11 Large Infrastructure Projects

The Emergence of Corridors in Asia

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Abstract
Asia is witnessing a substantial increase in large-scale infrastructure projects, often in the form of regional corridors. In this chapter, we analyze the emergence of corridors in Asia and attempt to place it within the economic, political, and social contexts within which this emergence is taking place. We delineate the key characteristics of Asian corridors and examine cases of Japan, India, and Malaysia to draw out their common characteristics. We argue that corridors are spatial forms seeking to integrate regions by transcending existing political and economic boundaries while remaining tied to a particular set of economic objectives. In our conclusion, we argue that in order for corridors to effectively integrate regions, the objectives of corridor planning need to be broadened.

Keywords: corridors, Asia, infrastructure, planning, regions, economy

Introduction

An examination of the spatial and economic landscape in Asia reveals that the continent is witnessing a substantial increase in large-scale infrastructure projects, often specifically in the form of regional corridors. These corridors are typically planned industrial, economic, or infrastructure projects, covering large geographical areas, often spanning national borders. They often focus on improving economic growth, trade, and industry and are strongly linked to the economic plans and strategies of their host nations.

Corridors have become ubiquitous in Asia. The Asian Development Bank (ADB) is funding a series of corridors that spans across China, Myanmar,

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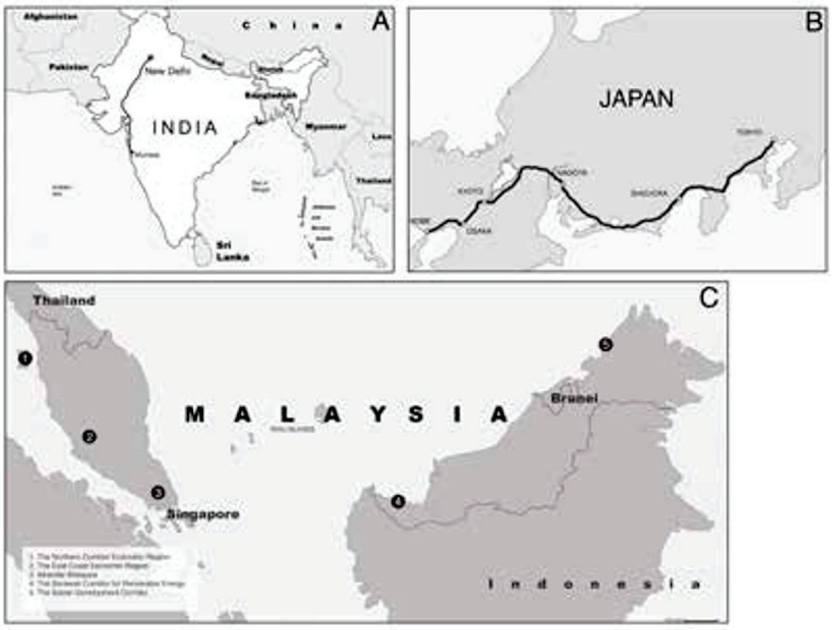
Figure 11.1 Corridors in (A) India, (B) Japan, and (C) Malaysia



Maps drawn by Ariel Shepherd

Vietnam, Thailand, Cambodia, and Laos under its Greater Mekong Sub-Region Economic Co-operation Program (Asian Development Bank 2016). In Central Asia, a series of corridors are being planned under the Central Asian Regional Economic Co-operation (CAREC) program, presumably to improve trade and industrial links between Central Asian nations, while acting as conduits between East Asia and Europe (Asian Development Bank 2014). Malaysia already has a series of industrial corridors while India is currently developing a similar set within its national borders, linking major urban centers such as Delhi and Mumbai. More recently, the People's Republic of China embarked on an ambitious project called One Belt One Road (OBOR) or the Belt and Road Initiative (BRI) that seeks to capitalize on the historical Silk Road network as well as linking major seaports along Asian coastlines (Rolland 2015). The government of Japan has even proposed a "peace corridor" in the Middle East, involving Israel, Palestine, and Jordan, to promote regional co-operation (Ministry of Foreign Affairs of Japan 2006).

In this chapter, we analyze the emergence of corridors in Asia and attempt to place it within the economic, political, and social contexts

within which this emergence is taking place. We first outline the spatial, economic, and political contexts within which corridors have begun to emerge in Asia. Following this, we outline the key characteristics of corridors in Asia and examine specific cases of Japan, India, and Malaysia to draw out common characteristics of corridors. We argue that corridors are primarily spatial forms that seek to integrate regions by transcending existing political and economic boundaries while remaining tied to a particular set of economic objectives and goals. In our conclusion, we critique this notion and argue that in order for corridors to effectively integrate regions, the objectives of corridor planning need to be broadened.

We also acknowledge the link between corridors and urbanization processes taking place across Asia at the moment. As more regions across Asia become urbanized, corridors are emerging as spatial forms that integrate disparate urban centers into more cohesive regional areas. The corridor acts as a site for many of the opportunities and challenges of the Asian city presented in this book to play out at a regional urban scale. Such transformations are not just physical but also economic and political, with corridors often operating under their own governance structures, independent of local governments, formed with specific economic or business agendas. It also throws open the arena for complex ownership and environmental contestations in the middle of these novel governance regimes. When integrated with other types of large-scale infrastructural development (such as the development of megalopolises or smart cities), Asian corridor projects can have significant impacts on patterns of urbanization in the continent. We can expect comparable trajectories of urbanization and challenges in Africa and Latin America, which are experiencing a similar development of economic corridors.

