have filled in the capital's lakes. A study on the spatial growth of Phnom Penh from 1973 to 2015 revealed that after 2006 the number of natural lakes and wetlands that had been converted to urban land areas increased by 34%.



Water Resources and Meteorology Minister Lim Kean Hor has expressed concerns about the country's diminishing ability to "overcome floods caused by opportunists who fill in lakes, rivers, canals and ponds." At the same time, the ministry asked "the capital and provincial authorities to prevent the encroachment of construction on riverbanks, ditches, creeks, canals, water reservoirs and lakes to avoid the effects of water-drainage and flood disasters."

Speedy and lucrative development has clearly taken precedence over good management of the city's waterways. As of 2019, 16 lakes have been filled in, 10 lakes have been partially filled and no lakes remain untouched in Phnom Penh, leaving water that would otherwise empty into these lakes to remain trapped in the city streets.

Adding to this is the matter of concrete being laid over land previously used to store the water. The result is that natural drainage and wastewater treatment systems have been obliterated.

Water no longer flows the way it should, which increases surface runoffs, and aggravates flood risks.

This is not to say that the government of Cambodia cannot or should not prioritize development projects. Rather, the country needs consistency in implementing long-term plans for development while simultaneously implementing flood-management policies. Efforts to prevent urban flooding do not automatically have to mean jeopardizing economic growth.

Instead of degrading existing water bodies, they should be rehabilitated and incorporated into flood resilient infrastructure.

Balancing environmental preservation and urbanization

Take Singapore for example. It's the most competitive economy in the world, but it proves that urban development and economic growth can go hand in hand with sensible, flood-sensitive urban planning. As it has developed, Singapore has focused on converting canals and reservoirs into streams and lakes, as well as constructing artificial wetlands to increase the city's rainwater absorption capacity. Between 2010 and 2018, Singapore completed as many as 75 projects to mimic such natural flood defenses.

China has also made urban flood management a priority. The country launched an engineering solution called "sponge cities" in 2015 in 16 cities to hold, clean and drain rainwater in natural ways across targeted areas. The approach is meant to reduce flooding but also to enhance water-supply security. The goal of the project was to be able to reuse at least 70% of the rainwater that falls on these target cities.

It should be acknowledged that the Cambodian government has taken some steps to deal with urban flooding. For example, regarding the problem of waste management, the government has ended its contract with garbage contractor Cintri and adopted a new system. The government is reviewing the companies that have submitted bids for the rubbish-collection contract. Phnom Penh will be divided into three zones for at least three companies to collect waste.

There have also been some efforts to enhance flood protection and drainage systems in Phnom Penh, such as the \$27 million construction of a wastewater-treatment station in Choeung Ek, which was funded by the Japanese government. The project to build the station was set to begin by the end of 2020.

The Ministry of Economy and Finance is drafting an "Urban Solid Waste Management 2019-2028" policy, and recently Phnom Penh City Hall, in cooperation with the Embassy of Japan in Cambodia and the Japan International Cooperation Agency (JICA), unveiled a mechanical screen to clear drainage pipes as part of the Project for Flood Protection and Drainage Improvement.

As well, in an attempt to build a resilient city, the government has laid out several thematic master plans, including the Urban Transport Master Plan 2035, Drainage and Sewerage Master Plan 2035, and Green City Strategic Plan 2016-2025.

But according to the World Bank, these plans fall short. "The city's ambitious Master Plan 2035 lays out a strategic vision for growth, but lacks a corresponding detailed land use plan and accompanying regulatory framework to support implementation," one World Bank report states.

Managing flood risk and building a more resilient city will take more than just good planning. Tackling the problem will require commitment from all stakeholders, including land developers, politicians and communities.

The calculus is clear. The government can invest now to mitigate future floods and minimize further damage, or pay later to repair the properties and restore the environment. The longer the government waits, the harder it will be to prevent future urban flooding.

Originally published 17th of June, 2020 by Asia Times



Without integrating various aspect of urban planning we risk stumbling our way into an unlivable built environment.

# 4. CITY PLANNING REQUIRES AN INTEGRATED APPROACH

### By Ses Aronsakda

Along Veng Sreng Boulevard, factories and warehouses sit meters away from houses and schools. Freight is carried on the same road as commuters, and workshops handling hazardous materials sit next to cramped markets, where stalls sell their wares right up to driving lanes.

