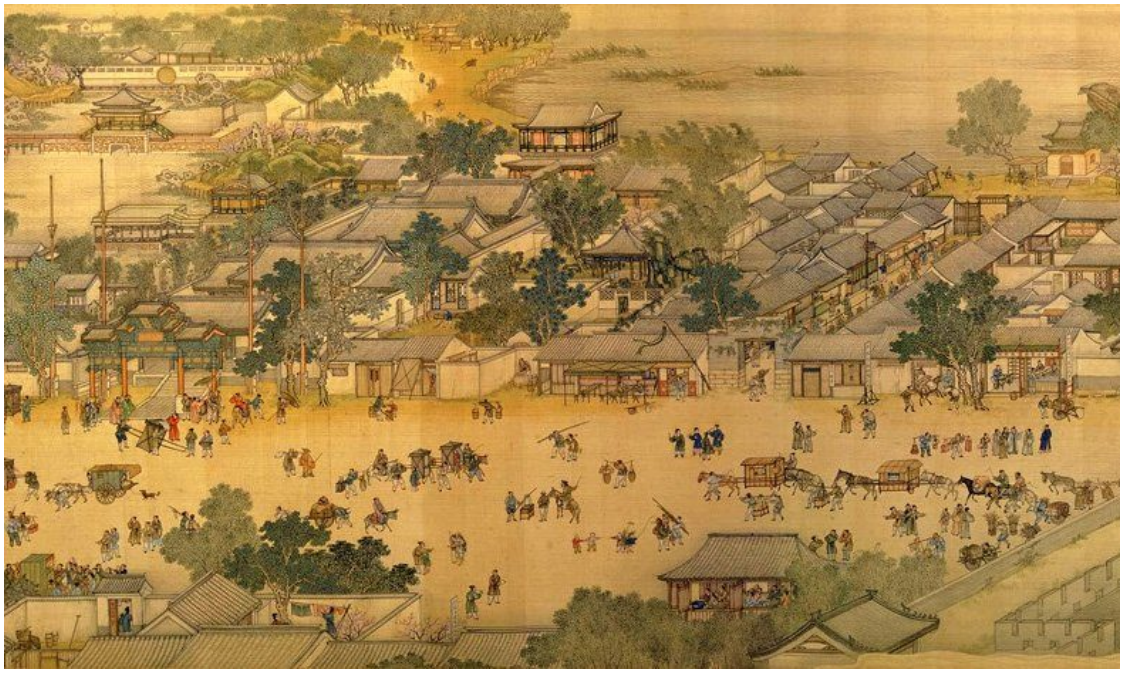
China's City Clusters: Pioneering Future Mega-Urban Governance

STEFAN RAU



The coordination of development within city clusters in the People's Republic of China (PRC) is a striking case for organizing institutions, planning, infrastructure, and economic development across many local administrative boundaries in very large urban regions, some as large as European countries. To benefit from the many efficiencies that could be reaped from such coordination, this task should be a high priority for national policymakers and planners, not only in China, but also in the United States, Japan, Europe, and elsewhere.

The urban-rural divide, in particular, has become an increasingly significant challenge of equitable and sustainable development in China as well as in

the West. Institutionalized governance and economic cooperation at the city cluster level offers hope for benefiting large numbers of citizens through increases in productivity and competitiveness. To succeed, significant infrastructure investments at city cluster or even national levels are typically needed, along with the coordination of development in various other policy areas. In what follows we offer an account of China's city clusters, some international examples, and lessons from smaller-scale metropolitan governance, as well as some recommendations for improving the coordination of Chinese city clusters and, for the West, ways of learning from their successes and pioneering work.

Promoting and facilitating coordination of large urban territories, or Mega-Urban Regions (MURs), into economic clusters holds great potential for China's further sustainable urbanization and economic development. The nineteen city clusters included in China's Thirteenth Five-Year Plan (2016–20, the 13 FYP, for short) have already become population magnets, and account for more than 90 percent of the national GDP. Strengthened coordination across local administrative boundaries within cluster territories brings with it an array of social, economic, and sustainability benefits—including productivity gains from expanded agglomeration economies and efficiency gains that support the national objective of increasing domestic consumption to fuel future economic growth—lessons other countries may do well to learn from.

While megaregions of similar magnitude do exist in the United States, Europe, and Japan, serious governance coordination efforts or institutions of comparable scale do not. National policy goals that necessarily underlie such efforts are also lacking. The PRC's initiatives are breaking new ground, and

all sides can learn from each other. Postindustrial Western countries with longer experiences of urbanization should consider that top-down infrastructure initiatives, along with effective industrial policies, can trigger economic transformation and improve spatial integration.

China could learn some lessons as well. Horizontally arranged governance can achieve good results, too—through regional parliaments or metropolitan agencies (though smaller in scale, the mechanisms may apply to larger mega-urban regions) with authority over land use, transport, and open space planning, and with budgets to back up their plans (e.g., by operating regional transport service). "Special districts" can also help to organize cooperation for specific purposes. Formed as legal entities and financed across administrative boundaries, special districts can manage resources or build and manage infrastructure like airports and ports. These districts often are encouraged and supported by additional national funding. Western countries also exhibit more market-oriented approaches from which the PRC could learn. Market approaches suggest that interventions need to be carefully assessed to avoid inefficiencies due to limited demand for infrastructure and services. Particularly in lesser-populated, often remote subregions where infrastructure is used less, the high cost of maintenance compared to returns often results in unsustainably low economic benefits.

