Limits to Growth : A Vulnerability Approach to Understanding Urbanization in Cambodia

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Introduction to Limits to Growth: A Vulnerability Approach to Understanding Urbanization in Cambodia

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Research into urbanization and urban development in Cambodia is on the rise in recent years. In Cambodia where nearly 76% of the population is still considered rural, much development work has focused on alleviating the worst forms of rural poverty.[1] However, given rapid rates of urbanization in the country, and given the undeniable linkages between rural and urban environments as a result of internal migration, there is a growing demand to look at Cambodian cities as spaces and systems where much of the rapid social and economic changes in the country are taking place. Cambodia's urban spaces are where the conditions of poverty overlap with the opportunities and constraints of rapid urbanization, and with local and global environmental, social, and economic processes and transformations. Cities are complex spaces where myriad and multi-leveled social, political, environmental, and economic forces collide.

Recent research has looked at poverty and development in urban Cambodia, focusing on deprivation, or the lack of resources to meet basic needs. In addition to UN and World Bank approaches (e.g., UN, 2014; World Bank, 2017), key local tools for measuring poverty in Cambodia include a national poverty assessment methodology and Phnom Penh municipality's definition of urban poor in terms of in-migrants and informal workers. A recent study from the World Food Program (2019) compared access to resources and opportunity among households in central Phnom Penh as opposed to those in more outlying areas in terms of assets, access to water and sanitation, economic status and debt, food security, access to healthcare, children's health and wellbeing, and migrant status (in/out migration).

Missing, however, is analysis of urban conditions in Cambodia that can shed light on the kinds of risks city residents would encounter in the face of new challenges or shocks to the social, economic, environmental, or political system, especially in the context of rapid urbanization. Also missing is analysis of how well-equipped the city itself is or urban residents are to meet these challenges. This report offers a conceptual framework for looking at urbanization in Cambodia through the perspective

[1] UN Department of Economic and Social Affairs, "World Urbanization Prospects: 2018 Revision". Accessed on October 12, 2020 at https://population.un.org/wup/Country-Profiles/

of urban vulnerability and resilience, which addresses this gap in the literature (see also Blancot *et al.*, 2020; Pierdet, 2012). Concepts of vulnerability and resilience are particularly useful because they take into consideration the complexity of urban systems and they emphasize the importance of empirical measures that can help predict susceptibility to risk and capacity to withstand challenges and shocks, to the extent possible.

Within the context of Cambodia's rapid urbanization, this paper offers three key thematic areas that, together, offer a framework of analysis and avenues of inquiry for future research. These three areas are:

1. How Cambodia's development sector has historically approached questions of poverty, vulnerability, and resilience;
2. How planning, zoning, and policy relate to questions of risk and resilience; and,
3. How urban development, financialized real estate, housing, and debt relate to individual and collective economic (in)security.

In addition, we offer two specialized *In Focus* sections that provide further detail on two key areas: rural to urban migration and the relationship between changes to the natural environment and displacement in the context of urbanization.

In covering these four areas, this paper adopts a multiscalar and multidimensional urban ecological view. As well, following de Boer and colleagues (2020), this paper views vulnerability and resilience as intertwined and interdependent. Before delving into each of these topics, this paper will outline key dimensions of the vulnerability concept, with a particular view to how this concept is operationalized in the context of the Global South, and Southeast Asia in particular.

Vulnerability and Resilience as a Conceptual Framework for Analyzing Urban Change

Vulnerability is a particularly useful measure to work with in the rapidly changing city because it is a dynamic concept that supports assessing the shifting landscape of risk, insecurity, and resilience. Vulnerability helps us "to understand the shaping of human exposure, susceptibility and coping capacity" (Krellenberg, 2017: 411). Multiple disciplines contribute to our understanding of vulnerability, with particular prevalence in research on susceptibility to climate change and natural disasters; poverty reduction; and humanitarian approaches to working with those recovering from disasters or displacement. While their specific areas of inquiry differ, these varying approaches overlap in their concern for the question of human adaptability at the intersection of the built and natural environments. To study vulnerability is to ask, generally, what overlapping factors will result in greater harm or resilience for a population, given the geographic, ecological, economic, sociopolitical, and historical context (Birkmann, 2006)?

The predictive undertones of this question make the study of vulnerability attractive for those working on policy and planning; measuring vulnerability offers the possibility of knowing how to prevent or minimize widespread suffering (Patel *et al.*, 2020; Yuen and Kong, 2009). Nevertheless, the promise of causal inference and predictive models can be misleading. Vulnerability and its counterpoint, resilience, demand highly complex and multiscalar analysis of population, space, and social systems. Simon and colleagues (2015) have documented some of the challenges in producing comparative research on vulnerability, including when it comes to accessing sufficient data in locales hardest-hit

Definitions

In this paper, we consider the UN-Habitat definitions of vulnerability and resilience as useful starting points on which to build our multi-disciplinary understanding of the concepts. Official Cambodian government definitions are closely related.[2]

VULNERABILITY

"The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt."[3]

URBAN RESILIENCE

"Urban resilience is the measurable ability of any urban system, with its inhabitants, to maintain continuity through all shocks and stresses, while positively adapting and transforming towards sustainability."[4]

by poverty, environmental degradation, and violence. For that reason, we emphasize the importance of localized studies that inductively build up definitions of actually existing vulnerability and resilience, rather than generalized theories.

Just as people and places can be more or less susceptible to harm, they can also have more or less resources, infrastructure, skills, support, and networks to face sources of risk, or to recover in their aftermath. Resilience pertains to the coping capacity or protective strategies that help to mitigate the risk to harm. One can analyze resilience in terms individual, household, or community risk avoidance or coping, a set of emergency response strategies on a local or state level, or as policies to allocate resources or produce infrastructure aimed at risk reduction. While vulnerability and resilience are often thought of as zero-sum (e.g., factors render a population either vulnerable or resilient), scholars offer an important reminder that cities are too complex for such a mathematical representation (Patel *et al.*, 2020; de Boer *et al.*, 2016; Matyas and Pelling, 2014). As Patel and colleagues (2020: 3) write, "vulnerable populations…in cities very clearly display the coexistence of risk and resilience in the face of the daily hazards they face." Not only do vulnerability and resilience coexist, but in certain ways they are contingent. That is, the protective strategies deployed by some may, in fact, augment the vulnerability of others in direct or indirect, less easily anticipated ways. Understanding this level of

[2] The Cambodian government defines vulnerability as "The tendency or process that is prone to negative effects, including many different notions, including survival or vulnerability, and lack of ability to deal with and adapt."
[ទំនោរឬដំណើរដែលងាយ ឬឆាប់ទទួលផលប៉ះពាល់អវិជ្ជមាន ដោយរាប់បញ្ចូលនូវសញ្ញាណខុសៗគ្នាជាច្រើន រួមទាំងភាពរស់ឬភាពងាយទទួលគ្រោះថ្នាក់ និងកង្វះសមត្ថភាពដោះស្រាយ និងបន្សាំ។]

The Cambodian Government (MOE/NCSD,2017) defines resilience as "the ability of a socio-ecological system to withstand any event, danger, or disturbance that can respond or reassign in a way that maintains key functions, identities, and structures, and that retains the ability to adapt to learning and innovation."
[ភាពធន់ទ្រាំ ជាសមត្ថភាព នៃប្រព័ន្ធសង្គម-អេកូឡូស៊ី ដើម្បីទប់ទល់នឹងព្រឹត្តការគ្រោះថ្នាក់ ឬ ការរំខានណាមួយ ដែលអាចឆ្លើយតប ឬ ចាត់ចែងឡើងវិញ តាមវិធីដែលអាចរក្សាបាននូវមុខងារសំខាន់ៗ អត្តសញ្ញាណ និងរចនាសម្ព័ន្ធ ហើយដែលអាចរក្សាបាននូវ សមត្ថភាព បន្សាំ រៀនសូត្រ និងការច្នៃប្រឌិត។]

[3] UN-Habitat (2020). "Climate Change Vulnerability and Risk: A Guide for Community Assessments, Action Planning and Implementation", p. 10. Available from [https://unhabitat.org/sites/default/files/2020/05/climatechange_vulnerabilityandriskguide.pdf]

[4] UN-Habitat (2018). City Resilience Profiling Tool. Available from [http://urbanresiliencehub.org/wp-content/uploads/2018/10/CRPT-GuidePages-Online.pdf]

interaction among the risks and protective tactics of urban residents as situated within social hierarchies and the unequal distribution of resources and infrastructure is key to measuring urban vulnerability.