Trucks, cars and motorcycles weave through traffic as droves of workers make their way to a nearby garment factory.

This busy thoroughfare in Phnom Penh's southwestern quarter is just one example of a confused and often dangerous urban layout. This type of unregulated land use doesn't just lack optimization, it also gravely impacts urban mobility and results in danger for users.



In spaces without restrictive zoning residents are free to set up small shops, seating areas, and make the space comfortable.



Locals and observers have long lamented the risks this type of land use creates and often attribute the shortcomings to Phnom Penh's lack of a definitive land-use master plan. But, while Phnom Penh would certainly benefit from a more comprehensive landuse plan than the one it has, adopting a strict landuse plan would have far-reaching consequences. Land-use zoning, especially when understood as an end goal rather than as a tool, would lead to more issues than it would resolve.

Zoning alone does not equate to planning

The perils of exclusive land use are not entirely obvious. It might be tempting to designate whole blocks or neighborhoods for a single type of land use (for example as residential only).

But this type of exclusive zoning has the effect of segregating homes from daily necessities like schools, workplaces, grocery stores, pharmacists and public facilities, placing them much farther away. This is physically reflected in large city/suburban blocks and low population density, which makes it difficult for active commuters and public transit to operate.

In Phnom Penh's specific context, where the street network is circuitous, lacks permeability and is littered with dead ends and cul-de-sacs, this issue would be further compounded. Hence, making it impossible to commute with anything but private vehicles which only leads to gridlock.

Another overlooked disadvantage of strict zoning is that single-use zones become quiet and empty over certain periods. For example, a zone entirely designated for offices will become poorly utilized and even feel unsafe when office hours are over.

While exclusive zoning presents many unforeseen consequences, completely ignoring planning is also undesirable, as shown by the chaotic Veng Sreng Boulevard. A compromise between the two is necessary. Fortunately, many excellent examples of a balanced approach exist for Cambodian planners to examine.

# A balanced planning policy

Paris is known for its well-preserved architecture, generous public spaces and well-defined street networks. Yet it might be a surprise for some to learn that the French capital, especially its historic center, is zoned as a mixed-use area. Where residences, shops, schools, museums, restaurants and hotels are often next to each other.

A vibrant city space is dependent on a fine balance between order and flexibility, planning and spontaneity.

The city utilizes a planning strategy that closely regulates the building's physical form rather than the function of each building.

By not utilizing exclusive land-use zones, Paris avoids the issues pointed out earlier. More importantly, residents benefit from having a diverse mixture of building types and functions in close proximity. These key points are crucial in creating vibrant neighborhoods where daily necessities are within walking distance of homes and workplaces.

Parisian authorities balance this freedom by limiting certain building types from its mixed-use areas that do not complement the space or may cause hazards to others. For example, industrial buildings, vehicle garages, freight facilities and gas stations are not permitted in these mixed-use areas. This is in contrast to Phnom Penh which often sees at least two gas stations occupying corners of an intersection.

To maintain the uniform look of its built environment, Paris also heavily regulates a building's form (height, frontage, facade, build to line, etc.) which helps preserve coherence between buildings and preserves the city's architectural heritage. Moreover, by actively regulating a building's appearance authorities can guarantee the quality of the public realmensuring, for instance, that streets and walkways are wide enough, and that squares are well-shaded, have ample space, and are accessible.

In summary, Parisian planners shape how buildings look but give a degree of freedom to what buildings will be used for, while actively discouraging functions that are inappropriate for a given area. Meanwhile, strict building regulations have ensured that public realms are preserved and maintained high quality.

Ironically, by not strictly managing land use in a black-and-white way Parisians enjoy better access to daily necessities, often just a few steps from their homes.



### Planning with flexibility

The advantages of a diverse and compact cityscape are essential for increasing livability and mobility in Phnom Penh. A revised master plan must strive to create an environment where urbanites have access to daily necessities within walking distance.

Given the capital's existing condition, a balanced approach is best. A solution must leverage the current mixed-use scenarios while minimizing restriction to only unsuitable and hazardous land uses.