City Clusters and National Economic Development Planning

The goal of city clusters is simple: to institutionalize governance coordination and cooperation mechanisms across local administrations within cluster regions. Some Chinese city clusters have started to coordinate

their policies and improve connectivity, especially the three more mature, tier-one global MURs on the east coast referred to as *BeiShangGuang*. *Bei*jing-Tianjin-Hebei (BTH) has about 110 million residents, including all of Hebei, and generates about 10 percent of the national GDP. *Shang*hai and the Yangtze River Delta Agglomeration (YRD), with a total population of about 152 million, is the most productive, generating about 21 percent of the PRC's GDP with about 12 percent of its people. The new Greater Bay Area (prd/gba), including *Guang*zhou (with the Pearl River Delta) as well as Hong Kong and Macau, has a total population of about 70 million, producing about 12 percent of national GDP with about 5 percent of China's people. It competes internationally in innovation and high tech as a new kind of Silicon Valley. Other significant clusters include the Chengdu-Chongqing City Cluster (ChengYu) and the Central Yangtze River City Cluster (CYR) around Wuhan.

In recent years, massive national-level infrastructure investments have been made, particularly high-speed rail and highways, but also waterways, power transmission, and south-to-north water diversion infrastructure. This national development has created connections between the main cities within and beyond the cluster areas, with significant economic impact. Since 2016, plans have been prepared for each of the nineteen clusters included in the 13 FYP to promote connectivity within it as well as governance coordination. Such integration will aim at economic clustering, labor market, and infrastructure integration, as well as the protection of green open spaces, farmland, and natural resources.

China embeds the objectives of city clusters within national-level industrial policies such as the decarbonization of the country's economy. National

policies also include regionally differentiated industrial transformation, aiming at "Industry 4.0" with the "Made in China 2025" program in the advanced city clusters, while promoting industrial upgrades inland and in resource-depleted subregions.

Large-scale regional development policies—like the Belt and Road Initiative, a twenty-first-century upgrade of the ancient Silk Road, and the Yangtze River Economic Belt—are further affecting and promoting city cluster development. The latter aims at subregional cooperation and integration, upgrading and relocating industries toward upstream regions of the river and watershed-based water resource and pollution management. This effort benefits more than a third of the country's population, including the three clusters of YRD, the Central Yangtze River Cluster (CYR) of Wuhan, Changsha, and Nanchang (which is currently less connected due to its large size) and upstream Chengdu-Chongqing.

Yet despite efforts designed to make inland clusters more attractive, people continue to vote with their feet, with more than 40 percent of all domestic migrants relocating to the three coastal clusters of *BeiShangGuang* during 2017. Interprovincial migrants have been changing their destination since 1978. Till the 1990s, many moved to traditional heavy-industry areas such as the northeast, but since then they have been migrating to *BeiShangGuang*, and more recently many preferred to relocate to BTH. Manufacturing, construction, and services were the major industries absorbing most migrants. Chinese planners will need differentiated approaches to policy, institutional arrangements, planning, and infrastructure investments in the coming years. Some projected clusters, especially CYR, are far beyond the one- or two-hour commuting circles now aimed at by planners in the PRC.

Each cluster is at a different stage of development, and each has a particular scale as well as goals for a certain scope of spatial integration.

The History of City Clusters in the PRC

Urbanization and industrialization have been at the heart of the PRC's rapid economic development over the past forty years, ever since the "Reform and Opening Up" policies were launched in 1978. Hundreds of millions of people were lifted out of poverty, and the urbanization ratio changed from about 19 percent to about 59 percent between 1978 and 2018, an increase of 1 percent per year on average. During this period, megacities and MURs emerged, with *BeiShangGuang* becoming the most developed. Urbanization in the PRC has been both a trend and a proactive policy. Rural residents migrated to the big cities for job opportunities created by industrial policies and the creation of special economic zones that attracted billions of dollars in foreign investments for export-oriented manufacturing.

Through land mobilization, market opening, real estate development, and infrastructure investments, urban development has generated a significant portion of economic output. But urbanization has also taken a heavy toll on the environment and increased social disparity between urban and rural areas, not only within the commuting area of larger cities but especially in the remote countryside.

City clusters have been part of the PRC's urbanization strategy since the 2006 National Urban System Plan. They have been included in the National New-Type Urbanization Plan (2014–20, the NUP for short) and the 13 FYP. The PRC's key objectives are to improve the distribution and layout of

urban areas and population, as well as the management of natural and economic resources, by organizing city cluster development along east–west and north–south corridors. The plan calls for a proper industrial division of labor, the coordination of planning and infrastructure, ecological conservation, and environmental improvement to achieve integration and efficient development within city clusters. Each city cluster, and *BeiShangGuang* above all, seeks to optimize institutional innovation along with urban-rural integration.