Vulnerability frameworks are especially useful in urban environments where research can help determine how the complex webs of social, political, and economic relationships and systems intersect in the lives of urban residents in ways that materialize in greater or lesser susceptibility to harm (Graham and Marvin, 2001). For de Boer and colleagues (2016: 3), urban vulnerability, which is closely related to the concept of fragility, pertains to a city's ability to "fulfill its core functions owing to the manifestation of internal and external risks." While this sounds straightforward, thinking of cities as a nexus for multiple overlapping components that are "dynamically connected in terms of speed, scale, scope and complexity" (Krellenberg *et al.*, 2017: 413) requires an understanding of vulnerability as contingent in time and space. Cities are simultaneously engines of growth and capital accumulation, centers of power, a hub of unequally distributed assets, and spaces of social possibility, economic opportunity, and inequality (Pelling, 2003). As built, produced spaces, cities are embedded within natural environments that are in a state of constant flux; cities are sites for the consumption of resources and the production of waste and pollution (Sassen and Dotan, 2011). Vulnerability and resilience, then, must be thought of in terms of what Lefebvre (1991) referred to as physical and social space; space as inhabited and space as generative of relationships, processes, and discourses.

To measure vulnerability and resilience in the urban environment, then, suggests an approach that integrates overlapping systems, that considers vulnerability as scalar, and that analyzes experience at different levels (Bennett *et al.*, 2016). Campbell (2016) identifies the urban system as interconnected subsystems that include economy and livelihoods, politics and governance, infrastructure and services, space and settlements, and social and cultural relationships and structures. Key levels of analysis for thinking about vulnerability include individual/household, community, and city-wide systems (Patel *et al.*, 2020). The scale of susceptibility also varies between individual risks and those that impact large segments of the population or the entire city, country, or region (Blaikie *et al.*, 1994). The various levels of urban life are not only intertwined, they also encompass linkages that extend beyond the boundaries of the metropolitan area to rural communities that are tied to cities through food systems, environmental trends, and through patterns of internal migration and the labor market (Tacoli *et al.*, 2015). Using available empirical datasets, de Boer and colleagues (2016: 4-7) identify seven "fragility factors" and seven "resilience factors" (see table on the following page).

Analysis of vulnerabilities in the context of rapid urbanization in the Global South must also address the ways in which the built environment as well as systems of planning and governance often reflect the vestiges of colonialism as well as the contemporary flows of capital in a world characterized by global inequality. In his classic *Planet of Slums*, Davis (2006) demonstrates how these linkages are central to the proliferation of informal settlements, or slums. The extreme insecurity and social problems which arise in such spaces impact virtually every aspect of life and social organization (UN Habitat, 2016). The COVID-19 pandemic has put this dynamic in grim relief: the World Bank estimates a drastic rise in global extreme poverty (an increase of 88 to 115 million people, or as many as 150 million) depending on the scale of economic contraction. This will hit the urban poor especially hard.[5]

[5] www.worldbank.org/en/news/press-release/2020/10/07/covid-19-to-add-as-many-as-150-million-extreme-poor-by-2021

FRAGILITY FACTORS	RESILIENCE FACTORS
Rapid and unregulated urbanization	Income and social equality
Income and social inequality	Social cohesion
Concentrated poverty	Social protections
Unemployment	Economic security
Policing and justice deficits	The provision of basic services
Real and perceived insecurity	Effective policing and judicial mechanisms
Exposure to natural hazards	Strong community-government & intergovernmental cooperation

(De Boer et al., 2016: 4-7)

Urban Vulnerability in Southeast Asia and Cambodia

From the perspective of Southeast Asia's urban spaces, the vulnerability framework offers several relevant areas of inquiry in the context of a rapidly changing environment. By 2019, half of the population of Southeast Asia was living in urban areas,[6] though percentages are lower in several countries like Cambodia (UN 2018). Cities in the region are sites of both growing inequality and high rates of rural-urban migration (Lawreniuk, 2016; Kanbur & Zhuang, 2013). Amidst urban transformation in cities like Phnom Penh, residents' well-being depends on individual factors like one's socioeconomic status, endogenous structural factors like the political and economic climate, exogenous structural factors like the global economy, and local, regional, and global environmental trends, including climate change.

In recent years, Southeast Asia has been identified as one of the most vulnerable regions to the threats of climate change, including rising sea-levels and extreme weather conditions, including cyclones, flooding, droughts, and landslides, among others (World Bank, 2007). This is due to several factors, including the region's tropical climate, the fact that 80% of the population in this region lives within 100km of coastal areas, and that much of Southeast Asia's coastline is low-elevation (ADB, 2009). Intersecting with these exogenous environmental factors are the practices of extractive industries that lead to deforestation and erosion. As well, in the Greater Mekong Subregion, where many urban environments are both coastal and dependent on the Mekong and its network of tributaries, urban residents are also subject to the intended and unintended consequences of hydropower in the region, most notably Chinese construction of dams in the lower Mekong (Grumbine *et al.*, 2012).

In the urban context, the dual trends of rapid urban development and infrastructural neglect or lag has resulted in widespread degradation of natural or constructed irrigation and drainage systems, especially given high rates of urban growth (Nitivattananon *et al.*, 2012). Cities like Bangkok and Phnom Penh have experienced severe flooding in recent years less as a direct result of monsoons, and more due to mismanagement and overbuilding on the natural drainage systems within the

[6] https://population.un.org/wup/

geography of the urban space, especially on the urban fringe or in informal settlements (Limthongsakul *et al.*, 2017). This suggests that vulnerability to natural hazards in Southeast Asian cities must be thought of in terms of the growing threat of climate change, demographic change, as well as the political and economic systems that govern such spaces. Thinking about how resilience and vulnerability coexist, Limthongsakul and colleagues (2017) also point out that the protective tactics taken by affluent communities (or by the city or state on their behalf) can often make the consequences of flooding worse for denser and lower-income parts of the urban area. Suggesting the contingent nature of these interwoven factors in lower income countries like Cambodia, Nitivattananon and colleagues (2012: 758) write, "the effect is even worse, as scarce resources that could have been used for social and economic development are lost or spent on recovery efforts" in the wake of natural disasters.

Global crises that impact production networks and supply chains have large-scale gendered implications for Southeast Asia's feminized labor force in the export-oriented sectors, including apparel (Green *et al.*, 2010; Praparpun, 2010). In an Oxfam paper from 2010, Green and colleagues note that in Southeast Asia, the 2008-2009 global economic crisis resulted in widespread layoffs as well as the further precaritization of the labor force. Women were especially hard hit, because of gendered assumptions of feminine docility, the gendered nature of rural-urban migration, and because of the double burdens of care and labor placed on women. As well, the gendered dimension of rural to urban migration has implications for labor, in terms of exploitation, power, and the possibilities of social mobility (Derks, 2008). Rural migrants settling in urban areas are more likely to end up in informal jobs and face resulting gaps in labor protection and social welfare (Tacoli *et al.*, 2015). Jamil (2013) suggests that since informal labor represents 50-60% of the workforce in some Southeast Asian cities, they are a key population to include in urban vulnerability analyses. The above trends point to the ways in which both local and global shocks—like recessions or environmental hazards—overlap with extant vulnerabilities linked to gender, poverty, labor, and migration that are historically produced and also part of the social and political fabric. It is crucial to build adaptive capacities that address these social problems if cities are to be more resilient in the face of various challenges. As well, we must pay attention to existing protective strategies deployed locally, including forms of community support, labor organizing efforts, and social networks. These have been and continue to be instrumental to the resilience of precarious workers in urban Southeast Asia, including rural migrants (Green *et al.*, 2010).

