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TRANSPORTATION CORRIDORS IN PACIFIC-ASIAN URBAN REGIONS

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Abstract

Corridors are a convergence of transactions and spatial accumulation in a buffer space between articulation points—hub centres of multimodal transportation networks. The tendency for articulation points is to develop transhipment functions while relocating production and processing functions along the corridor. Transportation corridors underline a new dimension in the study of urbanisation over an extended territory.

INTRODUCTION: ASIAN CORRIDORS OF URBANIZATION

Over the numerous dimensions of Asian urbanization, notably economic restructuring (shifts in employment and production) and land use transition (rural to urban/desakota), the spatial structure of urban regions remains one of the most complex and less understood. It places emphasis on the form, the distribution and the regulation of territories. Obviously, Asian urban regions are not emerging over a territorial vacuum and are the result of a process of spatial accumulation shaped by their economic and transportation systems. Over this, transportation systems express spatial structures and also have a form, distribution and regulation. Wherever economic activities are distributed in space, they create transactions supported by distribution systems. Also, wherever the economy is developing, the transactional demand grows. In a global transactional environment, urban and industrial structures face a redefinition of their territories.

Asian territories, like any territorial structures, can be considered from heterogeneous and homogeneous perspectives in regards of urbanization. The transformations of East and Southeast Asian economies occur over different geographic, economic, political and social landscapes. Browsing from Indonesia, Thailand, through the coastal plains of China, South Korea and Japan, we acknowledge that landscapes are indeed heterogeneous and are subject to different interpretations and representations. But is it from a set of exceptions that an unifying approach to urbanization can be elaborated? We suggest it is not, although heterogeneity always points to misdirections in unifying attempts. Homogeneity would try to assess a common ground for Asian urbanization and their new spatial regions. What are the similarities behind urbanization processes? One of the first aspect that comes to mind is regionalization. Among different landscapes spatial regions provide a similar framework to urbanization. The Extended Metropolitan Region (EMR) is a well-accepted definition and representation of regional urbanization structures and is applicable to diverse Asian landscapes (Ginsburg, Koppel and McGee 1991; Rodrigue 1994). As a structure supporting a regional distribution of economic activities, from extractive rural to transactional metropolitan areas, it underscores distribution systems of good, people and even information. The structure and regulation of the transportation system are likely to be influenced by the spatial structure of the territory, but this remains to be furthermore investigated.

The corridor as an urbanization structure in Asia

It is of conventional wisdom in development theories to consider inequalities as a structural factor of spatial accumulation (Dwyer 1990). Transportation—among other factors—reinforces spatial inequality by linking *a priori* the most productive places. Large cities, as highly productive entities, are fundamental structures of global and regional spatial accumulation, and thus represent strong incitatives to be bonded by an efficient transportation network. When a set of large cities are interacting at the regional level, they reinforce the regional spatial inequality of accessibility by corridors of interactions; transportation corridors. From an economic perspective, transportation corridors provide two fundamental attributes for development: lower distribution costs and land supply for diverse activities. Since spatial accumulation tends to occur at productive places where there are adequate land supply and accessibility, corridors are in that context an obvious regional urbanization structure. The emergence of transportation corridors, as a process, is the overlay in time and space of diverse modes to a point where they (the corridors) become the structure of urban regions. We can no longer speak of a set of interacting cities, but of a regional transactional space composed of diverse—more or less linked—specialized economic functions; a new spatial region.

Geographical and historical conditions create a basic set of regional inequalities that the subsequent economic, demographic and transport developments could strengthen. Contemporary urban regions have their anchor points along a fluvial axe, a coastal plain, a natural harbour, or any geographical feature providing accessibility, notably an efficient maritime / land interface. This by no means implies similar landscapes, nor similar economic development and processes of

spatial accumulation. We suggest here that corridors are the structure behind the emergence of most urban regions where transportation regulates transactions and spatial accumulation.

Corridors of urbanization

Corridors underline a new dimension in the study of urbanization over an extended territory. Although they have been considered as the structure behind the development of several urban systems (Hoyle 1973; Whebell 1969), corridors must also be considered as the structure behind the territorial development of urban regions. Transportation corridors are a superset of EMRs in order to link them in a cohesive regional structure. Conceptually, they provide a tentativeness of territorial homogeneity over an heterogeneous landscape. This is particularly the case in East and Southeast Asia where regional economic cohesion is growing, along with trade. Our contribution is in part theoretical and in part applied and aims to set up the scene of new spatial regions in Asia. Empirical evidence is drawn upon an overview of the emerging East and Southeast Asian corridors. The objective of this paper is thus to bring an introductory discourse on urbanization corridors through two questions: (1) What is their structure? (2) In what manner they are regulated?

THE STRUCTURE OF CORRIDORS

Urban regions represent an important and complex accumulation of transportation infrastructures along corridors. A transportation corridor is a set of modal corridors between hub centres where maritime, fluvial, land and air transportation systems converge. The nature of convergence in modal corridors is twofold. First, hub centre-related convergence where transhipment functions are of prime importance and settle the capacity of the distribution system. This is the case of maritime, rail and air transportation and also for some parts of fluvial transportation. In those conditions, hub centres tend to have a radial influence in space. Second, infrastructure-related convergence where shipment infrastructures are the capacity constraints of the system, like road transportation, and to some extent fluvial transportation. This favours the development of a buffer zone along linear infrastructures. The structure of corridors lies within a set of interacting hub centres where converge modal interactions. Hub centres can be classified in four modal structures; maritime, fluvial, land and air corridors.

