

THE EMERGENCE OF URBAN CORRIDORS – A BRIEF LOOK IN INDIAN CONTEXT

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ABSTRACT: In the modern times, cities have emerged as the centers of production, exchange and consumption within the complex systems of trade, be it local, regional, national or even global. Now they are much more than mere permanent settlements those are mere urbane in nature, rather, they have become hub of spatial and agglomeration dynamics of economic activities which are evident in the social, political and cultural characteristics of the city.

Urban corridors are a pattern of urban systems that gradually developed along transport routes which provided linkages between the major urban hubs and resulted in the growth of the urban peripheral areas.

The concept of urban corridors was first introduced by Whebell (1969) where he clearly distinguishes this urban form where major urban places are connected by a well-developed network of transport infrastructure. Trip (2004) identifies the linear structure of this urban form as its most distinguishing characteristic. For Batten (1995) corridor cities are nodes which are linked in a linear form and that branch out along transport routes in varying sizes. LiandCao (2005) in their argument identified four significant attributes of an urban corridor. These are –

- high to very high population density
- several cities of large size
- heterogeneous use of land
- Well-developed network of transport infrastructure.

Connectivity thus is a critical feature of any corridor which is evident from the examples in different parts of the world.

KEYWORDS – Urban Planning, Urban Corridors, Smart Cities, Urbanisation, Road Network, Ribbon Development, Metropolitan, Mega Cities.

URBANIZATION AND THE BIRTH OF URBAN CORRIDORS -

As cities continue to grow and evolve, expanding their physical limits and operational infrastructure, the term urbanisation which used to define a concentration of population in a particular city; has now broadened in definition, character, as well as structure and broadly paints the complex interconnected web of life that has effectively spilt over into the hinterland.

The process of urbanisation started with the industrial revolution and the subsequent emergence of dynamic industrial towns that operated on regional and global levels, unlike settlements of the past. As modern means of transport and communications were developed, the presence of this new urban system could be felt everywhere and no town, city or village was untouched by it. The myriad corridors of transport and communication connected everything seamlessly through highways and roads, telephones, railway lines, waterways and airways.

These transitions throughout history have now resulted in a tapestry of interconnected urban systems wherein the transformations in labour markets, the cultural forms and exchange of commodities have coalesced together with other regions, places and scales which were once not included within the definition of urban and functioned as independent entities. These may include small and medium-sized towns, rural hinterlands, peripheral villages, inter-state transport corridors, agro-industrial zones and communication infrastructures.¹ The manner in which these urban settlements of differing sizes are connected is such that any change in the population, economy, services or employment provisions of one settlement has ramifications that reverberate through the entire urban system it's connected to.

¹ N. Brenner (2013) 'Theses on Urbanization', Public Culture, Vol. 25, No. 1 (69), pp. 91

In simpler terms, the modern cities are effectively connected to other settlements and urban systems spread linearly through a properly developed and efficient network of transport and communication infrastructure known as 'Urban Corridors'.²

Urban corridors are a pattern of urban systems that gradually developed along transport routes which provided linkages between the major urban hubs for the flow of people and goods and resulted in the densification of the city cores and growth of the urban peripheral areas.

The primary attributes of an urban corridor are namely linearity and a transportation network.³ An almost continuous stretch of human settlements of varying sizes and occupations can always be found between two large cities and this urban system is known as a bi-centric urban system on a regional level. These systems usually have the advantage of less congestion and more freedom of mobility and expansion over mono-centric urban systems.

In theory, urban corridors articulate rural and urban liaisons on various levels and provide an opportunity for these adjoining areas to benefit from the economic advancements and other infrastructural developments of a large city that should trickle down to them. But, in India, the opposite has been observed primarily where the resources of the adjoining areas of large cities have been exploited for its advancement and resulted in either the absorption of these areas into the boundaries of the city or the complete abandonment of them once depleted of its resources. This in turn leads to an overcentralized pattern of development instead of the balanced growth of the entire region.