The introduction to this book mentions that recent years have seen a radical change in the form, nature, and extent of urbanization across the globe. Previous assumptions of "cities" being "qualitatively specific" and distinct from nonurban spaces are now being revised, while the "urban" can no longer be seen as a particular type of settlement. We believe that corridors represent an important factor in this shift of thinking. Corridors differ from conventional notions of cities not only in terms of physical and spatial characteristics; they are also singularly representative of urbanization taking place at larger scales than those of conventional cities. As a result, they recast the notion of what is conventionally "urban," and by extension, induce us to re-examine our notions of urbanization.

The contexts for the emergence of corridors: Transformations in economic planning leading to changes in the role of space

Asia's socioeconomic and political landscape in the latter half of the twentieth century was varied – Japan was rebuilding its economy after World War II, Vietnam was fractured through a conflict with the United States, China adopted a communist style of government characterized by projects such as the Great Leap Forward, Singapore focused on integrating itself with world markets as a center for international trade, and India adopted a mixed-economy model with heavy emphasis on public-sector dominance and large public projects. By and large though, there seemed to be a recognition that economic planning needed to be carried out at the national level, with a country's national government designing plans and strategies to increase growth, development, and well-being. The nation-state, therefore, was the predominant political and economic entity on the world stage. This was reflected in plans and strategies as well – for instance, India's political structure gave greater powers to the central (national) government than to the states, while its five-year economic plans placed a strong emphasis on achieving national goals.

These notions of planning began to be challenged toward the end of the twentieth century. The earliest challenges came from within the nation-state model itself, as certain nation-states witnessed increases in growth and development by integrating themselves more closely with international markets. Japan was a key example, as it created an environment where Japanese companies could produce and export large numbers of automobiles and electronic goods to European and American markets. Singapore became another example: its early focus on becoming a center for world trade paid off in terms of high economic growth and prosperity.

However, the argument against relatively closed markets received a boost in the 1990s. The collapse of the Cold War order was succeeded by a growing international emphasis on globalization. This included the establishment of the World Trade Organization in 1995 and the adoption of global agreements such as the General Agreement on Tariffs and Trade (GATT) by a large number of countries. The export-oriented growth model was taken up by a number of Asian countries, including South-East Asian economies such as Thailand and Malaysia. While the Asian Financial Crisis of 1997 brought out some challenges to this model, the subsequent global rise of China on the back of cheap exports ensured that it continued to be espoused in Asia.

This period witnessed the emergence of new entities that challenged the dominance of the nation-state as the major economic actor on world

markets. Multinational companies, private corporations operating across national jurisdictions, grew in prominence. In countries like China, city and regional governments were given greater autonomy, allowing them to devise separate economic strategies to bring in investment. The opening of national economies to world markets was frequently supported by international entities such as the World Bank and the IMF, which often made such liberalization and globalization strategies a prerequisite while providing financial support to countries (Stiglitz 2003).

As the heterogeneity of actors on the international stage increased, perceptions of geographic space with respect to economic plans and strategies changed as well. During the early postwar period, geographic space was seen as subservient to the plans and strategies of the nation-state and, therefore, the transformation of space reflected the dominance of the nation-state as an entity. One such example was the creation of steel towns such as Bhilai and Bokaro in central India – while ostensibly planned with multiple objectives (including the development of economically "backward" regions), a key goal of steel towns was to facilitate the production and distribution of steel in the national economy. The spatial structure of the steel town was often that of an autonomous township, with a governance structure independent of the local political system, nevertheless subject to direct control by a public sector company operating under the national government.

As the economic and political landscape changed, so did perceptions of geography. On the one hand, national borders were increasingly seen as porous, open for business to certain multinational actors and multilateral institutions. On the other hand, the simultaneous opening of economies across the world saw an increase in investment choices for global capital, leading to competition between locations to attract investment. Thus, while national borders on the whole became relatively less important, the nature and characteristics of the country, the state, and the location became increasingly crucial to attracting investment. Highlighting comparative advantages of a particular location for international investment became a major exercise for governments at all levels.

These changes had an impact on spatial planning. Cities and regions were no longer planned for national but for international markets. The Indian steel township in a remote location gave way to information technology parks located in prominent metropolitan areas, themselves aspiring to become world-class cities. Infrastructure such as airports, highways, and Internet connectivity became tools to highlight comparative advantages in location. Economic policies were restructured to reduce barriers to international business.

Simultaneously, the new fluidity of national borders led to changes in the structures of production chains across the world. It became easier for multinational businesses to break their production activities down into smaller components, and relocate specific components of the chain to cheaper places. China became the receptacle for many such manufacturing activities (such as component assembly) while India and the Philippines specialized in outsourced service-based activities such as call centers. Production chains could now be dispersed across multiple locations.

As a result of these changes, the goals of the nation-state transformed as well. While nation-states still pursue an ostensible national agenda, the goal is rarely to create a self-sufficient national market for goods and services. Instead, the last 20 or 30 years have seen a much greater emphasis on generating welfare by integrating specific locations within the country to international markets. Due to the emphasis on location, spatial strategies are reoriented toward transforming the given location to address global and international requirements.

The emergence of the corridor in Asia as a dominant spatial and economic form in recent years needs to be seen as a later stage in the transformations described above. The development of a fractured global economic landscape where multiple locations compete with each other to attract capital investments has increased incentives for proximate locations to consolidate into larger regions, combining comparative advantages of each separate location.

