

National Capital Region : A Global experience

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Abstract

As the seat of government and centre of decision making, the **capital** city is of prime importance in any country. Large scale services, industrial and commercial activities, administrative functions along with the presence of infrastructure and economies of scale renders the capital city - a place a strong magnet, leads to an explosive growth of population and expansion of the. The concentration of population in and around the capital cities creates a variety of problems including traffic, congestion, shortage of housing, increased pressure on physical infrastructure among others. All these issues need to be resolved at wider regional level. Quite often, a Capital Regional Plan or NCR Plan is an answer to these problems.

In modern times Greater London, prepared by Sir Abercrombie in 1944 is considered as first National Capital Regional Plan to contain the development, by creating a green belt around and development of a ring of new towns. In contrast, Copenhagen went with 'Finger plan' in 1947, emphasizing linear development along the major routes. However Tokyo in 1965, opted for a single corridor of development leading to a 'counter magnet', whereas Paris adopted the two axes of development by-passing the capital city. The plans of both - Paris and Tokyo - were based upon the availability of rapid mass transportation.

In short, the strategies adopted by various countries for solving the problems of their national capital can be summarized into four types: Development of ring towns, Laying out of corridor, Adoption of counter magnets and Construction of new capitals.

The current paper discusses these above-mentioned planning strategies for National Capital Regional Plans of world's important capitals from developed countries which has a long history.

Index Terms : National Capital Regional Plan, Growth Pattern

INTRODUCTION

Defining a Region

The earliest approach of defining a region was initiated by Christaller¹, later elaborated by Losch² through central place theory, where in, the region is defined as hierarchical systems of central places or cities. Each region includes a small number of higher order cities and a large number of smaller lower order cities. The order of a city is determined by the diversity of goods offered in the city, which in turn is determined by the relative size of market areas for different goods as assumed to import goods from higher order cities, export goods to lower order cities.

According to Hoover and Giarratani³, nodal regions have two characteristics: (1) they are functionally integrated internally to the extent that labor, capital, or commodity flows are more common within the region than with another region and (2) within the region, activities are oriented toward a single point, or node, having presumed dominance over the surrounding peripheral area.

A variation to nodal approach was provided by Karl Fox's "functional economic area" concept⁴. It explains that the dominance of a central node over the surrounding periphery is attributable to the spatial dependence of workers on adjacent employment centers. The phenomenon is comprehensible because workers always desire to minimize transportation costs of commuting to work and employers wish to minimize the cost of compensating labour for high commutes, functional economic areas are more likely to correspond to the

economic boundaries that firms and workers face in a spatial dimension. This helps the regional spatial analysts and economic analysts to examine regional problems in a much comprehensive manner.

The only problem with all these approaches, theories and ideas of defining regions is that advances in communications and transportation technology have weakened many of the centripetal forces and constraints imposed by geography that tie suburban labour markets to central city business districts for employment needs.

CAPITAL CITY

The capital is by definition is a seat of power and a place of decision-making process that affect the lives and the future of the nation ruled, and that may influence trends and events beyond its borders. Capitals are different from other cities as it secures strong and lasting centrality, provides a special hosting environment required for the safe and efficient performance of the functions of government and decision-making characteristics of the place^{5,6}. Capital cities are often understood as “spaces that represent center points of political power”⁷.

Capital cities are not only an administrative centers, but are also symbolic theaters for national ideology, a catalyst of national economic development, and at least historically a bridge between local culture and the "imagined community" of the nation-state⁷. One of the key functions of national capital is to be a symbol of the nation identity and unity.

Sutcliffe⁸ traced the formation of capital cities through history: Late middle ages were a relatively simple state with the royal palace and its courts. Capital cities became the center of absolute royal authority around the 17th Century and by the start of 21st century, there were more than two hundred capital cities⁹.

In the modern era, capital cities became complex with emergence of four institutions in the modern capital cities: the state bureaucracy, the municipal government, organized religion, and the emerging business elite. With the concentration of elites and state organizations, the city becomes a hub for national planning and nation building. The concentration of power in the capital city has also meant that the symbolic and ideological dimensions of power are inscribed onto the built environment¹⁰. Due to the complexity of modern political power, capital cities are not just about technocratic administration, but also about concentration, sustainability and ideological representation of power.