CITY CLUSTERS IN THE PRC AS PLANNED IN THE 13TH FIVE-YEAR PLAN

Source: National Development and Reform Commission, The PRC's 13th Five-Year Plan (Beijing, 2016)

China today continues to experience rapid urbanization as well as supply-side development that often produces industrial, commercial, and residential structures beyond immediate demand. Effective city cluster governance coordination will be crucial to improving efficiencies in these areas and avoid redundancies and sprawling development. City cluster governance also has a role to play in advancing social inclusiveness through strengthened

urban-rural linkages, as well as the preservation of open spaces. A sense of urgency is needed to get the next stage of urbanization right, and to get it right *now*, in this window of opportunity. Doing so will help to shape land uses, public right-of-way, trunk infrastructure systems, and protected open space systems before they become frozen into unsustainable, land- and resource-inefficient patterns for generations to come. City cluster governance can ensure sustainable cities and promote lifestyles that are low-carbon, climate-resilient, green, inclusive, and competitive. Looking ahead, coordinated development may also need to integrate adequate urban development, urban design, and real estate market responses to the demographic challenge of a rapidly aging society and, eventually, a shrinking national and urban population.

The Danger of Fragmentation

The key challenge city clusters face in the PRC, as elsewhere, is fragmentation. Cluster territories contain many administrative entities, each with independent authority over a variety of policy areas: tax and budget systems, land use planning, transport infrastructure and traffic management, industrial park development, open space planning and environmental protection, and even labor markets. Coordination across jurisdictions has begun to pick up, particularly in *BeiShangGuang*, but institutionalized coordination is still at an early stage. The danger is not too much centralization, but a lack of coordination and connectivity across local boundaries. Coordination will have to cross provincial boundaries, as well.

A formal strategy with preliminary investment plans has been completed for most clusters. These plans include short- and medium-term horizons,

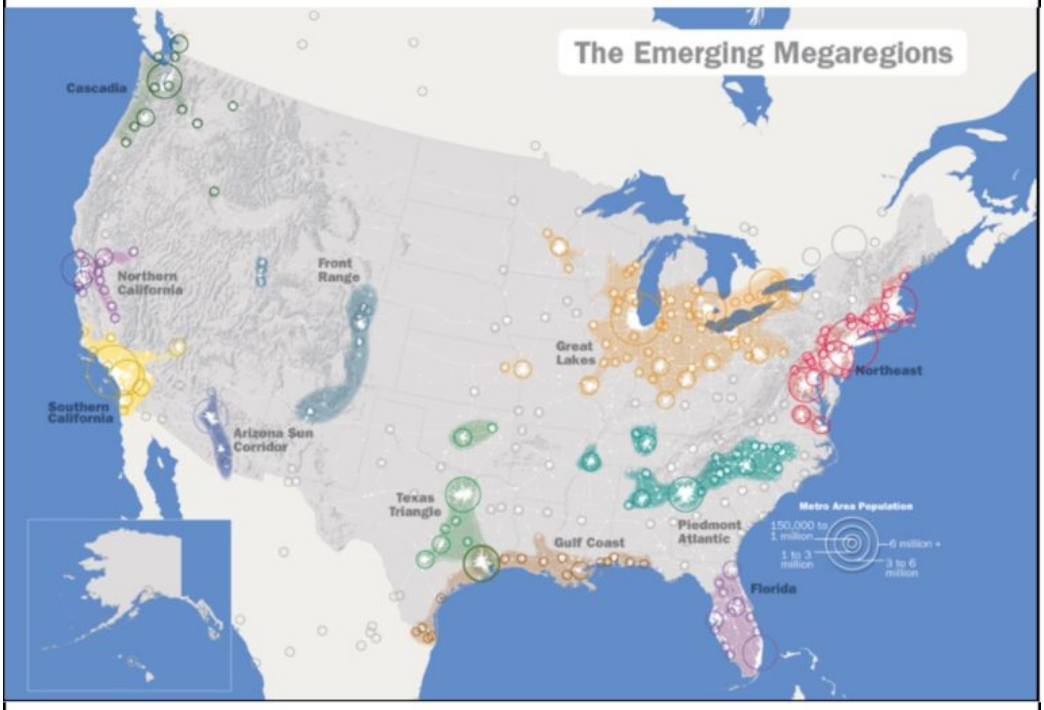
recommendations for spatial structure—including hierarchies, roles, and economic profiles of places within clusters—and they define metropolitan circles and development belts along transport corridors. Some plans include growth boundaries, ecological zones, and greenbelts.

All plans include a list of investment projects with a clear focus on transport, but some also include energy infrastructure, industrial park projects, and environmental improvement and management projects. The current challenge is that many plans are not fully integrated on the cluster level and seem to represent the interests of individual cities rather than respond to cluster-wide needs. As city cluster governance institutions strengthen, the plans can be revised from a more assertive city cluster perspective.

Mega-Urban Regions in the United States and Elsewhere

Mega-urban regions similar in scale to those in the PRC have emerged elsewhere, as well, and continue to gain economic importance. In a continuously urbanizing world, megaregions are increasingly connected to each other, even across national borders. A key consequence, seen globally, however, is that city clusters are dividing territories between high-performing, well-connected urban places and slower, more rural and remotely located regions.