Maritime corridors

International trade and maritime transportation are highly related and enables to attenuate the discontinuity of exchanges between continents (eg Vigarié 1993). There also exists an important logistic for the operational exploitation of maritime transportation by a management of transhipment infrastructures and means of shipping. Each of these components converges in places of reduced discontinuity that correspond to littoral zones with a developed regional distribution system providing demand on maritime transportation.

Ports are often the chief facilities linking an economic system with the international market and therefore represent the main hub centres of trade. They are above all intermodal places and points of convergence of inland transportation (Hayuth 1985, 1987). With the economic growth of their foreland and hinterland, an increasing demand over port systems is felt. The capacity of ports to transit goods imposes a limit to economic development. One of the main management strategies is therefore to enable the intermodal capacity of the port to fulfil the joint demand of the foreland and hinterland with a heavy reliance on the performance of infrastructures (shipment and transhipment) and their logistics.

The logistics of maritime transportation have experienced important changes since the last 25 years and have induced a specialization of several ports and a concentration of transhipment activities (Hayuth 1981, 1988; Hoyle and Hilling 1984). Containers insure flexibility of shipments and several ports have opted for this multimodal transportation technology to keep and consolidate

their status of hub centres. Economic transformations are restructuring the nature and pattern of maritime transportation with new demands between new areas. Hub centres thus require specialized high capacity transhipment infrastructures. In consequences, ports that do not have sufficient handling capability lose their importance, which is reinforcing efficient maritime terminals. However, infrastructures are not the only one dimension in ports restructuring, where others like location, maritime services, strategies pursued by maritime companies, and inland distribution systems play a crucial role (Marcadon and Mougard 1994; Slack 1994). In those conditions some maritime corridors, or at least segments of them, and their hub centres are in growth while others are in contraction.

Maritime transportation is very flexible in terms of the choice of routes. However, the fixity of ports coupled with economic, political, and physical constraints between them impose the creation of maritime corridors. The maritime corridor is a non discrete path between maritime hub centres, which are places of transhipment functions (see Figure 1A). The summation of those functions implies a maritime / land interface where maritime corridors are connected with fluvial and land corridors. Considering that maritime corridors have almost an unlimited capacity, the capacity of maritime transportation is related on the transhipment capacity of ports. Maritime corridors are structured by the integration of port cities (maritime services and transhipment functions) to port systems (maritime distribution functions) at hub centres.

Fluvial corridors

Fluvial transportation, even if slow and inflexible, proffers a high capacity and a continuous flow. Main and small ports perform the role of hub centres by providing fluvial / land and fluvial / maritime interfaces. The fluvial / land interface often relies less on transhipment infrastructures and is thus more flexible; means of shipping are often of small capacity. Ports are less relevant to fluvial transportation but fluvial hub centres experiences a growing integration with maritime and land transportation, notably since the emergence of containers. The degree of integration for fluvial transportation varies from totally isolated distribution systems to well integrated ones (Lasserre 1992). In urban regions well supplied by hydrographic networks, fluvial transportation can be a privileged mode of shipment between economic activities. In fact, several industrial regions have emerged in along a major fluvial axe. River-sea navigation is also providing a new dimension to fluvial transportation by establishing a direct interface between fluvial and maritime systems (Rissoan 1994).

The places of convergence of fluvial transportation correspond to important waterways having access to port infrastructures and industrial regions. This reinforces investments in fluvial infrastructures and modes of shipping. The fluvial corridor is an overlay of canals, waterways and fluvial ports along an axe corresponding to a natural penetration corridor like a river (see Figure 1B). Fluvial corridors are a mixture of discrete and non discrete paths, depending if we consider canals, rivers and seacoasts individually. As maritime transportation, the structure of fluvial transportation for non discrete paths converges at hub centres. Although the presence of discrete paths also enables a linear structure of convergence in land corridors.

Land corridors

Land transportation is the foundation of a regional transactional space and provides a support to land movements through discrete paths (see Figure 1C). Land transportation corridors can be divided in two modes having separate logistics (often integrated); road and rail.

Road

Road transportation is by far the most flexible land transportation mode. Its importance has increased with the fragmentation of economic systems over vast territories and the growth of the light industrial sector: It handles small shipments between several points of origin and destination. Road transportation requires few logistics, except for important land transportation enterprises managing a fleet and providing transhipment with other modes. At a regional level, this favours

the convergence of movements along important road axes between urban centres where converges a set of lower capacity roads aiming to access subcentres. Thus, even if road infrastructure may extend over a vast territory, the traffic reflecting transport demand is still predominantly linear in space.

The corridor associated with road transportation is not limited to places adjacent to major road axes, but within a peripheral buffer zone. The impacts of road transportation are at its hub centres and along corridors between those points. Road hub centres are crossroads where locate warehouses, truck yards and any land transportation structures. However, an integration with other modes favours the convergence of regional road transportation towards hub centres of other modes, notably ports and railyards.