There is no specific academic literature available that precisely explains the role of capital cities in the modern era, except a few. Campbell⁶, revealed a numerous defining characteristic regarding range of capital cities based on size, political characteristics, history, economic features, geography etc. Although the literature on capital cities consists of a diverse collection of writings by architects, historians, political scientists, urban planners and sociologists - each addressing different aspects of capital cities, but there is no single, clear theory regarding capital city development. Though there is a wealth of writings on the description, history and architecture of individual capital cities, a bibliographic search for theoretical writings explicitly on capital cities leads to a surprisingly short set of readings^{11,12 and 13}. As Rapoport¹⁴ notes, "...little has been written about capitals as a type, as opposed to specific capitals...".

NATIONAL CAPITAL REGION: A GLOBAL EXPERIENCE

LONDON

It was in the decade of 1940's that finally a 'National Capital Region Plan' for a country was planned and it was Greater London Plan of 1944. The twentieth century saw the capital transformed from an Imperial to a Global City. The need for Greater London Plan emerged in order to overcome the city's congested development. The plan was based around five main issues facing London at the time which were Population Growth, Housing, Employment and industry, Recreation and Transportation.

The Greater London Plan of 1944 by Patrick J Abercrombie and F.J Forshaw embraced a region of 2600 square miles and was influenced by Ebenezer Howard's¹⁵ ideas for a greenbelt surrounded by a Garden City. To implement Howard's concept, Abercrombie proposed to develop Greater London under the premise of a four-ring city with four circular sections extending out from the inner core of the city¹⁶. The plan proved to be an ideal model for almost all the Capital cities of future, especially its concept of checking the development. (Figure 1)¹⁷.

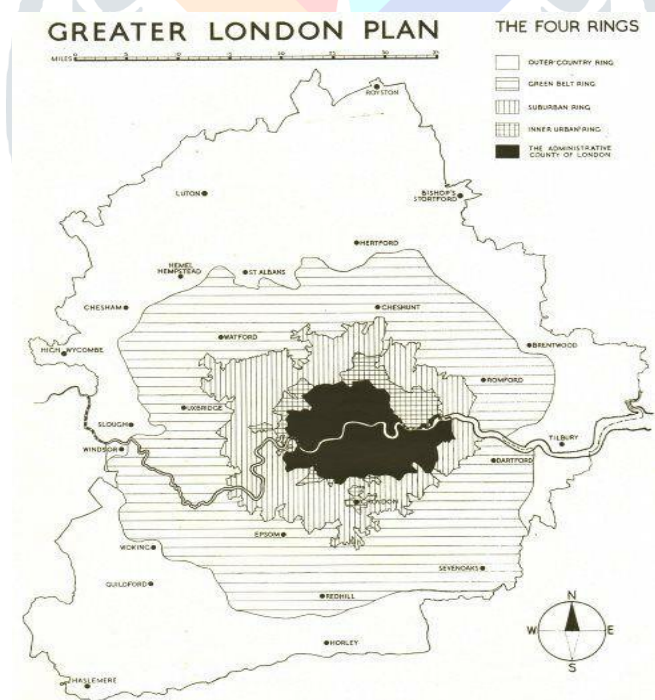
The first ring was called the Inner Urban Ring – A densely populated core with residential, commercial and industrial land uses that required decentralization. The population and activities of this core overflowed into the next ring - the Suburban Ring. In this section of the city, the continued growth of London was most evident. Thousands of houses were built for people who were not currently living in the neighborhood and for those who preferred commuting to avoid the excessive rents and overcrowding of central London. In the third ring was the Greenbelt Ring. Here, outside the built-up areas of the first two rings, was open land and a start to the solution of housing problems of the first two rings.

There was an open stretch of green land, including farmland, parkland and extended approximately five miles and included open country, and the largest portion of land that had been acquired under the Greenbelt act of 1938. The last of the four-ring concept was the Outer Country Ring, located outside of London's areas of congestion and suburban sprawl. In the fourth-ring, the decentralization of London was proposed for accomplishment with the characteristic farming over almost the entire area. For the growth of outer London while decentralizing its inner urban ring, rapid transit and communications was incorporated in the plan¹⁶.