EMERGING MEGAREGIONS IN THE UNITED STATES



Source: America 2050, Regional Plan Association.

Population maps and economic statistics show how the entire U.S. economy has become dominated by a few city clusters. The Northeast megalopolis in the United States, from Boston to Washington, has a population of about 52 million people. There have been plans for improved infrastructure within these clusters and across the United States, including high-speed rail networks, and California has taken steps to implement the first major line. Coordination within the American regions has not yet been institutionalized, however. But with many forms of coordinated governance and planning already present, the basis for stronger city cluster governance exists in the United States. A successful implementation of megaregions in the PRC can provide lessons for more institutionalized planning in America.

In the United States and Canada, metropolitan governance (smaller in scale than city clusters, but still across many local administrative boundaries) was first promoted in the early twentieth century, when the U.S. Census

introduced Metropolitan Statistical Areas. Forming the MSAs helped the United States to account for urban and suburban growth beyond the administrative boundaries of large cities. The MSAs encompass various forms of cooperation, stemming from businesses as well as from neighboring governments. In 1898, Greater New York was created to consolidate five counties, making it the world's largest city at the time; in the late 1920s, the Regional Plan of New York provided guidance for investments there. The Regional Plan Association has published the fourth plan in 2017 with far-reaching investments in regional rail transport, open space, regional trail system, and climate change resilience.

Other areas have undertaken metroregion-wide planning, as well. The 1909 Plan of Chicago was a regional plan commissioned by the local business community. The Chicago Metropolitan Agency for Planning (CMAP) was created in 2005 as a consolidation of the Northeastern Illinois Planning Commission (NIPC) and the Chicago Area Transportation Study (CATS), to protect natural resources and minimize traffic congestion for the seven-county extended metropolitan area. Metropolitan Portland, Oregon, has coordinated development by imposing an urban growth boundary to promote compact development and protect farmland and forests. The twin cities of Minneapolis and St. Paul collaborate through their Metropolitan Council on many aspects, notably a tax-base sharing scheme designed to promote livability, competitiveness, equity, and efficient growth. Many of these "special districts" were established as a form of cross-jurisdictional governance for one or a set of specific functions, such as airports, ports, rail, commuter rail, subway, toll roads, bridges, parks, water supply, irrigation, industrial development, and many others. On an even larger scale, the United States and Canada have collaborated since 1953 on water resources,

hydrologic, and hydraulic management through the Great Lakes Coordinating Committee.

In Japan, the Pacific Belt, or Tokyo-Nagoya-Osaka corridor, is also referred to as the "Tokaido" Megapolis, and a Shinkansen line train (the Japanese high-speed rail) links its more than eighty million residents. In Europe the "Blue Banana" city cluster refers to the urban corridor stretching from Manchester in the United Kingdom to Milan in Italy, with a population of more than a hundred million. There have been some subregional connectivity efforts, including a rail link across four countries, from the port cities of Rotterdam in the Netherlands to Genoa in Italy, and the European Union has adopted a number of policies to promote its regions on a smaller scale.

In Germany, the Hanover and Stuttgart metropolitan regions have elected regional parliaments governing various aspects of planning, including land use and transport for balanced and coordinated development, and public transport including regional rail. They have authority and budget allocations from local governments to operate regional rail, provide traffic management, promote open space protection and initiate regional park development and promote smart-region applications.

Through its regional cooperation programs as well as lending activities, the Asian Development Bank (ADB) has been providing considerable support to city clusters, metropolitan region coordination, and economic corridor development in Asia and the Pacific region. For example, ADB has supported the Greater Mekong Subregion (GMS) and Central Asia Regional Economic Cooperation (carec) through lending programs. In Bangladesh,

India, Nepal, and Sri Lanka, city and economic cluster development has been supported through technical assistance and (for Bangladesh, India and Sri Lanka) also through loan projects. In the PRC, ADB supports cities, city clusters, and cross-jurisdictional environmental management and assists with policy development to enable innovative eco-compensation mechanisms.

Benefits from Coordination across Local Administrative Boundaries

Effective city cluster governance and institutional development in the PRC would unleash a wide range of benefits—benefits that should spur more serious interest in mega-urban region integration in other parts of the world. These benefits are:

- Improved *connectivity* and social protection system reforms could enable an *integrated labor market*, while reducing time needed for daily commutes.
- *Integration of economic clusters and regions* could enhance competitive advantages through more specialized spatial development. City clusters have a broader economic base, yet can still market themselves with a cluster-scale, place-branding campaign.
- *Coordination of land-use planning* could lead to more land use efficiency through better demand-based planning of residential, industrial, commercial, and institutional land. There would be less sprawl and a lesser likelihood of excess development land. City clusters will thus be more sustainable, livable, inclusive, and competitive. Larger, medium-sized, and smaller cities (and even towns) could be increasingly linked by intercity commuter rail transit. Meanwhile, at the micro level, compact,

walkable, mixed-use places could be encouraged, with an emphasis on transit-oriented development around existing and new public transit and/or regional rail stations.

