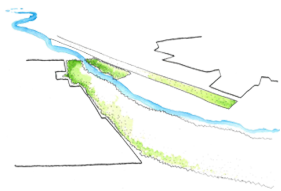


RE- ENVISIONING CHANDIGARH

Role of urban peripheries in formation of metropolitan regions in the case of Chandigarh and its surrounding Region.

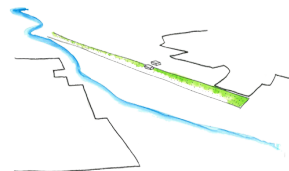
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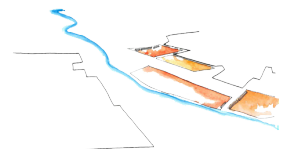
Ecology



Connectivity



Landmarks



Neighbourhoods



RE - ENVISIONING CHANDIGARH

Role of urban peripheries in formation of metropolitan regions in the case of Chandigarh and its surrounding Region.

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Success !

Divya

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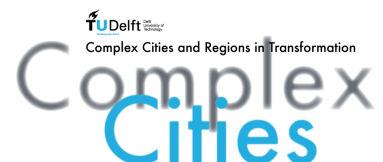
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BUILDING THE POST-LIBERALISED INDIA



Source: Flickr by Herbert. Showing the open hand memorial in the Chandigarh City Capitol Complex

The graduation project “re-envisioning Chandigarh” attempts to understand the growth and rise of emerging metropolitan regions in India through understanding the changing urban structure and form, in the fast growing city, Chandigarh and its peripheral region, in the northern part of India. Chandigarh has been a globally well-established city for its strong execution of the garden city model, by the very well renowned architect Le Corbusier, in the Post-Independent India, in the year 1951. From being a modest middle class service town and a capital city to Punjab after the post-independence partition between India and Pakistan. To being challenged as an emerging metropolitan region and a strong sub-centre to New Delhi and the NCR (National Capital Region).

From a original garden city model to a fast emerging metropolitan region, the model is being constantly being challenged by the growing economic patterns. Further the government policies and multiple actors in the administration and management of city and its peripheral region are adding to the complexity in the layers in the social and urban form. A constantly rising phenomenon in India as the national census of India, of 2001 and 2011 establishes the constant increase in the concentration of cities into bigger metro-polititan regions and resulting in there rapid expansion along their peripheral belts. The project tries to look for new adaptive models and ways to align these multiple forces towards a better living and working environments. Also, through the process, it efforts to understand the interdependency of different private and administrative forces, as a growing demand for the synergy in these parallel on going processes.

MOTIVATION

My personal motivation for choosing Chandigarh and its periphery, in India involved both the familiarity with the place, and the growing complexities in a developing country like India and also my budding interest in the emerging urban metropolitan regions, due to global pressures and there demand for a foresight to realise and establish ways to understand them more in detail and adapt to the newer models.

Though, Chandigarh is a fine example of post-Independent India. In last couple of decades, the social and economic aspirations have changed of a developing Nation, which are being reflected in both spatial and social growth of Indian cities. Not only, is the phenomenon very apparent in the area, but its well established garden city model, defining separate and standard living and work modules and the special case of multiple government actors defining its growth and policies towards its future make it an interesting as well as a complex case to study. Further, the project gives me the opportunity to explore my interests and possibilities with numerous aspects in its spatial form and urban pattern of a developing urban region.

Also the project, intends to explore the growing and changing demands of a new society and how these forces are evolving, with a new set of values, aspirations a demand for a completely different outlook towards cities in general.

AIM OF THE PROJECT

The project aims to recognize the new emerging urban patterns and forms in the neo-liberalized India, by understanding the interrelationship of global economic forces and its local impacts. While there are postmodern urban models being constantly challenged with the rise of a new spatial and social culture, there is a need and demand for a responsive and more sensitive perspective towards their growing demands. The project intends to explore this new phenomenon, from a much broader and general perspective to a more local and specific case, to further establish a better understanding of the phenomenon to its local consequences. Further, it is the purpose of this research to recognise the expansion of peripheral areas along growing metropolitan regions as a result of concentration of big cities and additional expansion of its peripheries.

The project also explores the interdependency of multiple actors and stakeholders and their varied aspirations and interests, it helps add more layers to the complexity of already sensitive urban forms and opens up new perspectives for research. Through this project, it is also intended to understand the global phenomena better and explore other national and international case studies, to help further realise the growing change in spatial patterns. And, as the project deals with different administrative borders and government actors, it aims to help understand the missing alignment in the policies with economic systems and their lack of collaboration, initiating in cross border conditions. Finally, it intends to add to the larger discourse over the subject, and open up new possibilities and approaches, which could be further beneficial in India and other developing countries.

Global to local: A changing perspective through the growing peripheries along the boundaries of emerging Metropolitan regions in India.

Keywords: Metropolization, peri-urban, governance, global networks

Globalisation and free market economy, a global phenomenon since the 1990's have had a radical impact on the growth and development of cities, and directly or indirectly their influence is reflected even to a more local scale. Not only have, global systems have had a large impact on developed economies but, it has parallelly effected developing countries like India, China, Brazil in a big way. These changes as a consequence have placed these countries on the world map in a more potential and stronger way. And have also given a complete new perspective to spatial and social forms. As a result, helping these countries to nurture a complete new set of values, a new emerging society, with more demands and better aspirations and a new redefined relationship with the world.

Further, Anthony Giddens, in his book, *The Consequences of Modernity* further strengthens the same aspect mentioning that,

Globalization can thus be defined as the intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa. (Giddens, 1990) P-64.

Not only has this phenomenon led to an increased concentration of cities, it has also enforced technology in a much stronger way. Leading to "Death of Distance" (Hall, 2004) and an increased significance to urban networks and networked cities as a new global phenomenon. Further, this has only helped make cities more compact in terms of their resources and connectivity on one hand and simultaneously, helping them grow to vast urban expansions as a result, attracting more opportunities and prospects.

While, government agencies and administrative organisations have been constantly under pressure in case of India and other developing economies for there, large population and lack of resources to accommodate such numbers, these pressures have only added to the complexity of their aspirations. Adding to this complexity, the government policies focus towards centralisation and privatization of its resources have further made it even more complicated, by both adding more stakeholders and also largely helping an intense disparity in the spatial patterns of Indian cities and regions. And this is largely apparent in the periphery belts of large metropolitan cities in India, as mostly they do not come under any Government administration and lack recognition of their existence and rapid growth. Which is further to large disparity between, city centres and urban peripheries creating a significant difference in character, patterns and form both spatially and socially.

Though, one aspect is that these conditions have made India, China, potential centres for growth and the world is looking towards them as they give ample amount of opportunity to de-

velop. At the same time, conflicting government policies and their lack of recognition of the phenomenon and successful steps taken to cope with it have only led to inconsistent urban patterns. However, there have been steps taken through governance policies towards the development and future growth of these zones, they either lacked the impact or had much little effect as they were not properly enforced or the policies inherently lacked the understanding of interdependency and need for connectivity with global economic systems.

The further response to these incoherent actions and aspirations between government and private stakeholders is seen in the way the cities and their peripheries are both expanding and administered. As on one side the city centres are getting more focus and becoming potential development centres and cores of large economic accumulation, simultaneously the peripheries are growing in much haphazard way, with little or discrete administration, but in the process growing so big that becomes a parallel competition to the city centres in the process.

As Saskia Sassen argues,

The mix of processes we describe as globalization is indeed producing, deep inside the national state, a very partial but significant form of authority, a hybrid that is neither fully private nor fully public, neither fully national nor fully global. (Sassen, 2003)

With this argument, at the end that, these forces are influencing a new kind of emerging system of authority, and to cope with the growing demands raised by these forces and the need for synergy between different actors, it is vital to evolve new significant forms of authority as well, in order to respond in a much more substantial and powerful way.

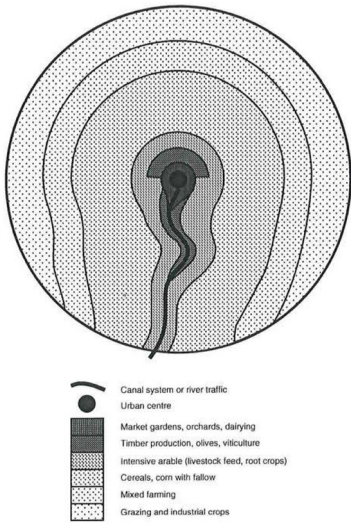


FIGURE 2.3 Von Thünen's 'Isolated State'
Source: adapted from Chisholm (1979)

Fig:1 ,Source: Book By Bliar Baddock, Making sense of cities, p-37



Fig:2, Source: Drawn by the Author, based on the concept of The world city Hypothesis by John Friedmann, (Freidmann, 1986)

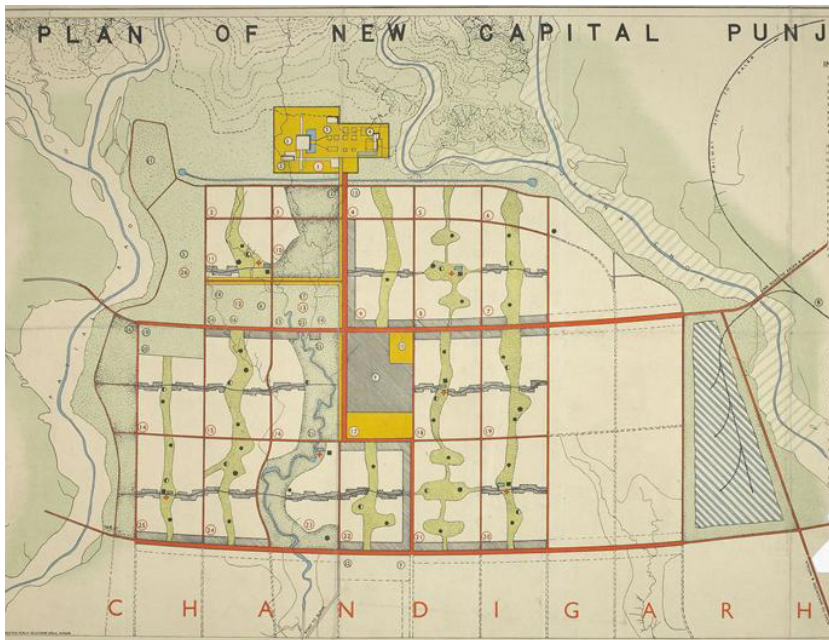


Fig:3, Source: Chandigarh administration webpage

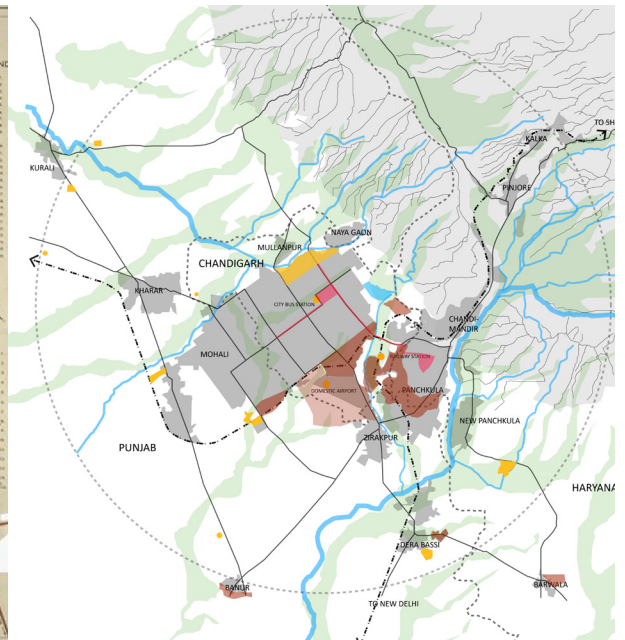


Fig: 4, Source: Drawn by the Author, the present condition of the region



**Expected rise in
urbanisation India
from 25% to 40% in
the coming 10 years**

Constantly fluctuating global economic trends are challenging the way cities are growing and creating a new socio-spatial dynamics in India. These changes in the cities are both because; the demands of a growing nation are changing, as it enters a more stable phase of its economic and social growth and also because of India's constantly progressive position in the global market since the 1990's. With the phenomenon of free market economy in the 1990's and a courageous response of opening up to international trade in the Indian national capitol system added to multiple layers in these following years in all spheres of social, economic and spatial aspects. As a result making a finely complex system of actors, different factors and ambitions and their consequences. While explaining the same, Priemus and Hall explain the phenomenon by saying,

"Urban places do not lie together, but form parts of networks of connected places."(Hall, 2004) P-344.

Where they further, establish the importance of a global system of networks and the evolving significance of being constantly connected with it. While Mega cities in India are fast becoming potential participants in these processes, they are also expanding and creating a further sub network of their own within their own local and regional context. In the end, enforcing rapid urbanisation and increasing the requirements and resources needed to cope with them. With, India's level of urbanisation projected to reach as far as 40% by the year 2030, from the current 20%(Mohan, 2005). This projected increase is also on one hand enforcing government agencies to consider more investments in infrastructure, mobility, and other services, and simultaneously it needs to make them comparable to its global counterparts by use of the term "completely makeover" to define its large cities (Prasad, 2004).

With only 30% of the total population living in these cities and contributing to the 60% of the total GDP of the nation, its constantly putting, population and employment pressure, reflected on the liveability of these areas, later defining a new emerging social and urban pattern. While there is an extreme pressure on the city centres and cores, towards development and becoming the influential members of these networks, a vast amount of growth making cities expand exponentially. Asserting this further, even (Friedmann, 1973) mentions that while many political and economic stakeholders concentrate on the growth and national capital, subsidiary growth centres spring up on the peripheries, which eventually become a parallel urban administration in the order. Giving rise to an immense amount of growth and expansion, but more importantly a large disparity between urban structures within the city centres and along the peripheries, creating a new urban pattern.

Creating a new "mixed-space"(Dupont, 2007), an emerging transitory space between the urban centres and rural spaces. These spaces are mostly not neutral spaces but actual transitory spaces in between different patterns, giving them a character of both. Though, they are not very well defined in their form and structure, nevertheless they are the most potential spaces for growth, for both their location and their capacity to adapt to the given conditions and rapidly transform. Making it rather an es-

sential aspect to realise their importance within the society and recognise them in the new emerging urban forms.

Further as Veronique Dupont also asserts, that these spaces are never neutral but rather transitory spaces as a response to diverse and conflicting stakeholders, government and societal ambitions and their lack of required attention given to these intermediary spaces (Dupont, 2007). Making it rather essential to understand the varied forms of urbanisation, land uses, use of natural resources, which help form these spaces develop around the urban centres of Indian metropolises.

In addition, bringing to the forefront the requirement of government organisations and administrative agencies to work in cohesion with each other and align their aspirations and future political ambitions with the global economic systems. However, in the case of India, 74th Constitutional Amendment's Act, 2005(India, 2005) has recognised these "transitional areas" and granted them civic status, but left to the different states to acknowledge them on their own. Making some of these zones come under the legal jurisdiction while others remaining far beyond the control of any urban administrative body (Dupont, 2007).

Further raising concerns about between social disparities by increasing the opportunity for some areas to grow while others with lack of resources to suffer with no acknowledgement. Hence forth, bringing to surface many such concerns and adding such discrepancies and lack of recognition makes it a vital subject of study but socially and spatially. Furthermore, it adds to the larger discourse of understanding the phenomenon better and in a more precise manner by taking specific cases, also making it useful for new researches and developments in similar fields and giving them a much broader perspective.

It is vital to the research, to understand these global systems and their local consequences and impacts in a certain specific condition in order to have a much broader perspective of the phenomenon and a precise understanding of the various local conditions and aspects further creating a dynamic and complex urban environment. Though the national census of India, for the years 2001 and 2011, surfaced the dynamics of mushrooming metropolitan regions in India in the last 20 years time. And many government policies have further initiated processes to align the future growth in certain parts. There conflicting aspirations towards individual stakeholder's aspirations towards the place have raised many concerns. This, chapter tries to analyse the process from national to regional scale through the case of Chandigarh, and its peripheral area, and further tries to analyse the different actors and there participation in the on going realities and tries to relate it to its larger national and global context.

LOCATION

Chandigarh is situated in the northern part of India. It is a capital city to two states namely Punjab and Haryana. Famous French Architect Le Corbusier designed it in 1950's, as a post-independence city in India. It is situated at the foothills of Himalayan ranges. The city has more than 1 million inhabitants in an area of 114 kms according to the 2011 census of India(India, 2011) and is designated as a metropolitan area as a reference to it. Further the region overall has a population of more than 3 million inhabitants, where the Chandigarh is the main core centre while the other cities and agglomerations form the larger part of it.

The location at the foothills of the Himalayas was chosen considering that state of Punjab needed an immediate capital after the Independence and partition of earlier Punjab state into two parts where one went to Pakistan and the other part came to India. Also, as it was fairly positioned between the then capital of India New Delhi and the summer capital which was Shimla in the further North of Chandigarh.

Chandigarh was initially designed as a middle class town majorly focusing on the government sector occupation. Initially expected to be a modest town of 50000 inhabitants and eventually growing to 500,000 in next decades, it rather grew much rapidly and exponentially considering the good living conditions and ample government sector job opportunities it provided. Further giving good opportunity to its periphery to expand and grow in the last couple of decades.

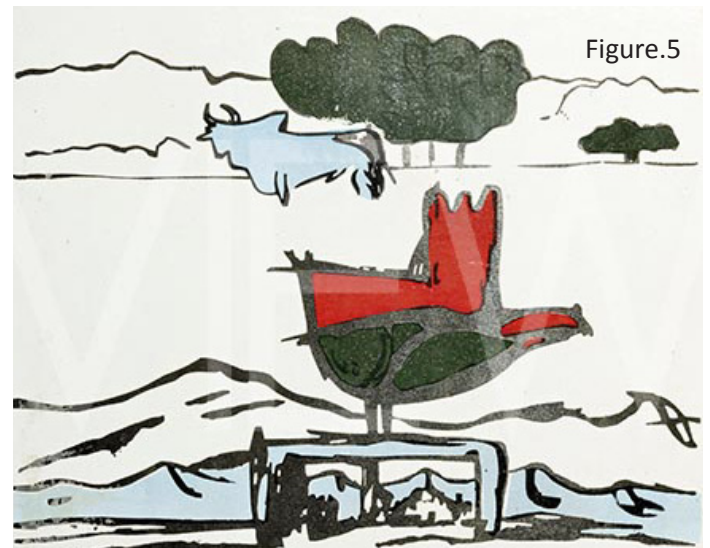


Figure.5

Source: http://arcchicago.blogspot.nl/2012_06_01_archive.html.Showing the initial sketches of Corbusier of chandigarh with Himalayas in the backdrop.

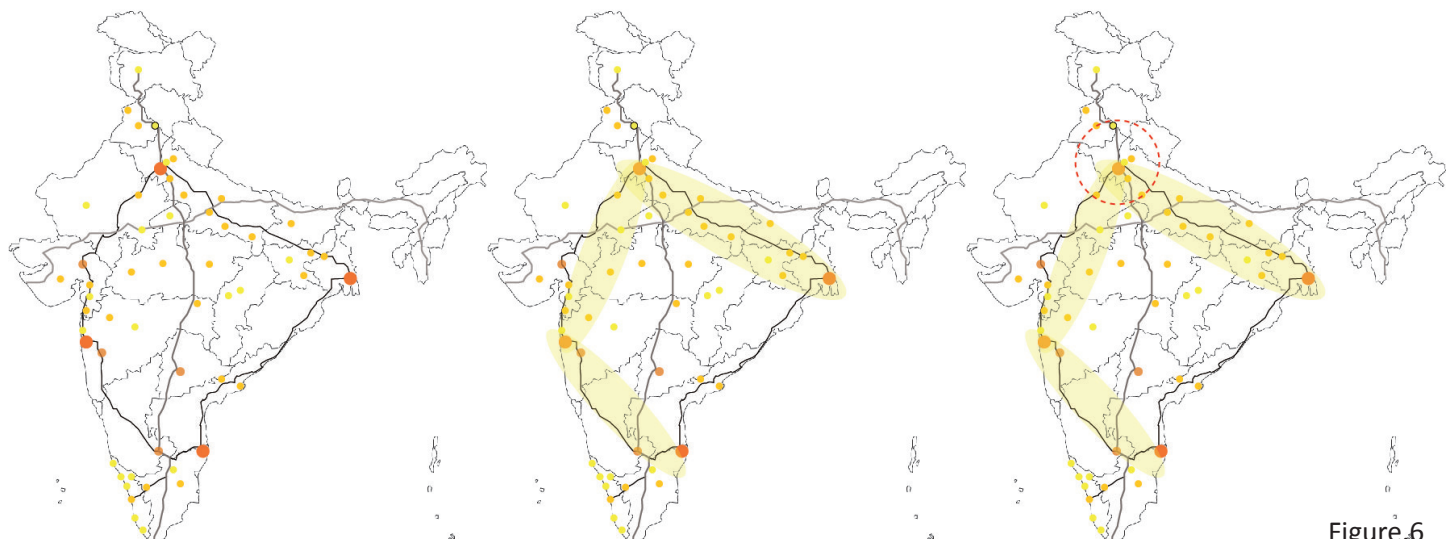


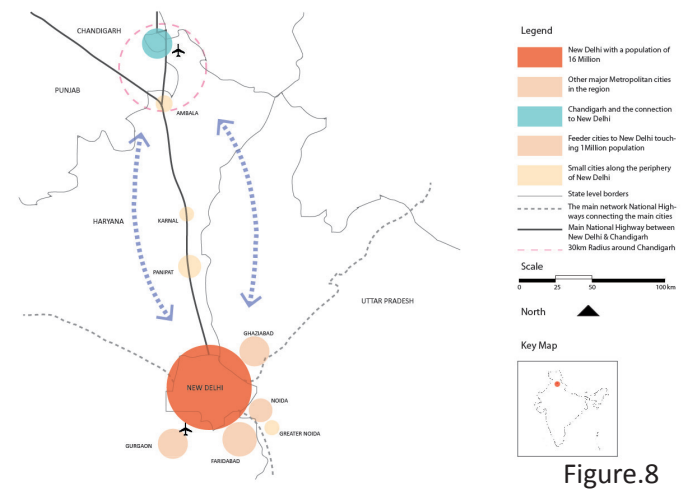
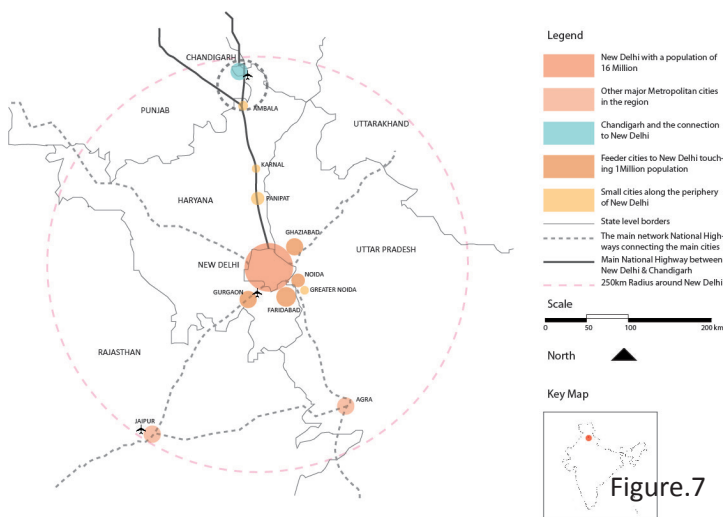
Figure.6

Source: Drawn by the Author.Showing the influence of National Quadilateral corridor,towards growth of certain metropolitan regions

The national project through NHAI (National Highway Authority of India) started in the late 1990's, became a major project to reconnect the four big megacities of India through a well-established road network. Not only did it connect the big cities in a large way but also helped in creating a new pattern where certain zones connected to these infrastructure lines started at a much faster rate than the rest of the regions.

Further, focusing on the northern zone with New Delhi as the capital city of India and also the part of the golden quadrilateral, not only did it give a big boost to the cities on the periphery, it also helped validate Chandigarh's growing position and potential within its larger northern region. Though, New Delhi and

NCR (National Capital Region) grow a lot more exponentially, Chandigarh's growth also got a boost as a consequence. Though the cities under the NCR region grow much faster and bigger and became much potential partners in the National GDP in much lesser time, Chandigarh also took a good position for its quality living and good education centres and its potential to nurture, a highly qualified and new emerging society for these mega hubs.