In Cambodia's largest city, Phnom Penh, there is a need to document the intersecting factors that produce vulnerability as well as protective strategies that can result in some level of resilience. According to the World Bank (2017), while Cambodia's regulatory framework and urban planning have mapped out a possible path to sustainable development, this possibility is tempered as foreign direct investment results in short-term gains through massive construction projects and gaps in infrastructure related to transportation, sewage, drainage, and water supply. A recent report by the World Food Program (2019) notes that key challenges for urban residents in Phnom Penh include income inequality, debt, access to clean water and waste management services, and access to key assets. The report documents significant inequality in the distribution of these challenges with residents of more outlying parts of the city experiencing greater hardship than those in the city center. The report also situates these challenges in a context of rapid rural-urban migration and unregulated urban development that has resulted in severe congestion and insufficient public services.

Vulnerability and Urbanization in Phnom Penh: An Outline of the Papers in this Collection

This working paper focuses on many of these aspects of urban life in Cambodia, and more. The following contributions provide rich analyses of how different aspects of Phnom Penh's urbanization relate to questions of vulnerability and resilience. In the following section, Natharoun Ngo provides an overview of how, over time, the conversation about poverty among Cambodian government ministries and international development agencies has evolved from a primarily rural focus to one that understands the interconnectivity between rural and urban economic and social dynamics. Ngo frames this shifting perspective within the context of Cambodia's rapid growth and urbanization and suggests that vulnerability as a concept emerged within the development sector's discourse as a way to understand the insecurity of the hundreds of thousands of Cambodians who had emerged from the "poverty" category in the last two decades, but who were "near-poor" and who could therefore easily slide downwards. Ngo reminds us that while much of the urban vulnerability and resilience literature on Cambodia tends to focus on either the risks of climate change or the poor (or "near-poor"), a multi-disciplinary vulnerability approach would encourage the government to identify root causes of risk, insecurity, and susceptibility, instead of identifying short-term strategies aimed to alleviate the worst forms of poverty.

Following Ngo's paper, Kimchoeun Pak provides an *In Focus* section on rural-urban migration in Cambodia, excerpted from his report with the World Food Program (2019). Pak provides a look at the scale of internal migration in Cambodia, noting that 35% of rural households have at least one member who has moved to an urban area. He also offers some analysis of the push and pull factors driving this migration, and considers the impact of this migration on rural households in terms of care chains and financial support. Pak's *In Focus* section deepens Ngo's analysis with empirical data that illustrates just how rural and urban vulnerabilities are intertwined with so much of Phnom Penh's population linked through kinship and migratory trajectories to rural spaces.

In recent years, particular attention has been drawn to Phnom Penh's informal settlements as sites where multiple overlapping risks leave residents extremely susceptible to harm. According to the municipality's own poverty assessment (Ministry of Planning, 2012), as of 2011, approximately 15% of the city's total population of 1.8 million are living in informal settlements. Several of Phnom Penh's informal settlements are on the urban fringe in flood-prone marshlands, and they are susceptible to severe flooding and waterlogging for several months each year, which can result in several negative health outcomes (Flower *et al.*, 2018). Try Thuon's contribution to this collection considers this trend by examining the relationship between this aspect of urbanization and changes to the zoning and planning laws in Cambodia. Thuon indicates that, whereas in the past planning took into consideration the natural landscape in which the city is situated, in recent years the Cambodian government has embarked on a project to effectively produce territory by reimagining how the built and natural environment relate to one another, and to urban residents. Thuon points to the disastrous consequences for urban poor communities and offers a series of suggestions for ways to achieve more sustainable, inclusive, and democratic forms of urban development.

In her *In Focus* section, Dolorès Bertrais provides a close-up analysis of how environmental change has impacted both the natural landscape and urban communities in the Boeung Choeung Ek area that has shifted from rural to peri-urban, and is currently undergoing further development. Bertrais shows that the construction of new roads and housing, the filling in of lakes, and the extraction of sand from the Mekong and Bassac Rivers all contribute to the loss of aquiferous agricultural practices and the communities that had depended on them. Taken together, Bertrais and Thuon illustrate that

discourse and policies around planning and the resulting reshaping of the natural landscape through urban expansion have produced short-term vulnerabilities for urban and peri-urban poor communities. But they also look ahead and show that such short-sighted planning may increase the vulnerability of a broader segment of the urban population to flooding and other infrastructural failures, given the realities of a changing climate.

While much research on urban insecurity in Phnom Penh tends to focus on the urban poor and on informal settlements, Gabriel Fauveaud's contribution to this collection reminds us that vulnerability is multiscalar and contingent. With Cambodia's economy thoroughly yoked to global flows of capital, much of the city's new development is financialized and subject to intensive speculation. The impact that this has on housing prices, together with urban residents' increasing debt renders the home-owning middle class vulnerable to economic downturns, which are an inevitable aspect of capitalism. Fauveaud's paper demonstrates that any analysis of urban vulnerability must be multi-layered as he suggests that any shock to the housing sector would impact not only indebted home-owners, but also the multiple labor sectors that are reliant on rapid urbanization, from construction workers, to brick-makers, to the professional class of accountants, lawyers, bankers, and others that are part of an assemblage of what Saskia Sassen (2006) refers to as "specialized service firms." Ending our collection with this contribution drives home the importance of an approach that is focused on the interfaces where global forces, logics of growth and development, and localized practices meet in the everyday lives of urban residents.

Economic Growth and An Evolving Focus on Vulnerability in Cambodia

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The Center for Khmer Studies

Introduction

This paper considers how the concept of vulnerability has evolved in the Cambodian development context and points to the ways in which an interdisciplinary vulnerability framework could deepen our analysis of resilience and susceptibility to harm in a complex, multi-layered urban system.

Understanding the Concept of Vulnerability: Economic Development and Economic Transformation

Because 90% of Cambodia's poor live in the country's rural areas (World Bank, 2020), most development agencies direct international aid and support to these regions. In 2000, a variety of pressing issues, including limited market access, underdeveloped agricultural capacities, and challenges to land ownership, demanded significant investments from both domestic public funds and international development aid sources. This financing supported the development of improved healthcare, education, water and sanitation systems, and logistical infrastructure in the Cambodian countryside. Among other program priorities, these were what the development sectors deemed to be most crucial in addressing the country's social and economic development needs.

The term "vulnerability" was initially applied to support development work on such issues (namely rural livelihoods, health, environmental protection, climate change, and governance systems, etc.). In 2006, the World Bank, as part of a national poverty assessment project, began applying the concept to Cambodia's economy. The World Bank has lauded Cambodia's rapid economic growth over the last two decades. This trend of growth set Cambodia on a trajectory toward halving its poverty rate by 2015, with foreign direct investments and capital flowing into the country and preferential trade agreements accelerating the volume and number of cross-border transactions— particularly exports to the US and the EU in labor-intensive sectors such as the garment industry—which generated employment and revenue. This growth led Cambodia's national poverty rate to fall below 20%, ending up in 2021 somewhere between 11% and 19%, depending on the source and method of measurement. However, any measure of poverty can only offer a snapshot of a moment in time. Such measures cannot track the sometimes rapid fluctuations in economic status experienced by rural Cambodians, many of whom alternate between moderate and extreme poverty without being accounted for.

The concept of vulnerability came to be more widely used in 2013, as the Royal Government of Cambodia officially adopted a new approach to poverty measurement (Ministry of Planning, 2013). Despite differences in methods and definitions, converging trends demonstrated that Cambodia had achieved a significant reduction in poverty, as measured by the Ministry of Planning's National Institute of Statistics.

In light of this successful nationwide reduction in poverty, the concept of vulnerability became a very important one; it signaled that even if many poor Cambodians had escaped from poverty, a large number of them were likely still clustered just slightly above the poverty line. Any small "shock"—such as disease or sudden financial stress—could quickly send many impoverished Cambodians back into extreme poverty. In 2004, the World Bank distribution of per capita consumption relative to Cambodia's national poverty line measurement (World Bank, 2006) as well as the UNDP Multidimensional Poverty Index findings a few years later (OPHI, 2013), detailed some of the challenges facing the country's rural and urban poor and the vulnerability of large clusters of people (estimated at two to three times higher a percentage as compared to the latest corresponding national poverty measures).