The population within the heavily urbanized area of the county and the inner ring was proposed to be reduced by 1,000,000 people by dispersal within the sub urban and outer rings. With time, the urban conurbation (concentration) of the region had extended the

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Figure 1 . London Region.



boundaries of sub urban ring beyond the limits of the plan and has forced the expansion of the green belt. The regional area was also extended to 4600 square miles since the plan was conceived and the total population has grown from 8,000,000 to 10,000,000. The planned decentralization of London by reduction in population density, dispersal of people and industry from the inner core of the metropolitan area was implemented by the New Towns Program. Of the 15 new towns in England, Scotland and Wales, eight were located within the

A ring of eight new towns (i) Stevenage, (ii) Welwyn, (iii) Hemel-Hemstead, (iv) Crawley, (v) Harlow, (vi) Bracknell, (vii) Hatfield and (viii) Basildon between 40-60 mile radius from the city were built on the principles of 'Garden City' of Edward Howard¹⁵. These towns deviated the growth of urban sprawl and Gallion¹⁸ recognised them as a great experiment and a great success. These new towns were self-sufficient units in themselves and helped to redistributed around one million of London's population, along with a number of industries and other activities. The 'green belt' in between the ring of new towns and London was proposed to check the inward expansion of cities and outward expansion of cities and outward expansion of London respectively. This concept of 'Green Belt' is still being adopted by many countries.

The success of the greenbelt in London was mainly due to extremely powerful development control regulations. But it has been criticized for limiting the developable land and increasing the price of housing, resulting in sprawl, increased dependency on private transport and increased commuting time and distance^{19;20}. But all these have been managed by one of the key feature of London sustainable regional strategy - Regional Metro, which connects various centers and further connects these with a local distributor transit system²¹.

Factors that strengthen the urban containment include housing, greenbelt, and countryside policy, directing the use of brown-fields for housing through funding and tax incentives²², prioritizing development in town centers, setting national housing density targets, and creating a sequential approach for allocating land for development²³. New developments are only permitted along high-capacity public transport lines, and development unrelated to agriculture and recreations are prohibited in the greenbelt and open countryside²⁴.

MOSCOW

Abercrombie's theory of rings of development and decentralization of capital through development of new towns has also been adopted by Soviet Union. The National Capital of USSR (now Russia) i.e. Moscow, is also the most important city of Russia has been planned along similar lines. Industries are discouraged from settling in cities which have reached a population of 500,000, but the new communities became satellites of larger cities to assure proximity to the cultural activities in the existing cities. Moscow capital regional plan was proposed in 1943 with 18 new towns with 3 ranges of population (i) 30,000-50,000 (ii) 50,000-100,000 and (iii) 100,000-300,000 following Christaller's Model of settlement hierarchy (Figure 2)¹⁷.