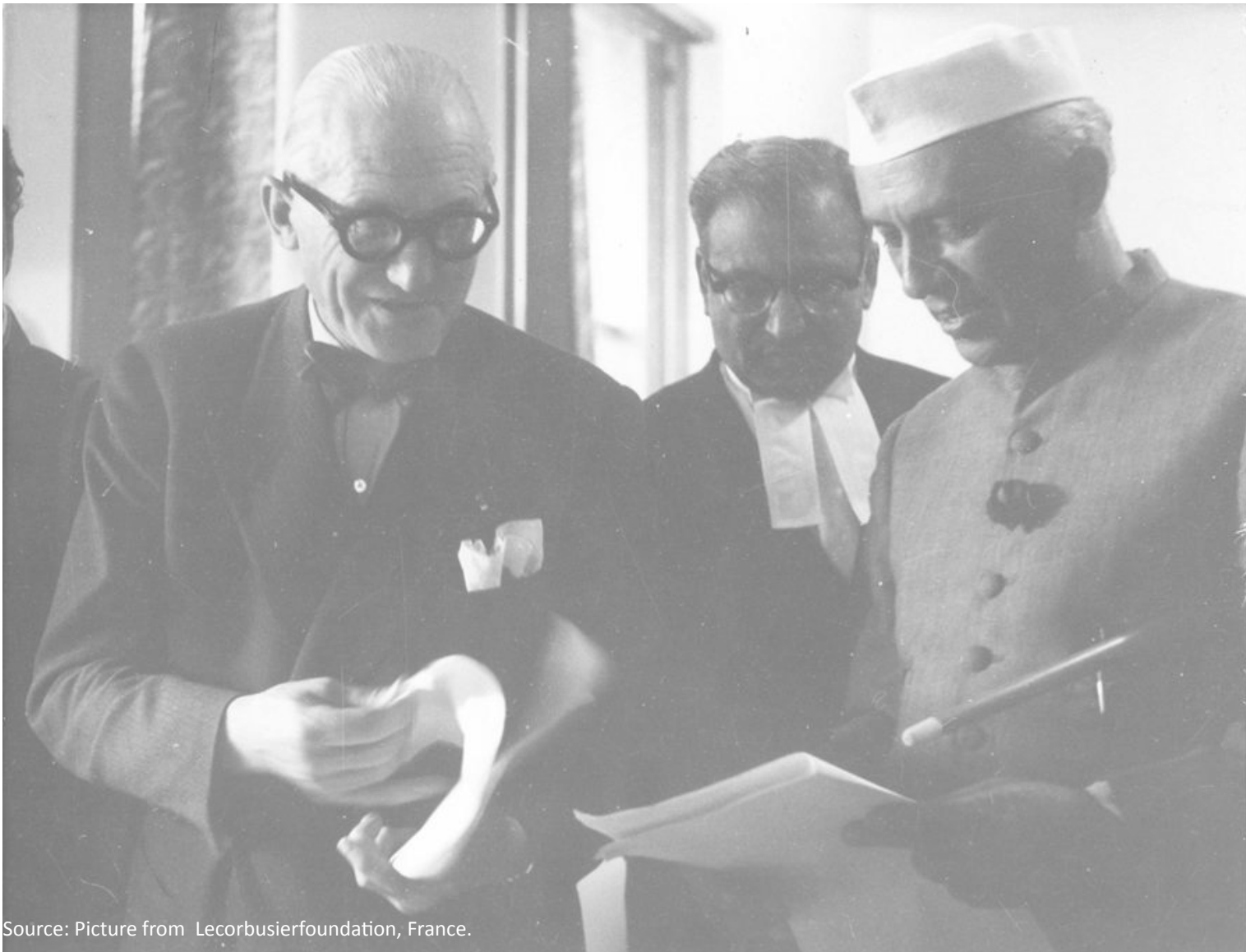
Source: Drawn by the Author. Showing the Delhi NCR region and the strong influence and relationship with Chandigarh under process.

While, in the process also forcing growth in its own periphery and region it became a substantial part of its larger network. It is also stressed upon by (Satish, 2006), as they bring to notice that the global impacts on the growth and development of Indian cities cannot be studied or understood in isolation. As it clearly pointed out that most of the economic and spatial growth happened mostly after the 1990's after the Indian economy opened to the global market. Leading to a lot of cities becoming more urban in nature and saw an intensified growth of jobs, opportunities, recreation, housing, services and many other facilities. In the process adding to an increase in demands for more work and recreation spaces, leading to great expansions of its cities (Satish, 2006).

The national infrastructure development project facilitated intensified growth of certain zones nationally, but also increased the demographic shift towards these areas, in search for better opportunities. Forcing these regions to grow and expand at a much faster rate than they would otherwise. As a result of which, the last two decades saw a huge growth in the NCR region where smaller agglomerations, became much larger and potential participants in the National economy. Making towns like Gurgaon, Noida, Faridabad became big centres for mush-

rooming IT sector development and overnight housing demand and supply growth. Though in the larger region of New Delhi, out of other cities like Jaipur, Agra, Chandigarh, it placed itself much more strongly than its other counter parts even though they were much bigger and with a stronger historical background. Because of its capacity to provide a new generation of qualified individuals, with a world perspective and bigger aspirations, which could full fill the demands of this new global hub much better than the rest. Clearly, indicating the direct and a much stronger relationship Chandigarh was able to build in the process with its larger regional and national network.

LE CORBUSIER AND JAWAHAR LAL NEHRU



Source: Picture from Lecorbusierfoundation, France.

The city was built as a consequence of India's Independence after more than being under the British Empire for more than a 100 years. As a consequence of partition in the year 1947, as the country was divided into two parts namely India and Pakistan, and mainly state of Punjab which got divided. The new state of Punjab needed a capital city of its own as its earlier capital that was Lahore went to Pakistan.

Though, the first Planners and architects for the city were Albert Mayer and his partner Mathew Norwicki, but after Norwicki's death in a plane crash while one of his visits to India during the initial concept stage of the project, Albert Mayer declined the project and later came to Le Corbusier and his partner Pierre Jeannerete. While it was already well established by the then and first Prime Minister of India that, Chandigarh should symbolize a free spirit of the new nation that is being built and modern ideas it should exemplify. And which also was the main reason to have another architect from an international background, as he or she would have no relation to India's past and would try and respond to a new and modern outlook from an Indian context by his modern international ideas.

As Le Corbusier was by that time already a well-established figure in the international fraternity for his modern ideas about planning and city life, it rather became a much apt accident. Corbusier worked with his main team of himself and Pierre Jeanneret, Jane Drew and Maxwell Fry, who worked on the main master plan and the other major parts of the city, defining the main building by-laws and executing their important influential ideas about garden city planning, and making the living and work a separate entity which was new to the earlier concept of city life in India. Also, there was a much larger team of creative architects and planners who helped in the design and planning of other parts and buildings of the city.

The city became a model for the later growth of many other cities in the future, for its immense amount of focus on green and livable environments and extensively planned road network and

planning bylaws controlling the future growth of the city. Also, it was a modern city and a rather influential city because, as it was different from old Indian cities, as they had much smaller and complex road networks and they were compact in their fabric as their main mode of movement was walking. While Chandigarh came with wide open promenades and one had to move with cars and buses to work, though there were basic facilities available in the individual clusters named as sectors.

This new city idea was alien and rather new to the Indians, though it was adapted much faster and the new modern city life was appreciated and enjoyed by its residents. Further, with smaller actions like building mixed-use housing organisations in all sectors, and trying to keep similar design elements in the city while building different buildings and even with use of different materials, it also helped in the subliming the effect of caste and class in a big way. And further, projected the initial ideas of being a modern city, unfettered by its past.



Figure.9

Source: Chandigarh administration website. Chandigarhgov.in. Showing the four main architects and planners of the city, starting from left are 1. Le Corbusier, 2. Pierre Jeanneret, 3. Maxwell Fry, 4. Jane Drew



Figure.10

Source: Chandigarh administration website.Chandigarhgov.in.Showing the initial master plan of the city designed by Le Corbusier and his team.

The master plan of the city compiled of a head, which was the capitol complex and holding the main governments organisations, which were the High Court, The Assembly and the Secretariat and had the Himalayan ranges as its background. While the city was mainly held by two main arterial roads one going north to south and connecting the capitol complex to the different parts of the city and the east –west road further connecting the education centres and the university on the west to the industry on the east. Also the heart comprised of the city centre mainly holding all the government buildings and plazas and other recreation facilities, making the city more livable and exciting. Also the natural landscape structures were kept as much as possible as the two major water networks running on both its sides held up the city. Also the main green network, which ran all through the city adding a series of green parks and recreation areas cutting across each sector.

Though there were already plans for the growth of the city in next decades and peripheral act already introduced around the 8kms radius of the city and later increased to 16kms, to control the growth and expansion of the city in the future. While the

control of the city was maintained by the central Government, the peripheral controls were given to Punjab and also to Haryana as the city became a shared capital to both these adjacent states. Though, the state parties paid much less attention to the controls and an increased growth around the periphery of the city. And leading to most of the later future growth of the city trying to accommodate to the peripheral conditions and trying to adapt and cope with it. Though there is a great influence of the city on the periphery, but it was not able to get similar qualities as the densities in these peripheral areas was much higher and the focus on the quality of urban living environments was much less.

The city came into being in the year 1951 and later started growing in a much more substantial way by the early 1970's. Though there were already planned future growth phased development plans for the city, but with intense growth on the peripheries the phased development plans also had to be adapted and made more denser than earlier planner in order to cope with the growing demand for housing and other public facilities. But as since 1980's there have been no substantial plans for the city, though there have been proposals for regional level master plans nothing much had been done, until the point the peripheries grew to

a parallel extent and starting making their own regional plans along the periphery around the 2010. As a response to the same, the city administration, together with the central government collaboration came up with the Chandigarh's master plan for 2031.

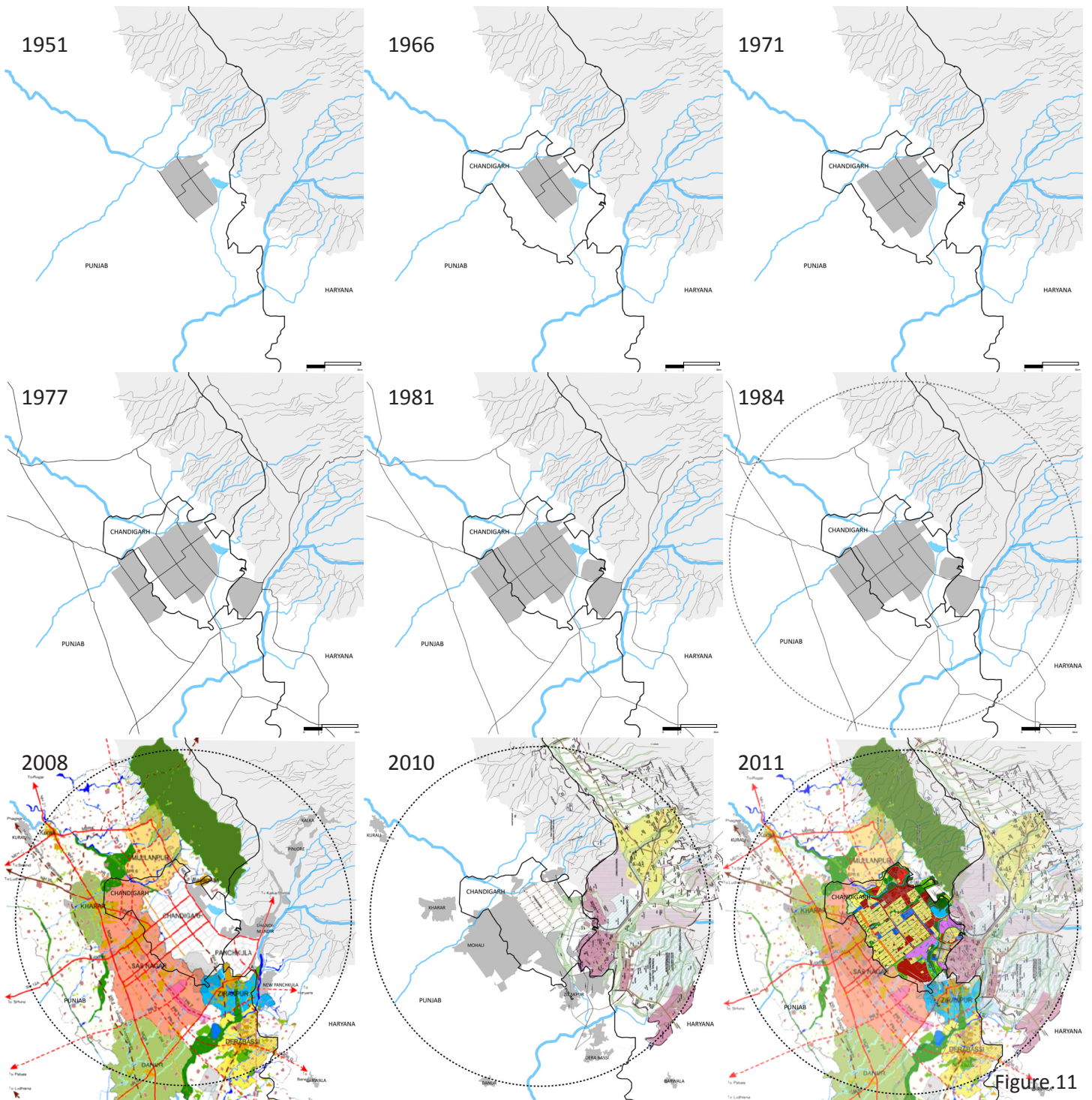
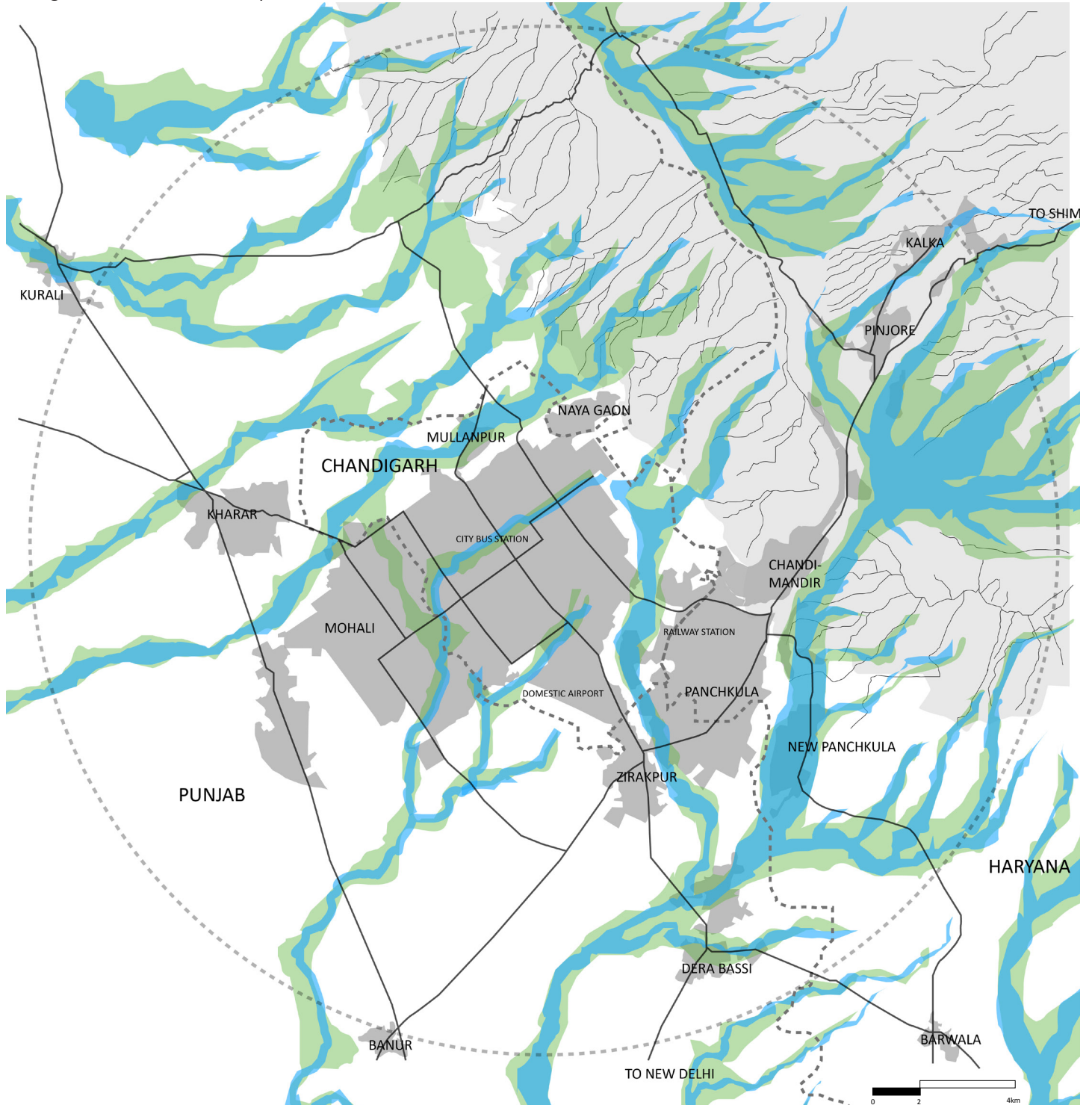


Figure.11

Source: Drawn by the Author. Showing the historical growth of the city and its peripheral region of 16kms.

The landscape structure of the city is based from the Himalayan ranges in the north of the city. Though it's the foothills of the ranges, the city has a mild slope of 10m over the span 10 kms from north toward the southern part of the city. Also the Sukhna lake reserve in the north-eastern part of the city has become a large reserve now and preserves a wide variety of wild animals and flora and fauna. Also both the main rivers on of the city on the two sides namely Patiala ki rao and Sukhna choe, are now having encroachments and are polluted, and inaccessible to the

residents of the city. They need to be taken seriously and preserved before they get majorly damaged, with extensive growth projected in the areas around them in the future.



Source: Drawn by the Author. Showing the regional level landscape structure.

Figure.12

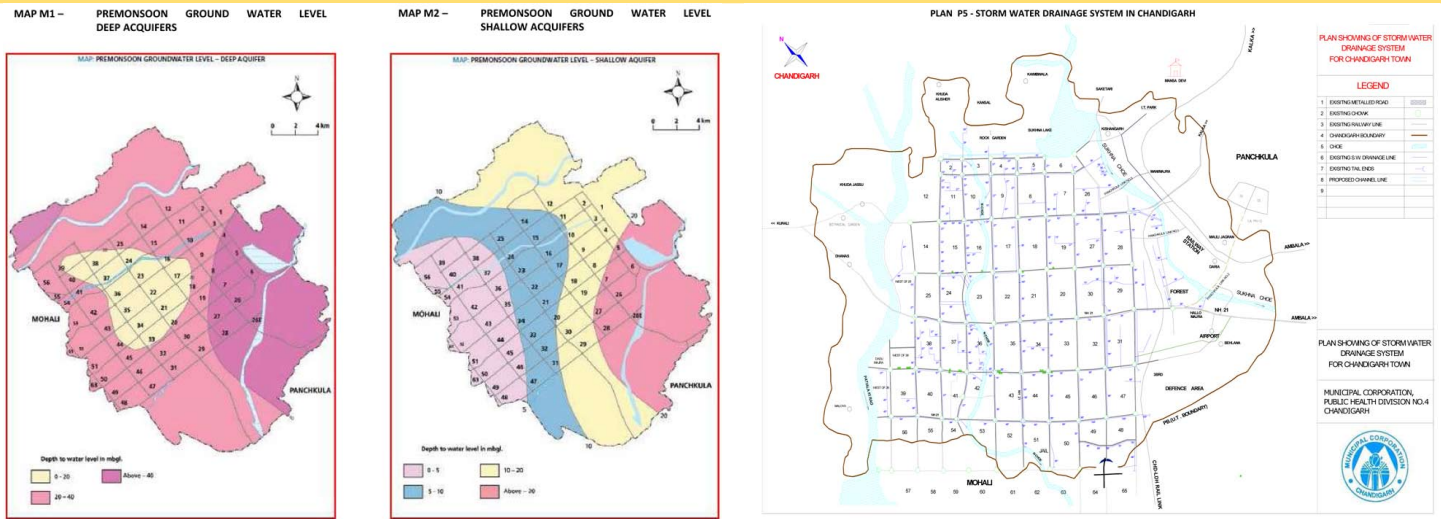


Source: Picture taken from Flickr Showing the present condition of the Water catchment Area



Source: Drawn by the Author

Figure.13



Source:From the Chandigarh Masterplan2031,Physical Infrastructure chapter

Figure.14

It is a major concern for the Chandigarh administration at this moment to maintain the river belt as it is not only extensively polluted and a depleting layer as a result of industrial waste and intense pressure to urbanise but also because it is a main source of water catchment for the region from Shivalik hills and also, still 30% of the daily water usage of the city is taken care by this water collected during the monsoon.

Hence it is crucial to the present condition and immediate need for an intervention to maintain the same for the future needs and also to maintain the ecological balance of the place.

For the same, the Chandigarh administration in their masterplan for the next decade expects to maintain the belt by recognising 30 meters on the both sides of the belt as an ecologically sensitive zone.

While the green belt has been intervened not only by the indus-

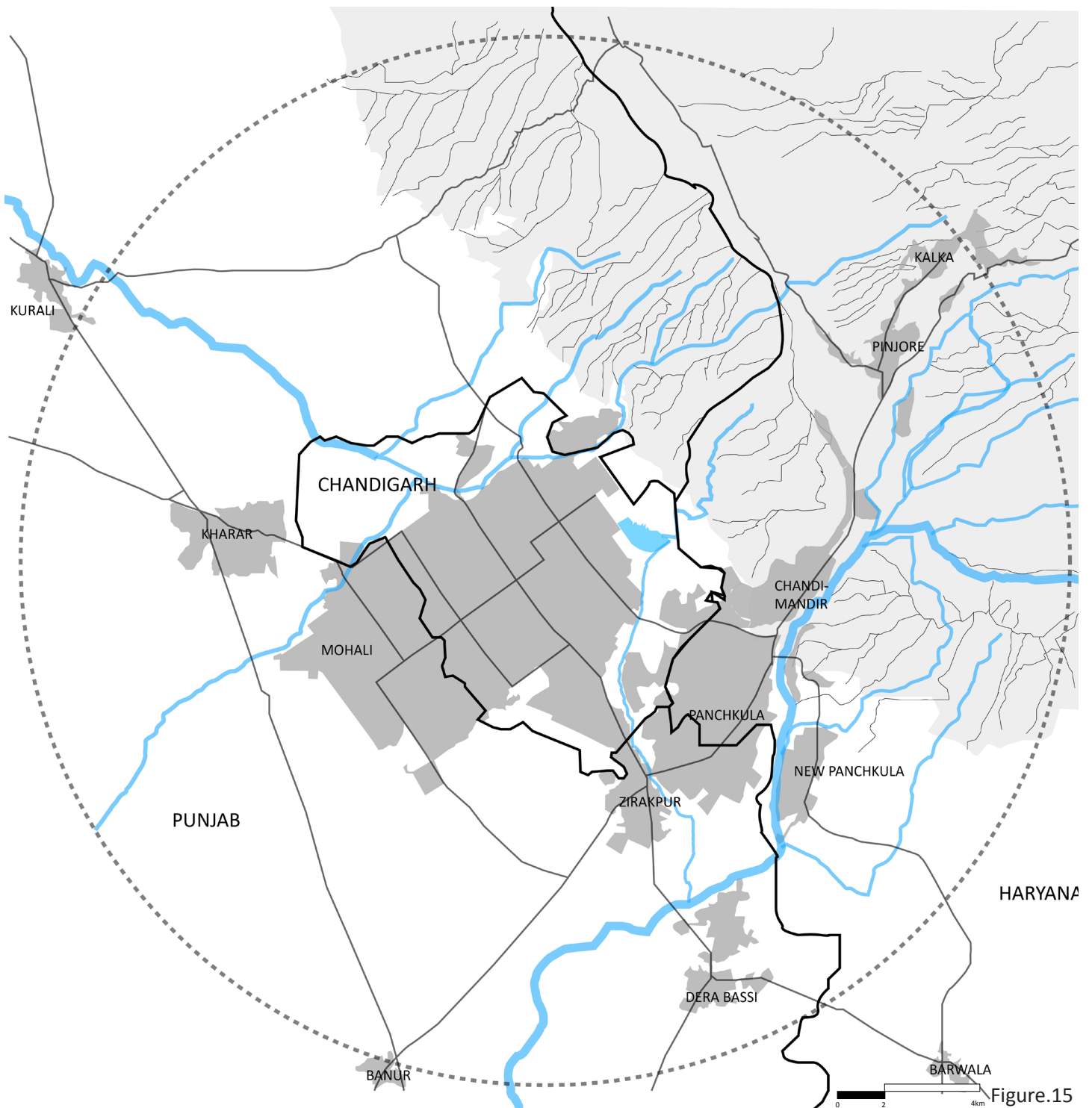
trial waste and other pressures, the increasing informal settlements and unrecognised settlements have led to the depletion of the entire belt even further.