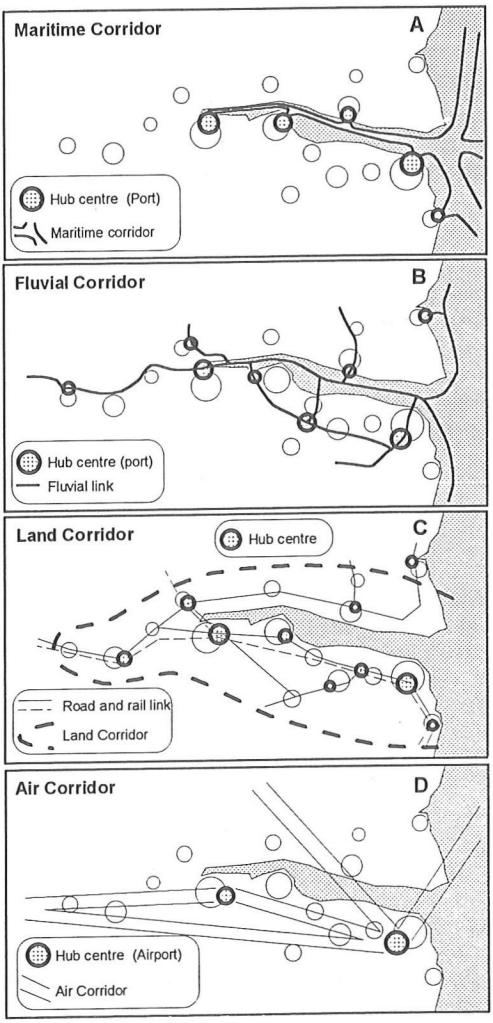

Figure 1 Modal corridors

Rail

Rail transportation offers simultaneously speed, capacity and flow, but at the expense of flexibility. It offers an efficient interface between maritime and land transportation systems. This is even more true with the appearance of containers and the impacts of intermodal transportation over inland rail distribution systems (Slack 1990). Rail logistics are highly complex and imply network management strategies under several constraints of capacity, schedule, nature of shipments, origins and destinations.

Like road, rail superpose itself over the urban system. In urban regions, rail infrastructures only link major industrial and urban centres in densely populated areas. It is under those conditions that the notion of a rail corridor is applied. A railway line is a transit place and it is only at intermodal points that rail transportation has an impact over the territory. However, areas along rail corridors have a potential of integration by building connection lines and transhipment infrastructures. The emergence of high speed rail passenger transportation reinforce the emergence of corridors by emphasizing the linkages between major urban centres (Wolkowitsch 1987).

Since land transportation infrastructures are the reflection of the territorial structure, land corridors emerge between major hub centres. They are notably the regional extension of a maritime / land interface where ports cities have access to their hinterland.

Air corridors

The growth of international trade and the international division of the production is concomitant to the growth of air transportation. A fragmented transactional-related economic system generates movements of goods but also of people, particularly for services and management activities. Transactions often require face-to-face contacts where negotiations are undertaken and trade relations strengthened. At the scale of an urban region, air transportation offers a fast and efficient way to link major urban centres. The creation of new air corridors inside an urban region is very rare (Figure 1D). The strategy of existing airports is to consolidate regional links, create new national and international services (for passengers and freight), raise their capacity, and make land transportation systems to converge towards them. If an airport succeeds in positioning itself according to those factors, it will be a point of convergence and interface at the regional and international levels; an air transportation hub centre (Hansen and Kanafani 1988).

Following the discussion on the structure of transportation corridors, road transportation is obviously the main infrastructure behind the emergence of urbanization corridors. By itself, road transportation partially answers the needs for local and regional distribution, even less for national and international scales. Depending on the economic structure and linkages within the corridor, the needs of integration of road transportation with other modes vary. Furthermore, the extension of land-based corridors (road, rail and fluvial transportation systems) is forwarded by a synergy resting on the transformation of other transportation corridors (maritime and air). What are the relationships between modes in corridors, notably between land-based and other modes?

THE REGULATION OF CORRIDORS

The regulation of corridors underlines how transactional spaces are affected by the interactions between modal corridors. Transportation systems are the support of transactions where multimodal and intermodal transportation consider the relationships between modes. Our initial approach to regulation processes aims to assess the role of multimodal transportation.

Multimodal transportation

The importance of multimodal and intermodal transportation is well established. For instance, the usage of containers shows the complementarity between freight transportation modes by offering a higher fluidity to movements and a standardization of loads (Mahoney 1985). Intermodality

enables economies of scale within a transportation system where modes are used in the most productive manner. Travel time and costs take a fundamental importance in the globalization of trade and consequently in transportation. This is even more reinforced by "just-in-time" production and "door-to-door" services that require low inventory levels and movements between several points of origin and destination. Facing those changes, industrial and transportation firms review their strategies for freight and passenger transportation. Obviously, those strategies must consider of all modes and all possible transfers between modes.