Characteristics of corridors

Asian corridors share some common characteristics. First, they emphasize the development of large-scale infrastructure which link economically vibrant or productive regions. For instance, the Delhi-Mumbai Industrial Corridor (DMIC) in India is positioned around a freight railway line connecting the states between Delhi and Mumbai (Anand et al. 2015). Apart from the fact that Delhi and Mumbai are significantly vibrant regions in terms of economic and industrial growth, the DMIC also passes through Indian states such as Gujarat and Maharashtra, which have historically been some of the more economically well-developed parts of the country (Anand et al. 2015). On the other hand, the CAREC Corridors in Central Asia emphasize the importance of linking key international markets across Central Asia (Asian Development Bank 2015, 6-11). China's OBOR or BRI makes similar arguments, linking nearby countries on the traditional silk routes through transportation infrastructure (Dollar 2015).

The emphasis on linkage is also accompanied by a demonstration of crossing or transcending existing boundaries, some of which are international political borders. The argument often made is of a need to integrate hitherto separated regions, under the assumption that such integration is economically beneficial for the combined geographical area. Therefore, corridors are seen as transcendent spaces, with physical infrastructure serving as a mechanism to "fly over" existing political and physical boundaries for the sake of economic growth and development. Thus, many corridors in Asia are not restricted to a single country, but span multiple countries with differing political, social, and economic characteristics. Even in examples where corridors are restricted to single countries (such as India), corridors cross multiple state boundaries and there is often an emphasis on creating integrated regions which transcend individual states. Furthermore, corridors restricted to individual countries can also be planned with the idea of extending them across international borders in the future. For example, corridors being developed on India's east coast are being linked to projects in the larger South Asia subregion, including countries like Bangladesh and Myanmar (ENS Economic Bureau 2016).

At the same time, it should be noted that these corridors do not focus merely on linkages or linkage-based infrastructure. Many of them span vast geographical areas, covering significant portions of the countries they are based in, and proposals usually emphasize the economic and industrial development of the regions they cover. For instance, while India's DMIC uses a freight railway line as a reference for its alignment, the "project influence area" (i.e., the geographical area which the DMIC is expected to affect in terms of economy and development) covers 150-200 km on either side of the freight line, thus covering significant portions of the six states it passes through (Department of Industrial Policy and Promotion 2007). Similarly, each corridor in Malaysia's MyCorridor project spans a significant section of the country, with the combined set of corridors affecting every major region in Malaysia (MAMPU 2012).

Additionally, the corridor is not a single or unitary form but can encompass multiple spatial economic forms within it. Apart from railway lines and road links, corridor projects often involve the development of industrial and urban spaces. These could include factories, office complexes, industrial parks, logistics parks, ports, industrial townships, airports or aerotropolises, special economic zones, investment regions, and smart cities. Very often, a corridor can include a range of such spaces, ostensibly planned to utilize the comparative economic advantages of each subregion within the corridor, thereby increasing the economic potential of the corridor as a whole.

These spaces can be individual projects in themselves, often implemented somewhat autonomously from the corridor and thus constitute individually significant investments of capital and labor.

Lastly, a common feature of these corridors is that their development is undertaken by a range of national and international entities, with stakeholders from both public and private backgrounds. At the same time, the institutional structures of corridor planning seem to replicate the physical emphasis on linkages, cross-boundary integration, as well as the focus on economic, trade, and industrial development. The development of India's DMIC, for instance, involves government bodies for industry and commerce (at both national and state levels) and the expertise of private consultants, with significant funding and support from the Japan Bank for International Co-operation (JBIC) and, hence, the government of Japan. Similarly, China recently spearheaded the creation of the Asian Infrastructure and Investment Bank (AIIB), a ten-nation-member entity to fund large-scale infrastructure for economic development in Asia (and presumably, the OBOR or BRI project).

At the same time, parties and entities who have stakes in the same geographical areas can be left out while other entities can be brought in. For example, on one hand, in India, local governments of existing cities falling within the project influence area of the DMIC are not included in the planning process (Anand et al. 2015). On the other hand, the DMIC specifically envisions the creation of special-purpose vehicles (SPVs) for new cities being developed in the corridor (Department of Industrial Policy and Promotion 2007). Therefore, just as the corridor is seen as a transcendent space that moves across existing boundaries, the planning and governance structures of the corridors also function in administrative domains which ignore traditional jurisdictions, based upon logics different from conventional spatial planning.

This brings us to a final but important feature common to corridors, which is that administratively they also allow for a blurring of the boundaries which conventionally existed between economic and urban planning. While the boundary between the two has never been rigid, the past few decades have seen a steady erosion of the same, with the development of cities being strongly associated with larger goals of national and state economic development, rather than the creation of spaces for people to live and work in. Specifically, this erosion has manifested itself in the argument of cities as "engines of economic growth" (Cadena et al. 2011, 21), the need for "world-class" cities to attract investments (Flowerdew 2004; Pandey 2016; Ghertner 2015), the rise of city-sized special economic zones (or SEZs) (O'Donnell 2011),

and, most recently, in the emergence of the "smart city" narrative (McNeill 2015). The corridors in Asia, envisioned as they are today, essentially involve the transformation of large geographical spaces to produce previously determined economic outcomes. In short, they can become the regional equivalent of the "engines of economic growth" argument and, therefore, create an opportunity for large-scale production of urban spaces oriented toward economic objectives.