Bringing about some serious concerns about how the present condition needs to be evaluated and how the balance needs to be maintained between the upcoming new aspirations and developments as a result of it.

The project discusses the same in more detail as how this discourse can be opened wider and understood through many variables and where the values of different aspects can be maintained and recognised and a synergetic environment can be created with a balance between all of them.

Chandigarh and its periphery initially comprised of 44sqkm of the city and the 8km radius of periphery, but later with the growth of the city and the region the city expanded to the existing 114sqkm and another 16kms of peripheral belt. Along which the main two cities are Mohali and Panchkula, under the jurisdiction of Punjab and Haryana consecutively. While over couple of years, even smaller villages like Zirakpur, Naya Gaon, Derra bassi, Kharar have also started to pick up as a consequence of its close proximity and connectivity to the city. And are expected to

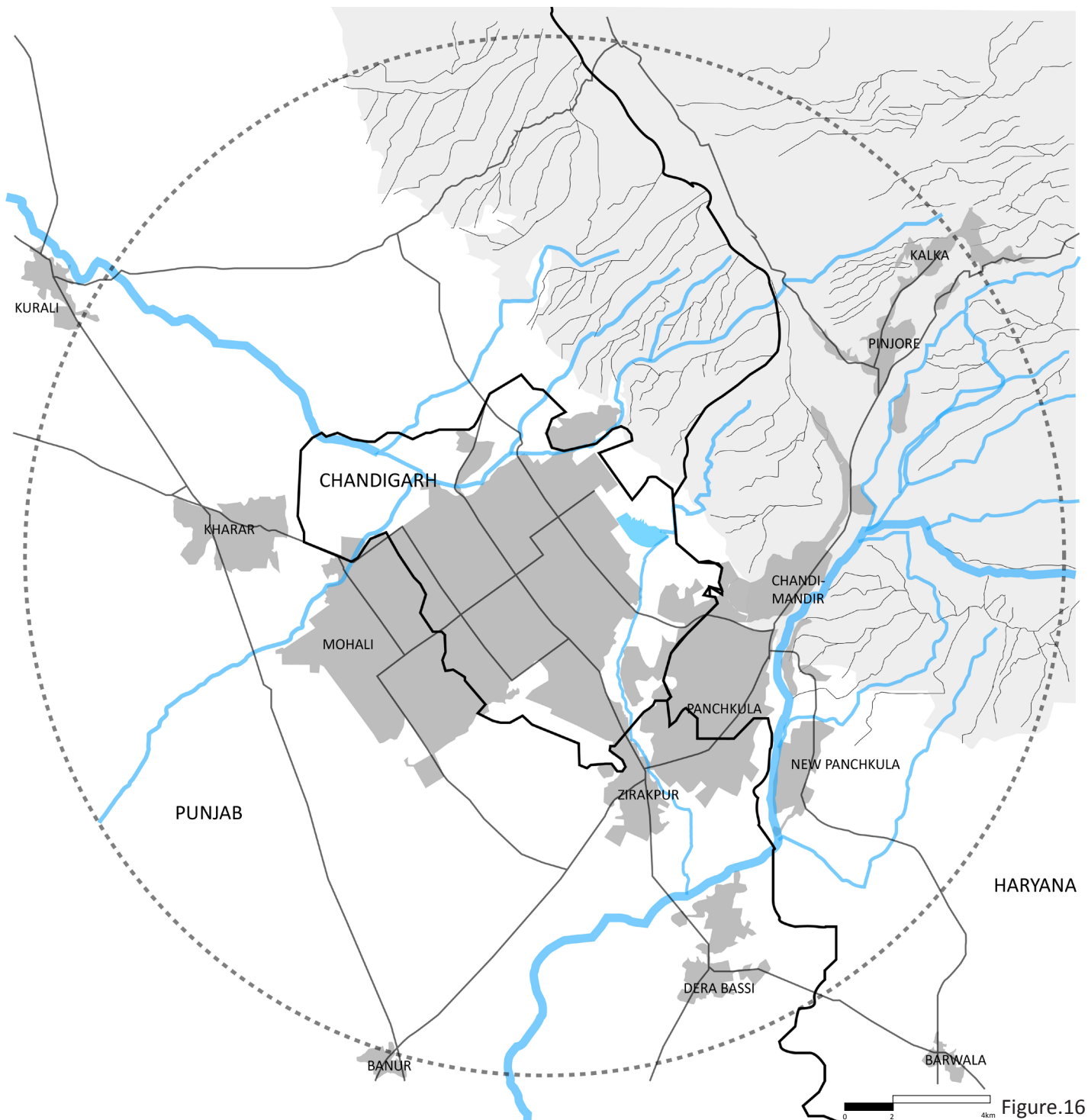
grow in the coming years a result of the master plans projected by the individual state governments, looking at the potential of Chandigarh as a growing centre and there individual aspirations to become bigger and better agglomerations.



Source: Drawn by the Author. Showing the regional level (Chandigarh and its 16km assigned periphery) municipality division plan.

The city came into being in the year 1951 and later started growing in a much more substantial way by the early 1970's. Though there were already planned future growth phased development plans for the city, but with intense growth on the peripheries the phased development plans also had to be adapted and made more denser than earlier plans in order to cope with the growing demand for housing and other public facilities. But since 1980's there have been no substantial plans for the city, though there have been proposals for regional level master plans noth-

ing much has been done, until the point the peripheries grew to a parallel extent and starting making there own regional plans along the periphery around the 2010. As a response to the same, the city administration, together with the central government collaboration came up with the Chandigarh's master plan for 2031.



Source: Drawn by the Author. Showing the existing regional level plan of the region (Chandigarh and its 16km peripheral belt.)

Chandigarh and its peripheral region are well connected to its larger northern region via national highway and all other major transport means. Also, the city has an extensively planned system of network with a hierarchy of roads forming different parts of the city. While with growing pressure on urban growth and development these networks systems are under extensive pressure and the region needs to look for faster and more environmental friendly means of transport systems. Though the initial plan had already assigned areas for economic and commercial

interventions, with in the city, but with changing economic patterns, not only the periphery is growing along these infrastructure lines, but also with in the city limits many V2 and V3 belts have started to change their initial character and are becoming more commercially inclined.

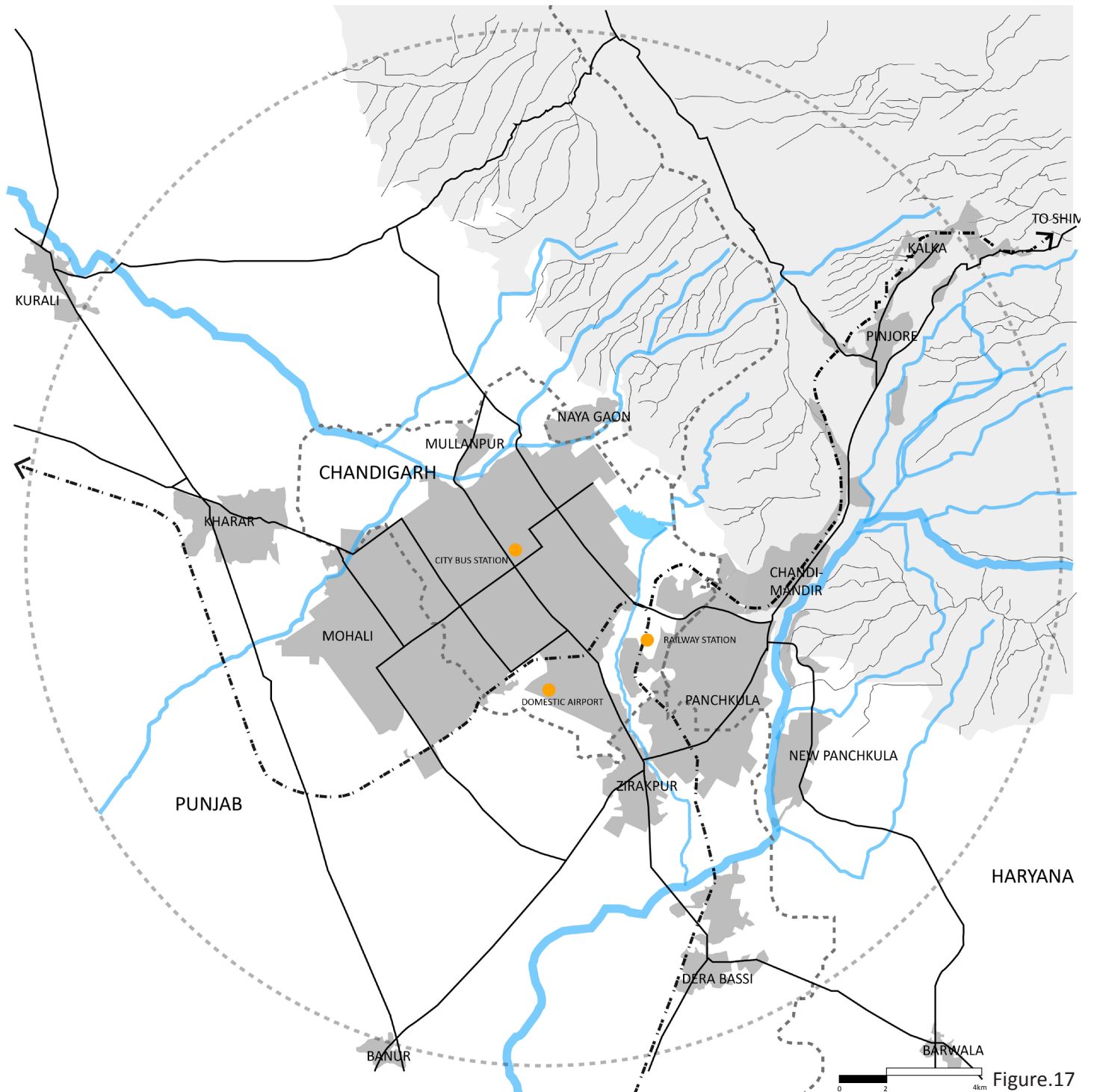


Figure.17

Source: Drawn by the Author. Showing the existing regional main infrastructure

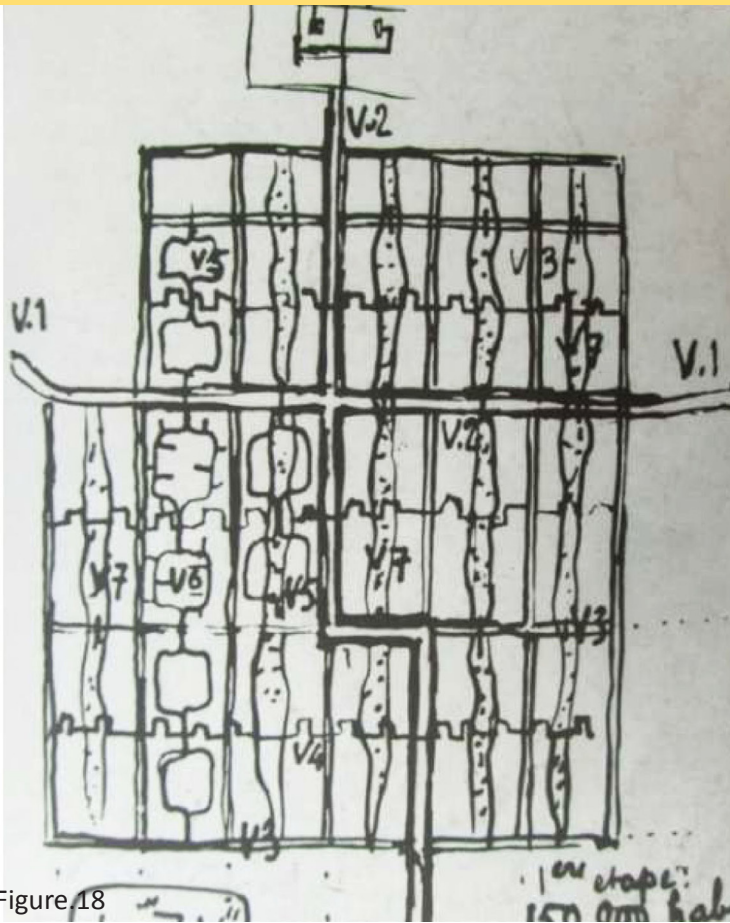


Figure.18

Source: Chandigarh Administration website, Chandigarh.gov. in. Showing the infrastructure system of 7V's forming the main structure of the city by Le Corbusier

The city had originally a very well planned network of infrastructure system, giving a lot of focus or reducing the amount of traffic and pollution in the residential areas, while keeping wide roads and high intensity in the main parts of the city. Though it was very influential as a system and worked very well, but with the growing pressure on the city from the population growth and also, a larger traffic flow from the periphery is further challenging these networks. And further the changing urban pattern and structure of the infrastructure lines is also having a large impact on the liveability and adaptability of such areas.

On one hand it is adding a better connectivity and spatial transformation by changing the already assigned land use of such network lines, but on the other hand it is slowly creating a new layer of a more complex urban pattern within the fabric, which further extends to its peripheries. In contradiction to the earlier situation where the core had more control over the growth of the region, now as a result of the peripheral areas, and their parallel stability in comparison to the city, their influences and growth patterns have started to greatly stimulate the further growth of the city cores.

Further, government administration studies already projects a large growth of the region in the next years and its direct influences and pressures on the infrastructure system of the city. Though they plan to introduce high end new Bus oriented rapid

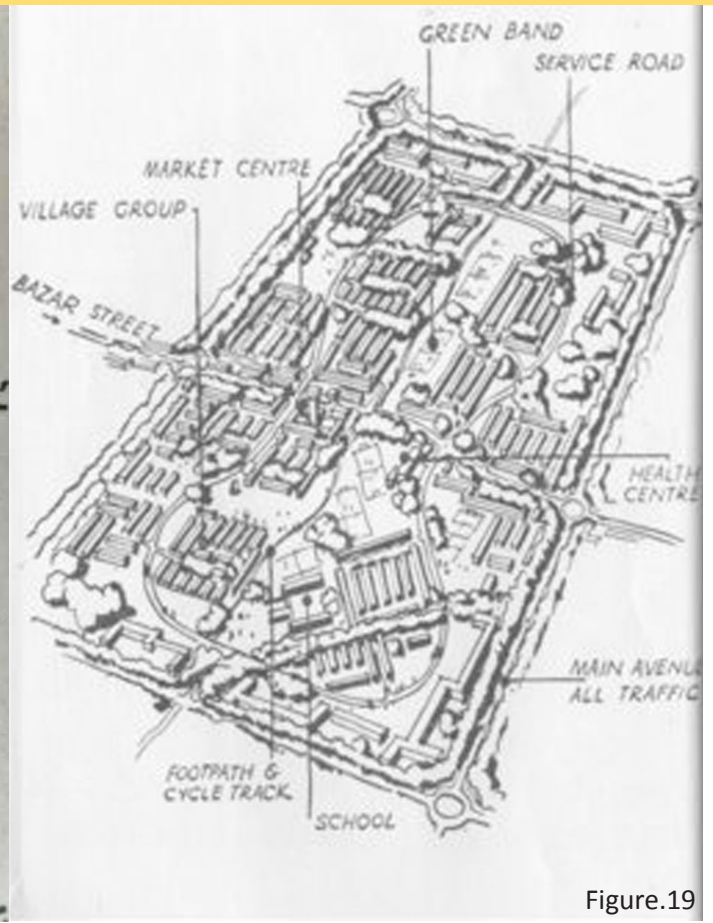


Figure.19

Source: From the collection of Prof. Vikram Aditya Prakash, Showing the network system in one sector modules and the basic structure of the sector based on it

transit systems and metro lines within the city to connect the city better with the peripheral areas, much less focus is given on the projection of a peripheral road network to segregate the traffic flow and reduce the pressure on the city lines. While also lacking the perspective regarding the need for these advanced systems for the larger region than the city itself, they become rather redundant in their nature as they do not manage the existing traffic flow, but rather create another layer.

Creating larger concerns for need for more sensitive understanding of the on going process of transformation and need for more valid and adaptive and open ended systems which can help the region to grow as well as help maintain a better liveability. Considering the fact that the city acts as a model for other future developments both in the region and beyond, it becomes vital to acknowledge these concerns.

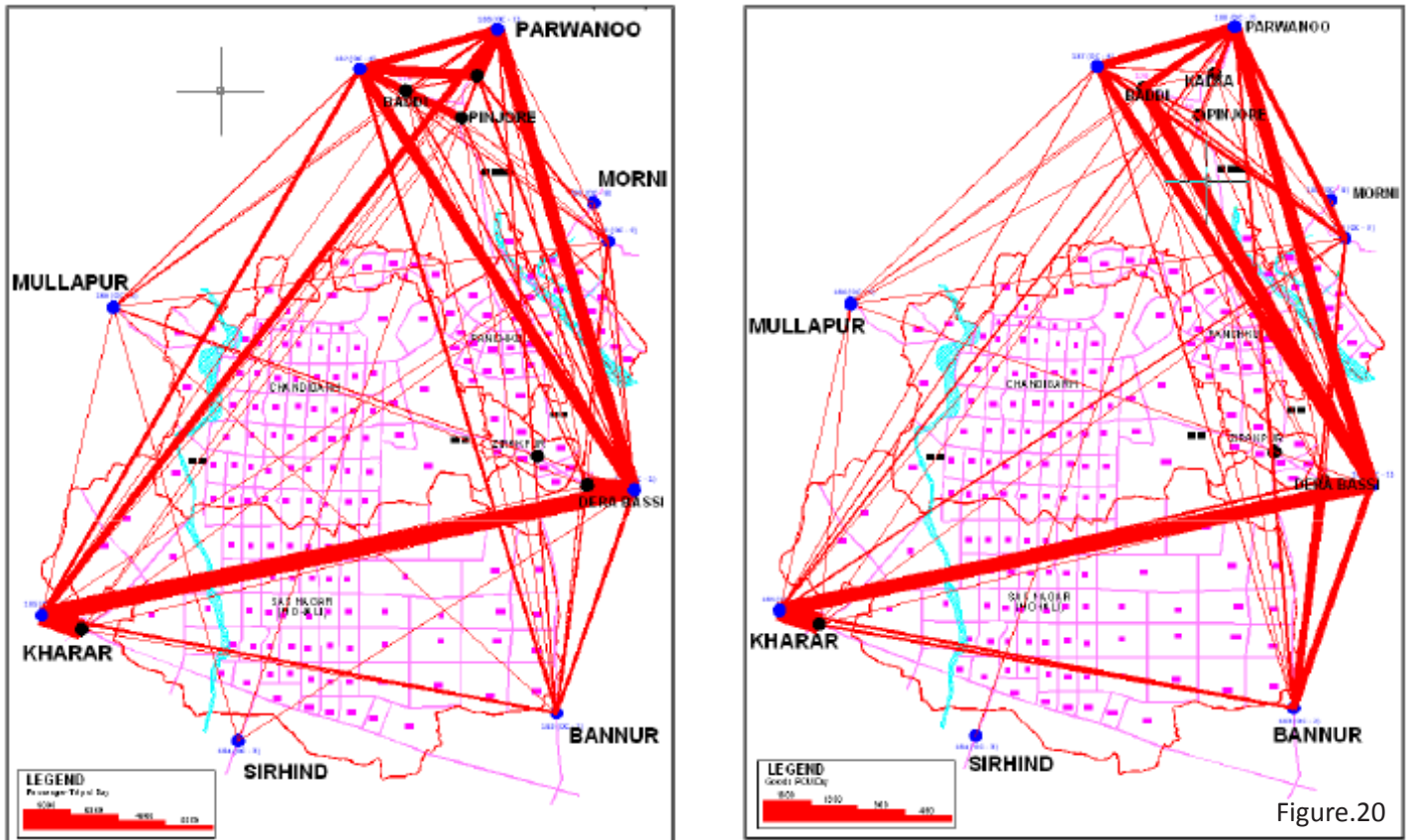
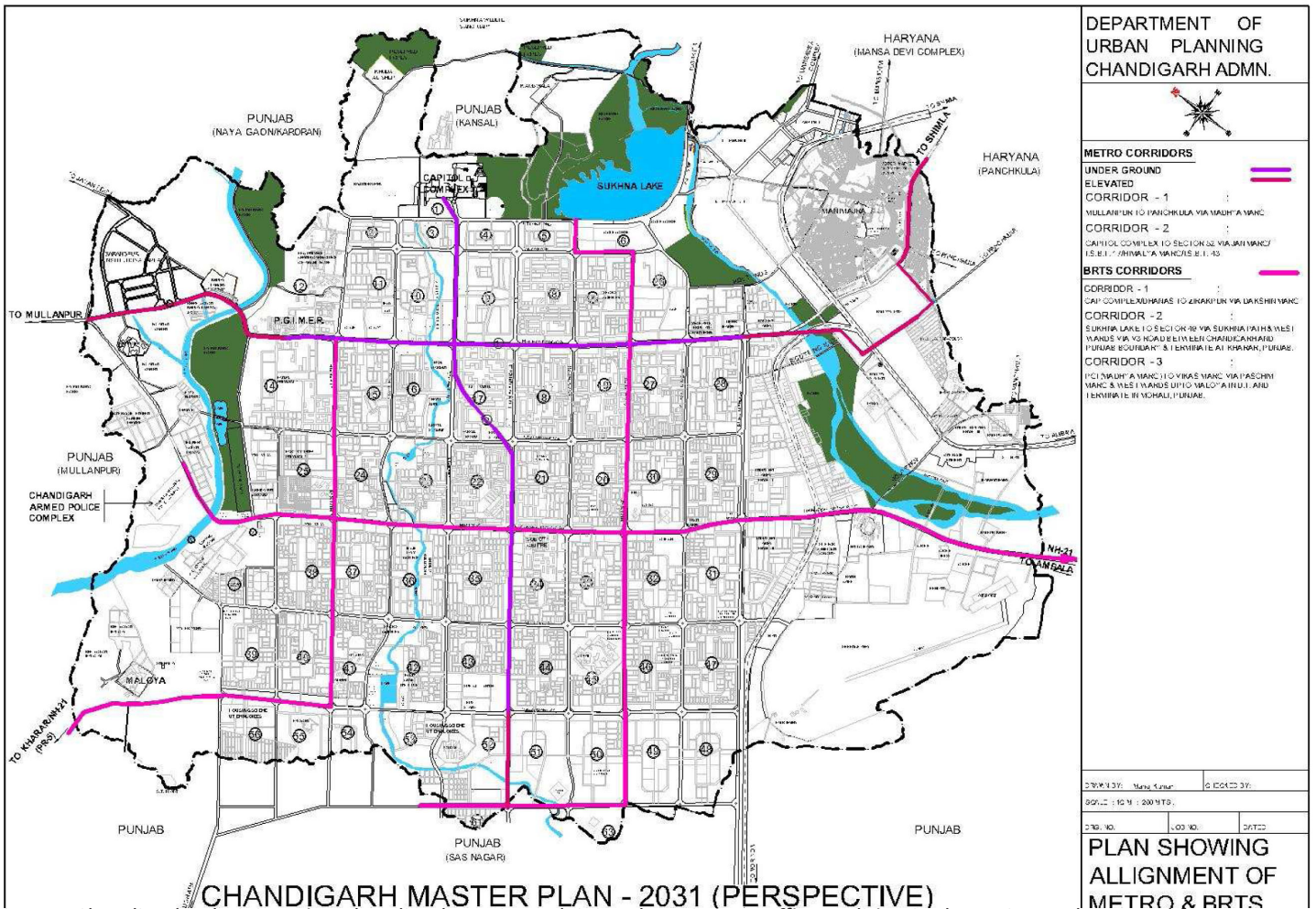


Figure.20



DEPARTMENT OF URBAN PLANNING
CHANDIGARH ADMN.