With the development of new modal and intermodal infrastructures, urban regions have a growing accessibility to the international market; several parameters of regional transportation are transformed, or at least modified. Figure 2 presents the regulation of movements of a corridor within a multimodal transportation system composed of a set of competing hub centres where converge regional and local transportation networks. A hub centre can simultaneously have a modal and intermodal convergence of functions, particularly if it is the interface between several modal corridors (see Figure 1). The regional multimodal network converges at hub centres allowing linkages with the international transportation system through a maritime / land interface. Port cities are the main agent of that function.

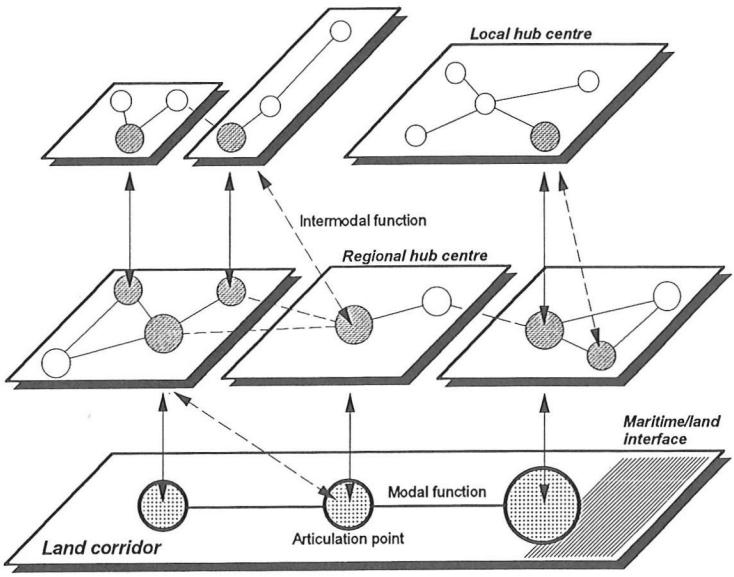

Figure 2 Multimodal transportation in corridors

Multimodal transportation says few things about the relationships of hub centres with their transactional space. Economic linkages between hub centres, multimodal transportation and territories must be assessed in a more comprehensive manner.

Articulation points

The importance of hub centres relies on two main characteristics denoted as centrality and intermediacy, which jointly defines their location in a transport system (Fleming and Hayuth 1994). To extend further that definition, we bring forward the concept of articulation points, which

are the regional/international conjunction of multimodal infrastructures, logistics and areas of influence in a transactional/hub centre.

Infrastructures

An articulation point is the anchor of a set of infrastructures which promote the spatial continuity of a transportation system. It is the interface between different spatial systems; a gateway. Articulation points are reinforced with the emergence of multimodal transportation where they play a strategic role of integration between hub centres of several modes.

Logistics

From a logistical point of view, articulation points are places where main transport management and value-added activities are performed. Those services draw to diverse degrees, value on movements. It underlines organizational/institutional control and management strategies polarizing the transport system (Savy 1993).

Areas of influence

The importance of an articulation point is measured by the volume and the nature of the traffic it handles. The territorial foundation of movements transiting by an articulation point forms its area of influence, often captured by the concepts of foreland and hinterland (Charlier 1991; Comtois, Soulard and Rodrigue 1990). For instance, an international articulation point transits important maritime, land and air traffics, and have an area of influence that encompass several regional hub centres.

Within an urban region, the areas of influence of its articulation points overlay to form a transactional network. Articulation points regulate the convergence of maritime, fluvial, land and air hub centres, but what are their basic functions?

Functions of articulation points

An articulation point is a generator of transactions, as a true origin or as a true destination: This is the first part of its function—*centrality*. Nevertheless, an articulation point is an interface for transactions, a point of transhipment and transit. In most cases, transactions could not have occurred without the infrastructures and the distribution logistics provided by an articulation point: this is the second part of its function—*intermediacy*. Let the distribution of transactions among a set of vectors define the functions of articulation points (see Figure 3):

(a) The first function of an articulation point, *consumption/attractivity*, illustrates the inputs of its economic activities with their role as a true destination for transactions. Inputs can be goods, people and information and must transit through intermodal infrastructures. Vector *a* is relative to the level of spatial accumulation and to the economic structure of an articulation point. The more structured and developed a market is, the more likely its consumption/attractivity function will be important.

(b) The nature and the structure of economic activities are related to the types of exchanges shown by vector *b*, the *processing* function. It illustrates the extent of value added activities in the economic sector, notably industrial. By itself, processing is not a transaction, but the transformation of a commodity in another one, whatever its form. For instance it may entail the manufacturing of a product, from the conversion of resources by labour to the conversion in capital when it is sold.

(c) The third function, *production/emissivity*, is the output of the economic activities of an articulation point (vector *c*). The articulation point acts as the true origin of transactions. It can be movements related to the distribution network of the articulation point, or movements related to economic activities of another articulation point.

(d) The main importance of an articulation point rests on movements that are requiring intermodal infrastructures (vector *d*), its *transhipment* function. The location of the hub centre

in regards of other hub centres and the performance of its intermodal transportation infrastructures is for a great deal in the importance of vector *d* where an articulation point draws value on transactions.

(e) Vector *e*, the *transit* function, represents movements that circulate through the articulation point, but are not requiring any handling, warehousing or distribution activities. It emphasizes the role of an articulation point as a geographic point of transit with few economic returns (the traffic is just passing by).