The case of Japan

The economic advantages of such an integrated region were clearly realized in Japan. In the 1970s and 1980s, the Japanese government began constructing a high-speed rail link between Tokyo and Osaka. Over time, this construction of a rail link morphed into the general development of infrastructure around this linked region. This led to the development of what is today known as the Taiheiyo belt or Tokaido corridor, an integrated economic region in Japan that is responsible for generating a majority of the country's growth and housing most of its residents.

Unlike more recent examples, the Japanese corridor experience was not initially planned as such. The modernization of rail and road links in Japan took place under the country's second postwar national plan of 1969 in response to externalities which arose from previous planning experiments. Tanimura et al. (2001) note that the first national plan of 1962 emphasized a "growth pole" theory of industrial decentralization where a number of new industrial centers were developed, mostly along Japan's Pacific coast. Apart from the fact that the nation's infrastructure was inadequate to meet the increased demand from high economic growth, the first plan's development strategies took place at the expense of environmental pollution (Tanimura et al. 2001). This lead to a rise in citizen protests against industrial plants and highway interchanges (Sorenson 2005).

The second national plan therefore aimed to improve transportation networks, allowing people from anywhere in Japan to conduct business in Tokyo in just a one-day trip (Tanimura et al. 2001). Additionally, following the establishment of an urban policy forum that emphasized the need to formulate an integrated national policy on land use, it sought to relocate large industrial establishments away from major metropolitan centers (Tanimura et al. 2001). The 1960s also saw a new city planning law that was aimed at containing sprawl (Sorenson 2005). The establishment of high-speed rail corridors and integrated highways in Japan need to be seen in these contexts.

Furthermore, Japan's third national plan of 1977 shifted the focus from migration to "social stabilization." This plan period saw the emergence of an "integrated settlement zone" concept based on using drainage regions as a unit to achieve balance between available water resources and water demand. At the same time, under the Masayoshi Ohira government, the "garden city" concept, aimed at balancing countryside and urban growth, became popular (Tanimura et al. 2001). The combination of integrated settlement zones with concepts such as the garden city along with an emphasis on social stabilization resulted in the growing prominence of integrated regional planning in Japan.

At the same time, the emergence of the Tokaido corridor needs to be seen in the context of systems of governance that existed in postwar Japan. Planning in Japan has been strongly influenced by heavily centralized governance systems directed by the national government. Sorenson argues that though independent local (prefecture) governments and a decentralized planning system were formally adopted after World War II, their implementation was stubbornly resisted by central government bureaucracy (Sorenson 2005). Though 80% of all government spending takes place at the local level, local governments have autonomous control of only 30% of total revenues. The remainder is provided from the center in the form of specific grants whose content is controlled by central government ministries (Tanimura et al. 2001). Furthermore, the chief policy maker for prefectural governments is often an official appointed by the center (Tanimura et al. 2001).

It can be argued that the strict control of planning by central governments has led to a situation where national and regional agendas were given greater priority over local objectives. Furthermore, this centralization was accompanied by an ideology of the developmental state (Johnson 1982, 17-19), which placed heavy emphasis on national reconstruction (following World War II) and rapid growth.

The Tokaido corridor in Japan is one of the earlier examples of industrial and economic corridors which emerged in Asia. While it was not initially planned as such, it evolved through a combination of national and regional planning strategies implemented by a governance system strongly controlled by a centralized bureaucracy. By most measures it is a success, concentrating much of Japan's manufacturing and population. Given the position of Japan as one of Asia's biggest and most successful economies in the twentieth century, the success of its corridor experience led to its emulation by other countries such as India and Malaysia in later decades. In other words, the emergence of the corridor as a model of spatial and economic planning in Asia is heavily rooted in the Japanese experience.

The Indian and Malaysian examples

Lisa Hoffman, in her study of China, notes that modeling as a mode of governing the urban draws on disparate rationalities, sites of actions, and ways of knowing (Hoffman 2011). Urban governments across China have been encouraged to reach environmental targets by adopting measures and governmental rationalities proven elsewhere, such that the interreferencing of cities itself has become an "embodiment of the implementation of urban sustainable development" (Hoffman 2011). The corridor serves as an example where interreferencing has moved beyond cities to cover larger regions. As mentioned by Hoffman, the "model" of a corridor can be built with elements drawn from multiple rationalities, sites, and bodies of knowledge, and are then physically brought to life at regional and international scales (Hoffman 2011).

The success of Japan's Taiheiyo belt and the Japanese experience of urban and regional planning has been particularly successful in serving as such a model for corridors in Asia. While Japan's historical experiences can differ from many other Asian countries, there are certain similarities, such as the strong centralization of governance, the five-year planning exercise, the yoking of local governments to national objectives, and relatively weak nongovernmental and civil society actors, which allow for other countries to see themselves in positions similar to Japan, thereby rationalizing the need to replicate experiences such as the Taiheiyo belt.

Japan is not the only Asian country whose experiences are referenced by her neighbors – China, South Korea, Singapore, and the UAE are also frequently referenced within Asian planning, to say nothing of experiences from the West and the Global North. Nevertheless, the Japanese experience is interesting since Japan itself has been deeply involved in promoting and developing regional infrastructure projects across Asia. Apart from directly funding projects through agencies such as the Japan International Cooperation Agency (JICA), it is also a significant contributor to multilateral bodies such as the Asian Development Bank (ADB), which in turn funds several corridor projects in Southeast and Central Asia. Furthermore, it remains an enthusiastic promoter of the corridor model. Thus, the casting of a corridor as a model that can be emulated across countries has both push and pull factors. Several Asian countries have adopted this model and are experimenting with it in their own contexts.