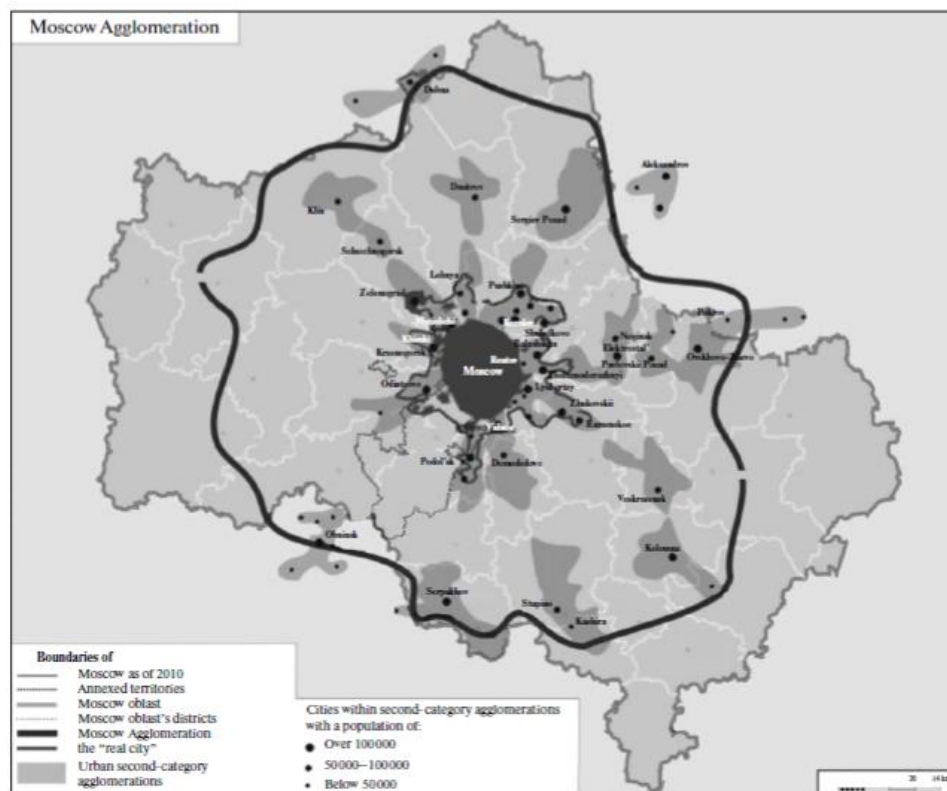
Moscow city being continental in nature has grown uniformly in all directions. A ring road at an 11 miles radius from Kremlin, was developed, which would also serve as the inner boundary of the proposed 6 mile wide Green belt. Nine large new towns at a range of 30-60 mile away from Moscow centre have been developed. These towns are 1) Zelenograd 2) Dedovsk 3) Pushkino 4) Odintsovo 5) Ramenskoye 6) Vnokovo 7) Podoisk 8) Mytishchi 9) Balashikha. These growth centres have been developed with the prime goal of decentralization of the increasing population of Moscow, as well as its various functions such as manufacturing, large industries, institutions, etc. These towns are linked to Moscow's centre with direct highways and sub Metro railways.

The 1935 plan for Moscow demanded a halt to all experimentation in planning and moved to establish principles common to all socialist cities. These were:

- Limited city size;
- state control of housing;
- planned development of residential areas (the superblock and micro-region);
- spatial equality in the distribution of items of collective consumption;
- limited journey to work;
- stringent land-use zoning;
- rationalized traffic flow on a hierarchy of new roads;
- extensive green space (parks and city greenbelt);
- symbolism and the central city (May day parades);
- town planning as an integral part of national planning.

All of the plans for Moscow up to the present, called for limiting its population. The failure to cap the population growth is one of significant failures of planning Moscow. This led to a harmful effect on the integrity of the greenbelt around Moscow. Poor coordination between Moscow and the Moscow Region authorities, there has been the urbanization of the belt of late years. This leads to an expansion of construction sites in Moscow and to the destruction of the green belt protective functions. During 1990s and 2000s the number of cars in Moscow grew 600% to about four million²⁵. Despite an ambitious road-building program, Moscow's traffic congestion is among the worst in the world. One reason for this was a complete lack of cooperation between city and oblast, which resulted, in Moscow's modern radial highways turning into narrow country roads beyond Moscow Automobile Ring Road (MKAD). It is a situation that persists today although the situation is changing due to privatization of land and the influx of large domestic and foreign development interests eager to put up large projects.

Figure 2. Moscow Region



Currently, the Moscow Region occupies an area of 44 thousand square kilometres, 72 cities, 109 towns and 475 rural centres are located in the region. 11 railways and a developed network of highways link them. As of 2010 the region's population made up about 8 million people and with Moscow's population totals some 20 million people which is 13.6 % of Russian population. Based on the populated territory indicator (number of settlements per 1000 square kilometres) the region falls under the category of "high density settlements regions". Therefore, the Moscow Region belongs to an urbanized area on the basis of formal indicators. However, town-like settlements are located unevenly throughout the territory of the region.

COPENHAGEN

In contrast to that of Ring Development, there is another concept of radial development or planned development along the natural growth lines, which was adopted by Copenhagen, the largest and most populated city of Denmark.