The cities of today carry three characters prominently; density, agglomeration and proximity.⁴ The Impact of agglomeration is such that cities today have lost their independent existence and there is no solid boundary between them and their neighbouring geographical area. The city now performs as a part of a dense system over long distances and is defined by the interactions between its population and the exchange of resources. This form of dynamic transformation has effectively integrated most of the world's cities into complex social and economic networks of urban systems.⁵

The advancements in transportation and communication have extended the influence of urbanism into the rural areas, giving birth to the concept of suburbanization.⁶ The out-migration from cities has resulted in the rise of metropolitan villages, dormitory settlements and factory-towns.⁷ These suburban areas are generally economically independent areas that have been integrated into the metropolitan area over time or factory towns that provide an employment base for the metropolises.⁸

The mega or giant cities have a very distinctive tendency to expand outwards, and this process often incorporates the rural parts of the geographical space as a part of this process. This phenomenon of metropolitan dispersion has although resulted in the development of large conurbations but also made them more manageable and resourceful.

Connectivity is thus the most critical feature of any urban corridor.⁹ And the cities in an urban corridor are an integral part of the complex mesh of urban agglomerations whose functional-locational relationship is solely based on complementary functions instead of their physical proximity.¹⁰ These are generally spaces of urban influence which are often the result of functions of rural - urban duality and spatial arrangements of the settlements.

Urbanisation in India is the product of a compound set of features like economic, social, and demographic. The shift of occupation from agricultural activities to industrial and services along with the demographical transformation of rural to urban settlements has resulted in urbanisation in India.

² I. George, T. Blaschke and H. Taubenbock (2016) 'A Global Inventory of Urban Corridors Based on Perceptions and Night – Time Light Imagery', International Journal of Geo-Information, Vol. 5, Issue 12, pp. 233

³ C.F.J. Whebell (1969) 'Corridors: A Theory of Urban Systems', Annals of the Association of American Geographers, Vol. 59, No. 1, pp. 2

⁴ A.J. Scott and M. Stroper (2015) 'The Nature of Cities: The Scope and Limits of Urban Theory', International Journal of Urban and Regional Research, Vol.39, Issue. 1, pp. 13

⁵ D. Clark (2000) 'World Urban Development: Processes and Patterns at the end of the Twentieth Century', Geography, Vol. 85, No. 1, pp. 16.

⁶ A. Gilbert (1993) 'Third World Cities: The Changing National Settlement System', Urban Studies, Vol.30, No. 4/5, pp. 728.

⁷ M. Pacione (2001) 'Urban Geography: A Global Perspective', Routledge, London, pp. 83.

⁸ E.W. Hill and H.L. Wolman (1997) 'City-Suburban Income Disparities and Metropolitan Area Employment - Can Tightening Labour Markets Reduce the Gaps', Urban Affairs Review, Vol. 32, No. 4, pp. 559

⁹ B.J.L. Berry (1967) 'Geography of Market Centers and Retail Distribution: The Urban Case', Englewood Cliffs, New York, pp. 27

¹⁰ M. Pacione (2001) 'Urban Geography: A Global Perspective', Routledge, London, pp. 592.

Three distinct processes of urbanization can be identified here, these are -

- i. **Pre-colonial pattern** - cities were more or less evenly spread within distinct administrative boundaries,
- ii. **Colonial pattern** - growth of primate cities surrounded by vast rural hinterland that experienced slow urbanization
- iii. **Post-independence pattern** - three processes of metropolitanization, intermediate urbanization and rural urbanization or subsistence urbanization dominated the urban landscape.¹¹

In India, the new economic policy of liberalization was expected to generate higher economic and urban population growth rates. But the higher growth rates remained restricted to the large cities and the small towns, whereas the medium and large towns had comparatively lower rates. The reason is that the population from large and medium towns migrated to the larger cities while the small towns naturally grew.

A study titled as '*India - Urban Corridors*' was done in 1991, by NATMO (National Atlas and Thematic Mapping Organization) based on the Census of 1991. It demarcated the 25 urban corridors of India. The primary objective of these corridors was to distribute the agglomeration and functional economies of the urban hubs to the rural areas along the transportation and communication links developed so far and result in an almost continuous stretch of urban form with distinguishing characters of urban settlements.¹²

The Government of India, being aware of these developments, has established myriads of networks to this end and they have been designated as special urban regions. *The Golden Quadrilateral* that links Delhi, Mumbai, Chennai and Calcutta, North-South and East-West corridors along with the various expressways spread over the country can be observed as examples. Despite all that, the humongous growth of the population of the urban centres in developing countries like India is often viewed as an unhealthy symptom because it does not effectively mirror the simultaneous growth of the manufacturing sector.