We now examine two such planned corridors, in India and Malaysia. Both these projects are located entirely within one country, are envisioned to cover significantly large sections of their respective countries, and engage a

multiplicity of actors while at the same time being envisioned and curated by their national governments. Both projects began roughly around the same time, in the mid-to-late 2000s. Both of them informally reference other Asian examples.

A prominent example of large-scale corridors in India is the Delhi-Mumbai Industrial Corridor (DMIC). The DMIC was conceived as a "model industrial corridor of international standards with emphasis on expanding the manufacturing and services base and develop DMIC as the Global Manufacturing and Trading Hub" (Department of Industrial Policy and Promotion 2007). It spans six states in the north and west of India: Uttar Pradesh, Haryana, Rajasthan, Madhya Pradesh, Gujarat, and Maharashtra, and the developmental planning for DMIC specifies the following project goals:

- double employment potential in five years (14.87% CAGR);
- triple industrial output in five years (24.57% CAGR);
- quadruple exports from the region in five years (31.95% CAGR).

At the time of the concept paper's publication, the project influence area was estimated to cover about 178 million people, including ten cities with a population of more than 1 million and six cities with a population between 0.5 and 1 million. Economy-wise, the project influence area covers states which together contribute about 50% of the country's agricultural produce from principal crops, and 60% of overall exports (Department of Industrial Policy and Promotion 2007). Thus, it can be seen that the DMIC has been conceived to operate at a relatively large scale, impacting a significantly large section of India's land mass and population.

Similar to the DMIC, the Malaysian corridors comprise projects integrating infrastructure, economic, and industrial development over large geographic areas of the country. Between 2006 and 2010, under the Ninth Malaysian Plan, the federal government of Malaysia announced a series of five economic corridors. According to the website of the Malaysian corridors program, these corridors were an attempt to stimulate global and domestic investment in traditionally rural areas to create balanced development throughout the country. The five planned corridors included the following:

- the East Coast Economic Region;
- the Sabah Development Corridor;
- the Sarawak Corridor for Renewable Energy;
- the Northern Corridor Economic Region;
- Iskandar Malaysia in Southern Johor.

(Malaysia Investment Development Authority, n.d.)

The corridors can cover significantly large regions. The Sarawak Corridor for Renewable Energy, or SCORE, claims to cover an area of more than 77,000 km², affecting a population of more than 600,000 people (Regional Corridor Development Authority 2016b). SCORE claims to build upon the abundant supplies of inexpensive energy resources available within the region to attract energy-intensive industries. SCORE's website claims that as more energy-intensive industries are established in the region, they will form "the bedrock of SCORE strategy, giving a robust boost to the development of the growth nodes which in turn will require training centers and technical colleges to train the population and create a core of skilled workers, thereby raising the living standards of the population." The 2008-2030 development plan for SCORE targets ten priority sectors: aluminum, glass industries, steel, oil-based industries, palm oil, fishing and aquaculture, livestock, timber-based industries, marine, and tourism (Regional Corridor Development Authority 2016a).

Similarly, the Northern Corridor Economic Region (the Koridor Utara) plans to focus on "accelerating economic growth and elevating income levels in northern Peninsular Malaysia with the objective of becoming a world-class economic region by the year 2025" (Northern Corridor Implementation Authority 2016). It occupies the northern states of Perlis, Kedah, Pulau Pinang, and northern Perak (districts of Hulu Perak, Kerian, Kuala Kangsar, and LarutMatang-Selama) to form the region covering an area of 17,816 km². Just as SCORE plans to exploit its comparative advantage in energy, Koridor Utara claims to leverage "the existing economic achievements of the region in electronics, tourism and agriculture, as well as its strategic location bordering Thailand and facing the Malacca Straits" (Northern Corridor Implementation Authority 2016).

Some differences between the Indian and Malaysian corridors can be seen in the economic activities they envisage holding. Malaysian corridors are focused very specifically on specific sectors, such as renewable energy or tourism, while the DMIC's focus is somewhat less focused and more generalized. Nevertheless, they exhibit enough similarities to conform to a general model of corridors.

In India, the Delhi-Mumbai Industrial Corridor Development Corporation (DMICDC) acts as the nodal agency for planning and implementation of the DMIC at the national level. However, many of the planning and implementation responsibilities are shared between the union and the state governments (Anand et al. 2015). Therefore, state governments play an important role in the DMIC and each state has specific institutional structures in place to oversee the planning and implementation of projects at the state level.

The state of Gujarat, for example, has an extensive institutional system for industrial and economic development that it has employed to plan and implement DMIC projects. The state had established the Gujarat Infrastructure Development Board (GIDB) in 1999 via a legislative act (Government of Gujarat 1999). The GIDB was established with the specific objective of allowing participants other than the state to take part in infrastructure construction in the state (Government of Gujarat 1999). The 1999 act also reflects the changing sensibilities in policy circles at the time, when postliberalization governments at both the center and state-level were transitioning from their role in economic development of provider to that of facilitator.