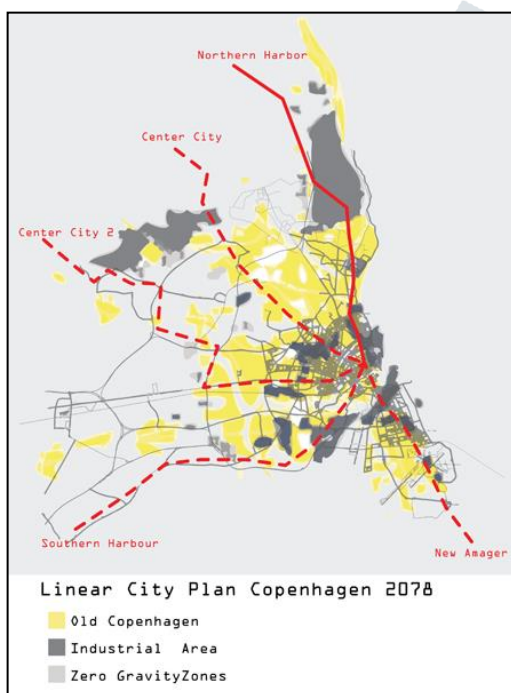
Till 1936, there was no planning effort in Copenhagen and the result was that the city grew in a haphazard manner in almost all directions. This instigated the official body to prepare the finger plan, which was adopted in 1949, aimed at checking Copenhagen's haphazard growth and channelising its growth and development along certain axes.

The ‘finger Plan’ recommended for the regional development of Copenhagen was based upon a series of satellite towns linked to the Central city by rapid rail transit and vehicular road ways. Connecting these radial routes were ring roads. Industrial areas were located at the intersections of these travel routes to implement the convenient cross circulation between the various communities and the centre of industrial employment (Figure 3)²⁶.

The Greater Copenhagen area is divided into four types of geographical area:

- 1) Core urban region (the palm of the hand),
- 2) Peripheral urban region (the city fingers),
- 3) Green wedges,
- 4) Rest of the Greater Copenhagen area.

Figure 3: Finger Plan of Copenhagen



The core urban region (“the palm of the hand”) and the peripheral urban region (“the city fingers”) together make up the “finger city”. The finger city structure ensured that urban development take place in core urban regions and peripheral urban regions along with transport arteries consisting of railway services with suburban trains, regional trains, metro and light railways, as well as an attached general road network. The finger city structure has helped ensure smoother traffic situations in the Greater Copenhagen area than in many other metropolitan regions.

The areas between the city fingers must be maintained as green wedges for regional outdoor recreation which are easily accessible to all residents in the metropolitan region, including people residing in densely populated urban areas and agriculture. As a result, the finger city structure has helped ensure the qualities of the Greater Copenhagen area as a metropolitan area, as well as a place to live and work.

While the population and area increased much more than anticipated or accounted in the Finger Plan in 1948, it became quite clear that the Greater Copenhagen area could not continue as a city with only one main centre, and therefore the Finger Plan need to be supplemented with a number of secondary centres. Therefore in 1958, a Regional Planning Secretariat was set up which firstly came up with the “First-step plan” in 1963. The plan focused on reducing travelling time to a maximum of 45 minutes from any residential place to work area. So new work areas were developed along the westward axis. Four regional centres with population of 250,000 were proposed to be developed. These were (1) Frederiksberg (2)

Gentoff (3) Hvidovre (3) Rodovre. These new as well as redeveloped towns are large but not as self sufficient as in the other cases i.e. London.

In 1974, an act on regional planning in the Greater Copenhagen area was enacted and the Regional Plan for 1973 was published. For the first time, the Regional Plan reserved areas in the form of a transport corridor for long-distance traffic lines and the resultant urban growth. The Finger Plan was the first regional plan to adopt the faster railway linkages between the settlements.

Currently, Central government has focused on further enhancing Copenhagen's profile as a green capital in the future. The same has been implemented through the national planning directive the "Finger Plan 2007" and "Finger Plan 2013". One of the unique aspects of these plans is that there is no concrete development plan but contains only the directions to municipalities. It guided the growth of the city through the extension of the town "fingers", with potential for new urban areas and the extent of the green wedges, fostering the infrastructural system, Another major aspect is regarding transportation as it worked on the "Station Proximity Principle", by promoting concentrated location of facilities near to the train stations (location of large office buildings and commercial facilities within 600m radius from train stations) as an effort is necessary to reduce traffic congestion. Presently having 2 million population covering 34 Municipalities.

In summary, the Finger Plan has formed the backbone of regional planning for the Greater Copenhagen area since 1948 despite the plan being constantly challenged by actual developments and even though planning has been carried out by different bodies and with different legal effect.