- *Coordination of connectivity, transport networks, and public transport as well as linking rural places to the fiber-optic network* could contribute to urban-rural integration and benefit rural residents. Innovative last-mile services would also help to connect rural homes and villages.
- *Coordinated green open-space planning, and environmental protection* in the form of linked open-space systems, could be planned and implemented—including parks, farmland, forests, river estuaries, and wetlands. Together these would provide multiple ecosystems services and generate many cross benefits. These services include habitat networks for biodiversity, recreation, agricultural production, nonmotorized transportation, as well as management of pollution and flood risk. The open space system could link ecosystems and rural services to urban areas, and promote climate change resilience as well as agricultural production and distribution and recreation.

Together these approaches will contribute to further economic development and urban-rural integration, improving access to jobs and services by rural residents.

How to Build Successful City Clusters

China's achievements so far have resulted primarily from *top-down* policies and infrastructure systems (e.g., national high-speed rail networks within clusters) and also from *bottom-up* governance and investments (including municipal-level *hukou* reform and infrastructure such as subway networks).

Top-down national policies include the industrial policies discussed above, as well as a range of spatial development policies like *functional zoning* on a national scale. Functional zoning classifies areas ranging from development concentration zones to no-build zones conserving green open space (aka the "environmental red line"). National spatial policies also include urban-rural integration, rural vitalization, and *hukou* reform. National infrastructure investments have significantly improved city cluster connectivity and services. High-speed rail, highways, waterways, airport and port planning, electricity production and transmission, south-to-north water transfer, and other projects have also bolstered the city clusters. The high-speed rail network already connects many of the first-, second-, and third-tier cities within the city clusters, and enables daily commuting for workers and students between the major centers, plus equally important intermittent economic travel, such as when managers travel to meet suppliers. For example, travel on the Beijing-Tianjin and Guangzhou-Shenzhen lines takes half an hour (just an hour for Shanghai-Nanjing), bringing workers and companies within daily commuting distance.

Bottom-up achievements come primarily from municipal-level policies and infrastructure—including subways and road networks, water supply and other public goods and utilities, pilots for *hukou* reform and social protection systems, urban-rural integration, and rural upgrading pilots that have created benefits across municipal borders. While still at early stages, a number of accomplishments in pioneering mega-urban region governance in the PRC originated locally, and some were led by national and/or provincial level government agencies.

Coordinated governance and institutional development. The BTH city cluster has been formally cooperating since 2005. It now holds regular high-level meetings plus working groups on policies in areas of air pollution reduction and environmental management, industrial relocation, connectivity, and transport. Even older than BTH, the YRD (Yangtze River Delta) Council was established in 1992 and assists in a variety of coordination efforts. Similar efforts are underway in the Pearl River Delta Greater Bay Area. The ADB is supporting the Yangtze River Economic Belt national policy with a $2 billion program from 2018 to 2020, including projects in CYR, ChengYu, urban and urban-rural development, transport, environment, agriculture, and natural resources, with the national government offering supportive policies and additional funding programs.

Economic cluster development coordination. Within clusters, the relationship between cities has primarily been one of competition to attract companies, jobs, and qualified workers. More benefits could be harnessed from improved cooperation on cluster-wide development, place-branding, and tourism marketing—all of which would generate greater economic benefits for the clusters as a whole. In the BTH region, industrial cooperative organizations have been formed, such as the Technology Transfer and Collaborative Innovation and Cultural Industry Development Alliance. In the YRD, the Synergy Industry Fund was founded in 2018 to support biotechnology and the Internet of Things. The YRD plan aims to become a high-value-added modern economic cluster with a globally competitive service economy and intelligent manufacturing. It includes investment plans for a 5G network across the region. The GBA plan aims at competing globally as a new digital technology region. Between 2012 and 2016, patent registration has been growing at an annual rate of 34 percent, putting the

GBA, especially Shenzhen-Hong Kong, among the top three in the Global Innovation Index in 2017. The GBA is promoting the Guangzhou-Shenzhen Science and Technology Innovation Corridor, where many of the Chinese tech giants are already located.

Labor market integration and coordination of public facilities and services. Recent achievements in the area of connectivity improvements have enabled convenient commuting for workers, employees, technical staff, and workers, and especially travel between the large cities within the clusters. The introduction of a nationwide residence card system and policies promoting the portability of social protection schemes within greater Beijing and greater Shanghai have been important in facilitating labor market integration. Workers now have the opportunity to access more jobs and widen the potential workforce pool for companies. Still, further improvements integrating labor markets across city clusters are important for inclusive and economically beneficial development. City clusters greatly benefit from labor mobility and the coordination of higher education, technical training, health services, and transferability of social insurance, particularly related to pensions. In prd/gba, the Guangdong Province Government provides free vocational skills training in rural areas. Health care centers have been established in all towns and villages. Rural migrant workers are given access to insurance schemes for unemployment, retirement, work-related injury, and medical and health care throughout the PRD. Three local governments in Guangzhou, Shenzhen, and Zhuhai established a talent cooperation demonstration zone in 2012 to promote the mobility of talents so that (for example) Hong Kong and Macao residents can be exempted from local employment permits.