In this regard, authorities should designate the city's core districts-Khan Toul Kork, Prampir Makara, Chamkar Mon, Boeung Keng Kang, and Doun Penh-as mixed-use zones.

Within this zone, a single land-use type should not exceed 10% of the neighborhood's total area. This will keep the existing diversity of businesses and services intact, encouraging new mixed-use developments.

Additionally, planners should provide clarification to exclude certain types of buildings that are not appropriate for the area, for example, vehicle



garages, industrial facilities, freight facilities or hazardous material storage, instead, only allowing their presence in the outskirts, where they can be placed further from houses and shops.

Building regulations should aim for a density of at least 15,000 people per square kilometer, which is close to Boeng Keng Kang district's current population density. Although this may sound uncomfortably high, according to my own research, this level of population density only requires a combination of 3700 shophouses and 360 single-family homes for every square

kilometer. With residences only occupying a third of the total area, the rest should be left for public spaces, infrastructure, and commercial activities.

Additionally, the implementation of existing building regulations should be strengthened, especially regulations that ensure that build-to lines and open spaces are preserved as mandated. Building laws could be improved with incentives for developers to include more open spaces and for new designs to facilitate active commuting, thus ensuring the quality of street-scape and helping to improve the public realm.

Delivering well built, livable urban environments requires transportation planning and land-use planning to reflect each other.

### Adaptable land-use

Phnom Penh can further innovate on land-use planning by categorizing land-use based on mobility profile, meaning that a building's placement would take into account how users commute to and from it, and the intensity of traffic generated by users of that space. A mobility profile, for example, would take into account the fact that people are more likely to drive cars or trucks to a furniture store compared to a dental clinic, while a school will generate more traffic than a clothing store.

A mobility profile, in essence, allows planners to tailor a city's built environment to work with the local street network.

Sites that generate heavy traffic should not be located at intersections or street corners where they would dramatically affect traffic flow. In contrast, sites, where visitors can mostly arrive by public transit, can be encouraged to be located near major bus lines. Similarly, facilities that require frequent freight truck access would only be permitted adjacent to major roadways, and avoid placement near living, leisure and business areas.

This type of planning allows authorities to replace the outdated method of deciding the placement of buildings based on land use. Instead making that decision based on their impact on urban mobility which is far more relevant and crucial.

With these benefits in mind, it is vital that local planners introduce a mixed land-use approach, strict building regulations, and a mobility profile, into Phnom Penh's urban planning policy.

> Originally published 2nd November, 2022 by Cambodianess





Urban canals are unpleasant environments, yet they serve as critical waterways and often represent the few public spaces left in a city.

# 5. HEALTHIER CANALS MEAN HEALTHIER NEIGHBORHOODS

By Keth Piseth

When the Boeung Trabek sewage canal was first designed, it was known as the "canal of a thousand fragrances". The French designed the 20th-century infrastructure as a vast water system to allow the marshy floodplain on which Phnom Penh sits to drain into the surrounding lakes.

The current version of the sewage canal is much less illustrious and known by the more prosaic nickname "loo teuk sa-ouy," "smelly water canal", or even "shit canal."
As vibrant city life has sprung around the canal, the stench still remains and flooding caused by overflow is a constant worry for residents

The Boeung Trabek waterway flows slowly south, sometimes covered in concrete and open to the air as a dark brown sludge. In the rainy season, the toxic cargo of the canal is known to overflow the embankments and flood the surrounding streets. Residents have raised the alarm over the health issues this waterway, and others, pose.

Nevertheless, innovative, low-cost, decentralized approaches to wastewater treatment have the potential to make a big difference for this sewage canal and the surrounding neighborhoods.

Millions of dollars in foreign aid have flowed in at various points to maintain or update the canal and other parts of the city's sewage system. At the same time, local spending on wastewater management remains low. As little as "10% of the income received by the Phnom Penh Water Supply Authority (PPW-SA) from water bills is allocated to the sewerage system and wastewater treatment." Furthermore, the city lacks a sewerage master plan and comprehensive wastewater strategy.

Initiatives that can potentially rehabilitate this canal are not just a matter of mitigating the health and flooding problems these waterways pose. Projects focusing on Phnom Penh's canals could also serve as opportunities to turn polluted parts of the city into vibrant public spaces that local communities badly need.