Apart from setting up institutions, the government of Gujarat also had in place policies that allowed for aligning with the objectives of the DMIC. In 2009, the government passed the Special Investment Region (SIR) Act, which allowed the state government to demarcate large territories within its jurisdictions as "special investment regions" (SIRs) (Government of Gujarat 2009). While covering extensive geographic areas, SIRs were designed to be managed by specialized regional development authorities (RDAs) operating under the direct supervision of the state government. All SIRs in the state were required to be supervised by an apex SIR authority (Government of Gujarat 2009). As it happened, the government appointed the Gujarat Infrastructure Development Board (GIDB) to this role (Gujarat Infrastructure Development Board n.d.).

Gujarat was open to the development of the DMIC in the state, given its institutions with a history of facilitating industrial and infrastructure projects as well as its legislation that allowed for setting up large investment regions. The GIDB has been mandated to act as the nodal agency for the implementation of the DMIC in Gujarat, while the SIR Act has been employed to plan and develop nodes along the corridor in the state. With the GIDB mandated as both the nodal agency for the DMIC in Gujarat, as well as the apex authority for SIRs in the state, coordinating the creation of nodes under the SIR Act is presumably simplified. Other states soon followed suit using Gujarat's SIR Act as a template.

There is a SIR being developed within Dholera, the principal node identified within Gujarat, called the DSIR and the GIDB's website mentions that Dholera SIR is "to be the most prime location" within the DMIC in Gujarat. The Dholera SIR website acknowledges the link to the DMIC (Dholera SIR Development Authority 2016a). The project vision for the Dholera SIR also envisages the SIR as a "global manufacturing and trading hub" and "creating and enabling an environment to protect local industries, enhance investment climate, improve quality of life, upgrade human skills, create world class

infrastructure and attract global investment" (Dholera SIR Development Authority 2016b).

Other states have similar institutions in place to oversee and supervise the implementation of the DMIC within their jurisdictions. Rajasthan, for example, has assigned the responsibilities of supervising DMIC projects to the state's Bureau of Investment Promotion (BIP) (Anand et al. 2015). While there may be some differences in structure and jurisdictions of these organizations, the overall emphasis on promoting economic, industrial, trade, and business growth is quite clear.

While there are differences in the contexts of corridor development in Malaysia and India, we note that much of the language and terminology used to describe the agencies in charge of implementation is similar in both countries.

Iskandar Malaysia, for instance, is overseen by the Iskandar Regional Development Authority (IRDA), similar to the DMICDC. IRDA is established under a statutory act, the Iskandar Regional Development Act of 2007, which charges it to

> provide for the proper direction, policies and strategies in relation to development within the Iskandar Development Region, to provide for co-ordination between government agencies to promote trade, investment and development within the Iskandar Development Region, and to provide for matters connected therewith or ancillary thereto. (Government of Malaysia 2007)

The act specifies that IRDA is a corporate body with the power to enter into contracts, acquire and dispose of property. Interestingly, the act allows IRDA to prescribe "national policies, direction and strategies in relation to development within the Iskandar Development Region and other functions" (Government of Malaysia 2007). Though we could not confirm this, this may imply that IRDA has powers to supersede other higher government authorities on matters related to Iskandar Malaysia. If so, this contrasts sharply with India, where state authorities co-ordinate their activities with an overseeing DMICDC.

The Indian and Malaysian corridor experiences serve as useful examples for how the same spatial model – the corridor – has come to be adopted by different countries and adapted to specific national requirements and objectives. In some ways, the corridor is a transcendent space, crossing existing borders and integrating regions which had previously been divided. At the same time, it remains subservient to very specific interests and objectives

operating at national and international scales. These interests are economic and commercial, focusing on a very particular notion of economic development that is tied to formal businesses and industries. Local governments, particularly in the hinterlands of the corridor region, are largely ignored.

Conclusion

In many ways, the pattern of development seen in regional corridors is not different from the modeling and interreferencing of urban experiences across Asia (Roy and Ong 2011). What *is* different is the scale of operation. What was earlier being adopted at the scale of a building, block, or neighborhood is now being applied to cities and entire regions. The adoption of the corridor at international scales, connecting large regions such as the Mekong subregion and Central Asia, promises to cover significant portions of a continent.

In contexts of urbanization processes across Asia, corridor development assumes additional significance. Current models of corridors allow for the spatialization of a very particular type of economic planning, dependent on organized business and industry linked strongly to global supply chains, for development. At the same time, as mentioned above, corridors allow for urban planning experiences to be scaled up, from neighborhoods and cities to regions and countries. However, given that very specific economic objectives are being spatialized within the corridor simultaneously, the resulting set of conceivable urban forms is likely to be limited and specific as well. Special economic zones, industrial townships, information technology enclaves, international financial centers, and export promotion zones are some forms likely to emerge within such corridors. Conventional settlements in the corridor such as villages, towns, and (traditional) cities will either transform to adhere to such forms or operate outside the jurisdiction of corridor authorities, with no formal benefits.

These consequences are important given the large, often deeply heterogeneous spaces that corridors cover. When the planning of heterogeneous spaces becomes subservient to limited and specific objectives, certain other interests in these spaces are often bypassed. In cities, this has led to scenarios of splintered urbanisms. It is quite conceivable that a similar implementation at larger scales could see similar types of splintering. The transformation of space to address economic or industrial imperatives also comes into conflict with alternative trajectories of development which are evolving at the same time in the same geographic locations. As a result, conflicts are likely to emerge over the nature of spatial transformations, their impacts on underlying resources such as land and water, as well as their final impacts upon targeted populations.