Land use planning and land use efficiency. Nationally there have been significant achievements in the areas of large-scale infrastructure, special economic zones, and functional zoning, but coordination across boundaries within city clusters has still been limited. Local governments have an interest in preserving their authority over land use planning and urban expansion planning due to the important revenue source from land leases. This interest might result in reluctance to give up local land-based development, and so may lead to some level of continued overdevelopment and sprawl. In BTH the Land Use Master Plan for Coordinated Development (2015–20) defines four kinds of regional spatial development patterns and clarifies land use principles. The PRD had already prepared a Plan for Coordinated Development of PRD Cluster (2004–20) which also includes a regional open space system.

Connectivity and transport networks and public transport. Nationally directed high-speed rail, highway, airports, ports, logistics, and waterway infrastructures have greatly improved connectivity within and across city clusters. The gap between strong national and strong municipal systems, however, results in a transport system service gap—an area where the PRC can learn from international clusters. Generally, public transport and road infrastructure is not designed to serve the entire city cluster region. In some cases, infrastructure literally stops at administrative boundaries. Beijing, Shanghai, and Guangzhou's subway systems, however, pass beyond the municipal boundaries. Recent BTH city cluster transport plans aim at an improved intercity railway system that connects all the prefectural-level cities and higher. The plans encompass the construction and integration of a seventh ring road, and include an intercity commuter rail network linking cities within the cluster. In 2018, the YRD governments signed an

agreement to promote the strategic planning of a regional railway network and coordinated development of civil aviation, including connecting all dead-end highways in the region. They plan to invest in a highly innovative Hydrogen Corridor as the first interprovincial infrastructure of its kind, in order to promote hydrogen energy infrastructure and hydrogen fuel cell vehicle development throughout the YRD. In prd/gba, both the Hong Kong-Zhuhai-Macao Bridge and seamless high-speed rail service linking Hong Kong with the PRD started operation in 2018.

Green open space planning and environmental protection. Higher-level policies and municipal-level planning have bolstered green space planning and environmental protection. This includes identification and implementation of national environmental red lines, protection of unesco world heritage sites, national and provincial natural and heritage parks, water source protection areas and farmland. Continued rapid urban expansion, however, poses a threat to natural and agricultural green land especially within city cluster areas in the PRC. The BTH Coordinated Development of Ecological Environmental Protection Plan, released in 2015, defines open space protection for the entire BTH region, sets a limit for resource consumption, and defines its own water and air quality standards. Local governments in the BTH cluster successfully cooperate on environmental management like air pollution reduction and eco-compensation policies and projects (both with ADB support). The YRD has a quota of at least 15 percent of the land area to be designated as protected open space. The PRD completed its Green Road in Nine Cities project in 2010, which won the United Nations Habitat Award in 2011. Recently the PRD started to implement its National Forest City Cluster Plan (2016–25), aiming at ecological security and identifying many ecological projects.

Learning from Each Other

While urban regions of similar magnitude exist in the United States, Europe, and Japan, effective governance coordination in these countries only exists on a smaller, metropolitan scale. Those tasked with guiding city clusters can learn from the Chinese example—as well as the reverse. The United States and other Western countries need bold infrastructure investments of the sort that the PRC has made, and effective industrial policies as well. Together infrastructure and industrial policy are the twin pillars of national and city-cluster-scale initiatives, and they can trigger economic transformation and better spatial integration.

Meanwhile, China needs to learn from the West that horizontally arranged governance also has a place—for example, in the form of regional parliaments or agencies with authority over land use, transport, and open space planning. Horizontal cooperation can achieve beneficial results by involving all the stakeholders in major projects. In particular, American-style "special districts," formed as legal entities and financed across administrative boundaries (often with national funding), can help to manage resources and infrastructure such as airports and ports.

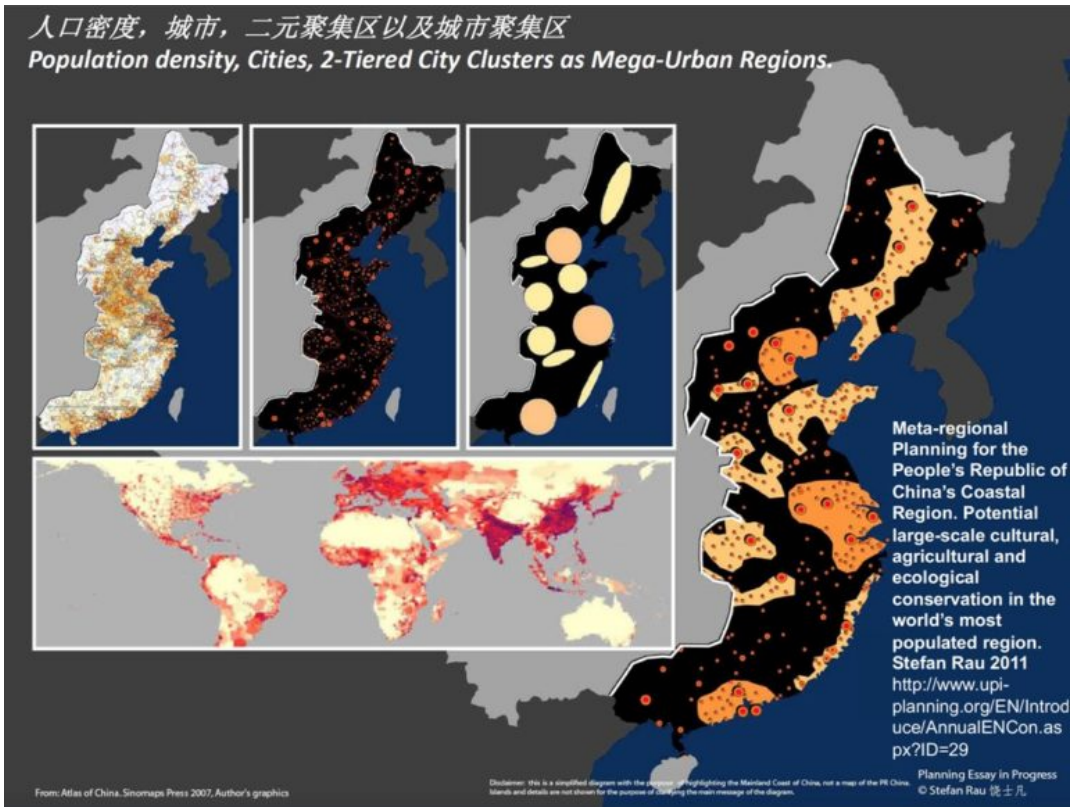
City clusters show promise in the difficult task of navigating uncertain economic growth in the twenty-first century, while preserving and advancing existing industrial gains. China and the West both need to establish institutions with clear authority over key areas of planning and management at a cluster-wide scale. Budgets are needed for key infrastructures, along with authority over a sustainable source of revenue.