The Millennium Development Goals also established a number of other relevant social indicators, such as child labor, school attendance and completion rates, and gender ratios. While the data initially evinced very large disparities in these measures between Cambodia's rural and urban areas, these gaps progressively narrowed on several indicators. To illustrate the closing gap dynamic, in 2010 the child labor prevalence rate decreased to 16.1% in rural areas versus 12.5% in urban areas (CMDG, 2011). Observing health and education indicators (looking both at access and quality), vaccination rates reached up to 86% in urban areas, compared to 77% in rural areas. However, a few indicators showed larger discrepancies, such as primary school non-completion rates in rural areas (which are double those in urban areas), or access to safe water and hygienic latrines. These figures are, respectively, 42.7% and 33.4% in rural areas and 81.1% and 87.8% in urban areas (all figures are calculated based on Cambodia Socio Economic Survey-CSES 2010 data).

In late 2015, the lens of analysis gradually shifted from the rural/urban dichotomy to take a more comprehensive territorial approach by comparing discrepancies across regional boundaries. The inter-dependency between rural and urban areas also grew stronger. That rural household income is, on average, 40% less than household income in urban areas has remained a key driver of migration to the cities. Cambodia's ratio of urban to rural residents has also steadily increased over the last 20 years, with a sustained acceleration in urban population growth starting in 2010. World Bank data indicates that urbanites made up 23.8% of Cambodia's total population in 2019, up from 23.4% the previous year. This trend is explained by a stable urban resident base that fuels demographic growth dynamics, measured by a growing youth population, increasing numbers of rural migrants to urban areas, and urban spatial expansion. The transient urban population, for the most part migrant workers, may be added as a flow metric that further increases these urban population numbers. The local definition of Cambodia's "urban population," as articulated by the National Institute of Statistics, is calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects. However, it should be noted that a different definition, such as The Organisation for Economic Co-operation and Development Functional Urban Areas definition, would lead to a significant headcount increase of people living in Cambodia's urban areas.

An Evolving Urban Poverty Focus

Urban development issues are, of course, nothing new, but they have received increased attention over the past five years. While the development focus within Cambodia for the last two decades has been on key national reforms such as public financial management reform, decentralization and deconcentration, as well as trade, private sector, and land rights-oriented reforms, urban issues have recently become increasingly important in high-level documents such as Cambodia's new National Strategic Development Plan (NSDP, 2019) and the Cambodian United Nations Development Assistance Framework for the first time (UNDAF, 2019).

Most past and current urban development programs within Cambodia support high-level capacity building (strategic planning and policies development) and/or focus directly on improving the livelihoods of the residents of informal urban settlements, infrastructure, and access to government services. (e.g., to water and sanitation, to better housing, to healthcare, or to specific infrastructure such as sewage systems, waste collection and treatment, etc.).

A number of targeted assessments have been conducted with Cambodia's communities of urban poor, and a detailed report on this population conducted by the organization People In Need and United Nations International Children's Emergency Fund in 2014 (UNICEF, 2015) revealed several potential sources of vulnerability in addition to possible solutions. A more recent affordable housing study was also initiated in 2020 by the organization Planète, Enfants et Développement, People in Need, and UN habitat, in collaboration with the General Directorate of Housing of the MLMUPC. No systemic assessment or holistic research exists today that can provide a comprehensive understanding of the context and nature of what urban vulnerability represents and how it can be precisely quantified and measured.

Studies of this nature tend to focus on Phnom Penh, and only limited research exists for other Cambodian cities. Early attempts to measure urban poverty in Phnom Penh using the Cambodia Socio-Economic Survey in 2004 (CSES, 2004) indicated that 1.3% of the total population living below the poverty line resided in Phnom Penh, which fell to 0.3% in 2007 (or slightly more than 10,000 people). Most researchers recognized the limitations of the CSES as a household survey, giving it a high likelihood of excluding a large number of informal settlement residents, let alone homeless Cambodians living in public shelters or people without access to even those services. The question of land ownership has become central to discussions on vulnerability and the urban poor. A large majority of the urban poor do not have access to land tenure. This is exacerbated by the increasing number of migrant workers who may wish to settle in a city but lack the means to own land or other real estate assets, leaving them in a permanent state of "transition."

More attention is now given to targeting mechanisms and assessment methods; after all, projections of impact and vulnerability levels depend on what models and metrics are adopted. For example, Cambodia's ID Poor system recently began to design a new measurement system to target poverty in urban measures (OECD, 2018). Stakeholders have proposed proxy measurements using the ID Poor methodology adapted from the rural to urban areas, but it is still being revised to adjust more accurately to the various indicators that feed into the targeting mechanism method.

Understanding Vulnerabilities at the Core of Complex, Multi-layered Urban Systems

In Cambodia's largest cities, the most visible and obvious dimensions of vulnerability are infrastructure-related vulnerabilities—which pressure public financing plans and directly hamper the efficiency of service delivery—and people-related vulnerabilities. The combination of brittle infrastructure associated with fragile socio-economic conditions increases the vulnerability factor manyfold. Climatic threats such as flooding as well as people living in informal settlements are the most studied areas. More recent analysis in Phnom Penh has been focused on understanding more frequent and intense flooding, in addition to the city's lack of wastewater treatment facilities and land tenure insecurity (GGGI, 2018). A recent survey (not focused on the poorest communities) also presents a vulnerability assessment of (formal and non-poor) households in the inner and outer zones of Phnom Penh (WFP, 2019). Contributions in this collection from Thuon and Bertrais discuss this in greater depth.

A deeper understanding of the dynamics behind urban transformation would allow government programs to shift their focus from temporarily alleviating the possible negative impacts of urban development on vulnerable communities to directly addressing the root causes of vulnerability. An in-depth systemic analysis (using systems-thinking methodologies) would allow for a more holistic assessment of the complexity of Cambodia's urban systems—which differ from city to city due to the specificities of economic forces, local governance capacities, and local regulatory enforcement of private investments.

The geographic distribution of capital across economic corridors and growth centers such as Siem Reap, Phnom Penh, and Sihanoukville is concentrated in urban and peri-urban areas. Termed "agglomeration economies," these areas are noteworthy for their large concentrations of MSMEs and large-scale firms and industrial sites such as garment factories, processing plants, and major real estate projects. These developments are reinforced by the presence of special economic zones, ports, and other trade zones. This creates labor-intensive and, therefore, human capital-intensive activities which increase the GDP per capita effect. However, this model simultaneously creates stark geographic disparities between these zones and more rural areas; it slows agricultural growth (with lower yields per hectare made worse by extreme climatic events), promotes the mechanization of labor-intensive tasks in a way that increases unemployment, and spurs youth labor migration to urban areas within Cambodia and in neighboring countries that offer higher daily incomes.

With sustained and rapidly incoming foreign direct investment from China, Sihanoukville may best reflect the territorial inequalities and tensions inherent to rapid urban growth and economic concentration, which have exacerbated pre-existing geographic and social inequalities within the province (Po and Heng, 2019). The question then becomes: though it may provide the opportunity for some of Cambodia's poor to generate a higher regular income, how is this new context increasing the degree of exposure faced by Cambodia's poor to shocks capable of derailing upward economic mobility at both the individual and household levels?

Better understanding Cambodia's urban vulnerabilities requires us to accept that the economic forces and systems that drive urban development are imperfect. Urbanization on its own cannot be taken as a single, unique performance measure that signals inevitable positive improvements in people's livelihoods. Economic sectors employing low-income workers are certainly vital, as they represent the best alternative in terms of providing skilled and long-term jobs and incomes. But these sectors can also become sources of vulnerability if they lack regulation or are subject to poor legal

enforcement. Recent cases in the booming urban construction sector have revealed issues such as labor exploitation, child labor, and unsatisfactory working conditions and regulations that need further improvement (see also the contribution of Gabriel Fauveaud in this collection). The garment sector has only begun to provide decent working conditions to those it employs because of the global movement toward corporate social responsibility within international textile and clothing brands as well as the longstanding and successful International Labor Organization Better Factory Cambodia program (Wetterberg, 2011). The sector moved away from unsafe labor conditions, some of which led to the phenomenon of mass fainting among workers, among other consequences (Eisenbruch, 2017). Cambodia's garment industry is today more fragile than in the past because of the phasing out of preferential trade agreements with Western countries due to political disagreements and the retraining of thousands of now-unemployed former garment workers into other sectors or industries. Urban living costs are increasing, and the level of indebtedness grows in parallel with the loss of income (Res, 2021); this can create a vicious cycle that the public sector, donors, and development agencies are working together to mitigate, with their recent work to deploy social protection programs for workers in the informal economy.

