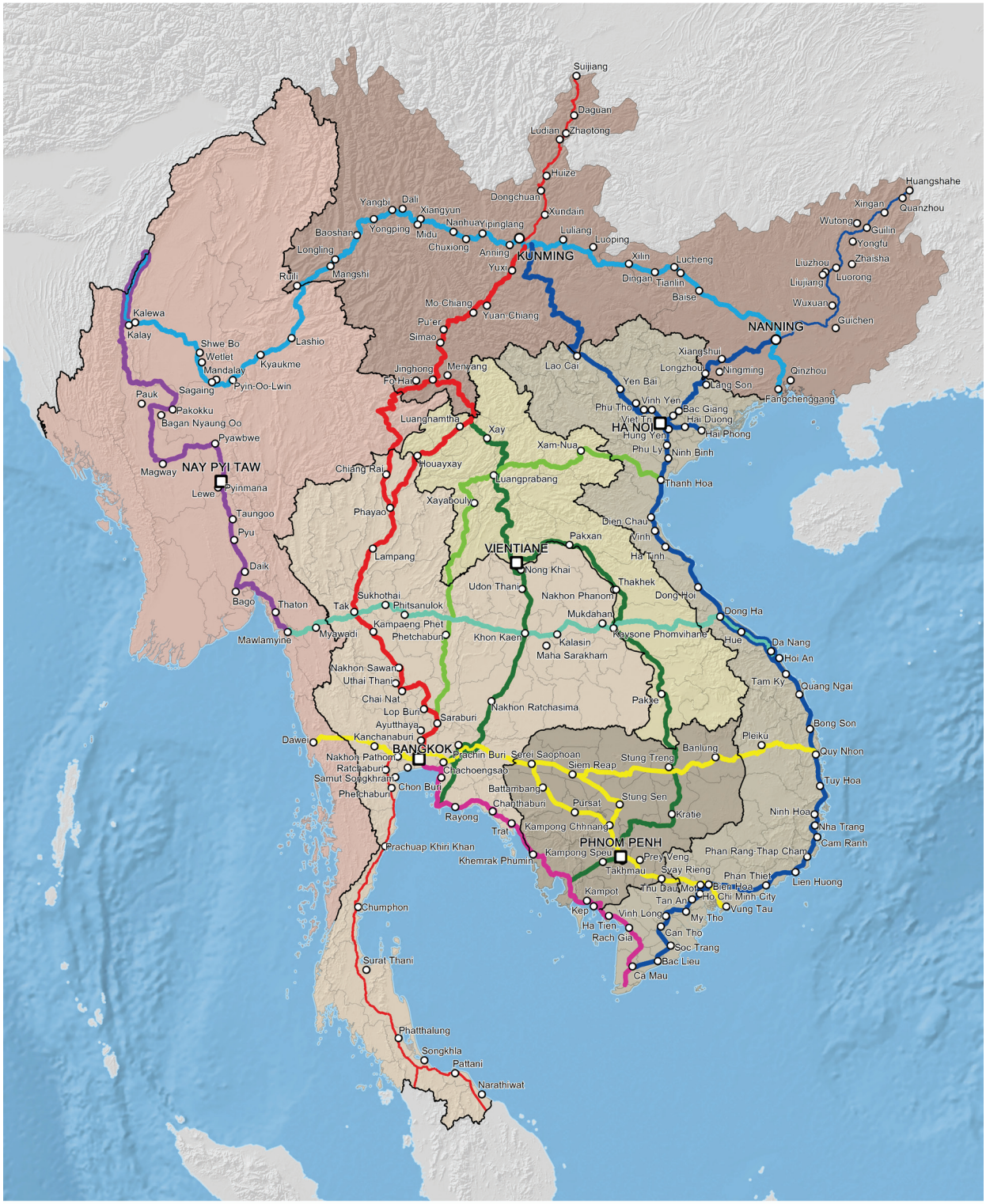
ISET-International Discussion Paper

Regional Integration in the Mekong: Challenges of Urbanization and Climate Change



Transport Corridors of the Greater Mekong Subregion

Economic Corridor Roads

- Central Corridor
- East-West Corridor
- Eastern Corridor
- Eastern Corridor Extension
- North-South Corridor
- North-South Corridor Extension
- Northeastern Corridor
- Northern Corridor
- Southern Coastal Corridor
- Southern Corridor
- Western Corridor

- National capital
- Administrative center
- Corridor town

0 100 200 400 Kilometers

Boundaries are not necessarily authoritative
Data source: ADB, GMS EOC, UN FAO GAUL, NASA SRTM

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INTRODUCTION

The Greater Mekong Subregion (GMS), which has historically been an agricultural centre, is rapidly urbanising at a scale never seen before. This process is set to intensify with the ASEAN Economic Community (AEC) coming into place in 2015 linking urban, commercial and industrial centres across the GMS.