- METRO CORRIDORS**
- UNDER GROUND
 - ELEVATED
 - CORRIDOR - 1
MULLANPUR TO PANCHKULA VIA MANGA WAK
 - CORRIDOR - 2
CAPITAL COMPLEX TO SECTION 32 VIA JALAN WAK / S.E.B.I. / JHAWLA WAKS E.T. 33
- BRTS CORRIDORS**
- CORRIDOR - 1
CAP COMPLEX/MARHAS TO ZINAPUR VIA LAKSHMI WAK
 - CORRIDOR - 2
SUKHNA LAKE TO SECTION 38 VIA SUKHNA (PAHLS WESI) WAKS VIA VQ ROAD/ETIMBER CHAUDHARWAD /PURBA BOURBANK / ETIMBER/ETI ALI /RANAKA /PURBA
 - CORRIDOR - 3
TOI WAK/A WAK / TOYRAS WAK / WAK/ASCHRI WAK / WESI WAKS UPTO WALO /AIR U.I. AND /ETIMBER/ETI /YOHALI /PURBA

23/04/2013 BY: Manoj Kumar 06/06/2013 BY: ...
REV. NO. : 12/4 : 2009/10
23/04/2013 03/06/2013 06/06/2013

PLAN SHOWING ALIGNMENT OF METRO & BRTS

Source: Chandigarh administration, chandigarh.gov.in, explaining the existing traffic condition in the region and proposal for new Rapid transit bus system and metroline in the city, connecting the peripheral parts to the centre. Figure.21

Business Standard

Vijay C Roy | Chandigarh September 23, 2013 Last Updated at 20:51 IST

Chandigarh airport to go international by next year

Sources say Civil Aviation Ministry has given the go-ahead to airlines like Indigo and SpiceJet to commence international flights from the airport



If everything goes well, International flights from Chandigarh Airport would commence by next year. Sources in the industry mentioned that recently the Union Ministry of Civil Aviation has given the go ahead to Indigo and SpiceJet to commence International flights from the Chandigarh airport. Initially, these airlines may operate flights between Chandigarh and Dubai.

Sources further disclosed, that it is premature to say that when these airlines would commence operation as there are so many requisite approvals need to be obtained before commencing operations. He

further added that getting approval from the ministry is one of the preliminary requirement among the various approval, so it will take time.

On getting the clearance for international operations, the Confederation of Indian Industry (CII) mentioned that this is in the interest of the economy and citizens of the region. "CII, at all levels has been pursuing this matter with the Ministries of Defence & Civil Aviation. The industry is upbeat about this development and is looking forward to the commencement of flights soon. It would save a lot of time for all of us", said Man Mohan Singh, Chairman, CII Chandigarh Council.

It is worth noting that there is huge potential in this part of the country for commencing International flights. Earlier, Punjab Principal Secretary, Civil Aviation Viswajeet Khanna said, "There is huge potential as 15-20 per cent of the total traffic at Indira Gandhi International Airport, Delhi originates from this part of the country especially Punjab, Chandigarh and some areas of Haryana in the vicinity of Chandigarh."

The issue of operating international flights from Chandigarh has been hanging fire since long. Also, in 2009, the ministry gave clearance to Fly Dubai, a low-cost carrier of Emirates, for international operations from Chandigarh to Dubai but it remained on paper and never conceptualised.

It is worth mentioning that the new terminal building of the Chandigarh Airport capable of handling 500 passengers was made operational in 2011, with an estimated project cost of Rs 78 crore. The new terminal building with an area of about 12,150 square meters was fully air-conditioned with modern passenger-friendly facilities, three aerobridges, with visual docking guidance system, escalators, elevators, baggage conveyor belts, CCTV's etc.

In addition to this, come February 2015, Chandigarh will have state-of-the-art Integrated International airport terminal building built with a project cost of Rs 450 crore. The terminal will have capacity to handle 1600 passengers(1150-Domestic & 450-International) and the proposed covered area will be 40,000 square meters. For executing the project, construction major-L & T construction has been

Daily Chandigarh/Chandigarh/May 25, 2013

Plan Chandigarh for people, not cars: CSE

OTHERWISE CITY SHALL BE CAUGHT IN AIR POLLUTION TRAP AND TRAFFIC JAMS, SAYS EXPERT

SYED HASHIM NAJMI
Chandigarh

Chandigarh has been designed for cars, to prevent air pollution and traffic jams we need to redesign it for people, was the key message of air pollution expert Anumita Roychowdhury on Friday here. The Centre for Science and Environment (CSE), a New Delhi-based research and advocacy organisation, laid bare the challenge of addressing the perils of motorisation in an affluent city like Chandigarh during a workshop held here on Friday. Vehicle ownership and motorisation rate in Chandigarh is not only higher than even mega cities like Delhi but also equals that of the rich cities of the western world. Though much smaller in size, this rich city



Anumita Roychowdhury addressing people during a city dialogue on clean air and sustainable mobility on Friday. SUSHIL PATHANIA

is now falling into a potential air pollution trap.

CSE's Executive Director-Research and Advocacy Anumita Roychowdhury said, "This is mainly because this city has a car friendly town planning model which is promoting the use of personal vehicles. This has increased air pollution levels in this green, low-density and low-rise city - a city which otherwise has a regular traffic system."

"Chandigarh will have to plan for alternative models of travel to demonstrate

change to other cities. If the person-to-car ratio of Chandigarh is replicated in Delhi and other mega cities, they will run to a stand-still with serious public health and energy costs," she added.

Today's City Dialogue on Air Quality and Transportation Challenge: An Agenda for Action, organised jointly by the CSE and the Chandigarh Administration, brought together city transport planners, experts and civil society members to discuss the CSE's findings.

Motorisation a unique challenge

CHANDIGARH: In just one year (2010-2011), the number of vehicles has increased by 38 per cent in contrast to 15 per cent in Delhi. Chandigarh has 227 cars per 1,000 people whereas Delhi has 117. If two-wheelers are also included then Chandigarh has 878 personal vehicles/1,000 people vs Delhi's 362. In Chandigarh, 43 per cent of households own cars, in Delhi it is less than 20 per cent. Two-wheeler ownership is even higher. This means road availability per 1,000 vehicles is much lower than in Delhi. Chandigarh has 441,284 vehicles per 1,000 km of road length whereas Delhi has 243,783 vehicles per 1,000 km of road length.

DP

Figure.22

Source:Newspaper articles ,Buisness Stantard and Daily Chandigarh, showing the aspirational project of making the domestic airport into an international one and the public concerns about extensive use of private vehicles in the city raising concerns about environment and livability.

On one hand this rapid transition is having its positive aspects, as the city gets approval to make its old domestic airport into an international one, giving a direct possibility and position to the region to become a better part of not only the national system but also the global market. But at the same time also raises great concerns about the growing traffic congestions and making it difficult to have a good quality life in the city and adding more complex and intricate layers to the urban patterns of the region.

With more than double the amount of private vehicles in the city, in comparison to New Delhi and NCR region, it is a daunting question on the planning policies and future visions to further react to these growing conditions. Also, with growing concerns towards environmental pollution and other hazards these rates of increase in vehicles on the road are serious concerns. Further with projects like international airport and future development plans of the region the effects can only get much worse making it difficult to live and degrade the living conditions in a large way. Also in a way the advanced systems are redundant, as by the time these systems shall take place, the congestion levels will

increase a far more greater standards.

These factors are further raising concerns about the larger effect they are already making on the urban environment and also further more, which they will have if so many systems are designed parallelly, but not collaborated well enough in relation to its spatial and social needs.

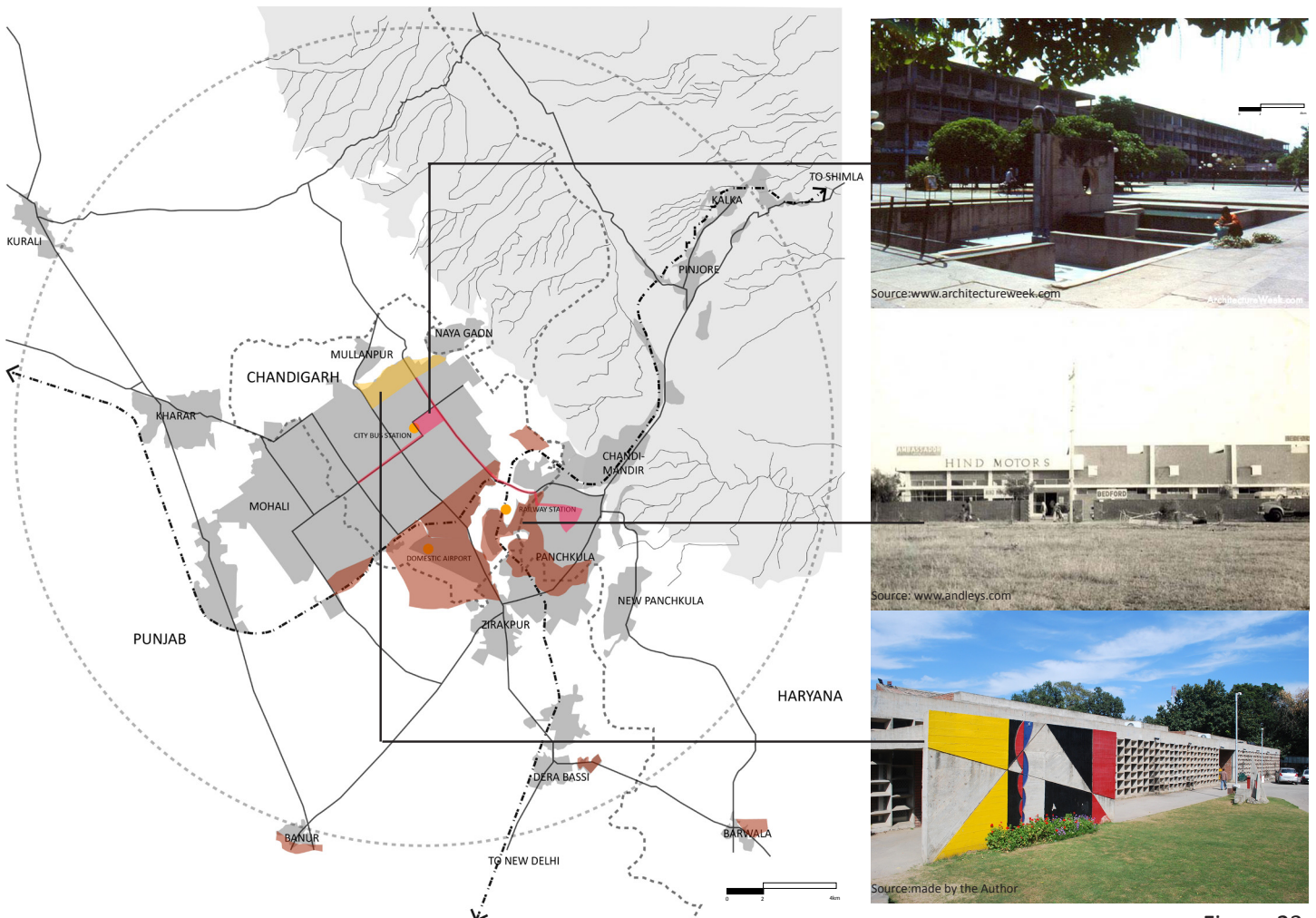
While there is a need for the cities to grow and develop and evolve as complex generic systems in their own ways, it is also vital for different administrative and other stakeholders to have better foresight and concerns for social, spatial and urban environment to have adapted better and more compatible systems.

The land use plan of the city of Chandigarh is fairly well planned, as there is a well-defined organisation of different aspects of the city. But the growth on the peripheries over years the plans have also modulated as a result. One part of which is the increase in the density of the southern sectors in order to accommodate more people and also to be able to relate to the peripheral areas much better, and further reducing the disparity between the two cross border conditions. In peripheral parts like Mohali and Panchkula they have attempted to use similar land use structures but with much less attention to spatial qualities and densities of the areas, and also the segregation of different aspects is much less well defined. Further in the much lower parts of the periphery, the economic pressures and their poorly defined land use controls have mostly affected the growth. Making these areas much more dense, chaotic and poorly organised.

Though most of the organisation is based on the administrative boundaries as the controls are taken care by different organisations, the difference is apparent. Even, though there are qualities that have been borrowed by the city in the peripheral parts

but lack of administrative controls and further management has resulted in poorly defined urban structures. Further with the development infrastructure lines, most of these peripheral parts have been able to get, boost in investments from the region or outside.

But, with the alarming new projected government programmes on the periphery and the development of domestic airport, these land uses are fast changing and adapting quickly to the new economic forces. On one hand they are adaptive and able to take the pressure far more easily than the city cores, but lack of space making qualities and haphazard growth is resulting in a complex and undefined urban pattern.



Source: The is drawn by the Author, showing the existing land use of the city and its peripheral region. While the pictures along Starting from top right. Shows the city square in Chandigarh, Middle right: Shows the Industrial buildings, Bottom right: Shows the Quality of Educational institutions within the city area.

Figure.23



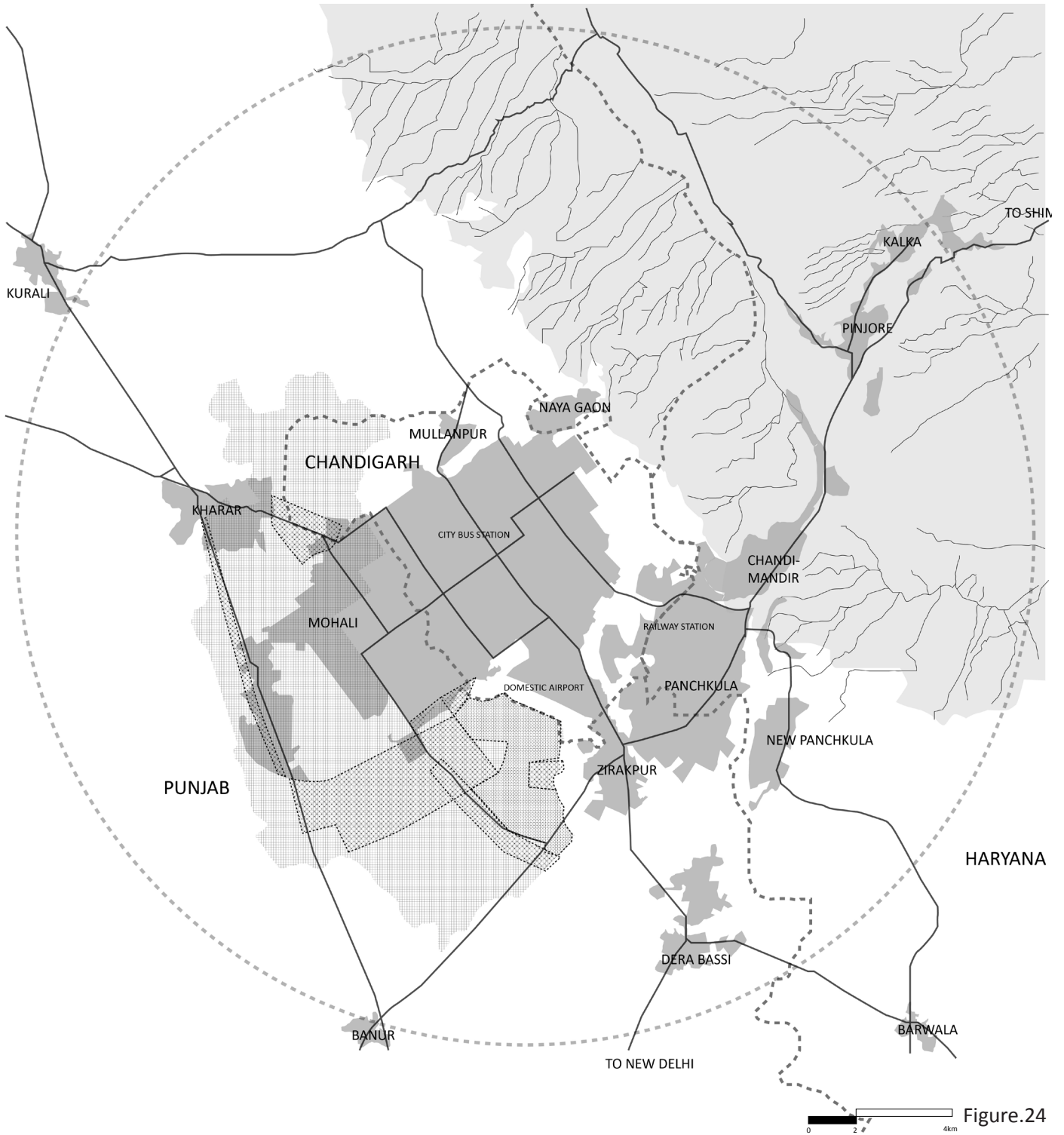
Source:Ageingmodernism.wordpress.com.Picture shows the high density housing developments in the south eastern parts of the city periphery area.



Source:Ageingmodernism.wordpress.com.Picture highlight the growing dicotomy of growing difference between the economic pressure and the rural conditions creating complex urban environments.

The new state level master plans have projected large amount of growth and development along the peripheral boundary of the city, catching the advantages of there location and developing high end IT sector offices and housing units, much before the growth of the airport, but as a response to it visions to develop. Making a dense network of a new kind of urban pattern all along the city periphery, on one side they are increasing the already existing pressure on the city area, but also creating conditions

where, less importance is given to spatial and living qualities, but are rather a response to the growing demand. And they represent the lack of government controls and guidelines, and lack of perspective for future growth.



Source: Drawn by the Author, showing the upcoming developments in the area along the main infrastructure lines and creating a dense urban fabric along the city's peripheral boundaries.



Source: The picture has been taken by the Author depicting the new upcoming developments as a result of International Airport

The growing demand for space and resources is also present in the density and land values of the city. As going from north towards the southern parts of the city the density kept on increasing, prone to more demand, also it was easier for people to afford land in these areas as they were comparatively cheaper and still providing good living conditions.

As with the time the densities kept on growing the land values kept on getting more affordable in the more distant places. Having a large impact on the growth of the city towards a larger region. Giving more relevance to the networks and creating more complex urban patterns.

Causing is a much higher concentration of high-density private housing agglomerations, with very different aspirations and spatial arrangements. Also its interesting to see the concentration of these private investments only in the peripheral areas, because of strong government planning by laws with the city periphery making it impossible with in the city for these settlements to come up.

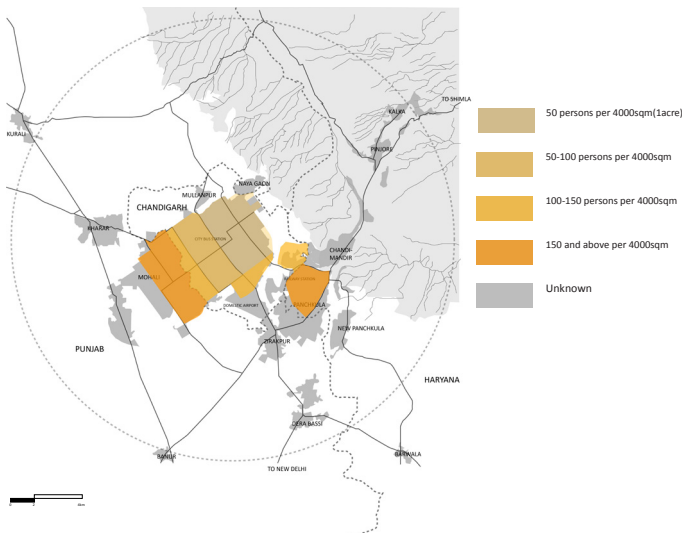


Figure.25

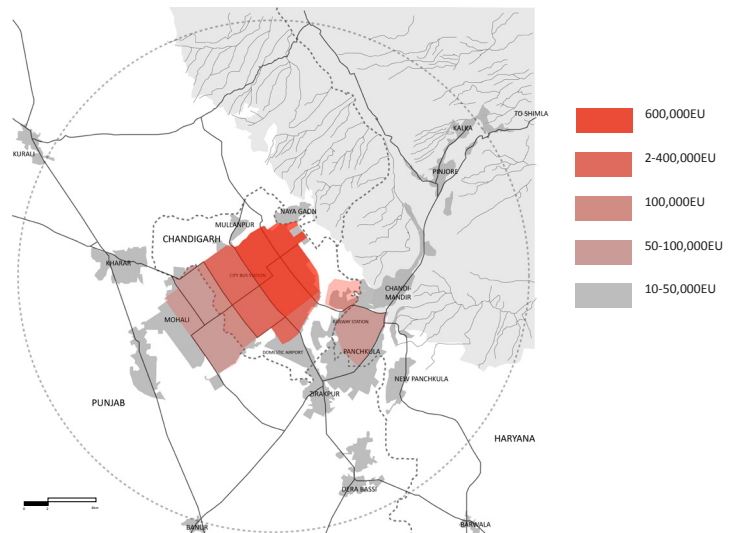


Figure.26

Source: Drawn by the Author, Figure 18 : Describes the increasing density in the region from north to south with the growth of the periphery, while Figure 19 : Describes the reverse land values because of growing demands in the area.



Source: Taken from Flickr, explaining the condition of small settlements within the green belt.

Chandigarh was designed as a middle class, service sector town. And as a result of the changing dynamics of growing IT sector and booming service industry in India since the 1990's, the city has not been able to cope with such pressures. Though Government of India positioned Chandigarh, in the SEZ (Special Economic Zones) category, a phenomenon started by the BRIC nations to develop the areas they foresees scope for future growth. As a result, an IT sector was also introduced in the city, but because of lack of resources at that point of time in the region, it could grow as expected.

On the other hand, the city is renowned for its fine quality education institutions and its capacity to raise an intellectual generation. But with growing privatization of public resources, these growing intellectual class have much less opportunities in the city or the region. Making them shift to larger centres like New Delhi and NCR, Bangalore, Mumbai etc. Raising clear demands for a broader perspective on this demographic shift in the society. Which will not only have an effect on the social life, but also on the spatial and urban fabric on the city and the region in general.

Though with the development of new international airport and many new proposals projected along with the intervention, a lot of new opportunities are proposed in the region. But there lack of concern on spatial qualities can create many more opportunities but lack of good urban and social environment that the region already had. Also with the re-structuring and proposals for

complete makeovers of mega-cities in India, it also becomes crucial for the region to keep with the rising competition to position itself in the new post-liberal Nation being built and imagined.

	2012				2013								
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mumbai	137	139	130	144	136	146	147	147	130	131	125	138	135
Bangalore	144	143	136	156	141	149	157	155	135	139	133	143	144
Delhi-NCR	125	126	115	135	132	137	137	144	134	135	131	131	130
Hyderabad	131	128	125	137	127	138	136	138	125	128	124	128	129
Chennai	133	131	126	140	134	142	142	143	127	129	119	125	126
Pune	132	126	121	133	129	135	135	136	123	125	125	130	130
Kolkata	128	123	117	137	133	137	135	140	136	141	135	134	136
Ahmedabad	108	108	106	120	126	129	132	129	115	120	114	124	126
Chandigarh	139	134	136	140	134	143	159	152	133	140	135	137	133
Cochi	179	191	175	152	167	141	159	169	139	141	138	141	137
Varoda	152	162	147	158	159	136	145	154	100	108	93	97	101
Coimbatore	193	199	156	151	148	144	152	179	132	128	128	132	133
Jaipur	152	159	151	154	146	156	169	173	149	151	143	146	131

Source:Monster.com,a job search website in India, It Figure.27 s yealy survery confirms the decreasing job opportunities in the area in last one year.