The intricacies of the interdependence between urban and rural areas also demand more research and analysis that looks at both dimensions at the same time. Recent studies on rural-urban migration patterns and local value chains are excellent and need to be further continued (see the contribution of Kimchoeun Pak in this collection). But by no means should the high "performance" of GDP per capita figures become a core indicator used to explain, justify, or legitimate certain types of economic progress at the expense of others.

Understanding urban vulnerabilities also demands that we recognize that urban modernization in terms of technology, social prestige, dynamic labor markets, high-quality health and education services, economic mobility, comfortable housing, and secure neighborhoods comes with a hefty price tag. Urban development can increase access to high-quality services for the middle and upper classes while continuing to relegate poorer Cambodians to the fringes. The insufficient levels of investment in public services and the increasing privatization of such fundamental services as education and healthcare in cities like Phnom Penh illustrates this trend well. Existing public services, such as the public bus system or the clean water supply in Phnom Penh, should instead be further developed and invested in; this should likewise be extended to other domains, such as housing and social insurance.

Cambodia is undergoing an economic transformation that started in the early 2000s. As we have previously seen, this sort of transformation unfolds more rapidly in urban areas—which accelerates the expansion of urban spaces and concentrates urban populations more densely. Cambodia is now following a similar pathway to those of its neighboring countries that have achieved more advanced economies. The dependency of such economic growth on oil, natural gas, and coal is very high, and becomes even more apparent the more rapidly growth occurs. All three fossil fuel categories are well known to be direct and indirect sources of air pollution and environmental degradation, the effects of which are accentuated in urban environments. Together, they form direct causes of certain urban vulnerabilities, including new and under-researched issue areas such as localized and concentrated urban heat islands (PhD candidate Bunleng Se is conducting research on this topic in several cities). Increases in GDP and carbon dioxide gas emissions are closely correlated. The demand for ecological and energy transitions aimed at decarbonizing Cambodia's economy following the Paris Agreement and the Nationally Determined Contributions agenda is a very complex one to satisfy. No viable economic model has yet been developed that can balance all the capital investment costs and productivity and competitiveness trade-offs such a transition would require.

Conclusion

The COVID-19 crisis highlights those challenges faced by Cambodians living in informal urban settlements. It has refocused public attention on water and sanitation systems and urban density, but these issues are not new. Many dense settlements have long lacked access to clean water and have very poor primary and secondary healthcare systems. The pandemic is simply adding new urban vulnerabilities on top of pre-existing vulnerabilities. It has also shed light on the importance of workers' rights in formal and informal sectors as well as the need for Cambodia to build a stronger social safety net—especially in those urban areas (indirectly) affected most seriously by the COVID-19 pandemic.

If employment, production, and income are all outputs and enablers of urban economic growth, urban vulnerabilities can therefore best be understood as the direct and indirect negative externalities generated by Cambodia's current growth model. These externalities can only be controlled by the application of appropriately inclusive social policies with the capacity to reach and protect the most underprivileged segments of Cambodia's urban and rural populations. They may also be more efficiently controlled if public actors and citizens alike acknowledge that an economic paradigm shift may be necessary to imagine better solutions to these core issues. Innovative sources of private sector investments and blended finance models supported by impact investment and sustainable finance initiatives also have a key role to play.

IN FOCUS: Rural-Urban Migration to Phnom Penh[7]

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With a young population and fast economic growth, Cambodia has experienced a big and rising wave of migration, both within and to outside the country. It is therefore important to have a better and updated understanding of the trends, drivers and impacts that migration has created so far, with a focus on vulnerability.

Based on a 2019 report by the World Food Program (WFP) (WFP, 2019), from a survey with 2,341 households in December 2016, it was found that about 35% of households in rural areas have at least one member migrating. About 33% of the migration is short-term/seasonal (six months or shorter), 43% is long-term (six months to three years) and 24% is permanent (longer than three years). Rural-rural migration accounts for 13%, rural-urban for 57%, and cross border (mostly Thailand) for 31%. This pattern seems to be maintained over time. About 79% of the migrants are aged between 17 and 35 years old. More than 50% of them are males (mostly, sons of the household heads).

Poverty (partly caused by natural disaster) might have pushed people to out-migrate, especially when those migrant households have too little land to do farming on and high expenditures that cannot be covered by their income. This is supported by the data which shows that migrant households have 1.7ha of land on average, compared to 3.5ha for non-migrant households. This difference is more pronounced for Tonle Sap and Plain areas. The data however also suggest that at least over time poverty might have become less a factor compared to a combination of key pull and facilitating factors such as the prospect of higher income generation opportunities, better connectivity, mobility, and youth's overall aspirations to live a life outside of their villages.

Both positive and negative impacts of migration are identified. For the migrants, on the positive side, migration has helped young people get higher paying jobs in the cities and abroad to support themselves and, in most cases, their families back in the provinces. Migrants, through mobile phones and other forms of communication, have been able to regularly contact their families back home. However, a few key concerns are worth noting. The first is the limited impact that migration has made on skill development of the migrants. The second is migration potentially leading to school drop-out

[7] Excerpted with permission from World Food Program. (2019). Vulnerability and Migration in Cambodia. Phnom Penh: Cambodia.

and negative impacts on children brought along. The third is the safety and vulnerability status of the migrants, both those coming to the cities and to another country.

For the families left behind, the impacts identified have been mixed. About 80% of migrant households report receiving remittances from those who migrated. The remittances have been reportedly used to cover part of the families' daily needs. However, there is no noticeable difference between migrant and non-migrants in terms of food consumption, food sources, and coping strategies. Overall, inadequate dietary diversity and hunger are still problems for both groups and across regions. The data offers limited insights into the relationship between remittances (and, by extension, migration) and household indebtedness. Other studies have suggested there is a strong positive correlation (or even two-way causation) relationship between migration and loans from micro-finance institutions (MFIs). This study is unable to validate this finding.

Almost 40% of migrant households reported that children under five years were placed in the care of grandparents, which can be seen as positive since they still live in a family setting rather than being sent to residential care institutions. But there has also been concern that those grandparents might not provide good care for the children, especially in terms of nutrition. Also unknown is the psychological impact of migration on those small children who live without their parental care. The impact of migration on left-behind wives and the elderly is also little researched.

Because, as mentioned earlier, a large proportion of migration is rural-to-urban, this trend has in the last decade created more pressure on urbanization and urban development. Migration-driven population growth has created more pressure on less-than-developed public service delivery in urban areas, as well as housing needs and urban spatial planning. Similarly, because of the significant role that remittances sent back by migrant workers plays in rural households, any economic shocks that happen in the cities (especially in Phnom Penh) can create unpredictable ripple effects on the livelihoods of the millions of households living in rural areas.

With such high rates of internal and international migration in Cambodian households, it is crucial that an analysis of urban vulnerability and resilience in Cambodia extend beyond the city boundaries and incorporate consideration of rural-urban linkages as well as migration policies in popular migrant destination countries. As this section has outlined, factors as wide-ranging as child welfare, land tenure, and the labor market are intertwined and contingent in the experiences of migrant workers, including the opportunities available to them and the challenges they face. The stability of rural households in Cambodia today cannot be divorced from industrial labor wage levels and housing rent costs in urban spaces in the same way that one cannot consider an urban dweller's perceptions of security as disconnected from the conditions of life for rural family members. A shock of any kind to either rural or urban environments impacts both spaces, in part because of these linkages. At the same time, such largescale migration has proven a powerful tool for the resilience of both urban and rural communities.