Furthermore, there are debates over the potential of such spaces to deliver on their intended objectives. The integration of such spaces with international markets and global value chains renders them quite sensitive to global economic scenarios. Following the 2008 global financial crisis and the consequent recession, the world economy has been characterized by slowing growth and declining trade, leading some scholars to argue that the world economy has entered a period of "secular stagnation" (Dehejia 2016). In any case, demand for exports, as envisaged by projects like the DMIC, are likely to be lower in the near future and as a consequence, stimulus for industrial, export-oriented growth within these newly created spaces is likely to be subdued.

Nevertheless, Asian economies still face significant challenges in delivering adequate standards of living to their populations. Many Asian economies, including India, need to generate high levels of meaningful employment for their working populations, ensure access to resources such as water, and build adequate public infrastructure for education and health – all of which require healthy growing economies. Furthermore, they have to achieve these goals in the face of several serious challenges. Apart from a slowing global economy, a growing emphasis on cheap automation in manufacturing is cutting down the number of manufacturing jobs available worldwide (Michaels and Graetz 2015; Roubini 2014). Most importantly, climate change is emerging as a serious threat to many countries in Asia, rendering large areas and populations vulnerable to disasters such as heat waves, cyclones, and rising sea levels.

It is uncertain at this point to what extent the transformations of space to create sites such as corridors will address issues of development in Asia. In a scenario such as secular stagnation, where an export-led strategy is unlikely to yield significant benefits, the use of space may have to be reoriented more toward addressing domestic markets and demands. Furthermore, it is likely that in the face of factors like climate change, conflicts between different trajectories of development are likely to intensify. In 2015, Indonesia had to grapple with the trade-offs between clearing its peatlands for palm oil cultivation and dealing with resulting environmental destruction and greenhouse gas emissions from the burning of peat (*Mongabay* 2015). In India, conflicts over water between different sectors such as farming and industry as well as between urban and rural populations are increasing (Bhatnagar 2015; Gowhar 2016).

In such circumstances, it may no longer be feasible for spatial strategies to concentrate on singular objectives (such as attracting business or industry); rather, they may need to address and accommodate multiple developmental pathways. It is likely that large-scale developmental projects will need to

address not just the development of industrial or economic infrastructure but also other concerns of environmental conservation, agricultural development, resource-use efficiency, and inclusive, equitable growth. This, in turn, requires the institutional and policy regimes governing these spaces to be significantly altered, allowing for multiple stakeholders and affected populations to be included in planning and strategy.

The evolution of corridors in Asia will also play a crucial role in determining patterns of urbanization in the continent. The formation of integrated urban regions will have significant impacts on the way settlements evolve, particularly if their growth is tied to specific economic factors such as the needs of global supply chains. Urban areas that are economically and politically linked to corridors are more likely to respond to global and international factors than those delinked from corridors, which are more likely to respond to other unrelated factors, even if they are geographically proximate to corridors. An urban landscape may evolve that is economically and politically fragmented at regional and national scales.

Furthermore, as experiences of urbanization scale up to regions and countries, the conflicts and contradictions of contemporary urban planning, previously restricted to cities and towns, will witness new translations at higher scales. Urban theory from Asia will therefore have to deal with new dimensions, scales, and experiences.

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References

Anand, Shriya, Amogh Arakali, Arindam Jana, Jyothi Koduganti, and Neha Sami. 2015. "Manufacturing Cities: Industrial Policy and Urban Growth." Indian Institute for Human Settlements. http://iihs.co.in/knowledge-gateway/industrial-policy-and-urban-growth/.

Asian Development Bank. 2014. "Operationalizing Economic Corridors in Central Asia: A Case Study of the Almaty-Bishkek Corridor." https://www.adb.org/sites/default/files/publication/153330/economic-corridors-central-asia.pdf.

Asian Development Bank. 2015. "From Landlocked to Linked In." https://www.adb.org/sites/default/files/publication/148729/landlocked-linked.pdf.

Asian Development Bank. 2016. "Overview of the Greater Mekong Subregion." http://www.adb.org/countries/gms/overview.

Bhatnagar, Gaurav Vivek. 2015. "Haryana to Approach SC on SYL Canal." *The Hindu*. http://www.thehindu.com/news/national/other-states/haryana-to-approach-sc-on-syl-canal/article6854232.ece.

Cadena, Andres, Jaana Remes, James Manyika, Richard Dobbs, Charles Roxburgh, Heinz-Peter Elstrodt, Alberto Chaia, and Alejandra Restrepo. 2011. "Building Globally Competitive Cities: The Key to Latin American Growth." McKinsey Global Institute, August.

Dehejia, Vivek. 2016. "What Explains the Great Global Slowdown?" *Mint*, 19 March. http://www.livemint.com/Sundayapp/3xPuTVLNtWg18UxR90PpqI/What-explains-the-great-global-slowdown.html.

Department of Industrial Policy and Promotion. 2007. "Concept Paper: Delhi-Mumbai Industrial Corridor." Government of India .http://www.dmicdc.com/frmDownloads.aspx?pgid=43.

Dholera SIR Development Authority. 2016a. "Project Implementation." http://dholerasir.com/projectimplementationframework.aspx.

Dholera SIR Development Authority. 2016b. "Vision for DMIC." http://dholerasir.com/visionfordmic.aspx.

Dollar, David. 2015. "China's Rise as a Regional and Global Power: The AIIB and the 'One Belt, One Road.'" Brookings, 15 July. https://www.brookings.edu/research/chinas-rise-as-a-regional-and-global-power-the-aiib-and-the-one-belt-one-road/.