A vector as a nature, an origin and a destination that jointly differentiate the functions of articulation points. Vectors *a, b* and *c* express the internal economic function (centrality) and vectors *d* and *e* illustrate how much an articulation point draws value on movement (intermediacy). The ratio of centrality over vector *d* indicates the level of specialization of an articulation point in transhipment activities. Generally, port cities are also important industrial centres drawing supplies from a vast hinterland and this ratio would be an indicator between the role of centrality and intermediacy for articulation points. As mentioned previously, movements of goods and people of the articulation point are supported by handling, warehousing and distribution activities. This function is generally serviced by transportation firms. Therefore, an articulation point must be seen as a value-added centre for transportation, and not only a simple geographic point of production and transit. The notion of international articulation point is indissociable from port infrastructures where port cities act as articulation points between a foreland and a hinterland.

With the definition of the structure and the regulation of corridors, we shall examine the territorial context of spatial convergence of transactions and accumulation along them.

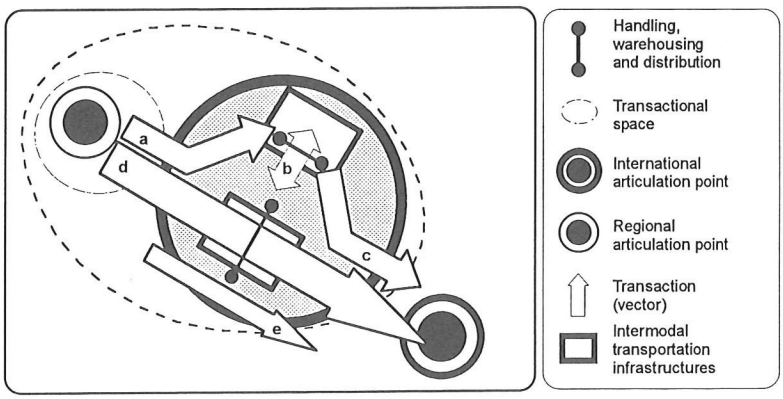

Figure 3 Articulation point

SPATIAL CONVERGENCE IN CORRIDORS

By spatial convergence, we mean a place that offers some comparative advantages and is using them to raise its level of spatial accumulation. Corridors are the most accessible places of an urban region where the comparative advantages of a territory are reinforced. The results are an appropriation of resources, infrastructures, movements and capital (investments) along a linear axe. Places with high productivity levels will use resources more efficiently, will justify the construction of new infrastructures (production and transportation), will generate, attract and transit more movements and will also offer a greater return for investments. What does convergence imply for transactions and spatial accumulation?

The aim of a transportation system is to link economic activities, therefore supporting a transactional space regulated by articulation points. In corridors, convergence reinforces the productivity by emphasizing their relative accessibility level in regards of maritime, fluvial, land and air transport infrastructures. The convergence of transactions along corridors implies that internal places densify and raises the capacity of their networks by supporting a transactional demand. Contemporary land transport enterprises have a high level of competitiveness and are well integrated to articulation points. Even if the competitive level is high, the maturity of distribution systems has equilibrated modal, intermodal and territorial handholds of transport enterprises. With convergence, articulation points are thus able to extend their area of influence over a territory and reinforce their transactional space.

Considering that a fragmented production system enables to better exploit comparative advantages of places while keeping equivalent distribution costs, it is logical to assume that spatial accumulation converges along transportation corridors. The convergence of spatial accumulation in corridors thus reflects a tentativeness of minimum entropy in a situation that could extend activities over a wider territory. Accessibility, by itself does not guarantee spatial accumulation, nor it is the sole factor for convergence. However, raising accessibility levels favours the territorial convergence of spatial accumulation because accessibility rarely comes alone, but is often the reflection of a developed transactional space.

Contemporary dynamics of industrial production mainly aim on using the advantages of labour and resources to lower production costs. The corridor then offers an accessible penetration axe for fragmented production systems over a territory. Outputs of that new production system are for two markets, the regional and international. Considering that the regional market of emerging corridors is in full expansion, industrial strategies further aim to supply that growing market than try to penetrate an already heavily competitive international market. Articulation points—as gateways—play a fundamental role in the regional economic system, but more importantly as centres for regional distribution. They consequently regulate the conditions and the location of spatial accumulation.

Corridors are convergence places of transactions and spatial accumulation in a buffer space along interactions paths between articulation points (see Figure 4).