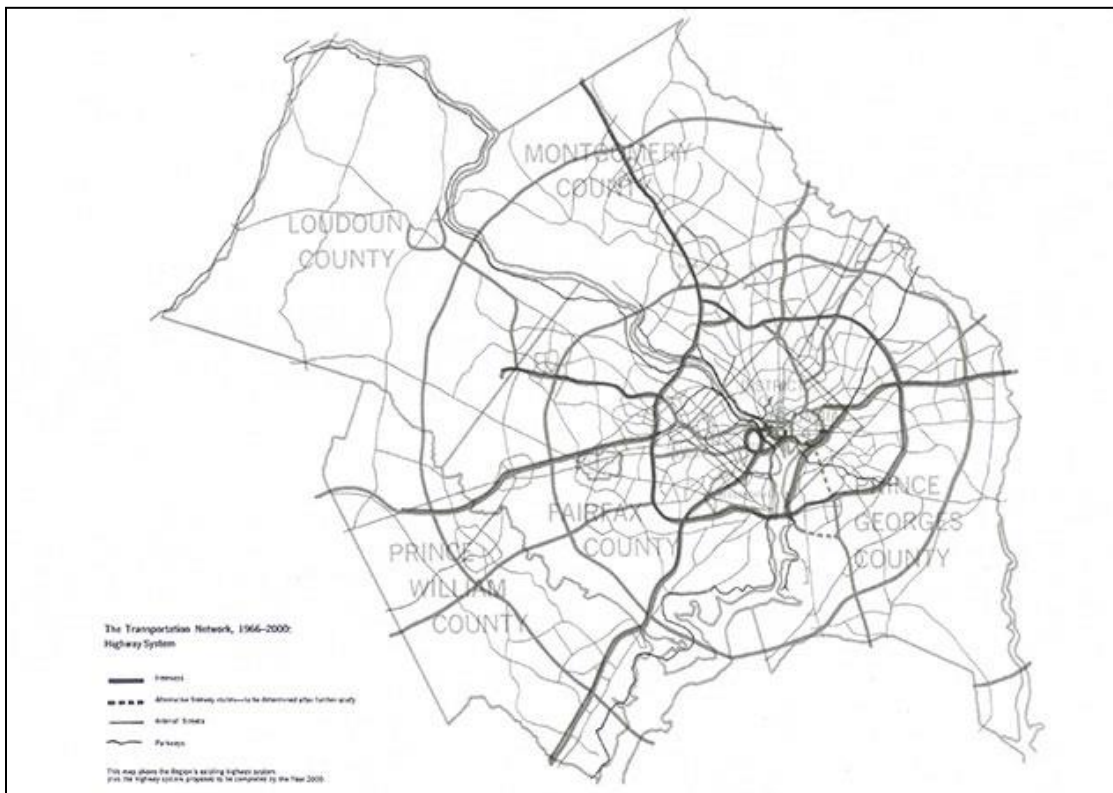
WASHINGTON

The plan for Washington D.C. was also along lines similar to that of Copenhagen. The Regional Plan for Washington D.C. was prepared only after world war II, during the cold war era. The shifting of United States 'war Department' office, popularly known as Pentagon into the suburbs of Washington D.C. has led to the shifting of other major offices to different places in the district. Each shifted office building itself become a subcentre as the need of ample parking space and other facilities and services came up. This made Washington D.C. a multcentred city.

In 1961 National Capital Regional Plan was made for the year 2001 with policies of 'Radial Corridors' with reference to L. Enfant's 1780's plan of Washington City⁹. These have also been referred to as Wedges and Corridors and in totality have taken the shape of a star. These corridors running upto 70 miles from the city of Washington were proposed for developing various cities of 3-5 lakh people along them. So ultimately it is a planned growth of urban sprawl in all directions.

The major centres towards which these corridors were planned are (i) Virginia (ii) Alexandria (iii) Annapolis (iv) Baltimore and (v) Maryland. The major cities on these corridors are Fairfax, Neel-Smithes, Rocksville, Airlington, Collington, Gutherberg, Lowell, Springfield and Potomac and Barne. These are not exactly situated on National Highways but linked with link roads, considering the safety and environmental conditions.