To be effective and reap expected benefits, cluster-wide governance authorities must have responsibility over a wide range of areas: *transport infrastructure* (regional intercity commuter rail, logistics centers, and intermodal transportation hubs); *integrated labor markets* with improved connectivity and regionalized or even nationalized social protection systems; *coordinated public service facilities* in higher education and health; enhanced *regional-scale land use planning* to avoid leapfrogging and sprawl. Small cities, towns, and villages must be integrated within cluster economies to reduce the divides in urban-rural incomes, wealth, and services.

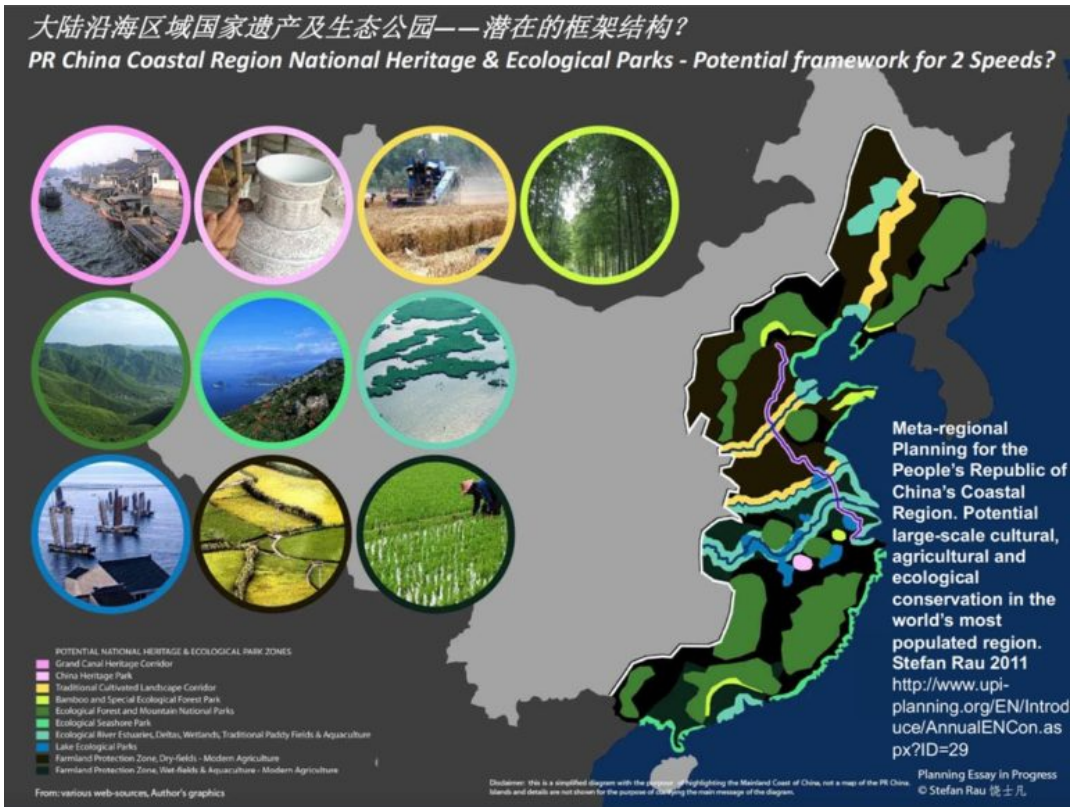
While city cluster planning in China is anticipated up to 2035—a period described as a "New Era" guided by President Xi Jinping—a longer-term perspective is also important. Land uses, public right-of-way systems, trunk infrastructure corridors, and asset investments as well as formally protected open spaces will remain for much longer periods. For the year 2100, the United Nations predicts that the total population of the PRC will decline significantly from about 1.41 billion today to between 0.7 and 1.05 billion, depending on birth rates. National plans and city cluster plans should be regionally differentiated to be strategic, robust, and flexible to adjust to these scenarios.