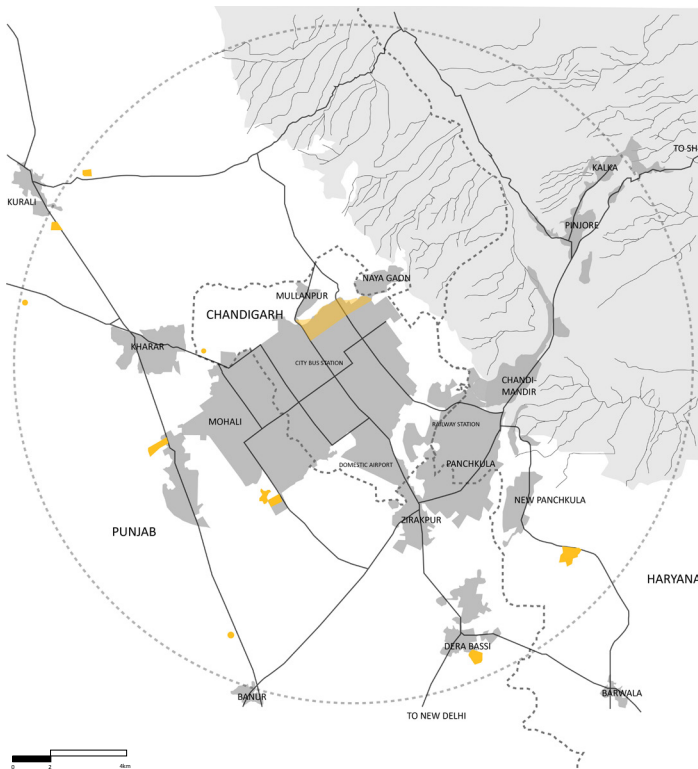


Figure.28

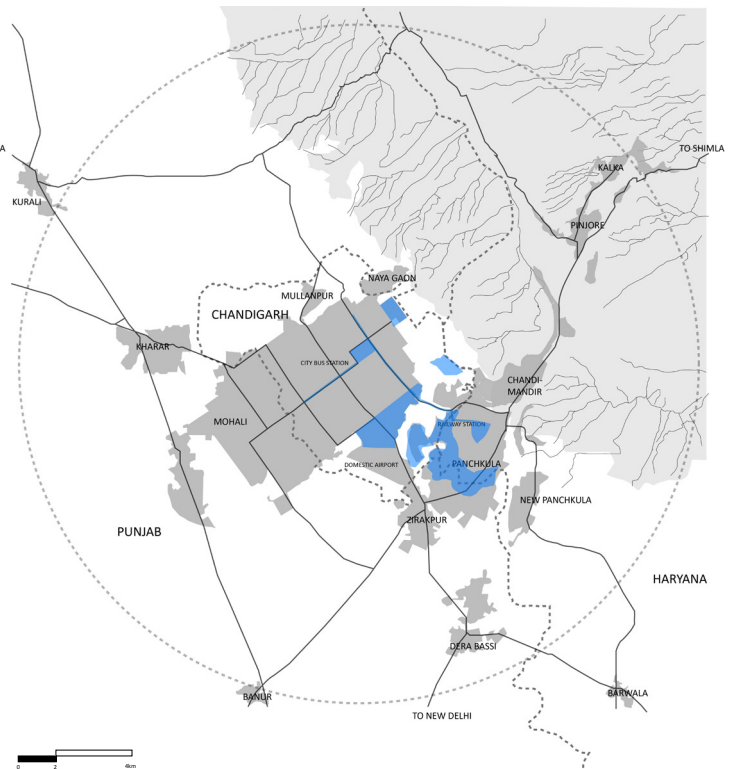


Figure.29

Source:Drawn by the Author,Figure 21 shows the growing intensity of education centers in the city an dits periphery ,while Figure 22: Describes the reducing employment opportunity in the region,because of more jobs in NCR area.

The new a more dynamic and emerging India, post 60 years of its Independence, and in the most stable part of its economy, on one side simultaneously demands, for new and better and globally comparable standards, on the other side needs a complete different political and social outlook towards urban environments in order to become a potential participant in the global networks and systems. While it has been able to raise a generation with a new set of value system and bigger aspirations, it has also added multiple layers to its already complex system. Raising multiple questions about its future and its possibilities to rise and flourish in this dichotomy. With world's most populous democratic country, and still only 30% of its total population living in urban areas, and projection for this number to increase by 40% in next ten years, the nation needs to have completely change its out look towards urban environments, if they want these new emerging urban areas to be comparable and livable and competitive enough. Further, making it vital for government level policies, administrative organisations and other public and private stakeholders to have a much broader foresight and be able to compete and collaborate with each other with much more equivalent and comprehensive force.

While, the major aspect of these changes is reflected upon in the emerging and changing metropolitan regions, for their potential capacities to attract investments and adapt to the economic pressures with much more stability. This discourse needs to open these crucial gaps in the system, in order to have a more open ended approach. As these new emerging metropolitan cities are mushrooming and boosting the economic and urban development, they are also growing and expanding beyond there limits at a much more alarming rate. And while Government programmes and policies and private investments, focus on the city centres and their respective administrative boundaries, there is a lot more expansion and growth, which simultaneously keeps on happening on the peripheries.

These urban peripheries, while are attracting a lot more investment than the city centres for there capacities to adapt and connect with the larger economic resource system there lack of recognition in the government system is creating multiple spatial conflicts. Making these areas to grow far more rapidly and unplanned, simultaneously creating a lot more pressures on the city cores. Though in the case of Chandigarh and its periphery, the periphery act was put to action much in advance but the lack of government collaboration and understanding and multiple stakeholders and their individual ambitions, the periphery control act had little effect.

Also, with Chandigarh already a city with strong garden city model and modern city life values, which are already being challenged, it also becomes a question about adapting and realising new planning models in order to overcome such problems. Not only does it raise questions about change in planning policies, but also administrative outlook towards these areas. While the 74th amendment act recognises the peripheries as a special zones but leaving it to the state parties to consider them further creates many more gaps in the system. Which in this case become very apparent as Punjab being the strong state, and being able to catch more foreign and national private investment is

already able to make far stronger plans for the Mohali region and area around it, in comparison to Haryana, creating a large disparity in terms of development of such areas and creating a social, spatial and economic imbalance. Further adding multiple layers to the system and to urban fabric of the city and its peripheral region.

Perhaps these multiple aspects and their conflicting consequences on the spatial and urban life and form of the city are raising much larger concerns, of social and spatial awareness in the government plans and visions and controls and alignment in the private investments. Though growth and development is vital to evolution and progress of cities, it is crucial in this case to understand the interdependency of various aspects, stakeholders, and aspirations. Further, creating a more complex situation in the case of Chandigarh are two main reasons, one as it has been a model, which was nationally and internationally acclaimed and is now facing new emerging challenges of a post liberalized society and secondly, the area having multiple governance bodies controlling the city and the region, further is adding to the complexity of the problem. Creating multiple layers of actors and their conflicting and diverging aspirations towards the future growth of the region.

The project gives a broad set of opportunities to explore and research and further investigate, but considering the limited time frames, it is important to make the project more focused in a certain direction through dividing it into research questions. Though it is important in the case of Chandigarh and all the other emerging metropolitan regions to understand the interdependency of various actors and their defined roles, and the conflicting consequences appearing as a result. Further, the lack of foresight of government organisations and much less influential policies and plans are also defining our urban environments in a large way. In addition to this already complex mechanism there are new peripheral areas emerging and growing at a much alarming rate and rather competing with the city centres and their immediate urban settlements. And the lack of recognition of these peri-urban spaces leading to complex intertwined issues and urban patterns in multiple layers.

Focusing on these four major aspects my research question tries to investigate and explore the conditions and develop much more comprehensive and cohesive models in order to adapt to these changes.

Main Research questions:

-How are these conflicting global economic pressures and government policies forming a new emerging peri urban space in the periphery of Chandigarh?

-How the urban peripheries are becoming crucial to the growth and development & formation of newly emerging metropolitan regions, by establishing new urban, social and functional patterns, enforced by economic and global pressures -in the case of Chandigarh?

Sub-Research questions:

-How can the goals of these different actors be aligned through design interventions and proposals to adapt to new planning frameworks?

-How can these peripheral urban areas be connected to the city's urban structure both in function and pattern creating a more comprehensive urban environment?

-What are the existing patterns and functions of these areas and how are they becoming more important than the city cores and what scales they operate?

-How can landscape and infrastructure can play an important role in development of more comprehensive urban morphology and help combine the city cores to its peripheries?

The project deals with a crucial and a fast growing phenomenon of impulsive force to grow and develop, in developing and fast transforming regions as a result of, lack of government considerations and global economic pressures. Creating, socially and spatially an urgent demand to project new adaptive measures and evaluate the existing conditions more in depth. Further, raising the importance of setting up multi level analytical frameworks, to be able to focus on the agendas to be tackled and to set criteria's for the design.

In case of India and its growing rate of urbanisation, it is even more important to have set frameworks, as in most of the cases the problems deal with many complex layers and there are multiple actors involved. Making it very important to put them in a hierarchical order and further investigate their impacts. Though the general structure does give a broad understanding of the context, which forms the basic skeleton of the entire project and helps understand the phenomenon and the reasons for its growth and how it is having an impact on the social and spatial aspects of urban environments. The analytical framework is further sub-divided into two main parts of- Planning Framework and design Framework to help comprehend specific parts much better and be able to set the approach in a correct manner.

ANALYTICAL FRAMEWORK

-To understand the context, in this case Chandigarh and its peripheral region, and what are the present conditions which are facilitating the growth in this area.

-Government Setup, to understand the structure of government set up in the case of Chandigarh, understanding the three different government's involvement and their individual positions in the growth of the region and aspirations.

-Regional Demands and New emerging role, to recognize the growing demands or trends of the region and newer urban patterns and structures taking a more potential position.

-Social Changes, the impact of growing trends on the social and spatial structure of the region.

-Role of infrastructure and landscape, As a result of the changing economic trends, infrastructure has taken a more important position that earlier, and landscape is its crucial stage as its not recognised as important anymore. To understand there changing positions and find their place within the new dynamics.

-Urban patterns and Functions, As a consequence of all the above changes taking place to understand their impacts on the urban patterns and changes in the functions, to further help take a position in design and planning.

PLANNING FRAMEWORK

-Multiple stakeholders, In the case of Chandigarh and its surrounding region, to recognise the role of all the government organisations and other emerging stakeholders and their posi-

tion in the system and role and how they are effecting or helping the urban setting.

-Decision making Bodies and their ownership, which are the deciding organisations and how their ownerships and controls are affecting the process of urban development.

-Goals, What are the different goals of multiple actors and how can they be better aligned through the planning process.

-New emerging actors, to position the various actors clearly in the system, in order to help the growth and further facilitate the increase in new actors.

DESIGN FRAMEWORK

-New evolving urban morphology, to analyse the spatial aspects of the changes taking place and the developing spatial morphology as a result.

-Function and Pattern, to understand how the functions of different urban forms changing and creating new patterns and also how they can further be evolved to get the desired results.

-Impact on social structure, the influence of all these aspects on the social aspects of the area and establishing new social structures within the society.

Though these three aspects are not the only aligning the urbanisation process in India at this moment, but they are crucial to the context and the character of the subject and help streamline and facilitate the process in the desired direction. Further, initiating new tools to help create better living urban environments.

The global trends are important to understand the phenomenon more intricately and sensitively for having a much clear and comprehensive approach and deeper understanding of the subject. Though the context helps place different parts of the problem together, the theory forms the backbone to the core understanding of these dynamic transformations.

In case of Chandigarh, theory is crucial as aspect of design for multiple reasons, one as it helps establish the grounding of the existing garden city model in context to India and further helps relate the changes in a much better way. Secondly, it gives a valid understanding to the relationship that the city shares with the larger global system. Though there are many ways and approaches to look at it, but considering the frame of the project the theoretical framework is limited to focus on only certain crucial criteria's.

-Metropolisation, A global phenomenon, but which has had a much larger impact in developing economies, simply for their capacities to adapt to new changes and to become potential participants in the global network systems. With the theoretical approach suggested by (Friedmann, 1986), (Priemus & Hall, 2004) (Friedmann, 1972) (Lepage, Huriot, 2005), the phenomenon is recognised and the various aspects of cities relating to the larger networks they are part of and the inter dependency of the various actors involved in the growth of a metropolis. Also, the relationship the peri-urban spaces share with these network systems and the influences these spaces are having, creating new layers in the urban fabric.

-Global-Local, As clearly explained by (Priemus & Hall, 2004) (Friedmann, 1972) while asserting on the definition of "death of distance", that there is a complex network of cities and the dense connectivity they share. While Friedmann explains the more in detail about the impacts of global economic systems have on local actions as they highly influence the aspirations of government and private organisations further having an intense effect on the urban fabrics.

-New adaptive planning models, taking the case of planning and organisational setup in India, (Shaw & Satish, 2006), (Dupont, 2007) explain extensively the gaps in the policymaking and lack of recognition. Leading to an intense growth and expansion and need for new tools and models to help organise various actors and their ambitions.

-Peri-Urban spaces, As (Dupont, 2007) (Kundu, 2003) explain the peri-urban spaces in big metropolitan areas, stressing on the lack of recognition and controls over their growth, leading to formation and rapid growth of such areas. Helping and formulating a very precise and focused study on the subject of the research thesis and acting as a base study for its similarity with Chandigarh and its surrounding area.

The four different aspects facilitate in both understanding the different relationships of various aspects in social and urban environments and their direct impacts on the urban patterns and

forms. Also, their varied ideas at different scales and contexts, but similar underlying aspects helps to form these complex relationships and also bring focus to certain critical characteristics with in the framework of the project.



Source: Picture taken by the Author, explaining the Fast growing housing and other developments in agricultural lands.

Research | Theory | Context |

Based on the basic site analysis and the research from theory and literature, the main conclusions are here of this first part of the project, which further forms the later basis for the analysis and design interventions.

-To understand the complexities of the existing conditions of the Chandigarh and its peripheral region in terms of the multiple layers of government controls and different stakeholders and their individual interests.

-To understand more in detail the phenomenon of globalisation and its impact in context to India and especially, Chandigarh (being a modern city and a garden city model of planning). And help form a more stronger relationship of the city and its peripheral region to its larger regional context.

-To know the ongoing growth patterns and current needs and trends and demands of the new emerging society as a result of globalisation and understand more in depth the future prospects of the place.

-The lack of inter-relationship between the ambitions and projects on the regional scale by the government and other private investors and recognising their lack of influence on the local scale.

-Very little focus given to the neighbourhood scale and their growing needs and a more seamless transition from the existing to the proposed within in the region.

-The former founding stones of the conception of the city of the green belt and water channels and hierarchy of infrastructure, losing its significance over time and taking not only new position mainly in the case of infrastructure, but deteriorating to large extent ecologically.

-Need to give a new urban life and meaning to the depleting green belt and in the process, helping it become not only a central part of the whole urbanisation but also become open to its surroundings and not remain a void and a backyard to the different surrounding cities.

-In the process also to redefine the values of the garden city model and the new emerging model of a network city by placing it more influentially in the context of the Chandigarh and its peripheral region, rather than just adapting to the growth pressures and losing the significance of the place.



Source: Taken by Author, explaining the Traffic condition in the areas which are being fast developed.

	P1 Presentation	P2 Presentation	P3 Presentation	P4 Presentation	P5 Presentation
Theoretical Framework	Guiding Research Question Theory Abstract	Theory Paper and Conclusions			
Site Study and Analysis	Literature Review Urban contextual Analysis at regional and city scale	Historical Analysis Conclusions	Analysis at Local scale Conclusions		
Planning	Problem definition Research questions	Design Objectives			
Design		Expected design results & Vision	Intervention regional scale Network city model Criteria for comprehensive planning Strategic for peri-urban areas		
Design			Strategy city Scale City Scale design Strategy local Scale	Local Scale Design Strategic intervention to test planning model	
Evaluation					Process and Design Evaluation

Source: Drawn by the Author, Figure 30: Shows the time plan for the entire graduation project.

Figure.30

The above plan discusses the working plan to understand all the above problems and further do an indepth analysis and take them to design interventions.

The planning has been divided into six main parts where ,it is important through the course of the study to go back and forth and understand and take back references and analysis and conclusions from different parts and re organise them.

Further as the graduation plan is for a year , the different stages of the time are divided with the given parameters to be able to evolve the expected results and reflect upon them in the later cases.

Analysis | Theory | Planning | Design |

In context to the vast scale of the project it is crucial to have a structured methodology to understand and further intervene in the subject through design and planning policies. Also it helped align all the research through theory and analysis of the sight into a more structured approach to certain crucial subjects.

To understand all these complexities the project takes the first method of forming frame works: where it is divided in to three main parts of analytical ,planning and design framework, which help form a comprehensive argument from the problem statement. And the heirarchy helps further in putting each issue in its place in its scale with planning and design ,while the analytical framwork through site study helps give the context.

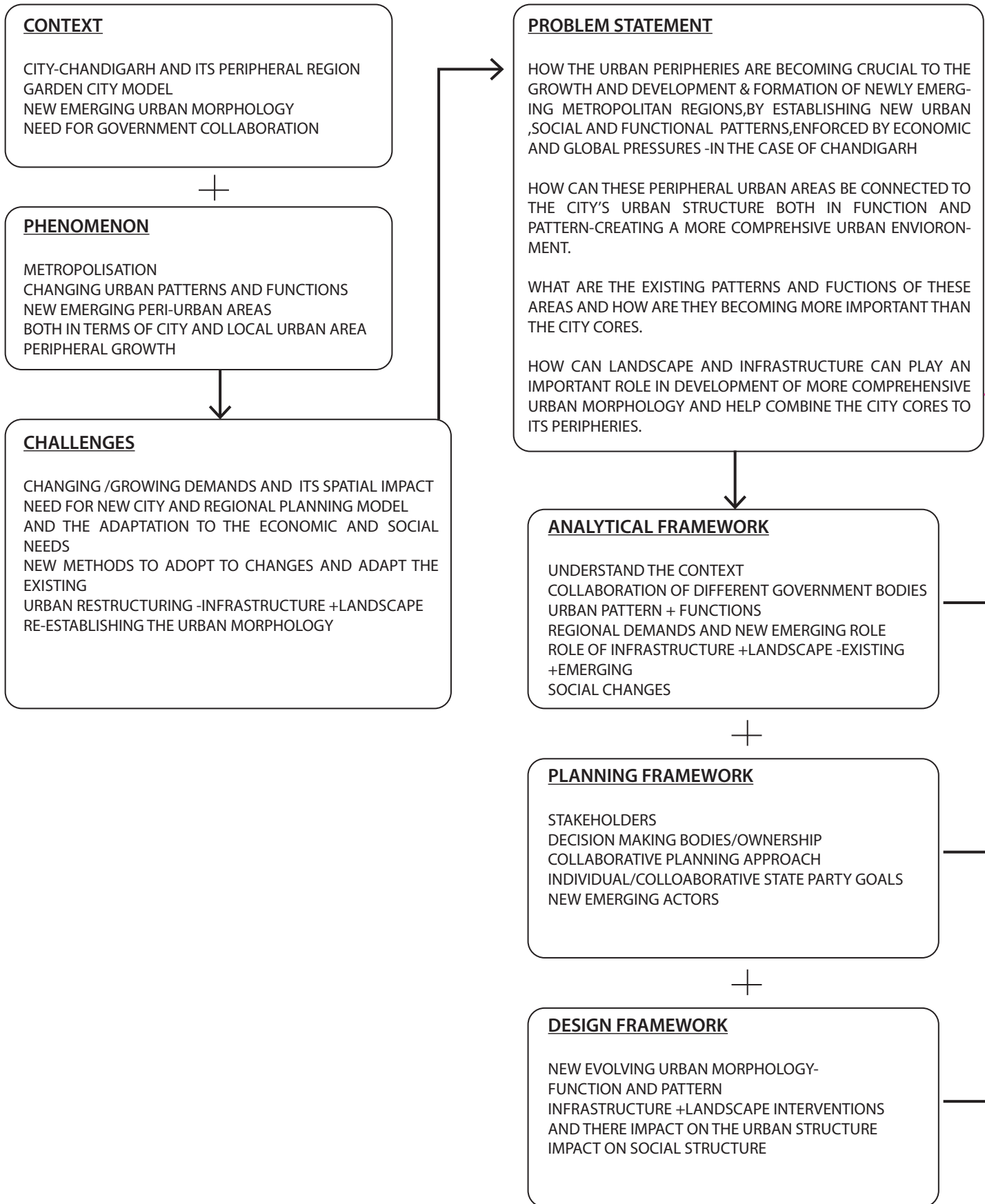
As its is important to the subject to understand each element in different scales as each one has a different and a more specific role to play , the multi-scalar approach has been used to understand each of the elements of infrastructure, landscape, a new developments forming anew urban form. Varying from the regional to the local and neighbourhood scale to make the process more seamless and understand the impacts better and more in detail.

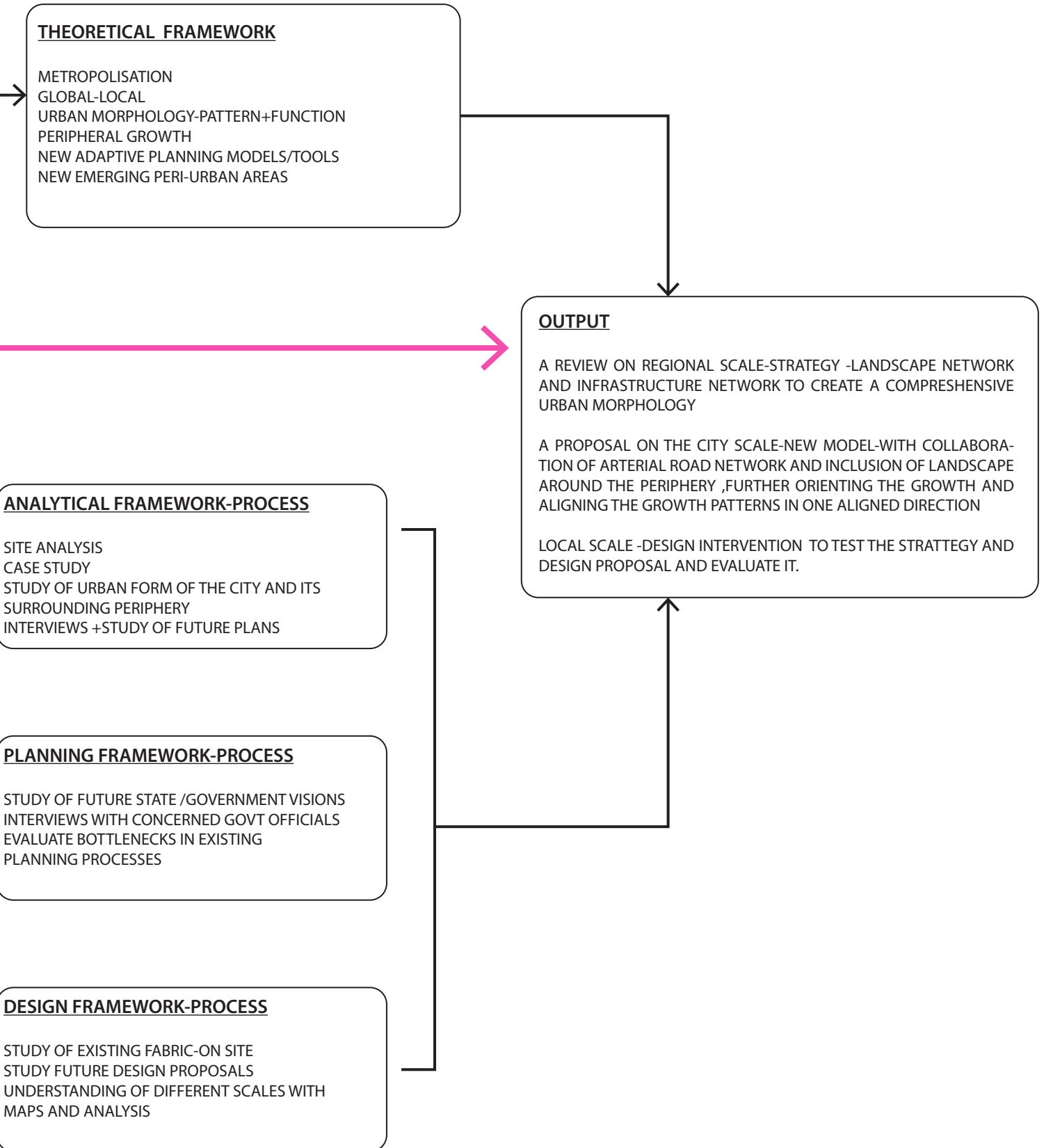
For the design part mostly the methodology by kevin Lynch and mathew carmona's approach is furthur ellaborated on bridging the gap between planning and design by spatilalising each of the aspects in detail.





ucted, with little or no focus given to the river





Source:Drawn by the Author,Figure 31: Shows the basic framework for the research and expected results

Figure.31

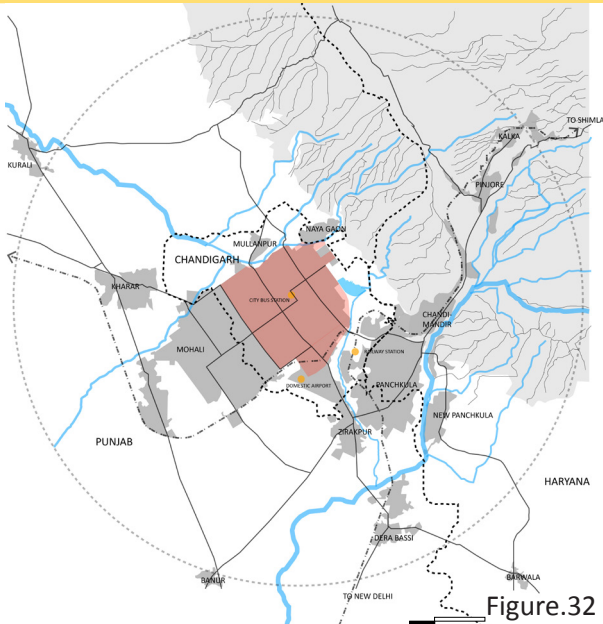


Figure.32

The drawings here give a concise evaluation of the all the different factors which need to be considered through the process of planning and further designing in detail.