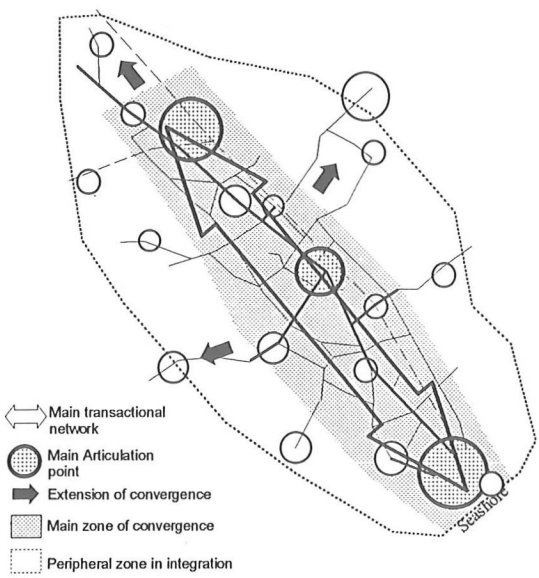

Figure 4 Convergence of transactions and spatial accumulation in a land corridor

The tendency for articulation point is to develop and reinforce its transhipment functions while relocating production and processing functions along the corridor. For places limitrophe to the corridor, convergence implies their integration to various extent by changes in their economic functions. The objective is not necessary to cover the territory, but to link the most important centres of the corridor in a productive regional transactional network. The structure and regulation of transactions and spatial accumulation are likely to be homogeneous among different corridors while the resulting landscapes are heterogeneous. East and Southeast Asian urban regions are a notable context where transactions and spatial accumulation converge along corridors. The next section will try to assess a preliminary overview of that situation.

PACIFIC-ASIAN CORRIDORS

New spatial regions

As East and Southeast Asian nations redefine their position in the global economy, they also do the same in regards of their status as a regional entity. Economic development and growth in regional trade brought several scholars towards the concept of Pacific Asia (Drakakis-Smith 1991). To further extend this concept, we look upon its urban regions and their corridors. A typological analysis of Pacific Asian urban regions places them in two main categories of spatial regions; EMRs and their superset, corridors (Figure 5).

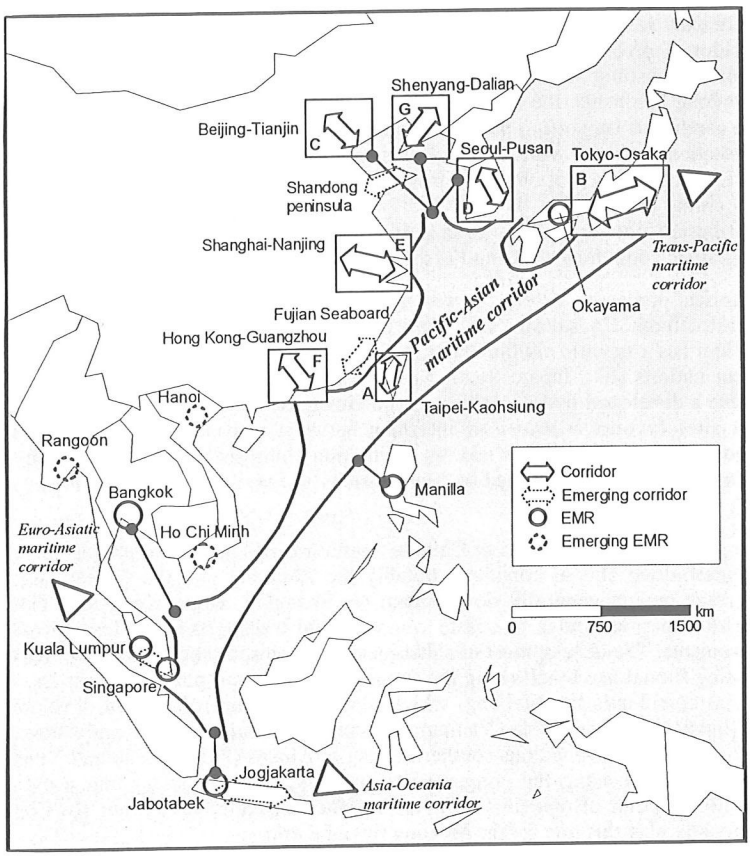

Figure 5 Typology of Pacific Asia: new spatial regions

While Southeast Asian urban regions are mostly single EMRs, East Asian urban regions structure themselves along corridors linking more than one EMR (Figure 6). A preliminary explanation rests on the fact that East Asian nations have a more dense and developed urban system their than Southeast Asian counterparts; the results of a historical process of spatial accumulation in productive rural activities over a vast territory. The whole Pacific Asian region is structured by a maritime corridor extending from Japan through Singapore. This Pacific Asian maritime corridor is the support of trade in East and Southeast Asia and offers an interface with Trans-pacific, Euro-Asiatic and Asia-Oceania maritime corridors. It owns its emergence to a set of key port cities (hub centres) like Tokyo, Osaka-Kobe, Pusan, Shanghai, Taipei, Kaohsiung, Hong Kong and Singapore (Marti 1988), which are creating a regional maritime transactional network.

With the development of maritime trade, notably with container-based maritime transportation, a territorial structure of influence is establishing itself around major Pacific Asian articulation points. For instance, in 1990 more than 30% of container traffic was handled by Pacific Asian countries while 6 out of the 10 first container ports were in that region (Sletmo and Holste 1993). Convergence enables articulation points to capture a regional distribution network and its incorporation with great maritime corridors. Maritime transportation firms thus use port cities as convergence point of their maritime trade where the maritime / land interface support international and regional distribution of production. This interface is even more reinforced when maritime firms have tight linkages with regional production systems via land transportation corridors.