The GMS has been identified as a region particularly vulnerable to the effects of climate change. Much of the urbanisation that is occurring in the GMS is happening in places that are already hazardous, particularly along coasts, rivers, and deltas that are already vulnerable to flooding and extreme weather events. Urbanization can exacerbate climate change risks through land-use changes, alterations to natural hydrology, Urban Heat Island (UHI) effects, and coastal cities face the additional challenge of sea level rise.

The process of urbanisation represents a dramatic shift in ecological landscapes, resource flows, social-economic systems, as well as demographics. Urbanization creates dependency on critical systems (food, water, energy) that are often beyond the control of city administrations. Failure in these systems can have enormous implications for people in urban areas, both for people who are already poor, and for many more who are at risk of becoming poor. Businesses located in these areas, and those dependent on resources elsewhere are also at risk.

Understanding the dynamics of urbanisation and climate change at such a broad scale requires the combination of analysis at the level of complex systems (local, national, regional), as well as analysis at the level of actors and institutions at critical change interfaces. This represents a new conceptual and methodological research challenge for the region.

Unplanned urbanisation in this region, makes a greater concentration of critical national and local assets vulnerable. This means that more people are vulnerable to climate change as population increases, and of this population a greater proportion is located in these vulnerable areas. Moreover, with a greater proportion of economic activity located in these areas, the vulnerability spreads across the global economy.

REMITTANCES AND RISKS

Across the GMS urbanisation is driving a boom in construction, that in turn pulls in labour from rural areas and across the region. The remittances these construction workers earn, and the improved communications systems, increasingly link rural and urban livelihoods across the region, but are also spreading risks and vulnerabilities.

The Pace and Shape of Urbanisation Creates New Vulnerabilities

The way in which urbanisation occurs creates its own vulnerabilities. Already many urban areas are growing beyond the capacity of their ecological systems to provide the resources and services on which they depend. For example, cities in Thailand are already growing at a pace which demands for water exceeds natural water availability, at certain times of the year. Yet demand for water is set to rise further as more people and industries settle in these urban areas.

The expansion of urban areas is altering ecological landscapes. This is seen most clearly in many of the floodplain systems in the region. The conversion of agricultural and wetland areas creates new risks of flooding, but now with even more at stake that critical economic assets are located in these flood prone areas. The Thai floods of 2011 inundated much of the Central Plains demonstrating the consequences of such patterns of urbanisation. This pattern of development however, is being repeated across the GMS.

Often the infrastructure that has been built to accelerate development increases vulnerability. For example, new road systems alter natural drainage—blocking annual floodwaters so that they are trapped within critical areas. In the case of water infrastructure built during recent decades, there is concern that the extreme climatic events for which it was originally designed will become more frequent and in some cases more intense. Failure of these dams and reservoirs would have devastating consequences.

Urban Heat Island Effects Are More Pronounced

The conversion of land and construction of cities, with intensified built-up areas and reduced green space, increases the amount of heat that is absorbed within urban areas. This is a phenomenon known as the Urban Heat Island (UHI) effect. This makes urban areas several degrees hotter than surrounding rural areas. The greater the concentration of urban space, the more pronounced these effects become. For example, evidence from Bangkok suggests that the average surface temperature in 1994 was 26.01˚C, but as urbanisation intensified

this increased to 37.76˚C in 2000 and further to 39.79˚C in 2009.2 Such dramatic increases in temperature have impacts on air quality, and consequently on human health. In areas of high humidity, such as the GMS, temperatures will increase further. Evidence suggests that on top of climate change, UHI adds another 4–5˚C on global average temperatures. The Urban Heat Island effect can also extend for 82 kilometers from the urban centre. Again, this phenomenon will be intensified where urban centres merge into large conurbations.

Climate Change Exacerbates These Risks

All scientific evidence indicates that climate change is already manifesting in the region.

The most recent assessments of global temperature change suggest that there have been increases of around 1˚C above the average annual temperatures between 1951–1980.[3] Climate change projections suggest that these temperature increases will intensify and, with the combination of the UHI effect, will be even more significant in urban areas. This means that average temperatures will increase, but also that the number of extremely hot days—and the temperatures that are reached on such days—will become more frequent. Cities, both infrastructure and people, will struggle to cope with such extreme changes in temperature.