City -Region

The first map shows the growing impact since the 60's and 70's of Chandigarh, resulting in the growth of the region and making Chandigarh city a very small part of the overall region than from it used to be. Bringing about the aspect that the city now needs to be foreseen as a part of a much larger network rather than as a city working as a mechanism in itself.

Depleting Green Belts

As Chandigarh is largely known for its garden-city model concept and large focus given on the existing green belts along the two sides of the city and also through the city forming an urban park all through the city. It is becoming a serious question as caused by fast urbanisation these green belts are fast losing significance and fast depleting. From the adverse effects of industrial waste and informal settlements and villages within the green belt and the river belt have led to not only their depletion but also, decrease in the ground water tables and fast eating away of the green leading to difficult conditions.

Though it is vital for a city to grow, but at the same time it needs to value its ecological values and concerns rising as a result.

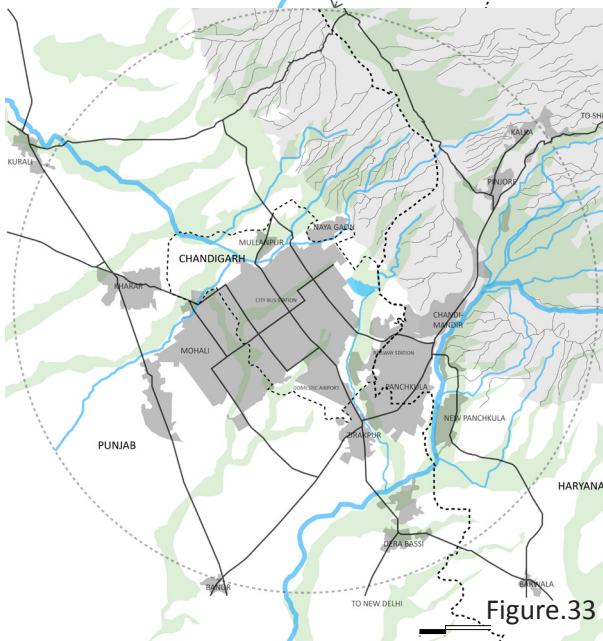


Figure.33

Regional Pressure

Not only is it important for the city to realise its importance as a part of a regional participant, but also to reflect upon the pressures created as a result of it. As the Punjab state and Haryana state government, makes future plans for growth and development of the peripheral belt in the coming years it also brings about new pressures from the city and its periphery to grow and connect to these demands.

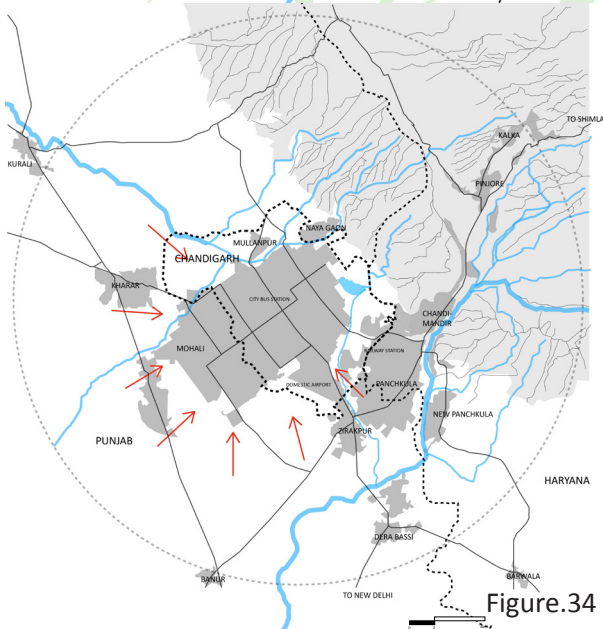


Figure.34

Source: Drawn by the Author.

New Possibilities

With Chandigarh and its peripheral region taking a new position, it also places it more strongly in the larger context of its larger northern region and especially with New Delhi.

Chandigarh which has already established itself in a strong way with context to New Delhi in the past for its capacity to raise an intellectual generation, that can take a strong position in the New developed private sector along New Delhi and its periphery, it has great potential with the region growing to become a better participant in this larger network and gain from it.

Government Boundaries

The government boundaries are a mere administrative control to help organise a better functioning of a city, and that should not become a barrier in the growth of its collaboration with its peripheral state parties and stake holders. Rather than competing with each other, it can be beneficial as a region to come together as a multiple government setup and a much stronger participant to the growing demands and aspirations. Helping the process become more seamless and easier to organise and creating less hierarchy and more thoughtful insight towards the future of the region.

Urban Form

With in all the future masterplans, multiple stakeholders, aspirations for a bigger and more potential region, it is vital to understand the impact on the local scale. And the seamless and fluid transition of spaces and neighbourhoods in this process, which is still lacking in the planning polices, making the process more fragmented.

Where it is vital to grow, collaborate, aspire and investigate, it is also very crucial to understand the urban form created as a result of all the changes and if that really helps the city become a future model for other parts of the region to follow.

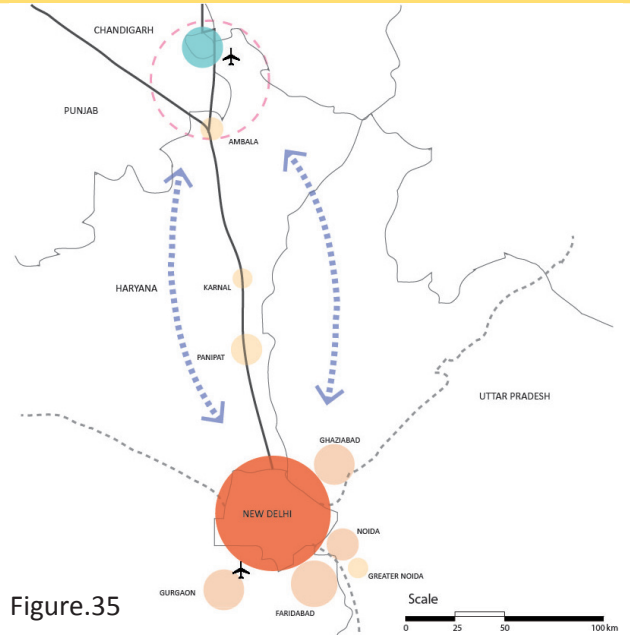


Figure.35

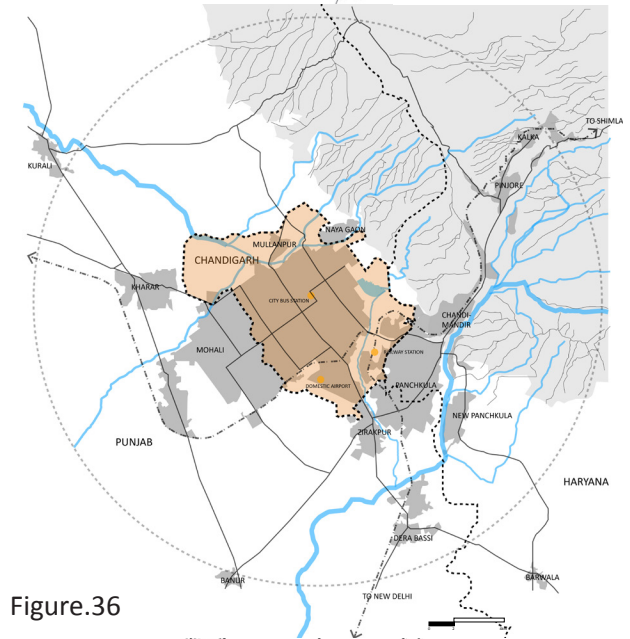


Figure.36

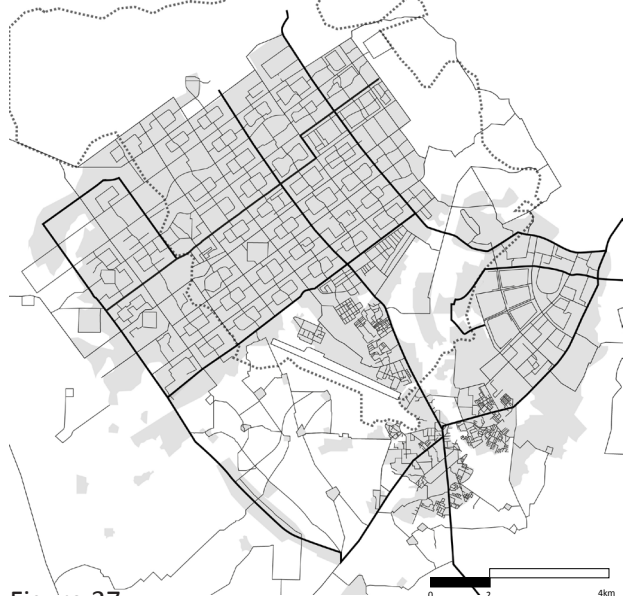
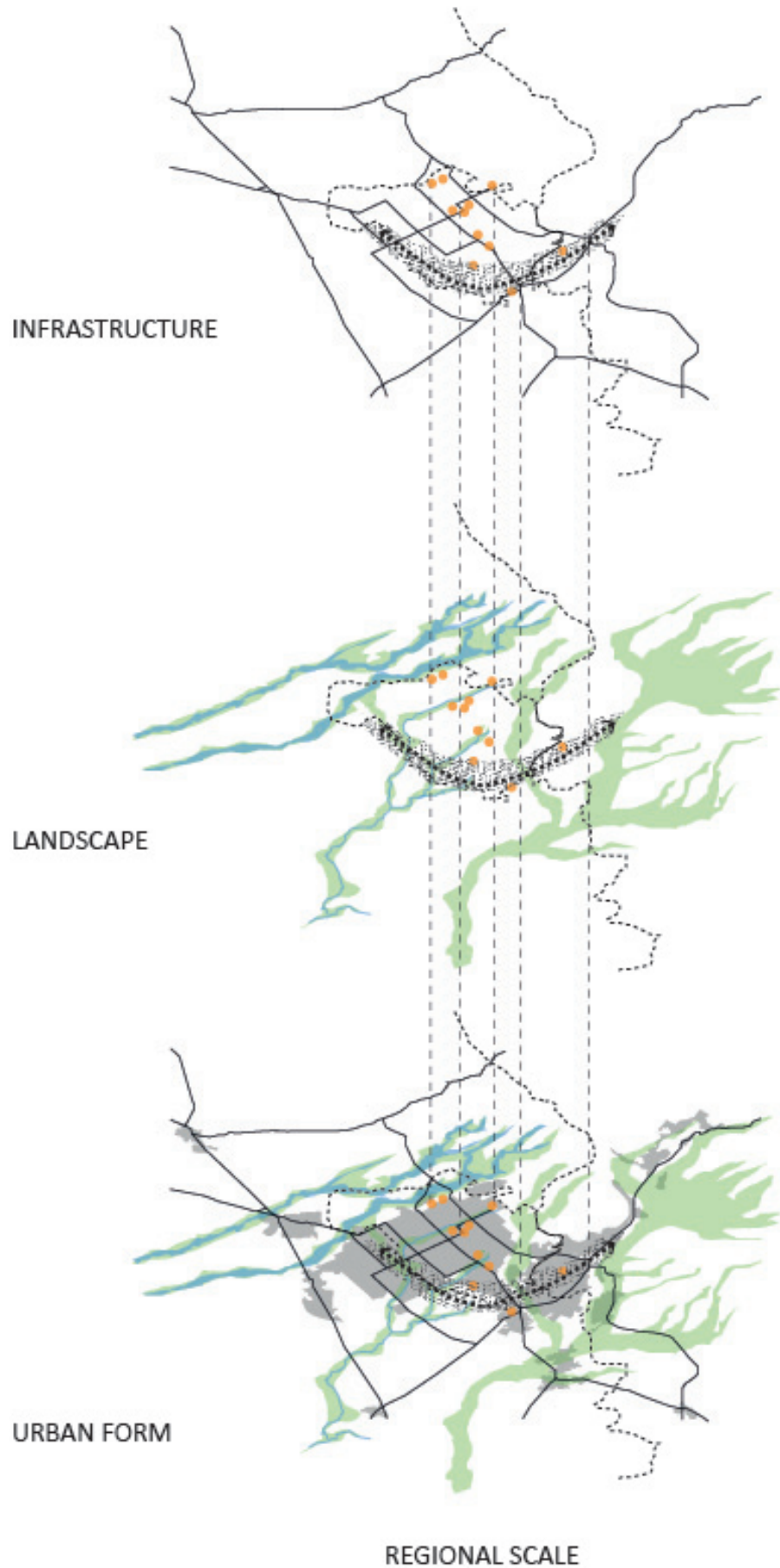


Figure.37



Source: Drawn by the Author, Figure 38: Shows the intervention on the three main scales with layering the landscape and infrastructure layer to understand the proposal and its impact on the urban form better.

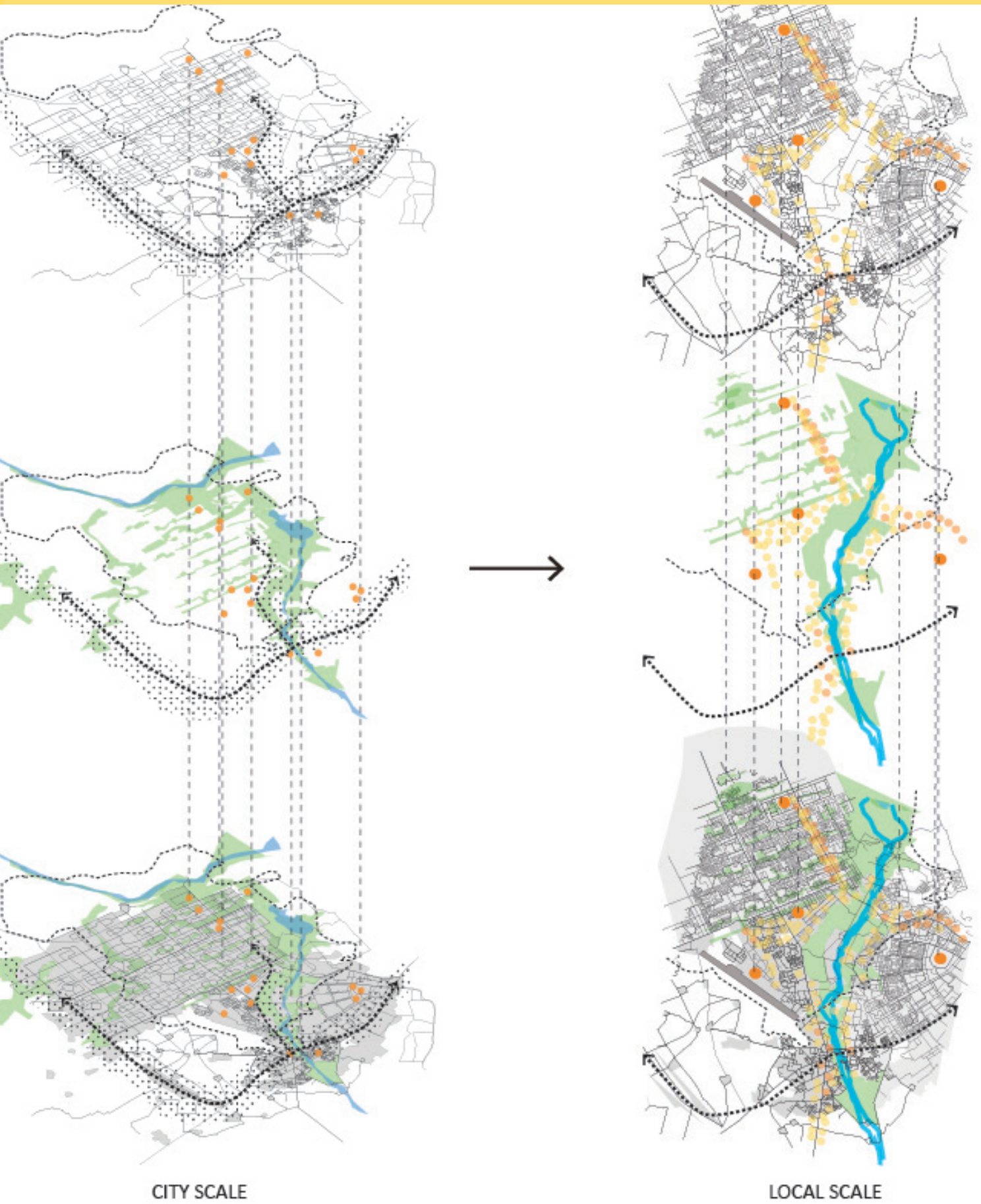


Figure.38



Source: The picture taken by the Author, explaining the little places in between the industrial areas and changing urban environments.

The two different aspects of Planning and design, as they are both crucial and important in this case, both to understand the subject and intervene in it. As the multiple stakeholders and their individual ambitions and further lack of government policies and collaboration in one part of the issue. The growing lack of concern given to human scale of interventions and an emerging new layer of urban form within the urban fabric, which is fast growing and much more difficult to handle is another.

Not only in the planning framework is it important to know who the different stakeholders are, but it is vital to make space for new actors to play a different and important roles, in a way creating a more structured hierarchy of decision making and policy making, helping in aligning the goals of all the different players.

While in the design part the framework needs to understand the new evolving urban morphology, based on the new demands and changing aspirations of the next generations, resulting in a change in the urban functions and patterns, which has a great impact on the social and urban structure of the region and.

Based on these frameworks, the three main parameters for this project are developed mainly, Landscape, which is not only is important in the context of the place, but is also a vital value which needs to be taken care of, for both ecological and socio-urban concerns. The other main aspect is infrastructure, which as earlier discussed is an important aspect based on which most of the development happens. And is also crucial to making the

region a more well connected place.

The third parameter deals with the New developments, where the focus is given to both the existing and the new emerging areas and making the process of this transition more seamless on the local scale. In the process creating a new urban form where the different existing aspects and new parameters can combine together towards a better livable and well connected and aspiration place. Helping it to make it into a model for the future growing peripheral areas to adapt and learn from.

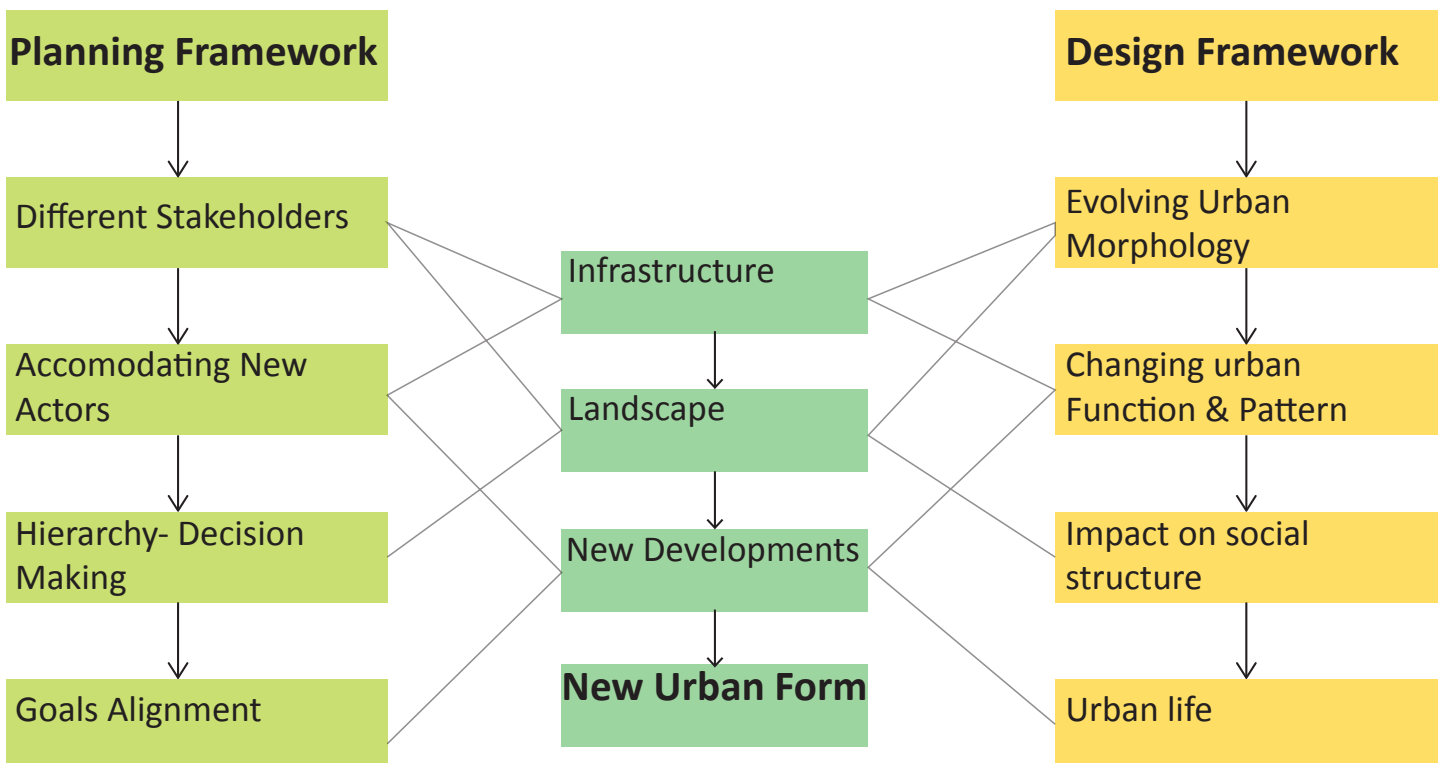


Figure 39: The diagram explains the different frameworks and where they both can be combined to form a better organised urban structure for the region.



Source: The picture taken by the Author, explaining the ongoing construction in the urban fabric

A N A L Y S I S & D E S I G N



To understand the existing condition and the expected growth in the region, it was important to understand how it is expected to grow in the following years, based on the different government aspirations towards intense urban and economic growth projections. Also it was crucial in knowing about the different stakeholders and their demands and ambitions for the region to further see if they can be aligned and how can that be made possible.

For the same purpose, a trend analysis was done for Chandigarh and the cities along the city mainly effected by fast growth. From the analysis it became clear that Chandigarh and its periphery not only are expected to grow multiple times in the coming ten years but, the peripheral cities which are much smaller in their size and capacities are more ambitious towards growth both in economic and social sector.

With a fast paced urbanisation and growth pressures in the region not only does it bring about new pressures and concerns for the region but also for Chandigarh as a city itself.

While Chandigarh on one hand has a more stable population growth and economic growth expected in the future, the peripheral cities are projecting to grow multiple times with expect-

ed migration and job opportunities created by the new development plans made by the state government authorities.

With the peripheral areas going on a high end and fast paced growth projections in the near future, it directly brings about a lot of new stakeholders, complexities and emerging layers as a result.



Figure.40

Source: Drawn by the Author. Showing the expected urban trends in the next decades

The next diagrams show the expected growth based on the masterplan of GMADA 2058 (Greater Mohali Area Development Authority), Punjab State and Chandigarh Master Plan 2031 ,Chandigarh Administration.The diagrams explain the expected sectors the different government bodies expect to grow in the coming years in different municipalities.

Creating a new corridor node between the already existing North-South National Highway corridor and adding chandigarh and mohali through Zirakpur into the network via adding new infrastructure knots.As a result expecting many new housing and commercial and industrial expansions in the following zone.

The plan as a result is expected to expand the area by multiple times in both population and economic growth as per the different government agencies, giving very little focus to the existing fabrics and the landscape factors of the site, creating a new layer of complexity into the already existing disparity.