Corridors and articulation points

There exist seven great land transportation corridors interfacing with the Pacific Asian maritime corridor: Tokyo–Osaka, Seoul–Pusan, Shenyang–Dalian, Beijing–Tianjin, Shanghai–Nanjing, Taipei–Kaohsiung and Hong Kong–Guangzhou. Four other corridors are likely to emerge: the Shandong Peninsula, the Fujian Seaboard, Singapore–Kuala Lumpur and Jogjakarta (Figure 5). The conditions supporting this emergence of spatial regions imply the development of a regional transactional network which underscores appropriate land transportation infrastructures. We must acknowledge that transportation corridors in Pacific Asian urban regions present diverse attributes concerning used modes, the logistic of transportation chains and types of enterprises managing distribution networks. This is in part the result of previous social, political, economic and geographic conditions affecting Pacific Asian economic and transportation systems.

Historical processes of spatial accumulation have given corridors a set of modal and intermodal infrastructures. Considering that those processes are not uniform in time and space, each Asian corridor has a specific multimodal transportation system. Geographical conditions of some Pacific Asian nations (like Japan, South Korea, Taiwan, Indonesia, Singapore and Malaysia) do not enable a developed hydrographic system. However, the presence of coastal plains and excellent port sites favours *a priori* an interface between coastal regions and the maritime system. Urbanization corridors thus take an orientation along seacoasts. The low importance of fluvial transportation is compensated by high capacity rail and road networks, notably in Japan with its high speed train system.

The geographical conditions of Chinese coastal regions have their urbanization corridors initially oriented along fluvial corridors, notably the Zhujiang and the Changjiang. Maritime / land interface occurs generally downstream (ie Shanghai, Hong Kong and Tianjin) and favours corridors perpendicular to coasts where fluvial transportation offers an essential support to movements. The development of subsequent land transportation infrastructures only underline the existing fluvial axe by allowing the support of a new transportation logistics. Another emerging fluvial corridor is the Mekong, which plays a growing role in the developing economies of continental Southeast Asia (Vietnam, Kampuchea, Thailand, Laos and Burma). It could offer a fluvial gateway of populous southern China provinces (like Sichuan and Yunnan) to the Pacific Ocean without using the congested transport system of Guangdong province. However, no significant point of maritime / fluvial interface currently exists, but Ho Chi Minh City could eventually play this role for the Mekong fluvial corridor.