THE CONCEPT OF URBAN CORRIDORS -

Conurbations were a new type of metropolitan expansion in developed countries during the early twentieth century. This was due to technological advancements, particularly in transportation and communication, as well as economic restructuring. These metropolitan areas were referred to as '*city regions*' or '*town aggregates*'. These urban areas included a variety of adjoining built-up areas, with ribbons of factories running along the main roads out of the city and spreading into neighbouring areas. Furthermore, the transportation system was expanded so that the metropolis was well connected to its surroundings. *Geddes* (1915) proposed the concept of such an urban landscape when he coined the term '*conurbation*'. This concept gave rise to what we now refer to as '*urban corridors*'.

Corridor development is a relatively old notion, particularly in developed regions. Following the industrial revolution, a new type of urban expansion called conurbation arose, in which cities spread in a linear pattern. This notion is extremely similar to modern urban corridors; however the latter is on a far larger spatial scale. These corridors are made up of a variety of infrastructure, including highways, railways, bus lanes, bicycle tracks, river canals, and water and air connections, that connect two or more metropolitan areas via passenger and freight traffic.¹³

Whebell (1969) introduced the term when explaining the emergence of '*corridors*' in the state of Southern Ontario (Canada). For him, a corridor is a '*linear model of main towns joined by highly developed 'bundles' of transport ways*'.¹⁴

He contends that these corridors are the outcome of spatio-historical processes that resulted in the mixing of cultures and organisations, leading to new philosophical developments. Rail lines are the main attractions since they connected the major settlements of a region to its untapped hinterland during colonialism. Because they have played a vital role in the economy of that region, they have become fertile ground for the establishment of corridors.

¹¹V.L.S. Prakash Rao (1973) '*The Process of Urbanization*', Fulbright Newsletter, March, pp. 11

¹²J.K. Vijay (2009) '*Strategy for Integrated Development along Indore-Pithampur Corridor*', Dissertation submitted to School of Planning and Architecture, New Delhi.

¹³D. Chapman, D. Pratt, P. Larkham and I. Dickins (2003) '*Concepts and Definitions of Corridors: Evidence from England's Midlands*', Journal of Transport Geography, Vol. 11, pp. 167.

¹⁴C. F.J. Whebell (1969) '*Corridors: A Theory of Urban Systems*', Annals of the Association of American Geographers, Vol. 59, pp. 4.

Rivers were another appeal for such corridors because they connected major cities to their surroundings. Furthermore, river plains have always been the site of civilization. He believes that the development of such urban corridors is linked to various stages of the economy. He divides these stages into five categories –

- i. subsistence agriculture,
- ii. commercial exchange,
- iii. railways development,
- iv. emergence of automobile
- v. Rapid transportation system and metropolitanism.¹⁵

He goes on to argue that the *Christaller – Losch – Isard* theory focuses on the size and spacing of urban settlements in terms of their relationships and functions in aggregate, but this premise overlooks the actual locations of these settlements.¹⁶ He defines corridors as *phenotypic*¹⁷ regions that arise when the three conditions listed below are met –

- i. The presence of one main national highway and one rail line virtually parallel to one other, with a space of little more than a mile between the two.
- ii. There should be frequent passenger service on both the road and the rail, at least once per day.
- iii. According to 1955 data, he believes that motor traffic should exceed 300 cars per day for at least two-thirds of the length of the national highway.

These laid the groundwork for a series of settlements along transportation corridors called ‘*sustainable development corridors*’ by *Hall and Ward* (1998).¹⁸ All of these works clearly distinguish three types of corridors:

- i. infrastructure axes,
- ii. urbanisation axes,
- iii. Economic development axes.¹⁹

An infrastructure axis is a corridor having an effective transportation network for the movement of goods and people, such as roads, rail, air connections, or waterways. Better communication lines in the form of electricity lines and ICT are also included. Such corridors have also been studied as ‘transport corridors’. An urbanisation axis is founded on the premise that effective transportation will serve as the foundation for the future direction of the urbanisation process for activities linked to housing and employment. The least investigated axis is economic development, which stems from the idea that economic activities are dependent on transportation and infrastructure. This implies the theory that effective transportation networks are necessary for balanced regional development because they encourage economic performance in less developed or underdeveloped regions through agglomeration economies generated by higher levels of interconnectivity.