Boeung Trabek needs a decentralised water treatment plan

Alongside the Boeung Trabek sewage canal, inhabitants and properties have drastically increased, and the surrounding neighborhoods have become increasingly densely populated. The water infrastructure in the Boeung Trabek neighborhood cannot keep up with this level of population density. To improve the current condition of the canal and revitalize the surrounding area, the city of Phnom Penh must install filtration tanks. This is the best way to ensure that local households' black and gray water is treated before flowing into the canal.

Filtration tanks will reduce the level of water pollution that travels straight from households to the canal, which will, in turn, create direct benefits for the general health of the neighborhood and leverage increased economic opportunities for those who own the shophouse alongside the waterway.

While many different types of water filtration infrastructure exist, one strategy fits the Boeung Trabek sewage canal's needs exceptionally well. This system, called DEWATS, is a low-cost, bio-based, decentralized wastewater treatment

approach that is particularly well-suited to use in densely populated urban communities in developing countries. The passive design of this system uses physical and biological treatment mechanisms such as sedimentation, floatation, and aerobic and anaerobic treatment to treat both household and industrial wastewater sources. Crucially, DEWATS is designed to be low-maintenance, to use local materials, and to meet environmental laws and regulations.

In a DEWATS system, water flows through a series of tanks that work in combination. For example, when water flows through a DEWATS Settler tank, scum floats to the surface, and waste is sedimented at the bottom. With the proper infrastructure in place, the DEWATS system could generate usable renewable energy in biogas, which residents can use for cooking and lighting.

It should be noted that as many as 62 DEWATS systems are already in use in other contexts in Cambodia. DEWATS have been installed in Cambodia to provide water filtration primarily to school sanitary facilities and hospitals.

Aside from water filtration, if Boeung Trabek aims to transform its waterways, authorities must invest more in upgrading critical pump stations. These pump stations manage the rainwater circulation in that area to keep canal water from flooding the roadside during the rainy season. While some restoration efforts are planned, greater attention must be paid to these stations to maintain the water flow.

Likewise, any project to rehabilitate the sewage canals would only be helpful with a concerted effort to maintain and protect the remaining lakes. These lakes, or what is left of them, are necessary for resilient and sustainable Phnom Penh waterways.

Revitalizing the canal could create a sustainable public space

If we transform the canal into a green, pleasant public space, it could become a place for the residents to congregate and for children to play. The positive impact this would have on the neighborhood's livability and its residents' well-being cannot be overstated.

Siem Reap has already begun to think creatively about the ways canals of this sort could be transformed into green public spaces. The project in Siem Reap to transform a former sewer into a park is relatively small. The sewer canal is 635 meters long and between five and eight meters wide. However, it shows how even a tiny space can make a massive difference for surrounding communities and create potential economic dividends.

"This sewer canal in Siem Reap used to stink and negatively affect the environment, but now it will be converted into a new tourism spot to attract not only local visitors but also international tourists who come to the area to visit Angkor Park," Ly Raksmey, undersecretary of state at the Ministry of Land Management, Urban Planning and Construction told Khmer Times.

What if Boeung Trabek could adopt a similar approach to rejuvenate the space? Markets, schools, and some local art spaces already surround the site. Phnom Penh could transform this canal into a vibrant open area with a rehabilitation project.

However, to revitalize local areas, it is crucial to have local communities' involvement. When households are involved in the reinvention of this place, it contributes to their sense of belonging and ownership of the space around the canal, which increases the likelihood that they will feel responsible for their efforts to care for the space.

Transforming this sewage canal would transform the lives of locals around the area. This is about more than just a waterway. It is about the health, safety, and well-being of whole neighborhoods. Implementing decentralized water treatment plants, refurbishing the canal space, upgrading the pump station, and protecting what remains of the lake will allow people to reclaim the space for all benefits.

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Although it can sometime seem disorganized, lively streets or alleyways are more welcoming urban spaces compared to sterile and desolate ones.

# 6. STREETS ARE CATALYSTS FOR LIVELY AND SAFE URBAN SPACES

By Ses Aronsakda & Prak Norak

We have probably all experienced this sensation: When you're walking down a city street you can often innately sense whether the environment around you is inviting, comfortable, and safe-or not. And often it can be difficult to articulate why certain parts of a city feel this way, and others do not.