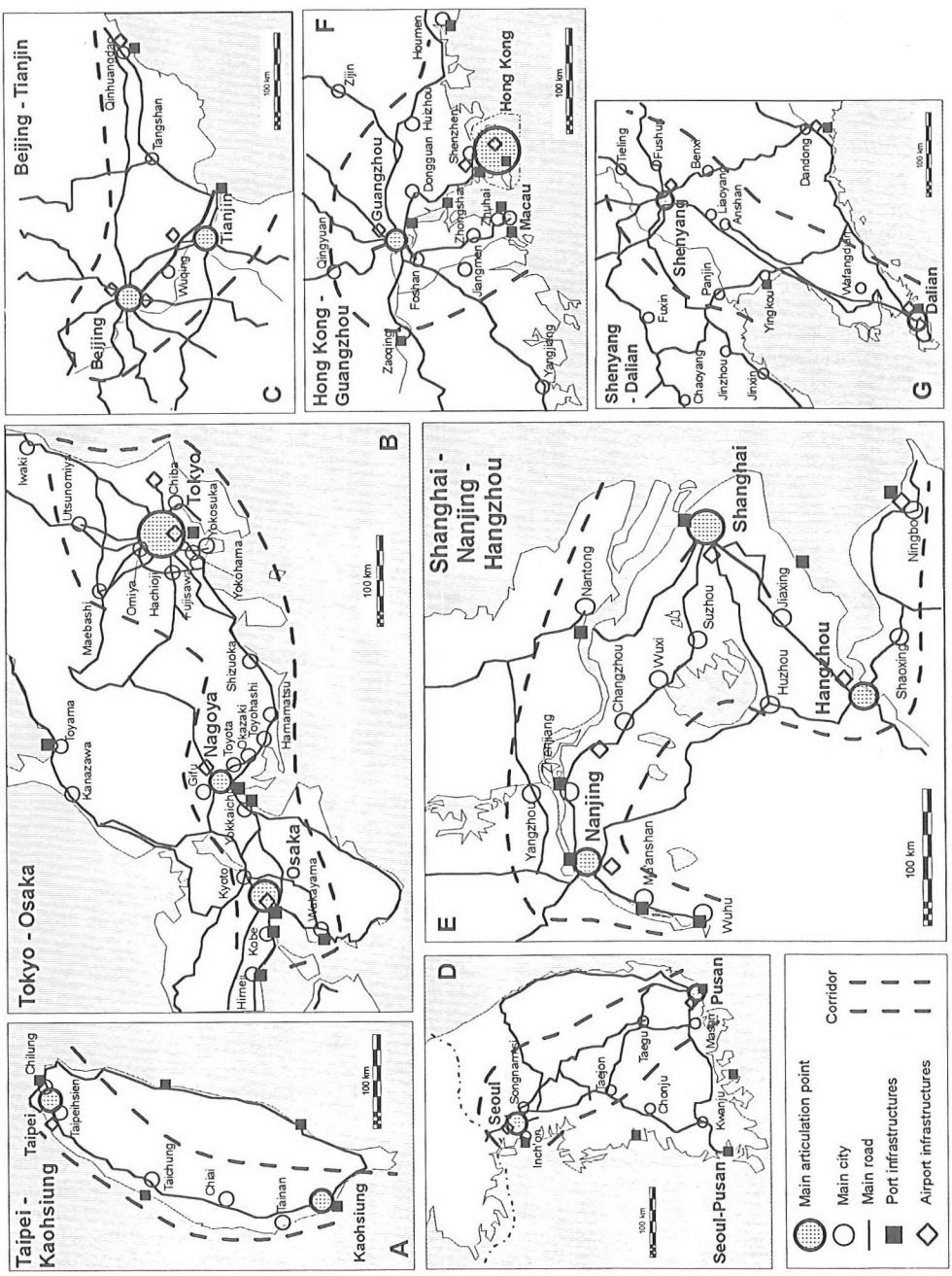

Figure 6 **East Asian corridors**

Modes and the relationships between them impose different logistics in urbanization corridors of Pacific Asia. In an economy leaning on heavy industries, port cities take a significant importance in regards of the limited capacity to convey ponderous and bulk goods towards the hinterland. However, transformations within production systems over the last 20 years mainly rest upon the light industrial sector. This sector with a maritime / road logistic enables to better exploit the territorial advantages of corridors since it is less limited in space. The development of containers supports efficiently this logistic. Japan, South Korea, Hong Kong, Singapore and Taiwan were initiators of this multimodal logistic within Asia and play an important role as articulation points. Air transportation also reflects the emergence of a new transactional space. Major Pacific Asian hubs, such as Tokyo, Seoul, Hong Kong, Taipei and Singapore perform important financial functions, airline hubbing, and transit (Hansen and Kanafani 1990; Sletmo and Holste 1993).

The transactional functions of articulation points and corridors are difficult to capture, particularly since the development of hinterlands and the fragmentation of economic systems in specialized functions. To illustrate this, an example that looks simple may prove to involve several transactions. We can figure an enterprise looking for a way to manufacture some labour intensive parts of a product in order to reduce production costs in a competitive global environment. It may negotiate the contract with a conglomerate in Hong Kong (maybe through a strategic alliance), while the production will be performed by a Chinese enterprise in Shenzhen (a joint venture in part owned by the former) that draws resources and may even subcontract from several mainland China enterprises. Another Hong Kong enterprise will transport and tranship the production (in cooperation with a state-owned Chinese transport firm), which may be assembled and sold elsewhere (product management and marketing). What is kept relatively constant is the regulation and the convergence of transactions in Hong Kong. Thus, transactions may be more important to investigate than industrial production if we are to capture urbanization processes in Pacific Asia, or in any other region.

CONCLUSION: ASIAN CORRIDORS AND DIVERGENCE

Conventional approaches to urbanization have tended to split the territorial functions of economic systems from the distribution functions of the transport system. We have proposed that corridors provide an integration between those functions. They reinforce the convergence of transactions and spatial accumulation. The structure and regulation of corridors put the emphasis on major articulation points where transactional functions are performed. Their maritime / land interface supports transhipment functions between vast forelands and hinterlands. Convergence spatially implies an uneven distribution of economic activities along a corridor, because territories present inequalities in comparative advantages. As an ongoing process of spatial accumulation, convergence raises the question whether if it can eventually bring divergence.

Divergence is a set of processes that are initiated by drops of productivity in some sectors of the economy. At a level of convergence, problems of congestion and inflation are likely to appear, which maybe seen as diseconomies of agglomeration and diseconomies of scale. Congestion implies higher distribution costs and even unreliance of supply. This can force the usage of new alternatives and new logistics and also it may change the regional—if not international—importance of several articulation points. Inflation implies supplementary costs over labour, resources and production. With spatial accumulation, a proportional inflational process occurs. At a certain point, comparative advantages of some economic sectors may not be furthermore justified. High inflation rates in China (around 20% for 1993 and 1994) already bring forward this dimension.

Along Pacific Asia, the structures, forms and levels of spatial accumulation are heterogeneous, but we have seen that corridors offer an homogeneous structure for regional spatial accumulation. Well structured corridors like Tokyo-Osaka, Seoul-Pusan and Taipei-Kaohsiung are affected by a divergence of several labour/space-intensive activities and the convergence of knowledge-intensive ones. This is also the case for the advanced economies of Hong Kong and Singapore, articulation points of emerging corridors. New spatial regions, like Shanghai–Nanjing, Hong Kong–Guangzhou (Pearl River Delta) and Shenyang–Dalian experience convergence to diverse

degrees of economic activities (mostly, but not entirely, labour intensive). It must be pointed out that areas in fast development are also under strong inflational and congestion growth like Beijing, Shanghai, Guangzhou and Bangkok EMRs. Already, several activities recently implemented face drops in productivity that tends to extend corridors further inland. Convergence and divergence are thus highly related as a part of the spatial distribution of economic activities within a transactional space.

As long as an economic system requires the distribution in space of goods, people and information, transportation and communication will play a role in the structure and regulation of territories and their transactional networks. Over this, an investigation in the role of port cities as articulation points between forelands and hinterlands would reveal a lot of information about their functions within transportation corridors. We have brought here an overview of this situation.

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