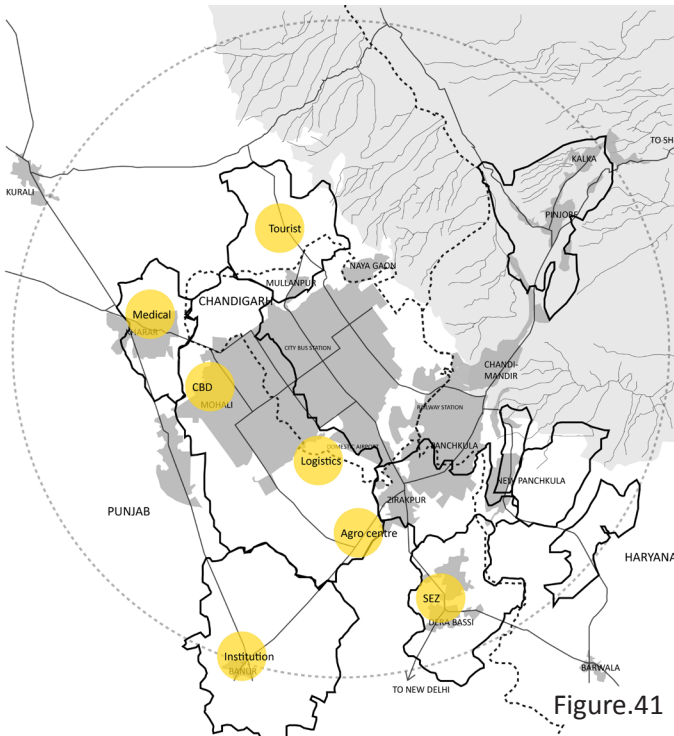


Figure.41

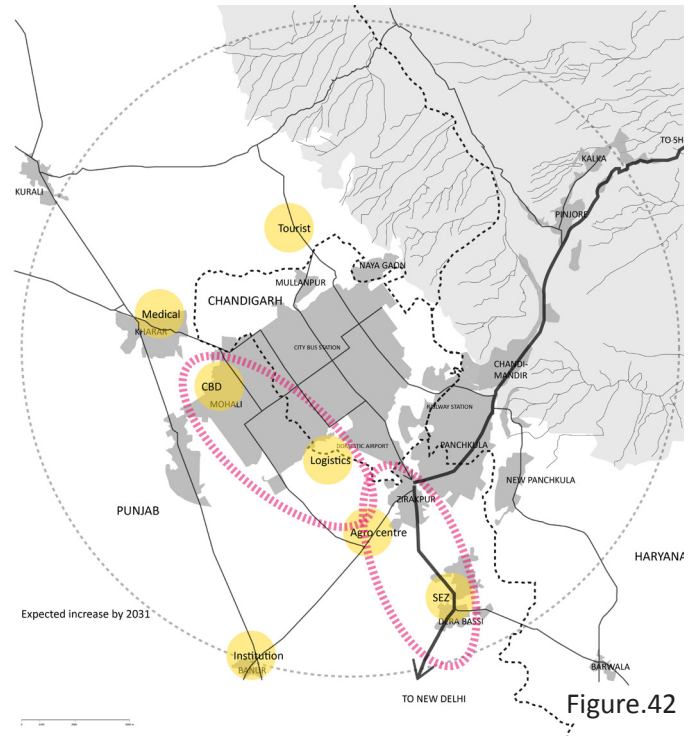


Figure.42

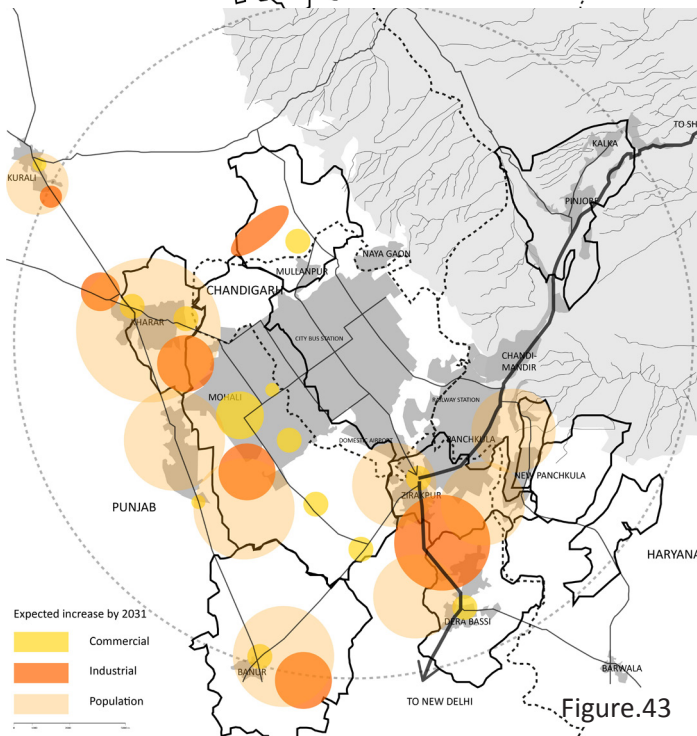


Figure.43

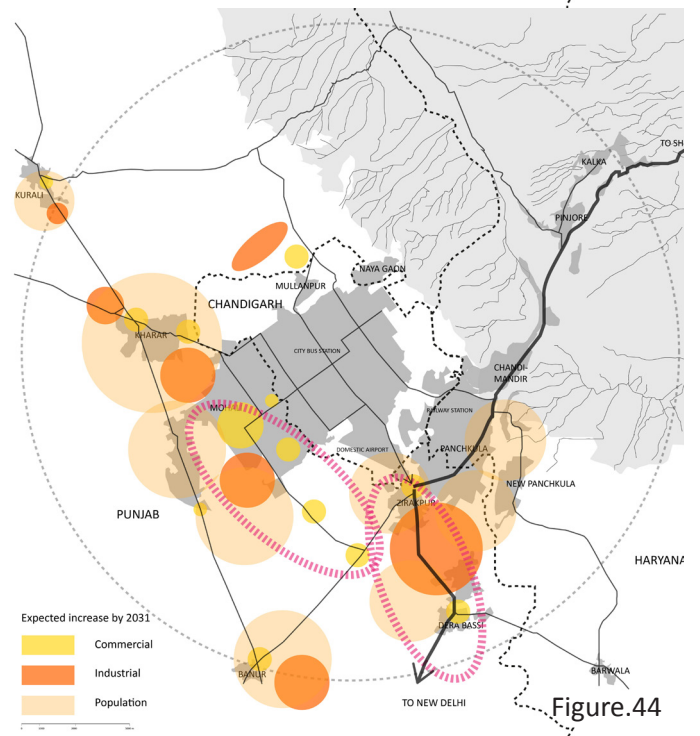


Figure.44

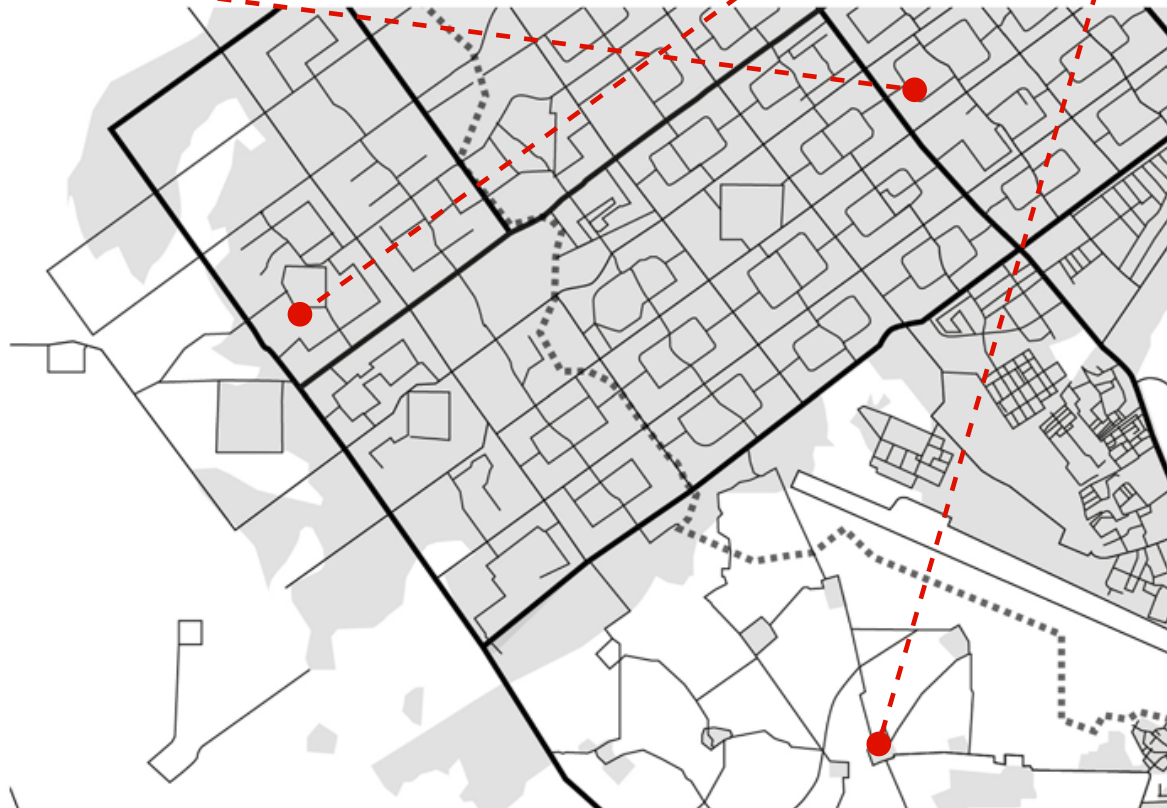
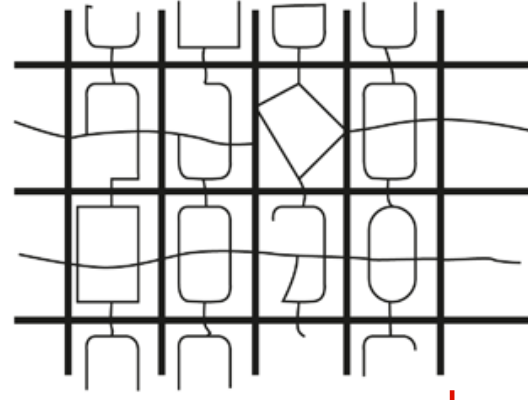
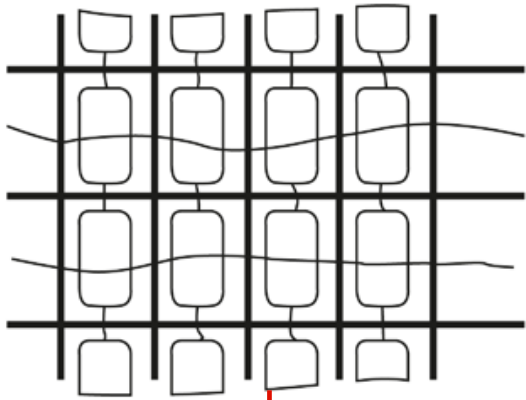
Source: Drawn by the Author. Showing the expected urban trends in the next decades



1950



1970



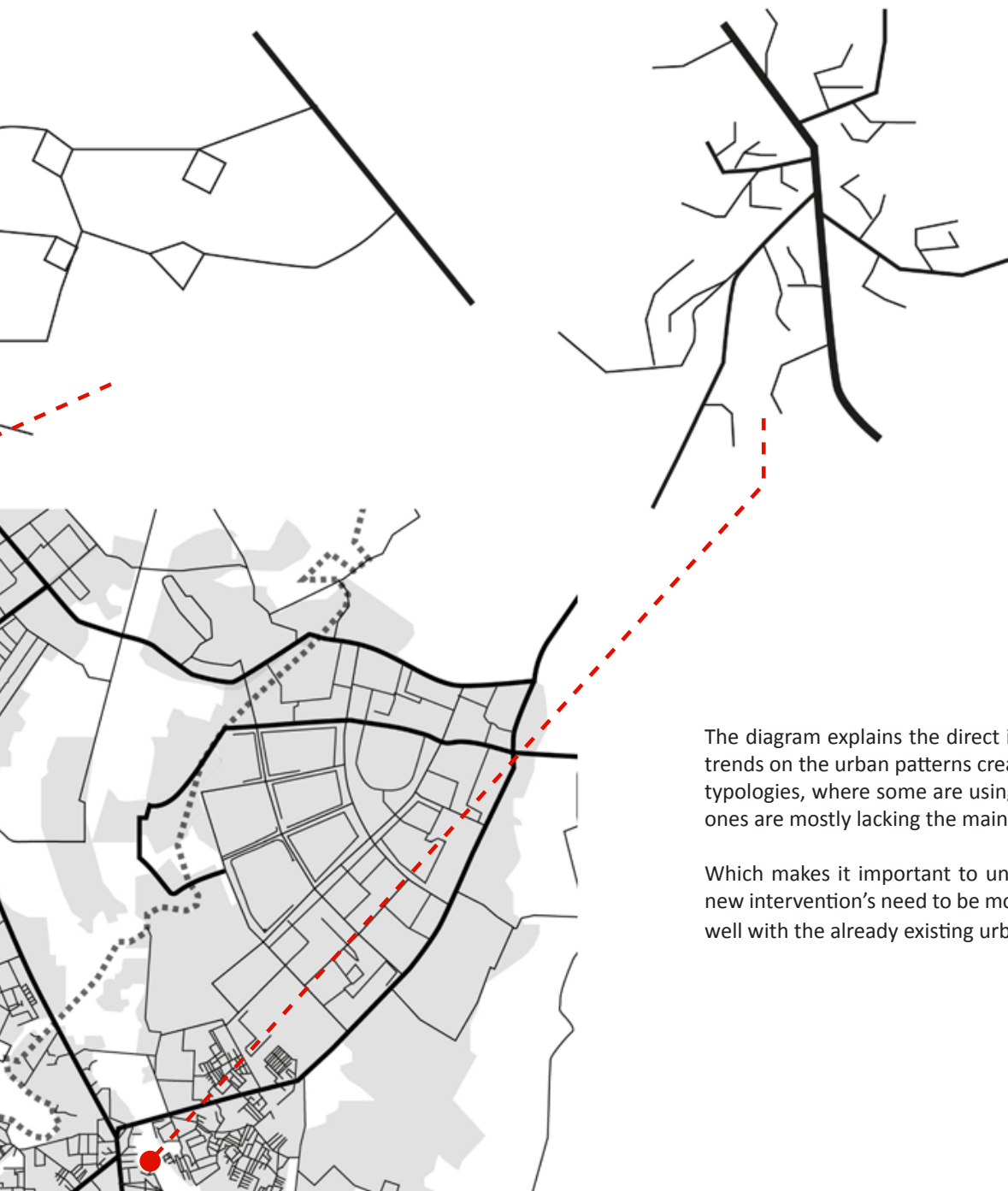
Source: Drawn by the Author. Showing the impact of regional level developments on the local scale

Figure.45



1990

2000

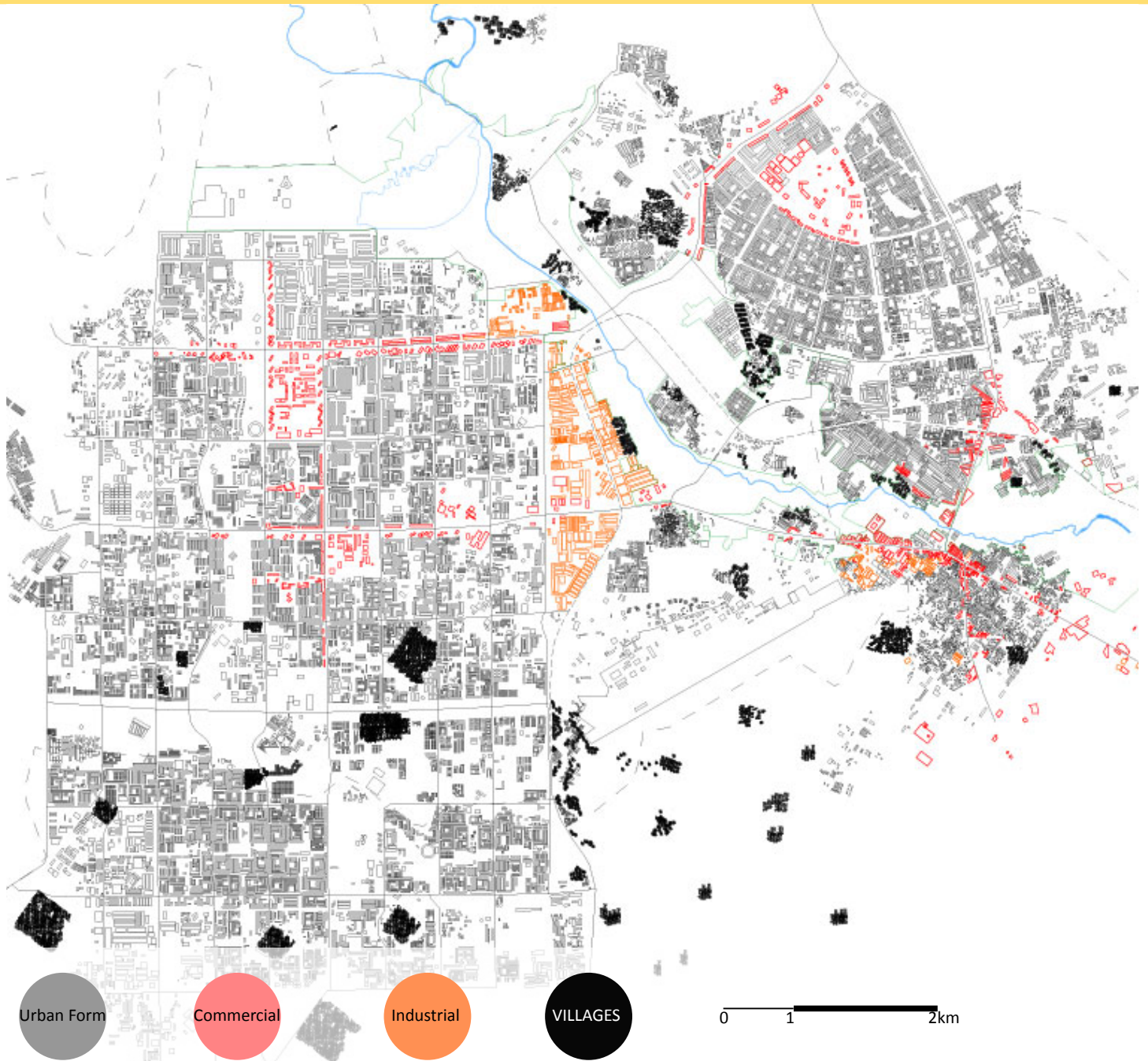


The diagram explains the direct impact all the above discussed trends on the urban patterns creating a series of different set of typologies, where some are using the inherent values, but new ones are mostly lacking the main ideas of modern city concept.

Which makes it important to understand this change, and the new intervention's need to be more adaptive and be able to mix well with the already existing urban pattern.



Source: Image taken from Flickr, showing the infrastructure and the relationship to the urban environment its part of.



Source: Drawn by the Author. Showing the existing condition of commercial and industrial activities.

Figure.46

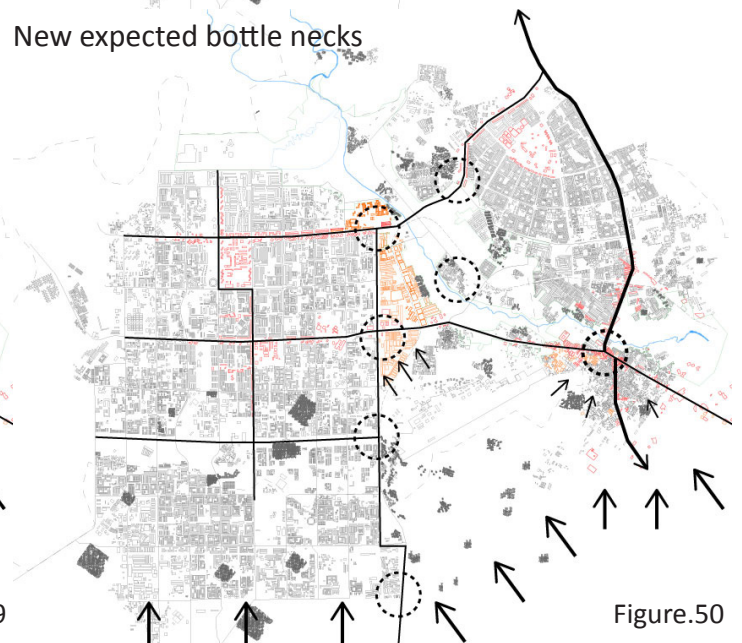
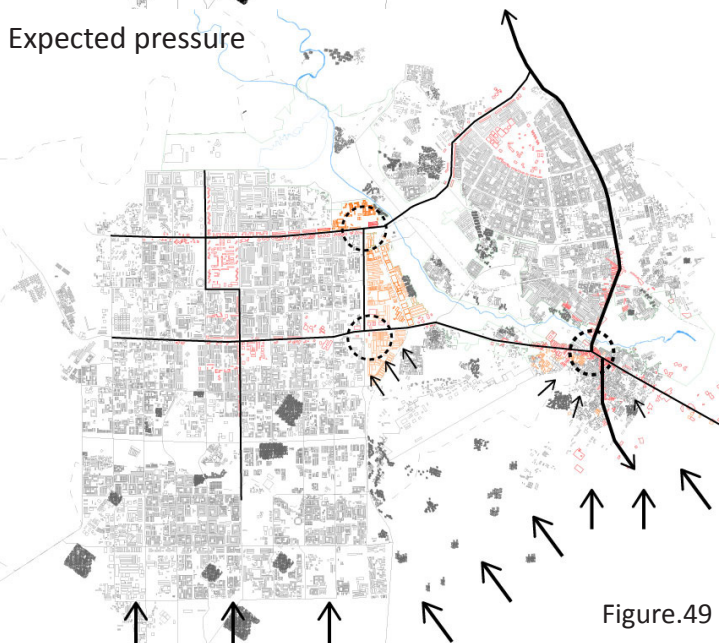
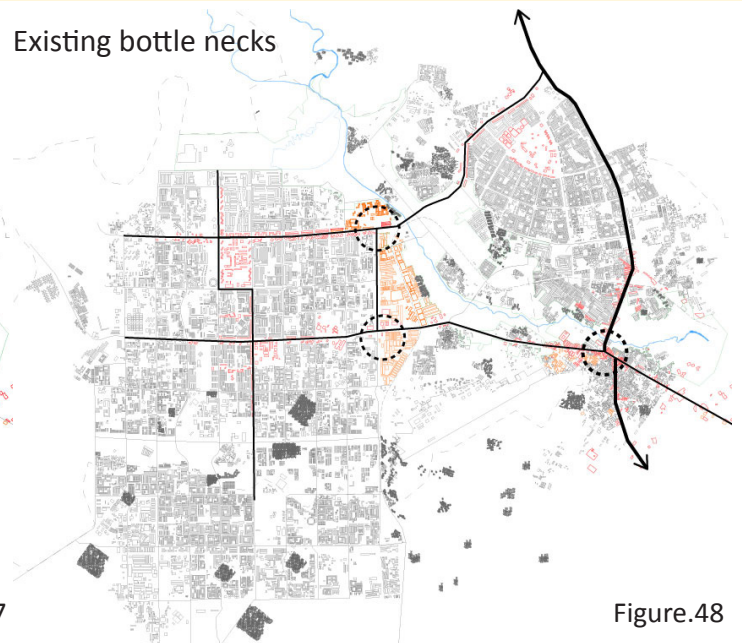
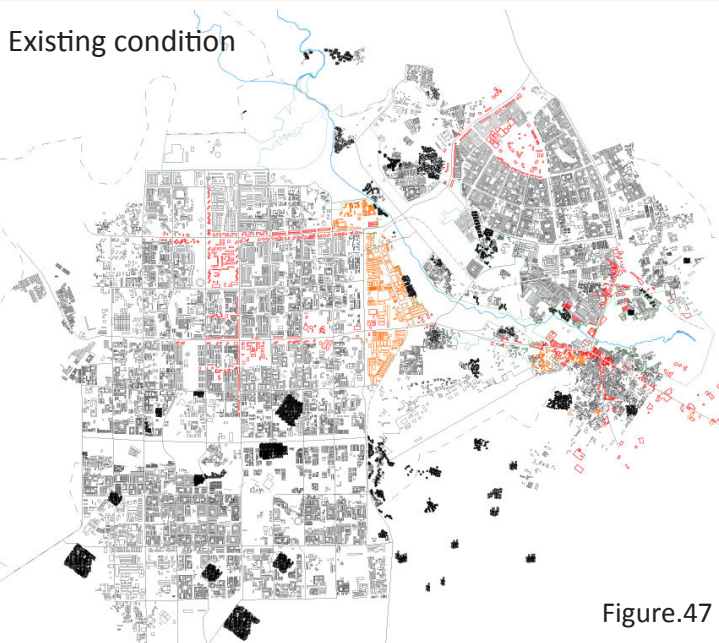
It is explained in the existing condition of the area, where all along the green belt and the river the industrial area and the infrastructure expansion has led to almost depletion of the green belt. Though the map also explains the two main corridors along with the city is majorly accessed and the extensive growth of commercial activities along those corridors.