Figure 4 : Washington D.C. Capital Region



In 1984–1985, a Comprehensive Plan was submitted by City’s Office of Planning for National Capital Planning Commission (NCP) review of Federal interests and then to the City Council for approval (Figure 4)²⁷. The Comprehensive Plan for the National Capital (Comprehensive Plan) is 20-year framework that guides future growth, planning and development in Washington, DC and the surrounding region. It addresses a wide range of topics including land use, economic development, housing, environmental protection, historic preservation, transportation, and more. The DC Office of Planning has launched an effort to amend the Comprehensive Plan periodically to ensure that it remains responsive to the needs of the community.

The Comprehensive Plan is a unified plan comprised of two components – the Federal and District Elements. The Federal Elements are prepared by NCP, and provide a policy framework for the federal government in managing its operations and activity in the National Capital Region.

The Federal Elements include:

- Federal Workplace: Location, Impact and Community
- Foreign Missions and International Organizations
- Transportation
- Parks and Open Space
- Federal Environment
- Preservation and Historic Features
- Visitors

The District Elements are developed by the District of Columbia and address traditional city planning issues such as land use, housing, and economic development. NCP reviews and approves updates to the District Elements to ensure consistency between the District and federal elements.

The District of Columbia is responsible for preparing the local elements of the comprehensive plan, including:

- economic development;

- housing;
- environmental protection;
- transportation;
- public facilities;
- urban design;
- preservation and historic features;
- the downtown plan;
- human services;
- land use; and
- ward plans for the District's eight wards.⁴³

The 2010 National Capital Region Homeland Security Strategic Plan affirmed the National Capital Region's (NCR) commitment to a common vision of "working together towards a safe and secure National Capital Region" to achieve its mission of building and sustaining "an integrated effort to prepare for, prevent, protect against, respond to, and recover from 'all-hazards' threats or events."

In the last two years, many of the objectives and initiatives of that Plan have been realized and much has been learned. As called for by the updated timeline of the document, the NCR has revisited the Plan and now issues this update to the Strategic Plan.

The Strategic Plan will guide the NCR in achieving its priority capabilities over the next two years. The NCR made significant progress under the 2010 Strategic Plan. In implementing the 2010 Strategic Plan, the NCR built on its longstanding commitment to collaboration by strengthening its regional approach to homeland security planning. Similarly, the NCR continued to engage its citizens by developing, implementing, and sustaining public preparedness education campaigns and emergency messaging. Likewise, the NCR made strides in region-wide response and recovery capabilities. Finally, partnerships and communications among the NCR's public, civic, private, and non-governmental organization (NGO) stakeholders continued to be successfully developed, as was an integrated training and exercise framework.

PARIS

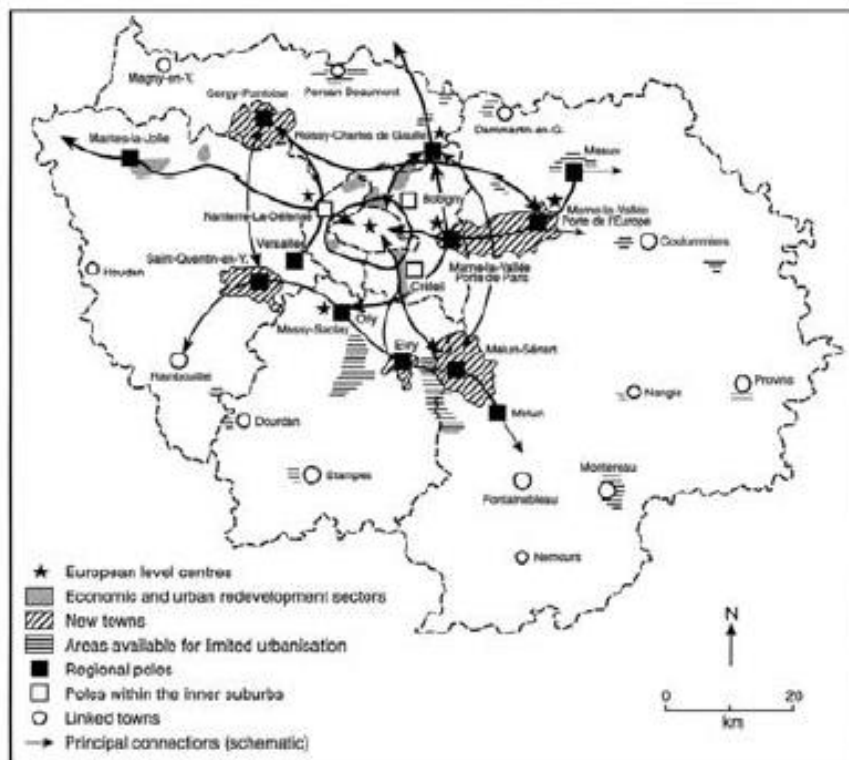
It can be easily mistaken that the claims about Paris's major capital city status and the urban design associated with it to make it an example of 'City Beautiful' is the result of strategic the planning of the city. Although there was considerable discussion regarding planning of the city for decades, but it was only in 1960s that strategic designs for Paris were finally accepted and implemented. Paris planning history can be therefore divided into two: first, the stagnation of planning activity up to 1960; and second, the new strategic thinking of the last fifty years which has made Paris one of the more strongly planned urban areas of the world.