How Zoning and Urban Land Use Plans Affect Livelihoods and Informal Settlements

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Introduction

Like many other cities in Southeast Asia, Phnom Penh is growing rapidly, but is also vulnerable to both the impacts of climate change and poverty in urban communities. Spatial planning and land use zoning are central concepts in creating practices for territorial control, but their relationship with forms of exclusion remains less studied among urban scholars in the region. Current waves of rapid urbanization are taking place alongside the government's transformation of how it classifies socio-ecological space and the function of proposed zones. Meanwhile this urban expansion often overlooks an existing wetland system where land and water are interrelated. Such a view of development also overlooks the existing mechanisms on which local communities rely that can have implications for the shaping of urban resilience practices. The intensification of flooding within urban areas also exacerbates precarity and vulnerability among the urban poor (Friend & Moench, 2015).

After being forcibly emptied in the 1970s, Phnom Penh gradually regained its population in the early 1980s (Nam, 2011). The urban population had grown to 1.2 million by 1998, 1.5 million in 2008, and 1.85 million in 2012. By 2035, the population is projected to be 2.86 million (World Bank Group, 2017). In line with this growth, the city's boundaries and administration are also expanding rapidly. Currently, there are 12 districts (*khan*) with 66 communes (*sangkat*) and 909 villages spread over a territory of 676 km^2 and this is likely to expand. Expansion into urban lakes and peri-urban wetlands along the river systems have become a central strategy to pave the way for real estate projects such as gated communities and satellite cities, which have emerged as a modern dream among the emerging urban middle and upper classes and investors and developers from high-income countries. With an ever-increasing need for territory to develop, investors tend to support state strategies to "create" urban space through the increasingly aggressive displacement of the urban poor. This section aims to provide an overview of the urban development trends by reviewing discourse and policies related to planning and zoning, the consequences of such regulations for urban communities and the long-standing trend of informal settlement. Then, the paper discusses possible avenues to promote resilience through urban planning.

Discourses and Policies around Planning and Zoning

Urban expansion over existing wetlands and floodplain areas remains a key target for the privatization of space in Cambodia. These forms of expansion include filing in urban lakes and the transformation of floodplains into high-rise building complexes known as satellite cities (Percival, 2016). This kind of development is on the rise, guided by actors, especially developers and investors. The Phnom Penh urban vision for 2035 includes the idea of a business-friendly city where economic competition thrives and that is the political and cultural center of Cambodia with sustainable and equitable development. However, the content of this plan promises to serve primarily the interest of private enterprise and multi-lateral agencies (Paling, 2012). As well, the plan favors the emerging urban strategic groups, urban professionals, and local elites. Much of the realization of the plan is contingent on the appropriation of urban land from the poor (Fauveaud, 2014).

Since the colonial era, zoning has been used as an urban planning tool to create new spaces to foster social order, produce and maintain social structures (including systems of ethnic group classification), and to distinguish commercial centers and administrative zones. The colonial planners saw zoning as a foundational principle for a city that would include residents, commerce, and industrial and administrative functions. As part of the former French colonial system (as a protectorate), Phnom Penh demonstrates the ways that zoning practices have become enmeshed with social norms at the same time they contribute to particular world views, a class of experts, and are associated with western ideas of planning modernity. Zoning has become a dominant form of urbanism in many countries, including how it informs urban policy, how it ties into ideas about the development of good, livable, and modern cities, and how it enables the prediction of population and economic growth (Esposito, 2018). In the past, the arrangement of water (*teuk*) and land (*dei*), known as *tuekdei*, or territory, heavily influenced the Khmer concept of urban layout. Human settlement was associated with water sources, which could be used to construct moats, water systems, lakes, and canals (or *prek*) to support transportation, livelihoods, and cultural practices (ibid). The design was well-planned with water systems embodying interaction between humans and environment (Molyvann, 2003).

In recent decades, the government has reclassified land use zoning and state property. One of the largest spaces that has been considered state property in urban areas are wetlands and lakes. In and around Phnom Penh, there are currently 26 lakes which cover more than 100km^2. Developers have filled in or are in the process of filling in 16 of these; this is equivalent to 40% or 41 km^2 in total. By rules and procedures of Royal Decree No.339 dated 2006, state property such as urban lakes, wetlands, and other land can be classified either as state-private property or state-public property. Three conditions need to be evaluated and classified in order to turn these urban lakes as private owned. First, the property or assets must be no longer used for public interest. Second, these assets or property have lost their value and functionality in providing public services or being of public interest. Finally, they must no longer be used directly by the public (STT, 2019).

Amidst these regulations, there is tension between current development plans and the well-planned system for water management through the network of floodplains throughout the city known as Prek and Boeung, which has been in place since 1960s. With influence from exchange values of urban land price, these systems could not stay idle. Today, developers have converted all lakes and canals which linked to the pump and drainage system from the past into high rise buildings, commercial centers, and modern office spaces (Molyvann, 2003). The tension between urban development and effective water management in the city has been further exacerbated under the influence of China's Belt and Road Initiative (BRI) (Yamada, 2019). The current development climate has led to unconditional

support for and investment in the production of spaces devoted to commerce, industrial manufacturing, and residential projects within strategic locations of the country.

In practice, the establishment of zoning regulations through land laws primarily serves the interest of the private sector and prioritizes the survival and success of the capitalist class (Brenner and Elden, 2009). This process reflects the production of urban space through the state's strategic control of spatial policies (Lefebvre, 2016). Such policies can be used to reorganize geographies of population settlement and reorient infrastructure investment in favor of capital expansion. Such spatial politics are often in contradiction with official state commitments to public wellbeing. When put into practice, urban land use plans often reveal the contradictory role the state plays in achieving its objectives of efficiency, and sustainable and equitable socio-economic growth, as well as its commitment to food security and a healthy natural environment (MOE and GGGI, 2019).

Realities for Urban Poor Communities (UPCs)

Most urban poor communities (UPCs) live on public land with less access to tenure; most of those areas are on or adjacent to urban lakes and wetland areas. For these communities, the city has become the embodiment of everyday struggle for the right to life and dignity (Stavrides, 2016). As the *In Focus* contribution in this collection from Bertrais discusses, urban lakes in Phnom Penh have been an important mechanism to retain wastewater from the urban center and rainfall (an average 370,000 m^3 of water per day is pumped from Phnom Penh into the wetlands before released to treatment plants). As Bertrais discusses, the city is in the process of filling these lakes in with a massive transfer of sand from the Mekong and Bassac Rivers. This will negatively impact an estimated 1.2 million people through an increase in urban floods and various unintended riverbank erosions (LICADHO *et al.* 2020). This is on top of the ongoing increases in flooding that affect some gated communities. Further, this signifies a loss of aquatic food production, which is reliant on wetlands and lakes. This has precipitated a greater reliance on borrowing from sources of microcredit and consequences of precarious life once their sources of livelihoods are lost.

Taking these issues together, we find serious barriers to these residents' accessing their right to the city. These include the right to housing, food, work, sanitation, and water. With proper planning and the engagement of local communities, land use zoning and classification would generate better recognition for UPCs, including the status of being included in the ID Poor program, which could lead to better treatment and access to social services (World Bank 2017).

How to Promote Resilience Through Urban Planning

Experiences from other cities in the region show that urban vulnerability is often linked to access to and a sense of public ownership of urban systems and services. The ecosystem, local resources, and the adaptive capacities of both institutions and agents involved remain relevant sectors for coping strategies (Friend & Thinphanga, 2016). Most urban poor and new urban residents often settle on built environments that are vulnerable to floods and transformation (Bulkerley, 2013). There is a need for greater systems-level thinking when it comes to the design of urban space (Bébé, *et al.*, 2018). As well, the process of engaging co-learning strategies among actors or social groups involved should not be overlooked in producing adaptive capacity (Tyler & Moench, 2012) and avoiding institutional traps (Lebel, Manuta, & Garden, 2011). While resilience is viewed as the ability to survive or to cope when exposed to external impacts such as floods, the collapse of urban systems, and multiple forms

of urban change, there is a lack of common understanding among key actors and institutions at the national and the local level.

In Phnom Penh, urban resilience can be built in four ways. First is the need for ministries to gain a deeper understanding of the meaning of resilience. Second, among planning institutions and technical working groups, there is need to overcome fragmented institutions in the coordination among states, private, local communities, and civil society actors. The third and fourth recommendations relate to the need for more effective checks and balances over the influence of private developers and the need to create co-learning process among actors involved and effective working mechanisms among state actors. The latter should strengthen a merit-based system to enhance the professionalization of personnel in public agencies (Beckwith and Keo, 2020).