Many of these unconscious feelings are actually the result of the built environment around us. Intentional, or unintentional, decisions that designers and architects make can determine whether a space inspires feelings of warmth and safety, or whether the built environment triggers internal alarm bells for passersby.



Human-scaled spaces, active facades, and engaging signage combine to create lively and comfortable thoroughfares.

The fact that the architecture of the built environment has the potential to affect the mood or perceived comfort of the user, is not a new concept. Designers often use this information to their advantage when creating or building private spaces.

Yet when it comes to public spaces in Phnom Penh the same level of attention and intentionality is often lacking, particularly when it comes to buildings that flank our city streets. As Phnom Penh continues to change and grow, the people responsible for the look—and therefore the feel—of the city must consider the impacts their work can have.

To boost feelings of safety and comfort in our public spaces, city planning authorities should formalize a few key design strategies that can have a major impact on the way public spaces are perceived. Codifying these strategies—namely street-to-building ratio, active facades and building gap ratio—into existing building regulations can ensure that new developments and existing urban areas encourage active, positive engagement between people and the streets and buildings they interact with. Influencing behavior through architecture

User perception of safety along public streets is strongly linked to how lively a street is. Liveliness and on-street activity creates safer streets overall. Think about how differently you might feel walking along a street that is bustling, with pedestrians, with people dining at sidewalk tables, with kids biking along the road. Now think about how you might feel if you turned a corner and discovered your route takes you down a dark, empty street, bordered by high walls and closed gates. You might think twice about continuing on.

On-street activities are critical in that they attract users who provide eyes monitoring the street, thus creating a network of natural surveillance. This network, in turn, creates a safe street boosting the well-being of the neighborhood. People play an important role in making a street safe, but the design choices we make about the built environment greatly influence this dynamic as well.



One of the ways we can influence this dynamic is by creating active facades. This is a design term that refers to openings—windows and doorways on the street-facing sides of buildings at the ground level that generate activity and interest. The degree to which a given building is open to the street determines whether and how people on the street can engage with that building. This could mean window shopping, stopping to read interior or exterior signage like menus, conversing with locals, and more. Active facade design features also crucially determine how easily the people within a building can observe or even engage with what's happening at the street level. This type of engagement, between streets and buildings and vice versa can make a huge difference in terms of perception of safety for residents and for visitors.

Sense of scale is another design decision that can affect how at ease a person feels while walking along a street. Sense of scale in a city is often measured using the street-to-building ratio, which refers to the width of the street in comparison to the height of the buildings that flank it. An ideal street-to-building ratio creates human-scaled spaces, provides shading, and creates a comfortable sense of enclosure and protection. When the street-to-building ratio is proportional, people feel more comfortable and secure. But the opposite can also be true. A street that is too wide with short buildings lacks shading, induces a sense of desolateness, and creates too much distance between points of interest that makes the street more difficult to traverse.

The building gap ratio is the third design decision that can impact how a public space feels. This measurement refers to the size of gaps between buildings lining the street. The gaps guarantee adequate air circulation and natural lighting for the street. The more generous the gap percentage, the more natural air and light can get through.

Safety and comfort along public streets are mainly influenced by these three characteristics. Thus, having an active facade, comfortable street to building ratio, and facade breakage are crucial for a neighborhood to feel safe and therefore improve livability.

## **Engaging Phnom Penh streets**

Phnom Penh does have a few prominent examples of streets whose design features lend themselves to an innate sense of public safety and comfort. One example of a particularly well-designed active facades in Phnom Penh can be found on street 308, also known as Bassac Lane. The liveliness and activity of this street is due in large part to the design characteristics of the local shops, bars and restaurants that line the street. These facades have been built with large windows, openings, awnings, and porches that allow, and encourage, pedestrians and building occupants to interact. The inclusion of signage, and decoration at eye level also encourages street users to engage with these spaces, helping to maintain an active connection between the street and its buildings.