According to *UN-Habitat* (2009), urban corridors are metropolitan areas that are marked by rapid growth, massive spatial expansion, and the merging of a large number of towns on a worldwide scale. As a result, these corridors are seen as regions with tens of millions of people, stretching for hundreds of kilometres and even crossing aquatic bodies and international borders. One can even argue that they provide a significant challenge to planners and administrators, but in any event, they stand out as a distinct characteristic in today’s urbanised world.

According to *Trip* (2004), the greatest defining feature of an urban corridor is its linear form; rather, these are structured along a linear infrastructural network.²⁰ He describes the corridor’s structure in the three network principles listed below:

- i. point-to-point network
- ii. Line network
- iii. trunk-feeder network

¹⁵ *ibid*, pp. 5 - 6.

¹⁶ *ibid*, pp. 11.

¹⁷ *ibid*, pp. 14.

¹⁸ P. G. Hall and C. Ward (1998), ‘*Sociable Cities: The Legacy of Ebenezer Howard*’, Wiley, the University of Michigan, pp. 162.

¹⁹ H. Priemus and W. Zonneveld (2003) ‘*What are Corridors and What are the Issues? Introduction to Special Issue: The Governance of Corridors*’, *Journal of Transport Geography*, Vol. 11, No. 3, pp. 172 -73.

²⁰ J.J. Trip (2004) ‘*The Corridor as a Transport Network: In Mega Corridors in North West Europe*’, in W. Zonneveld and J.J. Trip (Eds.) ‘*Mega corridors in North-West Europe: Investigating a New Transnational Planning Concept*’; Delft University Press: Delft, The Netherlands, pp. 17.

These network conceptions, he claims, are not static but rather alter through time. They begin with the very first network. As the corridor develops, urban settlements in the form of intermediate nodes arise. As a result, they assume the form of a line network. Following that, as time passes, similar nodes begin to appear near the line network, transforming the entire network into a trunk-feeder network in which the emerging nodes are interconnected with the intermediate nodes as well as the nodes at the begin-end stage. Although the size and characteristics of the nodes and hubs (intermediate nodes) vary depending on the existing infrastructure network (airport, major roads, railway station, navigable river) and the distance between them.²¹

In their case study of the Guangzhou-Hong Kong Corridor, *Li and Cao* (2005) demonstrate the relevance of urban corridors in regional growth. They believe that these types of urban settlements play an important role at both ends, acting as centres of convergence of spatial accumulation, transportation networks, and economies, as well as centres of divergence due to spillover effects in their hinterland. They have identified some essential requirements for the formation of a corridor. These include higher population density, the existence of large cities, preferably in clusters, diversified land use, and a well-connected transportation network.²²

Corridor cities are thus bi-centric urban centres in which close links have evolved between two areas of complementary function rather than simply geographic proximity. These cities may share a functional hierarchy, but they are functionally distinct. When taken as a whole, they form functionally integrated (albeit physically distinct) entities, or a 'truncated central place hierarchy'.²³

Corridors directly assist the ideals of urban integration, intensification, and regional urbanisation containment. A corridor is not an elongated node, but rather a continuous link that appears between two metropolises, giving a centrality force with effective public transportation services and diversified land use that can encourage regional growth.

THE INDIAN CONTEXT -

India is not an outlier in this worldwide phenomenon. Here, too, urbanisation has played a significant role in the country's economic development. Nonetheless, in developing nations such as India, urbanisation has not been strongly linked to industrialization. At the time of independence, urbanisation was not considered as a positive development, because urban meant only huge cities. Despite greater levels of urban population growth, India's urbanisation rate is as low as 10% in some areas. In the five-year plans, even the planning process neglected urban affairs. Only in the third plan was a reference to urban problems made for the first time.

As per the Plan Document, 'the problems to be faced are formidable in size and complexity, and solutions can be found not only by state governments, but also by municipal administration and the general public if an increasing amount of community effort and citizen participation can be called forth within each urban area.' The Plan even detailed directions so that, over time, a correct path in this direction could be carved out. These include -

- Public land acquisitions and well-planned fiscal policies to control land values in urban regions
- Town and city master plans should be created through effective physical planning.
- Housing minimum criteria should be clearly stated.
- Basic services should be supplied in accordance with the needs of the urban settlement.
- Urban local bodies should be reinforced so that they can assume responsibility for future growth.²⁴

The chapters on urban affairs began with the fifth (1974-79) and sixth plans (1980-85). The primary focus was on town planning and the creation of master plans. As the establishment of new or satellite towns was promoted, balanced regional growth and decentralisation of urban concentration were prioritised.²⁵ These efforts were futile because the urban settlement hierarchy remained top-heavy. In such a situation, the actual development of corridors could only be a distinct possibility. Whatever the case may be, urbanisation entails a transfer of resources and economic surplus from less

²¹ibid, pp. 18.