The capital city region continued to grow in population throughout the twentieth century, and planning interventions were called for to deal with the issues of growth. The intervention came in the form of first major regional planning scheme (of 1960) with an aim to need to contain the growth of Paris. The new strategy was approved in 1960 as the *Plan d'Aménagement et d'Organisation Générale de la Région Parisienne* (or PADOG) with an aim to distribute the population growth in the Paris region as it was not possible to stop the growth of Paris.

Therefore, a growth pole strategy was suggested based on the development of a major new area of high density land use at La Défense in the western suburbs. A new strategic vision for Paris and its region was adopted which included mechanisms for its modernization and sustainable growth by decentralizing the congested heart of the city to the under-provided suburban realm. Major proposals included the creation of a series of new towns; new motorway construction; the establishment of the RER network of cross-regional rail services; the addition of suburban development poles apart from La Défense that was envisaged under the PADOG; and the identification of protected zones within the built-up area.

Paris capital city regional plan is one of the example that followed neither the rings nor the radials on philosophy of development. It adopted concept of corridors of development in 1965. Not giving in to the concept of British new Towns, the decentralization of Paris was planned in large increments²⁸. One nucleus is 'La Defense Montesson' where it was proposed to develop a new city for 700,000 – 800,000 population. Another community was proposed for 150,000 to 200,000 persons near Versailles. It was intended that these become new cities with all facilities including industrial development. To complement this program, it was proposed to introduce industries into a number of villages near Paris, having population ranging between 20,000 and 30,000 as a means to bolster their economy as well as remove the pressure upon the central city (Figure 5)^{9; 29}.

Figure 5: Paris Region



Six regional nodes were developed. These are (i) La defense-Nanterre ii) Versailles iii) St.Denisiv) Bobigny v) Rungis vi) Creteil. Six giant new cities were proposed to be developed along two axes. These are Cergy-PontoiseBeuchamp, Lagny on Northern axis and Trappes, Evry, Tigrey-Lieusaint Mantes, on Southern axis. It was estimated that this axial development would provide housing for three million people by year 2000. Special care has been taken of existing forest land and water bodies with due regard to environmental, ecological as well as recreational considerations. Later the establishment of 5 new towns along an east west linear growth pattern was recommended.

The strategy of vigorous growth instead of restricting boosted the growth on the regional scale and at the same time it restricted the developed within the capital city. The importance of infrastructure for transport was stressed in each new city. These new towns are independent and exhibit a hierarchy in terms of functions such as social, government and educational, institutional. These were linked to Paris through regional express metro railways(TGV) as well as new and better motor highways. It was expected that such continuity of cities in a row will turn Paris into an elongated linear city from its present state of poly-centric city, with a number of regional growth poles and axes within the suburban realm. Four of these poles are to be 'centres of European reach' (*centres d'envergure européenne*). A fifth such designation is made of the City of Paris itself.

Conclusion

In short, the strategies adopted by various countries for solving the problems of their national capital are mainly of four types:

- (i) Development of ring towns
- (ii) Laying out of corridor
- (iii) Adoption of counter magnets

It is noteworthy that all these strategies were formulated and initiated by developed countries and later followed by developing countries. The planning and development remains always a continuous procedure and with time changing priorities as well as the scale of Capital and city modified accordingly.

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