Bassac Lane is also a great example of a successful street-to-building ratio. The building height along these blocks is about 2 times the width of the street. This is a proportional arrangement for a pedestrian-oriented street where it is not too wide and buildings are not too short or too tall. With this kind of ratio, buildings are able to provide shading and a comfortable sense of enclosure to users without overpowering the human-scale feeling of the street below.



Having an ideal building height to street width ratio also ensure that the street is well shaded throughout the day.

to see the street

privacy



Some of these aspects are already present in many other streets in Phnom Penh. Yet the city would do well to re-examine these design concepts and to formalize them into existing building regulations, to ensure that our urban spaces can harness the safety advantages offered.

Policies to ensure safe and comfortable streets

Cambodia's existing building regulation, Sub-decree No.42, should be further elaborated upon with provisions for the design characteristics explained above.

First, an ideal active facade ratio - which denotes how much of a building's facade is made up of windows and doors-should be regulated for all buildings. Preferably this ratio should reflect the type of street the building is located on.

For example, streets in residential areas should strive to reach an active facade ratio of 30%, meaning that about a third of the facade should consist of openings. For existing residential property, wall openings can consist of permeable material, enough to let air and light through but still respecting privacy. Air bricks and louver design-a staple of Khmer Modernist Architecture—can make a comeback serving this requirement.

Permeable fences also allow human voices to be heard by passersby. People may feel more at ease when hearing human voices as an ambient sound whether from the street itself or from within the fences.

Larger collector streets, which tend to have numerous shops and businesses flanking them, should adjust the active facade to be made up of 50% openings, consisting of entranceways and large store windows. While on the busiest streets, like the boulevards which cut through city centers and dense neighborhoods, the ratio should be between 70% to 80% to accommodate the high concentration of shops, offices, and facilities along them.

Authorities should also consider setting a comfortable building-to-street ratio and building gap ratio. On residential streets, the building height should be 1 to 1.5 times the width of the street. Simultaneously, the gaps between houses should be maintained at 50%, meaning that for a house with a street facing side of 6 meters long, the gaps of each side should be 3 meters long.



LESTOR STREET

## **Building To Street**

Building height is equal to the distance between one building wall to another across the street. This 1 to 1 ratio provide enclosure to street-user



### **Building To Building**

Building gap counted the break between a row of shophouse with another. The gap allows air and light to penetrate the building line while



### **Building To Street**

Building height is the intial height (from street to the top of the first projected building) of most medium or high rise building. Often along boulevard, the street are too wide so



#### **Building To Building**

Medium and High rise can afford minimal gap for air and light but may not need to sacrifice too much floor area.





On large boulevard, buildings needs to be most active in connecting with street-users. These types of building tend to be less private so opening can be at a large percentage

# Collector streets should limit their building heights to 1 times the width of the street. And the building gap percentage should be 35%.

As for boulevards, where the density and scale of building would be much higher, building heights should be limited to 2 to 2.5 times the width of the boulevard. And retaining a building gap percentage of 5%.

On boulevards in the outskirts of Phnom Penh, where streets are too wide and buildings tend to be low and sparse, trees can be a very useful design element to take advantage of. Adding trees can add scale to an otherwise desolate space, as tree canopies help break up the space and create smaller, human-scaled areas within a larger plane. In addition, buildings can alleviate this issue by incorporating more decoration and detailing to help build a healthier sense of scale.

Of course exceptions should be made accordingly. Especially in areas like the central business district. In those cases taller buildings can be allowed, but compensated by setting the breakage between taller buildings to be higher.

In terms of the role of the street. American urbanist Jeff Speck famously described a user-friendly street as one where four things are happening simultaneously. A street is user-friendly when there is a reason to walk on the street (shops or destinations to walk to), when the street is safe and feels safe (safe from traffic and crime), when the street is interesting, and when the street is comfortable. If Phnom Penh were to formalize design decisions that lend themselves to these outcomes, the city can ensure our streets are safe, interesting, and comfortable for the city's residents and visitors.

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The Big Book of Small Ideas curates commentary articles written by Future Forum's junior research fellows. The book showcases locally inspired solutions from Cambodian researchers that have the potential to generate outsized impacts. The book combines solutionbased, well researched writing with design illustrations and captivating photography. The first volume, "Building a Livable Cambodia, explores the implementation of sound urban policies and design to shape Cambodia's built environment

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