Engaging local participation and local knowledge from urban farmers and surrounding communities is also relevant to building community resilience against vulnerability and urban change. Policy makers should not ignore existing efforts supported by civil society in mobilizing and co-producing the learning process. Such tools include community mapping with a series of trainings related to community visions, land plot management, housing structures, lists of assets, and inventory and baseline data. These tools infuse greater participation among local actors and enable a sense of community ownership in enhancing the urban common. These strategies mostly apply to urban poor and those living in informal settlements and low-cost housing developments (COHRE and CMDP, 2009) (Brugman, 2014) (Garnock and Choeun, 2016). A recent study by Beckwith and Keo (2020) supports this approach. These processes should not be treated as a threat to urban change, but as a way to share urban space and visions for a sustainable future.

Conclusion and Policy Implications

Recent research in Southeast Asian cities suggests that to achieve new forms of governance that address citizens' rights (following a rights-based approach), institutions will need to shift toward learning-oriented, flexible, and adaptive policy processes. They will also need to address risks and uncertainties associated with climate change. The need for community-driven planning with the involvement of trusted civil society remains important. Based on experiences from Southeast Asia as well as elsewhere, there are urban justice movements demanding urban resident participation in planning processes. These movements articulate the sense that elites and experts cannot be trusted to work alone to deliver what is best for the public and its diverse communities (Healey, 2010). Planning projects need to promote urban life that recognizes diversity, human needs, and that respects the environmental conditions that can sustain the urban system and also permit humans to thrive within specific places. Spatial transformation and planning projects within urban areas need to consider livability, sustainability, accessibility, inclusiveness, and participation.

Phnom Penh as an emerging city among other Southeast Asian cities still has an opportunity to work towards sustainability and to address urban vulnerability through building greater resilience in the face of potential sources of harm and change before it is too late. Sustainable Development Goals 11 to "make cities and human settlements inclusive, safe, resilient, and sustainable" and 13, which relates to urgent action to address climate change remain key principles that should be at the center of revised urban planning (RGC, 2018). There is a need to better operate and understand concepts of resilience and capacity development, institutional development, and local participation. Phnom Penh still has an opportunity to avoid the traps of urban poverty and vulnerability, compared to well-established cities in Southeast Asia.

IN FOCUS: Socio-spatial and Environmental Vulnerabilities in Relation to Unrestrained Urban Development in Boeung Cheung Ek

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Phnom Penh, a City in Flux

Currently, a particularly intensive form of urban development is taking place south of Phnom Penh toward the lake area of Boeung Choeung Ek, and is gradually spreading out over the alluvial plain, which had been somewhat preserved from significant development. This linear natural landscape is disappearing in favor of a vertical urban landscape. The creation of Hun Sen Boulevard in the middle of Boeung Cheung Ek Lake initiated this large-scale transformation. The choices related to the development of the city do not involve the restoration of buildings and the densification of the historic Khans [districts] but rather the extension of the city into previously rural or undeveloped spaces. As Thuon mentions in his contribution, these urban development strategies involve the appropriation of natural resources in order to transform the surrounding waters and lands into forms of property value. As this paper details below, the nature of this change puts the inhabitants of this space at risk and also has implications for how the environment will respond to climate change and other sources of harm.

Urban Development and Dispossession in Boeung Cheung Ek

Due to its considerable water area (about 2800 ha), the Boeung Cheung Ek naturally fulfills two essential functions. On the one hand, the Boeung cleans up the wastewater from the city of Phnom Penh that passes through it before being discharged into the Mekong River (APUR, 2019). On the other hand, the essential role of the lake lies in its important capacity to retain water during the rainy season and for several weeks if necessary, while waiting for the Mekong level to drop. These 2800 ha, in times of flood, accumulate a considerable mass of water (APUR, 2019). The Boeung Cheung Ek performs vital hydraulic functions to enable the capital to be partially protected from flooding.

However, since the implementation of the ING City project, this balance tends to be broken. The gradual disappearance of the Boeung Cheung Ek means that the natural functions of wastewater management, and the protection of the city against flooding, will disappear in favor of purely technical and very expensive solutions. Moreover, aquiferous and agricultural environments that are disappearing as the urban space advances, such as Boeung Choeung Ek or Boeung Kak, are not unoccupied (APUR, 2019). Many villagers are settled there in addition to the fauna and flora which offer an exceptional biodiversity. Agricultural practices and fishing are still very common, and the inhabitants of these rural areas strive to cultivate land and water without respite. However, land transactions associated with sprawling development have tended to result in forms of displacement, pushing once settled populations out of the city. In many cases, these projects emerge out of the ground in record time and the associated frenzied resettlement process fuels the forced eviction of populations and the injustices of dispossession, as highlighted by the case of Boeung Kak where tenure insecurity facilitated the government's removal of three-quarters of the original families (Schneider, 2011; Brickell, 2014).

In addition to the social consequences of urban development, the transformation of Boeung Cheung Ek or Boeung Kak threaten the delicate environmental balance of the natural space, its biodiversity, and the ways people have interacted with the lakes and plains. Considered one of the last great lakes in Phnom Penh, Boeung Cheung Ek has unique ecological features (APUR, 2019). However, the successive embankments resulting from the extraction of sand from the Mekong and Bassac riverbeds are not only increasingly expensive, but also have a worrying impact on the environment and especially on the riverbanks, which are sliding into the river, putting many at risk of losing their riverside homes. In order to fill lakes and obtain sand to make concrete for construction sites, developers extract the sands of the Mekong and Bassac Rivers. These extractions, not always legal, have dramatic consequences on the ecosystems. Sand is playing a vital role in the ecosystem and it is becoming a jeopardized resource, which can affect biodiversity and erosion and increase salinization (Peduzzi, 2014).

Moreover, environmental changes that some external actors, like developers, make to spaces jeopardize the livelihoods essential to the survival of inhabitants (Blanchon *et al.*, 2009). The degradation of the immediate natural environment of the poorest populations, who still depend heavily on natural resources, appears to produce or exacerbate environmental and social inequalities (Duru-Bellat, 2014). This includes changes to "lagooning," a natural technique for waste treatment that consists of the accumulation of wastewater in lakes [boeung]. While this has historically contributed significantly to the ecologically sustainable and inexpensive purification of wastewater from the south of Phnom Penh, which arrives directly in the lakes, filling in lakes as part of construction projects eliminates this practice and has implications for how communities deal with waste. It may take years before impacted communities experience the full environmental fallout of these transformations. Moreover, communities will not have the same capacity to adapt according to their gender, age, and social position (Becerra, 2012). This raises the point that environmental vulnerability has an eminently social character since human activities are notably the result of social processes.

Beyond Local Decisions

The unbridled development that characterizes the Cambodian capital over the last 20 years has produced significant environmental and social disorder. It also signifies an encroachment on the "commons," i.e., resources like water that contribute to public wellbeing. As has been noted elsewhere, decisions in Cambodia regarding its waterways could well have a regional or global impact on this resource, in a region where water has traditionally flowed in abundance. Indeed, the

construction or planning of hydroelectric dams on the Mekong River presage an uncertain future for the region's waterways (Räsänen *et al.*, 2012). This has already been illustrated by increasingly late seasonal floods. In the long term, this could destabilize the country and generate numerous geopolitical and socio-economic conflicts in the region fed by the Mekong.

The story of urban development and environmental destruction in Boeung Cheung Ek is one manifestation of Cambodia's current urban development trajectory, which renders its population increasingly vulnerable to the dangers of climate change.

Phnom Penh and Real Estate Development: New Factors to Consider Economic Vulnerabilities

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Real Estate Markets in the Cambodian Economy

In the past 20 years, real estate and construction sectors have become a driving force of Cambodian economic growth. In 2017, real estate and construction, including services related to real estate, counted for almost a third of GDP (World Bank Group, 2018), which almost equals the contribution of the agriculture sector.

Growing domestic demand for houses among middle-high socioeconomic classes has augmented the rapid development of the real estate sector between the second part of the 1990s and the 2000s. This has resulted in the construction of hundreds of new residential projects, especially in peri-urban areas. However, since the mid-2000s, housing and lands have become important speculative investments (Fauveaud, 2015). The passing of a new law in 2010 authorizing foreign ownership of housing above the first floor has further increased speculative investments and the fast rise of housing and land prices.