²²P. Li and S. X. Cao (2005) 'Evolution and development of Guangzhou-Hong Kong corridor', Chinese Geographical Science, Vol. 15, pp. 206.

²³A. Kidwai (nee Aziz) (1968) 'Study of the Functional Linkages between Lucknow and Kanpur', Submitted to Indian Institute of Technology, Kharagpur.

²⁴Third Five-Year Plan (1961 – 1966), Planning Commission of India, Government of India, pp. 690.

²⁵L. Kennedy and M. H. Zerah (2008), 'The Shift to City-Centric Growth Strategies: Perspectives from Hyderabad and Mumbai', Economic and Political Weekly, Vol. 43, No. 39, pp. 111.

beneficial places to more advantageous ones.²⁶ The situation deteriorated after the implementation of the structural adjustment programme, which resulted in a skewed allocation of investment that favoured large cities. Automobiles, consumer products, electronics, information technology, software, chemicals, and petrochemicals were among the new sectors that arose. These industries were concentrated in a few areas, such as the Ahmadabad-Pune corridor, the Delhi Centric Northern Corridor, and the Bengaluru-Chennai-Coimbatore triangle; other new hubs, such as Hyderabad, Kochi, and Vishakhapatnam, also began to emerge. As a result, the hinterland of the left-over metropolis was effectively bypassed by this new revolution, which was a direct effect of globalisation and liberalisation.²⁷

Another element that distinguishes this growth pattern is the range of urbanisation in Indian states, which ranges from 45 percent in Central states such as Maharashtra, Gujarat, and Tamil Nadu to 11 to 12 percent in places such as Assam and Bihar. People from the periphery are relocating to large urban areas, making them more expensive, congested, and overcrowded. These factors combine to produce negative economies of scale in the form of urban sprawl, which may give way to ribbon-type development because urban sprawl typically occurs along transportation lines.

The study of urban corridors in India is an ongoing effort. This is basically a Geo-cartographic strategy that connects some demographic aspects of the population with geographic space in which the demographic traits crystallise at a specific point in time. As a result, it builds a link between this research design and its development. The research design was considered in the National Urbanization Commission's deliberations in 1987, and a small scale map was included in the Commission's report.

Roy (2001) attempted to develop a corridor model based on the influence areas of towns and cities with a population of 1 million people. The design was built on the integration of –

- i. Qualitative and quantitative population data from an area to establish a hierarchical link between different urban centres.
- ii. The presence of an artery system and its impact on the neighbouring rural areas. These are linked to the nodal urban centres through transportation routes.
- iii. The spatial distribution of various economic activity and land-uses in the connected urban space.²⁸

These corridors have been identified regardless of state and union territory boundaries. There are 25 of such urban corridors throughout the country.

According to the *McKinsey* research, based on 2001 census numbers, the urban India population will increase from 340 million in 2008 to 590 million in 2013. According to this paper, poor living conditions in the city region would exacerbate the need for urban corridors, and the notion of natural cities should be considered.²⁹

According to the preceding scenario, an urban corridor may be a viable solution under such circumstances. If this is the case, transportation lines will play a prominent role in such a spatial layout. Rather than staying a series of independent settlements, the cities will progressively become part of a complex system of interconnected metropolitan regions. The corridor would be based on a multi-modal transportation model and would include both urban and rural activity.

When the concept of the *Golden Quadrilateral* was proposed in the Seventh Five Year Plan, the Indian government began thinking in this direction. This concept was focused on connecting the country's four largest metropolises - Delhi, Mumbai, Chennai, and Kolkata - with a 5,846 km-long national highway. Another effort in this regard began with the establishment of the East-West and North-South Corridors. The East-West Corridor runs along the 3,640 km-long national highway that travels east and west across northern India, connecting Silchar (Assam) and Porbandar (Gujarat), whereas the North-South Corridor runs along the 4,076 km-long national highway that goes north and south across central India.