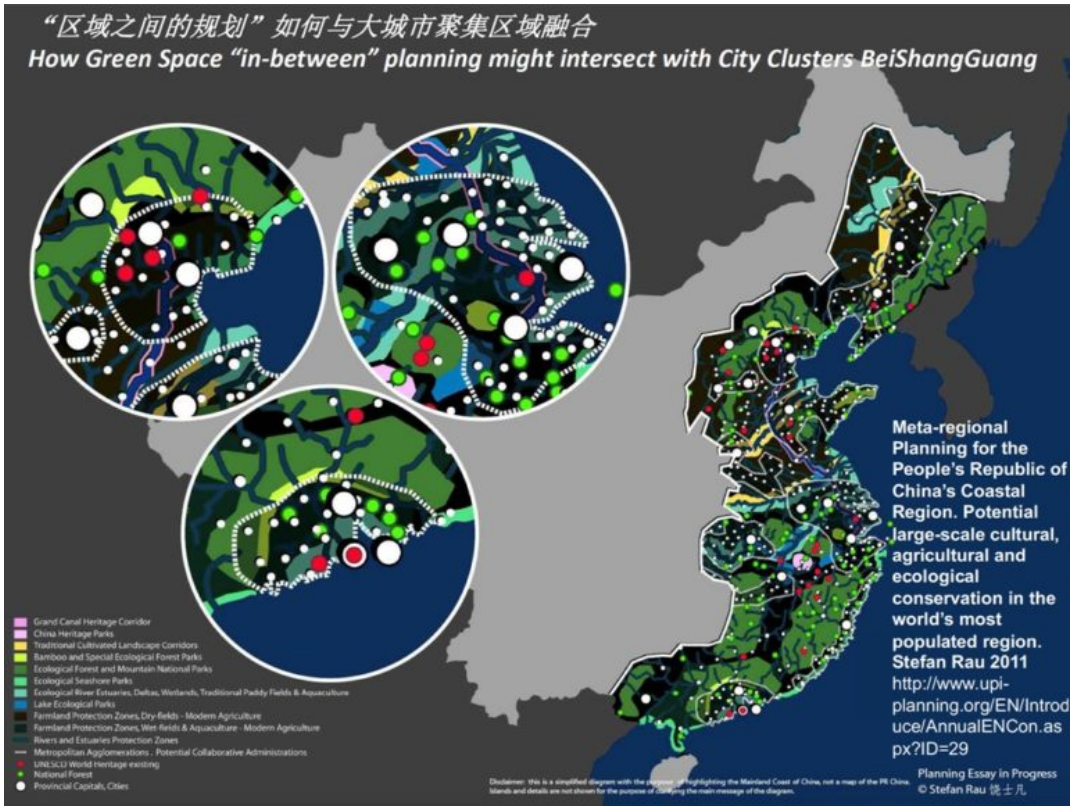
In the long term it will be crucial to preserve scarce green land resources and effectively plan green open space systems and protect the natural environment, biodiversity habitats, wetlands, water source protection, farmland, cultural heritage, and to ensure significant benefits from multiple ecosystems. The increasing urbanization and concentration of urban development in the PRC's city clusters, and megacities in particular, will benefit from a *territorial system of two speeds* that complement each other.

First, a *high-speed* system of the most economically robust clusters of world-class and second- and third-tier cities, together with their hinterlands, is needed, with clearly defined urban areas and restrictions on land development. Combined, this will help to avoid extensive land consumption and oversupply of industrial, commercial, and residential land. Second, *slow-speed*, large-scale green open space systems are needed, consisting of protected natural, agricultural, and cultural land. These should be elevated as national and provincial parks, in order to provide a range of ecosystems services (including recreation), and to offer people a choice not only of urban but also of traditional rural and more nature-based lifestyles. Both types of spaces are essential for competitiveness and well-being, and for climate resilience and low-carbon development on a large scale. As the world is increasingly divided into urban and rural geographies and populations, new forms of equitable partnerships may be needed.



This approach represents, in our view, the optimal spatial framework for the extended coastal region of the PRC, one of the most densely populated areas in the world. The concept is a hierarchical city cluster system with concentrated development zones, representing a high-speed area of urban and economic development. This would be accompanied by a framework for a complementary system of a large-scale, protected national park system, representing a slow speed of highly restricted development and natural and heritage protection, offering a diversity of territories and lifestyles, ecosystems services, climate resilience and recreation, balancing urban development with green space protection. Such balance would offer two forms of equally valuable models of development that would mutually benefit one another.





Development of urban regions in the United States has long offered a model of economic development requiring less assertive governance structures across its most economically prosperous zones. Coordinated planning efforts

across American city clusters, however, have been difficult to implement, and perhaps lessons can be learned from the PRC, such as the benefits of clearer industrial policies for each mega-urban region, as well as more extensive public infrastructure investment and better facilitation of private infrastructure investment. The situation of Chinese city cluster governance, while still at early stages of development, offers useful lessons in these areas.

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