ENS Economic Bureau. 2016. "With ADB Aid, India to Develop Regional Infra Projects of $5 Bn: Shaktikanta Das" *Indian Express*, 11 May. http://indianexpress.com/article/business/business-others/with-adb-aid-india-to-develop-regional-infra-projects-of-5-bn-shaktikanta-das-2794400/.

Flowerdew, John. 2004. "The Discursive Construction of a World-Class City." *Discourse & Society* 15(5): 579-605.

Ghertner, D. Asher. 2015. *Rule by Aesthetics: World-Class City Making in Delhi*. New York: Oxford University Press.

Government of Gujarat. 1999. "Gujarat Infrastructure Development Act." *Gujarat Government Gazette*, 5 October. http://www.giic.gujarat.gov.in/writereaddata/images/pdf/I-Branch_266_06_05_2006_259.pdf.

Government of Gujarat. 2009. "Gujarat Act No. 2 of 2009 (Special Investment Region Act)." http://www.gidb.org/pdf/sirord.pdf.

Government of Malaysia. 2007. "Laws of Malaysia Act 664: Iskandar Regional Development Authority Act 2007." Percetakan Nasional Malaysia Berhad. http://www.irda.com.my/pdf/IRDA-ACT-2007/IRDA_Act_2007_EN.pdf.

Gowhar, Imran. 2016. "10,000 Farmers from Kolar, Chikkaballapur Stage Protest March in City." *The Hindu*, 3 March 2016. http://www.thehindu.com/news/cities/bangalore/10000-farmers-from-kolar-chickballapur-stage-protest-march-in-city/article8309199.ece.

Gujarat Infrastructure Development Board. n.d. "GIDB as Apex Authority." http://www.gidb.org/about-us-gidb-as-apex-authority.

Hoffman, Lisa. 2011. "Urban Modeling and Contemporary Technologies of City-Building in China: The Production of Regimes of Green Urbanisms." In *Worlding Cities*, ed. Ananya Roy and Aihwa Ong. Chichester: Blackwell Publishing, 55-76.

Johnson, Chalmers. 1982. *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975*. Stanford: Stanford University Press.

Malaysia Investment Development Authority. n.d. "Malaysia Economic Corridors." http://www.mida.gov.my/home/malaysia-economic-corridors/posts/.

MAMPU. 2012. "Economic Corridors: Your Gateway to Investing in Malaysia – Introduction." Malaysian Administrative Modernisation and Management Planning Unit. http://www.mycorridor.malaysia.gov.my/IC/Pages/Introduction.aspx.

McNeill, Donald. 2015. "Global Firms and Smart Technologies: IBM and the Reduction of Cities." *Transactions* 40(4): 562-574.

Michaels, Guy, and Georg Graetz. 2015. "Estimating the Impact of Robots on Productivity and Employment." Vox.Eu. http://voxeu.org/article/robots-productivity-and-jobs.

Ministry of Foreign Affairs of Japan. 2006. "Japan's Concept for Creating the Corridor for Peace and Prosperity (Background Paper)." http://www.mofa.go.jp/region/middle_e/palestine/concept0607.html.

Mongabay. 2015. "Indonesia Bans Peatlands Destruction." *Mongabay*, 10 November. https://news.mongabay.com/2015/11/indonesia-bans-peatlands-destruction/.

Northern Corridor Implementation Authority. 2016. "About Northern Corridor Economic Region (Koridor Utara)." http://www.koridorutara.com.my/wwa_2_intro.html. Accessed on 5 August 2016.

O'Donnell, Mary Ann. 2011. "Becoming Hong Kong, Razing Baoan, Preserving Xin'an: An Ethnographic Account of Urbanization in the Shenzhen Special Economic Zone." *Cultural Studies* 15(3-4): 419-443.

Pandey, Navadha. 2016. "A Capital Idea for a World-Class City." *Business Line*, 26 February. http://www.thehindubusinessline.com/specials/a-capital-idea-for-a-worldclass-city/article8285612.ece.

Regional Corridor Development Authority. 2016a. "Priority Sectors." http://www.recoda.com.my/priority-sectors/.

Regional Corridor Development Authority. 2016b. "What Is SCORE?" http://www.recoda.com.my/invest-in-score/what-is-score/.

Rolland, Nadege. 2015. "China's New Silk Road." National Bureau of Asian Research. http://www.nbr.org/research/activity.aspx?id=531.

Roubini, Nouriel. 2014. "Where Will All the Workers Go?" *Project Syndicate*. https://www.project-syndicate.org/commentary/technology-labor-automation-robotics-by-nouriel-roubini-2014-12?barrier=true.

Roy, Ananya, and Aihwa Ong, eds. 2011. *Worlding Cities: Asian Experiments and the Art of Being Global*. Chichester: Blackwell.

Sorenson, Andre. 2005. "The Developmental State and the Extreme Narrowness of the Public Realm: The 20th Century Evolution of Japanese Planning Culture." In Comparative Planning Cultures, ed. Bishwapriya Sanyal. Abingdon: Routledge. 223-258.

Stiglitz, Joseph. 2003. *Globalization and Its Discontents*. New York: W.W. Norton.

Tanimura, Paul-Hideki, and David Edgington. 2001. "National-Level Economic and Spatial Planning in Japan." In *National-Level Spatial Planning in Democratic Countries: An International Comparison of City and Regional Policy-Making*, ed. Rachelle Alterman. Liverpool: Liverpool University Press, 197-218.

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