Aside from these, the Government of India has proposed the Eastern (Dedicated Freight) Corridor, which has a route length of 1856 km. It is divided into two sections:

- i. A 1409 kilometer electrified double-track segment between Dankuni (West Bengal) and Khurja (Uttar Pradesh)

²⁶B. S. Butola (1995) 'Urbanization and Under-Development in the North-Eastern India', in J. B. Ganguly (eds.) 'Urbanization and Development' in North-East India: Trends and Policy Implications', Deep and Deep Publications, pp. 41.

²⁷A. Shaw (1999) 'Emerging Patterns of Urban Growth in India', Economic and Political Weekly, Vol. 34, No. 16/17 (Apr. 17-30, 1999), pp. 978.

²⁸B. K. Roy (2001) 'About a Synthetic Model: In Indian Urbanization (The Urban Corridors)', in R. B. Singh (ed.) 'Urban Sustainability in the Context of Global Change', Science Publishers, INC, Enfield, USA, pp. 183.

²⁹R. Khosla and V. Soni (2012) 'Delhi – Mumbai Corridor: A Water Disaster in the Making?', Economic and Political Weekly, Vol. XLVII, No. 10, pp. 15.

- ii. A 447kilometer electrified single-track segment connecting Ludhiana (Dhandarikalan) to Khurja and Dadri in the states of Punjab, Haryana, and Uttar Pradesh.

Kidwai (nee Aziz) examines the functional linkages between Lucknow and Kanpur in her work, attempting to analyse the planning implications of these functional links on the future expansion of both cities.³⁰Another study on the Lucknow-Kanpur Corridor attempted to understand the economic characteristics of the region between these two major cities.³¹Based on Isard's *Spatial-Interaction* model, this study defined 'influence zones'.The influence zone is defined as the area including rural and semi-urban settlements; these settlements have a propensity to incorporate urban elements into their rural fabric as they transition toward non-agricultural activity. Such an area is typically limited between two big cities linked by a prominent transportation line.

The preceding explanation demonstrates that the current trend of urbanisation in a country like India can be improved with a properly integrated approach.This can be manoeuvred in such a way that it not only plays a good but also a significant part in the process of regional development based on decentralisation by feeding growth impulses in second-tier cities.

CONCLUSIONS -

Urbanization has occurred at a far greater rate than any other phenomenon in history.The pace has been so rapid that it is possible to say that the entire planet has become the hinterland of today's cities.In the nineteenth and twentieth centuries, the emergence of urban corridors, million-plus cities, and mega-cities changed the overall morphology of settlements.Cities have evolved into 'cities as systems inside systems of cities'.This settlement pattern is best understood by identifying the relationship between population size and their relative growth patterns at both the national and international levels. The term 'settlement hierarchy' refers to the comparative ranking of urban settlements based on their levels of primacy, functions, economic activities, services and amenities, population size, migrant attractions, and municipal services, all of which provide them with relative importance within a region.

Conurbations were a new sort of urban expansion that occurred in developed countries in the early twentieth century. These metropolitan districts had multiple contiguous built-up zones, with ribbons of industry running down the main routes leading out of the city and spreading into neighbouring communities. Conurbations had their transportation systems expanded so that the metropolis was well connected with its surroundings, resulting in ribbon growth. The formation of ribbons is the initial stage in the development of corridor cities.

Metropolitan corridors are urban areas that have experienced rapid growth, significant spatial expansion, and the global consolidation of a large number of towns. Urban corridors bring together the productivity benefits of urban economies while maintaining decentralised poles of activity, making them the best feasible alternatives for regional growth and urban decentralisation.

The colonial history of India is at the heart of the country's urban settlement hierarchy. The economy was driven by commodities, which resulted in a population migration towards port or administrative centres, weakening its hinterland.

The dominance of colonial primate cities in India has hampered the growth of corridors to some extent. A well-integrated approach based on the principle of decentralisation, infusing economic impulses in second-tier cities, can bring about balanced regional development in India.

A considerable number of initiatives have been undertaken in recent years to support corridor development at the macro and meso levels in keeping with the underlying principle of decentralised regional development.

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³⁰A. H. Kidwai (nee Aziz) (1968) 'Study of the Functional Linkages between Lucknow and Kanpur', M. R. P Thesis submitted to Indian Institute of Technology, Kharagpur, pp. 2.

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