The Real Estate-Finance Nexus

The fast growth of the real estate sector is linked to that of the finance sector. Firstly, the rate of outstanding loans, such as mortgages, has increased tremendously in the past twenty years. Private debt, loans and debt securities have grown from 6.38% of the GDP in 2000 to almost 100% of the GDP in 2018. Between 2014 and 2017 alone, the percentage of people aged 15 and over who had an outstanding housing loan rose from 12% to 16%.[8] The decrease of interest rates as well as the growing number of people using banking services have favored the growth of personal indebtedness, especially for the purchase of housing. Growth of household debt has overextended the financial sector, which increases the risk of exposure to economic fluctuations (World Bank Group, 2019). Besides, the diversification of access to mortgages has been encouraged by a large spectrum of financial institutions, such as micro-credit agencies, as well as banks dedicated to mortgage loans

[8] https://globalfindex.worldbank.org

created by foreign developers. These institutions often use predatory lending practices to attract clients who are not very solvent but who also wish to benefit from real estate speculation.

Secondly, the construction and real estate industries are increasingly dependent on foreign investments. Foreign direct investments (FDI) increased more than tenfold between 1998 and 2017 (Fauveaud, 2020). FDI in construction, real estate, and accommodation represented almost a third of the FDI in 2014, a figure that seems to have remained stable since then (National Bank of Cambodia, 2016). "In 2015, 30% of the active companies operating in construction were foreign (National Bank of Cambodia, 2016). Between 2010 and 2015, 28% of the total construction space was produced by foreign companies. Between 2000 and 2015, South Korea, China, and Japan were the first three main foreign investors in the construction sector. As for the real estate sector, China was the first foreign investor between 2010 and 2015, followed by Japan, Singapore, South Korea, Taiwan, and Malaysia. [...] China became the first provider of corporate and noncorporate FDI in real estate in Cambodia" (Fauveaud, 2020). In 2018, the total net FDI represented 13% of the GDP in Cambodia, while FDI accounted the same year for 6% in Vietnam, 2% in Thailand, and 1.8% in Indonesia. Compared to other Southeast Asian economies, the Cambodian economy is particularly dependent on foreign investments, which increases its exposure to the fluctuations of the global economy.

Thirdly, the housing market is pulled up by non-corporate foreign investment. For instance, it is estimated that foreign buyers own at least 65% of condo units (National Bank of Cambodia, 2016). However, this rate hides the heterogeneous landscape of condo ownership. Residential units in high end residential projects built by foreign developers are mostly bought by foreign investors, while middle-range local residential projects are mainly purchased by a local clientele. However, a large part of the condo market is designed to attract foreign buyers who are seeking high rental yields and flipping strategies (the buying and the selling of a unit in a short period of time). Foreign developers, with the help of international real estate agencies, are selling units in their countries of origin. Moreover, the development of a digital global residential market favors a greater penetration of foreign investments. Local real estate agencies are increasingly dealing with foreign buyers; some of them reported that a great majority of these foreign investors will never set a foot in Cambodia. All of this reveals how speculative foreign real estate investments in Cambodia are increasing the risk of creating a real estate bubble.

Fourthly, the legal framework that is supposed to better regulate and control foreign investment in real estate remains insufficient. On the side of individual investors, a maximum of 70% of the units in a real estate project can be sold to foreign owners. On the corporate side, foreign investors cannot own lands and have to invest with a local counterpart. However, there are many ways to legally circumvent these laws, such as the creation of locally-incorporated companies, the buying of the Cambodian nationality, or the purchasing of land through a nominee structure. These popular legal strategies, well documented by local real estate and legal companies,[9] allow foreign investors and developers to ensure almost total control over Cambodian real estate assets. As a result, Cambodian real estate companies that are building partnerships with foreign companies are losing autonomy and are more exposed to the will and economic strategies of third parties. Besides, foreign real estate developers and investors' activities are largely linked to global financial markets. These companies invest a substantial portion of their capital in financial markets, and for those that are publicly listed, their shareholders are mainly financial companies (e.g., banks, insurance companies, asset

[9] https://www.globalpropertyguide.com/Asia/Cambodia/Buying-Guide

management companies, pension funds). Such a situation increases the exposure of Cambodian companies and of Cambodian real estate markets to global economic slowdown and crisis.

Increased Socio-economic Vulnerabilities

These growing economic vulnerabilities endanger whole parts of the Cambodian economy. The construction and real estate sectors, as well as their related activities, rely on a large workforce. In 2019, construction syndicates estimate that around 200,000 workers are employed in the construction sector in the country,[10] while the Ministry of Land Management, Urban Planning, and Construction considers that the sector employed around 70,000 workers each day.[11] Such numbers are certainly below the reality, as a large number of workers are not officially registered. As well, real estate and construction activities require building materials (concrete, bricks, metals); services related to construction and real estate (project management, evaluation, accounting, finance, banking, realtors, cleaners, security guards, etc.); architects, designers, and craftworkers; and a myriad of subcontractors, whether for construction, or for project management. All of these sectors employ thousands of workers. Moreover, the construction and real estate sectors are heavily related to the tourist sector, which contributed to almost one third of Cambodian GDP in 2017.[12] In other words, construction and real estate comprise a vast array of work, and a significant portion of the labor force working directly or indirectly in these industries.

Precarious labor conditions and low standards for workers' health and safety increase socio-economic vulnerabilities in the construction industry and its related sectors. Syndicates estimate that between 1,000 and 1,500 workers die every year doing their jobs. Women remain particularly vulnerable in the construction industry, as they are much more exposed than men to exploitation and harassment. Besides, studies of the brick-making industry revealed that this sector relies heavily on labor exploitation, especially of the most vulnerable population such as women, children, and migrants. Several well-known international and local real estate development companies are using brick factories that practice human exploitation (Brickell *et al.*, 2018).

As a result, speculative real estate, the financialization of the Cambodian economy and its dependence to FDI increase the overall vulnerability of many households directly or indirectly involved in (or impacted by) these economic sectors. Any economic slowdown or crisis, or the explosion of a real estate bubble may result in a withdrawal of foreign investments, the slowdown of real estate and construction activities and the decrease of land and housing prices, the loss of jobs or the impoverishment of working conditions, and the increase of indebtedness for both corporate and non-corporate real estate actors. This domino effect would finally lead to a severe economic crisis, and to the impoverishment of a large segment of the Cambodian population as was already the case in other Southeast Asian countries during the 1997-1998 crisis. The absence of public housing also prevents the construction of a social "net" for the most vulnerable populations and leaves little room for the State to better control and regulate the housing market.

Urban households are not the only ones exposed; urban production-related jobs also employ a large share of seasonal rural workers and represent a pull factor for rural to urban migrations. Socio-

[10] https://southeastasiaglobe.com/cambodias-construction-boom-a-bust-for-workers/
[11] https://www.construction-property.com/govt-to-focus-on-construction-and-real-estate-labour-with-extended-un-programme/
[12] https://wttc.org

economic vulnerabilities related to the fluctuation of urban economies therefore represent systemic issues that require comprehensive approaches.

Conclusion: A Better Control of Real Estate Markets to Reduce Socio-economic Vulnerabilities

The risks associated with the development of a real estate market that is (1) highly speculative, (2) highly dependent on foreign investments, and (3) poorly regulated multiply the susceptibility to systemic crisis. Consequently, the implementation of a politics of vulnerability and risk reduction is needed. Several initiatives could be carried out in this direction, such as:

1. Building an agency that would document and publish information and statistics about corporate and non-corporate real estate investments made by both domestic and foreign stakeholders;
2. Limiting the growth of land and housing prices by controlling selling prices;
3. Preventing the most speculative practices by limiting the rapidity of individual real estate transactions (flipping strategies);
4. Preventing the control of real estate assets (especially land) by foreign companies in joint-venture and nominee structures;
5. Limiting over-indebtedness, better controlling access to mortgage, and prohibiting predatory lending practices;
6. Supporting the production of low-cost housing in all parts of the city; and,
7. Better regulation and oversight of working conditions in the construction industry and its related professions.

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