Much of the effects of climate change in the GMS will be felt through water—too little in the dry season, too much in the wet season, and a greater frequency and intensity of storms. With many cities already struggling to meet water needs even while demand is growing, this will present an enormous technical and institutional challenge to ensure that good quality water is available to those who need it, when it is needed. The effects of storms and flooding have already been demonstrated in the GMS region within the last few years, as well as in other parts of the world such as New York. Again these patterns of storms and flooding put cities further at risk. While cities might be able to cope with and bounce back from a flood every 100 years, climate change projections suggest that these extreme floods will occur far more frequently. With sea level rise, these will be all the more significant in coastal areas.

Again the impacts of climate change on urban areas will be felt far beyond the cities themselves.

The Changing Face of Poverty and Vulnerability

The GMS includes countries that have seen some of the most dramatic reductions in poverty in the world. But as people migrate to cities and become increasingly dependent on urban living the nature of poverty and vulnerability also changes.

Many people are living in informal settlements, often located in some of the most hazardous space within cities. Such informal settlements lack adequate access to core urban systems—water, energy, health services—the very systems that are themselves most vulnerable to failure as a result of climate change.

The majority of urban population earn their living in the informal sector as day labourers or small-scale traders. As such incomes are often low and unreliable, with few savings. Poorer people with fewer assets are less able to recover from shocks and crises, whether they are from price rises or natural disasters. Social protection mechanisms are not in place for these kinds of shocks.

Health crises constitute one of the main sources of vulnerability in people's lives, sometimes pushing people into poverty, and for people who are already poor, into debt and destitution. Urban health care systems are already stretched, but with higher numbers of people dependent on these systems the risk of climate-induced disease outbreaks increases.

While official urban poverty rates are lower than rural rates, the lack of data and effective measurements of poverty makes it difficult to assess how many people are currently poor, or how they could be supported. Global reviews have concluded that there is a huge data gap, and not enough is known about the nature of urban poverty.[4] But cities also display some of the greatest inequality in income, assets, voice, and rights. The GMS will bring huge demographic changes with rural people moving to urban areas, but also migrant workers moving across borders. Many of these people are not registered and largely invisible in official statistics. They are not eligible to access state social services (education, housing, social security) and are thus additionally at risk. Any shocks that these people experience will be felt much further afield, by

WATER AND HEALTH

Much of climate change in the GMS will be felt through the effects of water—too much or too little, at less predictable times, and with varying quality. Many urban people are still dependent on rivers and canals for their immediate water needs for drinking and washing with serious health risks.

the rural households to which their remittances make an increasingly important contribution.

Critical Governance Challenges

Urban governance and planning for current circumstances is already notoriously weak across the GMS. There is often limited technical capacity within local government agencies, and limited data and tools that would support long-term strategic planning.

But the challenges are not simply of capacity and information. There are core governance challenges. Local authorities increasingly play both a managerial role in planning and setting standards, but also an entrepreneurial role in attracting investment. With poor transparency and accountability these competing roles can be difficult to reconcile.

Land-use planning in particular is ineffective in applying zoning standards, with many cities growing against what is set out in such plans. Public participation is extremely limited. Information is not publicly accessible, and in many cases, is purposively kept away from public scrutiny. Where planning does occur it is based on critical assumptions that the future will look much the same as the past.

But with decentralization of public administration in GMS countries, and growing responsibility at sub-national level, there are also opportunities to open up local level governance that could be more representative, accountable and transparent.

However, it will require a massive shift to reorient governance towards the broader future challenges—addressing both the technical capacity and broader governance dimensions.

1 http://www.adb.org/countries/gms/main

2 M. Srivanit, K. Hokao, V. Phonekeo, Assessing the Impact of Urbanization on Urban Thermal Environment: A Case Study of Bangkok Metropolitan. International Journal of Applied Science and Technology. 7 (2012).

3 http://warmingworld.newscientistapps.com/?utm_source=social&utm_medium=twitter&utm_campaign=climate

4 D. Mitline, D. Satterthwaite, Urban Poverty in the Global South: Scale and Nature. Routledge: London. 2012.

This product was funded by, and in partnership with:

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ACCCRN
Asian Cities Climate Change Resilience Network

Planning for Integration

The GMS stands out as the region that is urbanizing at a dramatic rate, while also being highly vulnerable to the effects of climate change. Urbanization and climate change are intimately linked, representing the most significant transformations of human society of our time. Dealing with such challenges requires new ways of thinking and new ways of working—looking far into the future, and dealing with inherent uncertainty.

Through a network of city governments, academia, private sector and NGOs, ISET collaborates to support innovative, multi-disciplinary action research across the GMS to address these emerging issues.

ISET

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Boulder, CO USA

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