Further it also brings about to focus the increasing growth of informal settlements along these corridors and within the green belt as the belt has been under extensive controls considering its placed along the state borders.

The map also helps understand the growth of the industrial sec-

tor and the infrastructure corridor, based on the location of the railway station within the green belt and the close proximity to the airport.

The area is intensely growing because of the main corridors running across and the infiltration of settlements and villages with in the green belt leading to a pathwork of green areas all along the belt, most of which are losing its significance.



Source: Drawn by the Author. Showing the impact of the expected growth and development plans

The maps above evaluate the existing condition and the already existing tight bottle neck conditions in the different parts of the two vital V2 corridors, not only connecting the city to its peripheral region, but also the region to its larger network.

Where it clearly exemplifies, that with current growth pangs with different government agencies, this pressure on these nodes is not only going to increase, rather it will further initiate new nodes with even more intense pressure to develop as a result of little focus given on the impacts of fast development plans.

This further brings to question, not only these are pressures are foreseen by the different already existing masterplans by the state agencies, but also what kind of local environments are they going to create for the people livign in the city and within the periphery.

Where, with large ambitions to make international airport and new developments the region plans to give itself a new face in the neo liberal models of urbanisation, little focus is being given to the depleting ground water levels and the over layering of green belts via settlements and fast growing layers of resulting demands.

Not only increasing pressure on ground for space and mobility but more importantly bringing forth questions of ecology and a garden city value system which is being lost in the process.

Concerns about the environment have shifted from a romantic attachment with landscape preservation to increasingly technocratic concerns that vary in scale and context from a local to a global perspective. (Davison,2010).

Green infrastructure therefore represents an opportunity to re-appraise the green belts, and in some cases link them within a larger network of green infrastructure. This would steer the green belt policy towards the regions without asking central government to carry out a highly contentious reform.(Amati,M & Taylor,M, 2010).

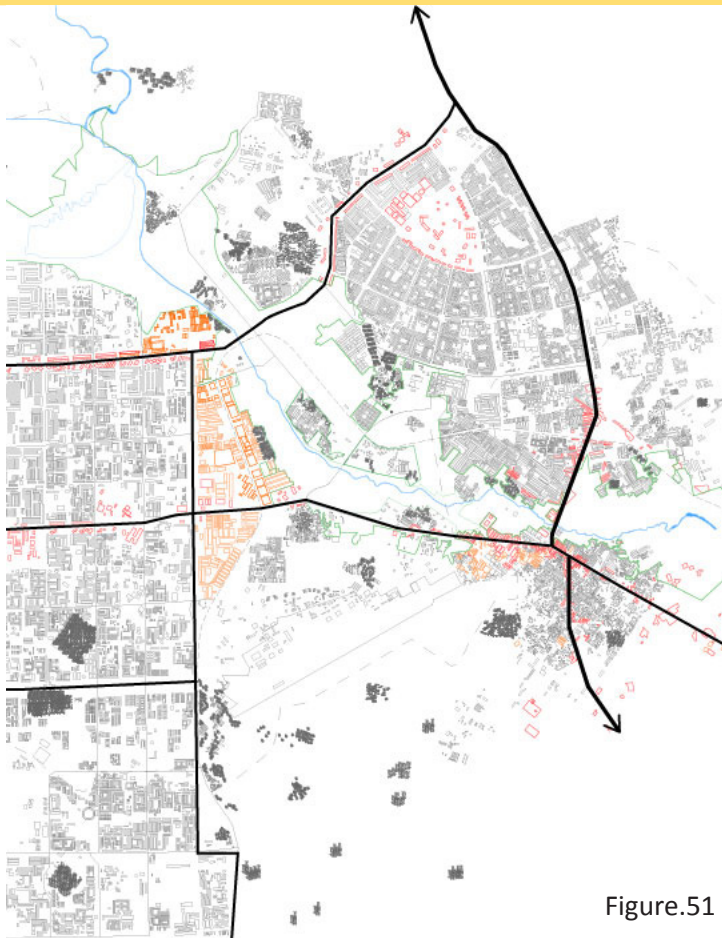


Figure.51

The green belts has been an integral part of planning of Chandigarh in 1950's , yet it has come under danger in the recent decades. The intense demand for housing and urbanisation, and densification of the city has resulted in depletion of this entire belt. Also, waste discharge from the industrial area into the river belt has not only contaminated the river water but also made it decrease over time.

Considering the fact that it is a non-perennial river, which is a vital catchment area for the region during the monsoon season, it is a major ecological concern to maintain it and improve its condition. Also , little or no focus given over years to the green belt has left the green belt into a patchwork of series of green areas with in the region, with little or less left in them to be maintained.

The following map shows the green belt within the urban fabric and the two main infrastructure corridors now forming its outer periphery. Resulting in a lot of growth and development within the zone, leading to parts where the development is touching from both ends crossing through right across the belt.

While the second map discusses the pressure on both the cities, Chandigarh and Panchkula, being forced to grow at a very fast rate are further only forcing the green belt to deplete over time, with strong infrastructure corridors between them enforcing to make new interventions within the area.

Already the green belt is intensely constrained as a result of the pressure from both sides to develop , further this will only get more intense with increasing developments in the southern part of the region, which will enforce this area to grow much more faster and in a far more uncontrollable manner.



Figure.52

Source: Drawn by the Author. Showing the condition of the green belt and the consequences if not intervened into

While there is a strong force from both Chandigarh and Panchkula to develop and in the process complete, disappearance of the green belt, the pressure is only going to increase with the new developments planned for the region and expected increase in the population and opportunities.

This process is not only constrained anymore just to the two sides of the green belt but also in the other two directions as shown by the following map. Where on one side there is extreme pressure from the southern side towards growth and development and leading to urbanising almost of the green belt, while there is a constant pressure from the northern side, ecological pressure to maintain the green belt to maintain the ground water table of the region. As still 30% of the water used by the area is through the ground water as per a report from the Chandigarh administration it is vital for the government to maintain this. Further, as it is an important source of rainwater drain during monsoon from the Shivalik hills in the north, it becomes critical to maintain the balance between these two very opposing forces.

In a way, questioning all these forces and bringing about an urgent need to re-think the position of these green belts within thick urban areas. Also bringing forth the idea of not only looking for ways to find a place for new green infrastructures, but also looking for ways to re-adapt the garden city models and find new neo-liberal models for these existing towns.

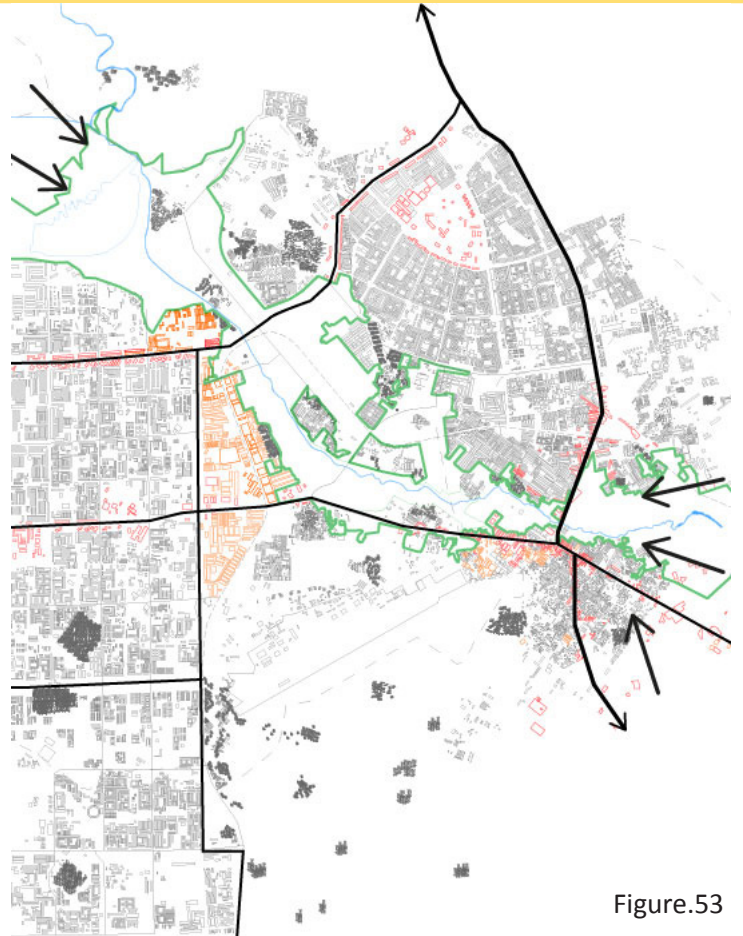


Figure.53

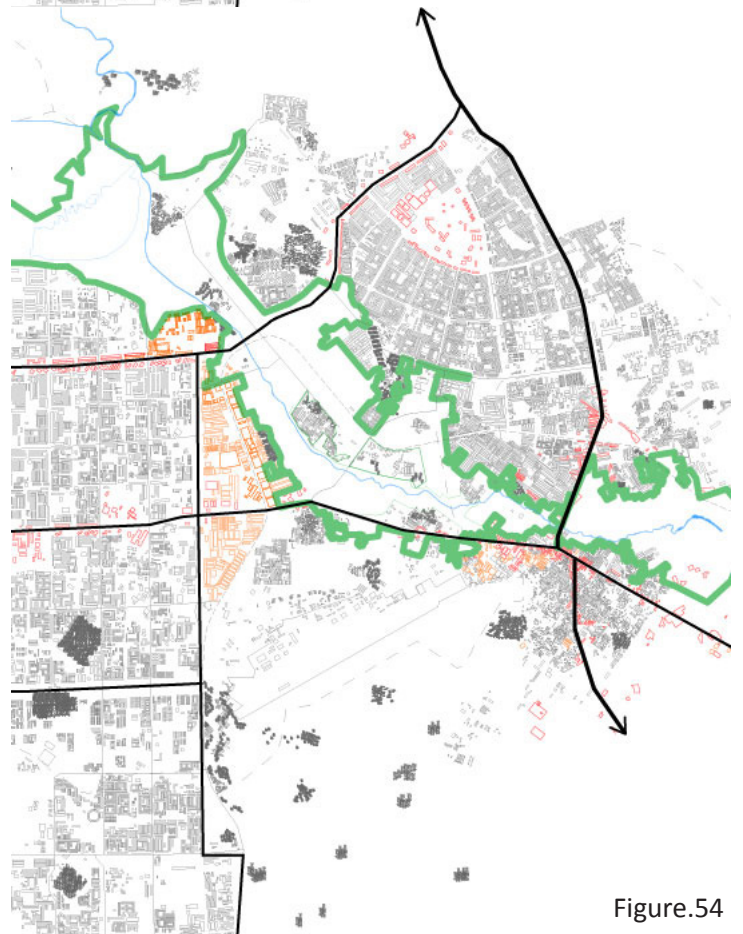
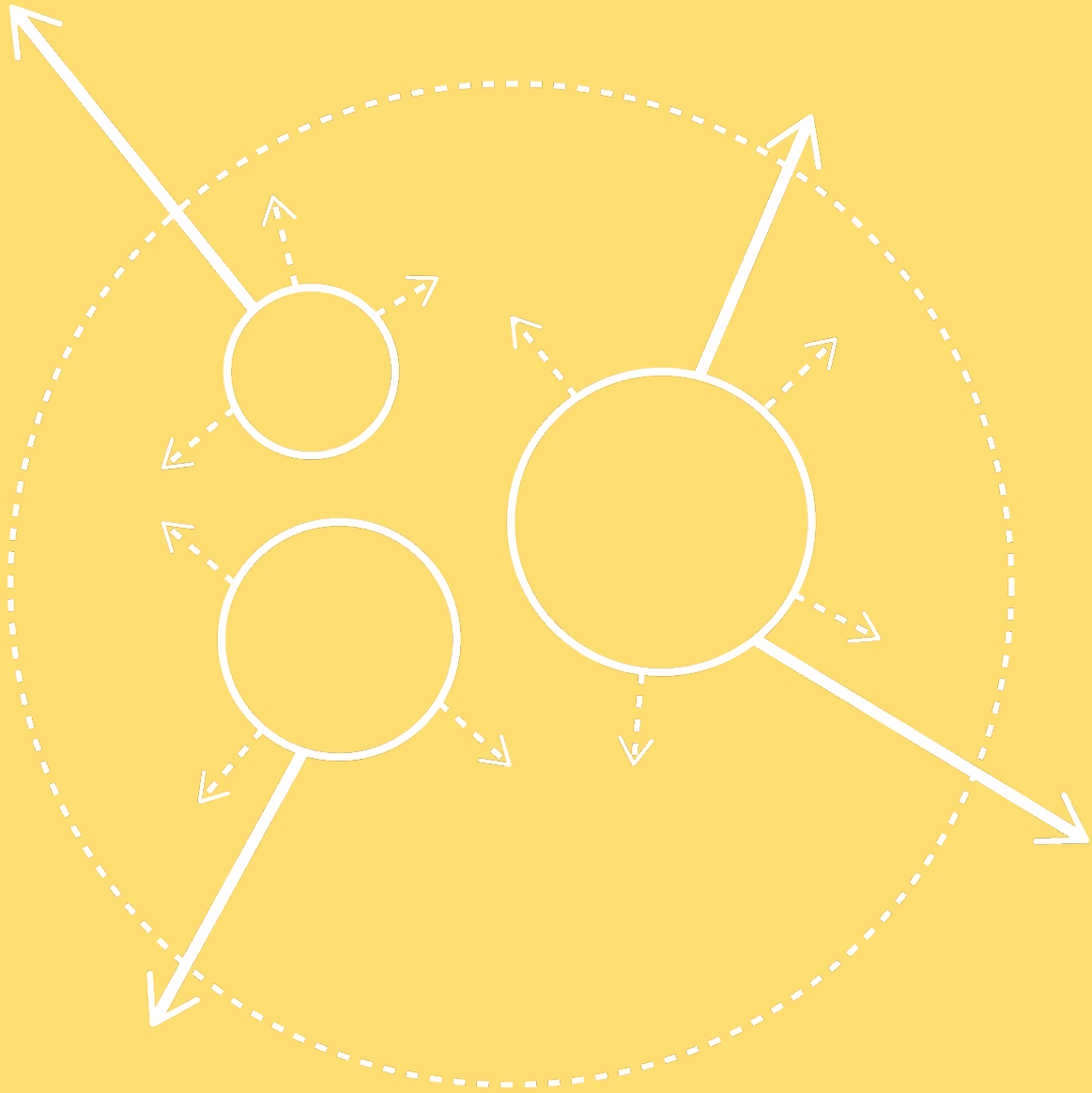


Figure.54

DESIGN HYPOTHESIS



In a dynamic process of urbanisation and fast growing urban areas, it is vital to realise the overall value of quickly depleting green areas. Also, in the process to re-define them and give them new definitions and meanings making them a valuable part of the urban areas, creating a more synergetic and comprehensive urban environment.

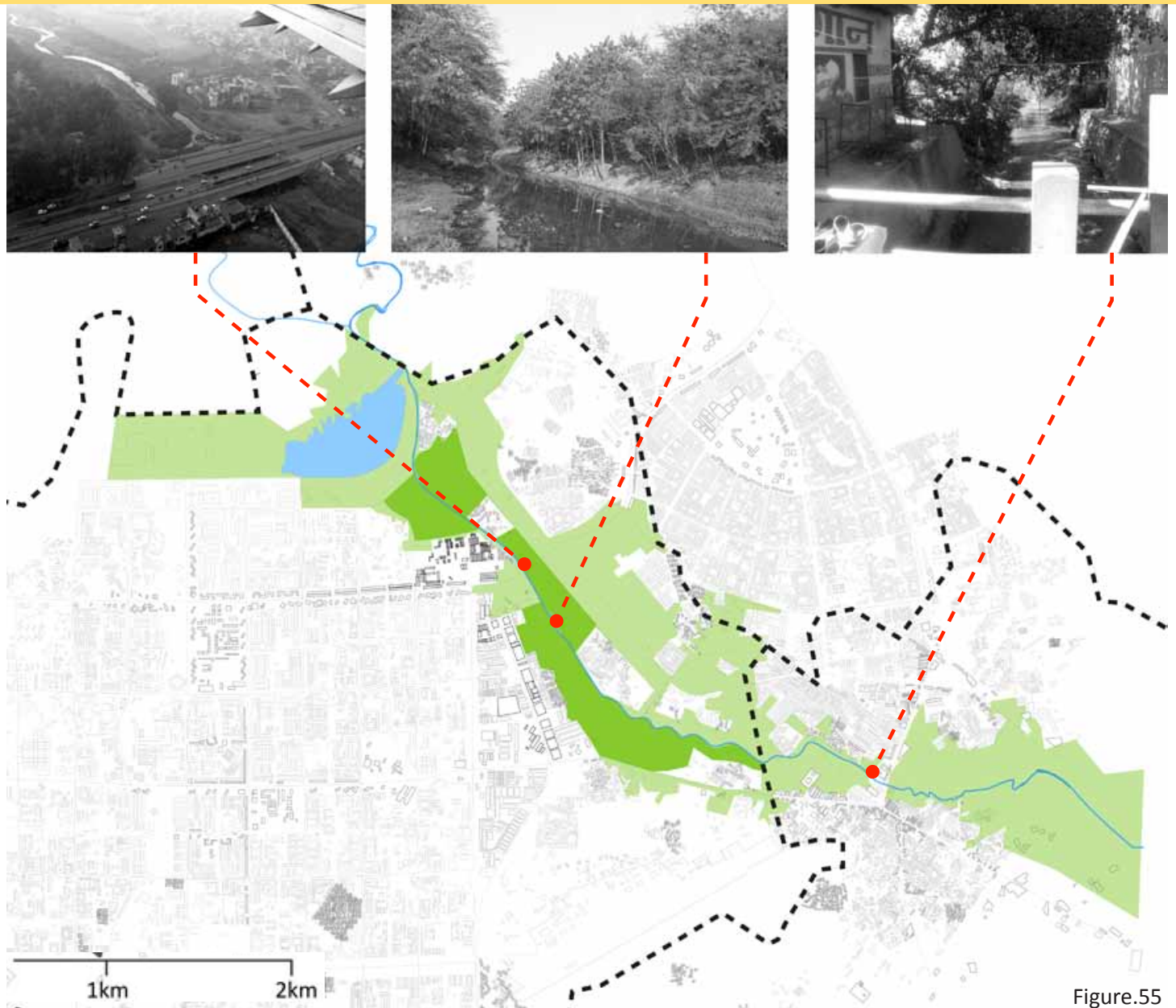


Figure.55

Source: Drawn by the Author. Showing the condition of the green belt at different points within the area

To understand the value of each element of design and further, implement the hypothesis more crucially and substantially, it is vital to understand each part in detail.

For the same, the above set of diagrams tries to understand the values of the existing elements and their current conditions, to evaluate what could be the potential proposals for the same.

As the most valuable part of the project is the green belt, as it is a depleting layer, also for its urgent concern to be maintained for ecological and social reasons, the above diagram, looks at each part and its existing condition.

It is an important aspect of the project to evaluate the current existing elements within the silhouette of the project, as they themselves can become the valuable actors to further instill a new potential vision and prospect for the place. As the new elements, however valuable they might be, they can also be-

come potential participants if the relationship with the existing conditions is good and comprehensive.

Here, in this case, the green belt can be seen, not only a layer changing roles at different points in the region, but also having very different visual and physical experience with context to each other and rest of the green areas within the neighbourhoods, giving it both a different potential quality but also a concern to make this transition more fluid than it is already.

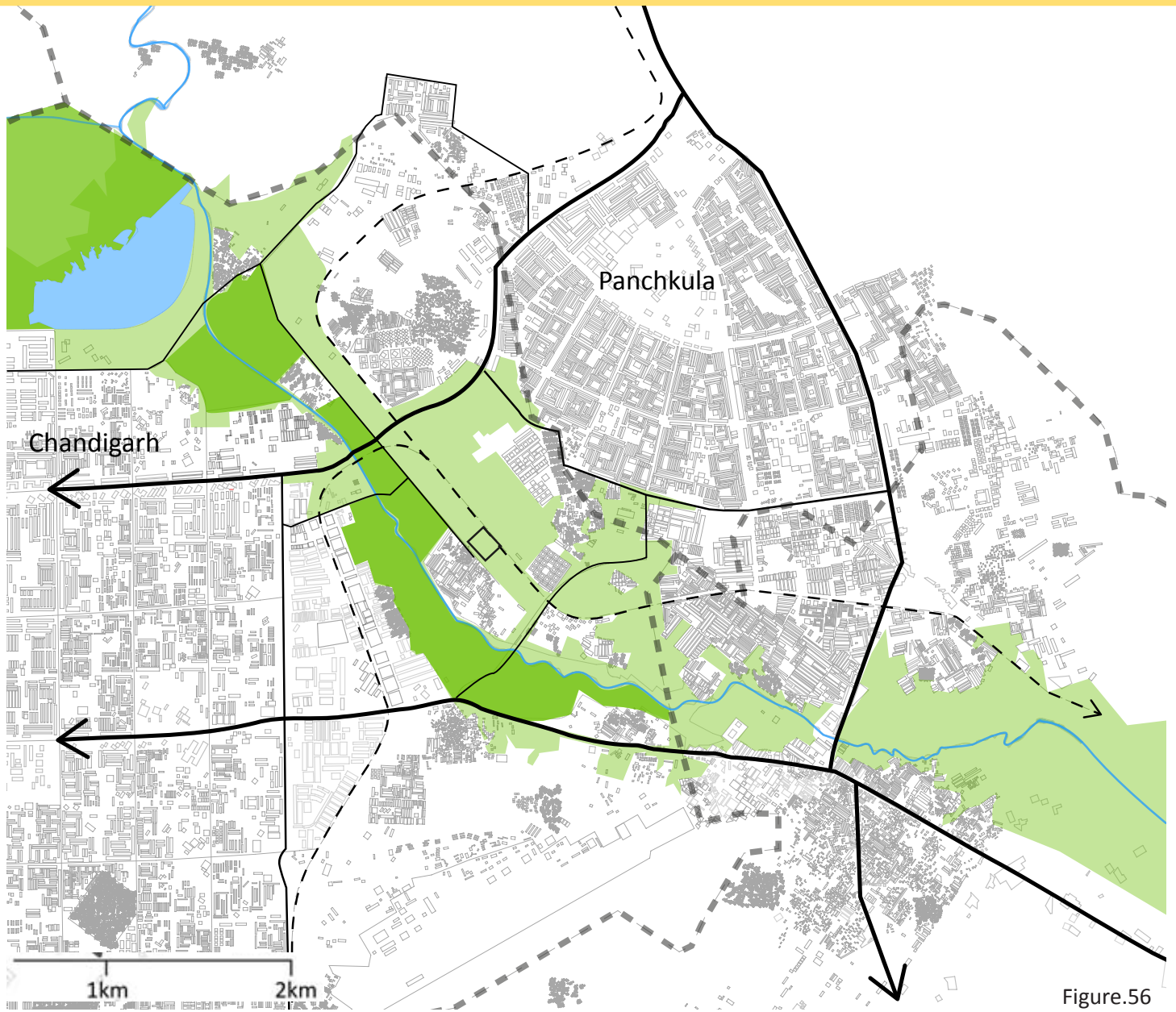


Figure.56

Source: Drawn by the Author. Showing the condition of the green belt with context to the infrastructure

The second most important layer that is defining our urban environments is the infrastructure. As they have completely re-defined our lives, with the concept of connectivity, in terms of space and time, it is crucial to evaluate the same in context to the green belt.

While the main V2's are connecting the green belt to the peripheral cities and other cities in the region, there is a series of other network lines crossing through the green belt, making the green belt in an actual patch work of series of green parts stitched together into a web via these infrastructure lines.

This brings about an important aspect of how, this network can be actually used into making a new and more well knit system of infrastructure and green belt understood better as a green network as well. Not only does it give a more substantial value to the green belt, it also give it a new meaning in the current urban trends of development and connectivity.

Also helping newer opportunities and developments to take place in a more urban, well connected and also greener and sustainable part of the region.

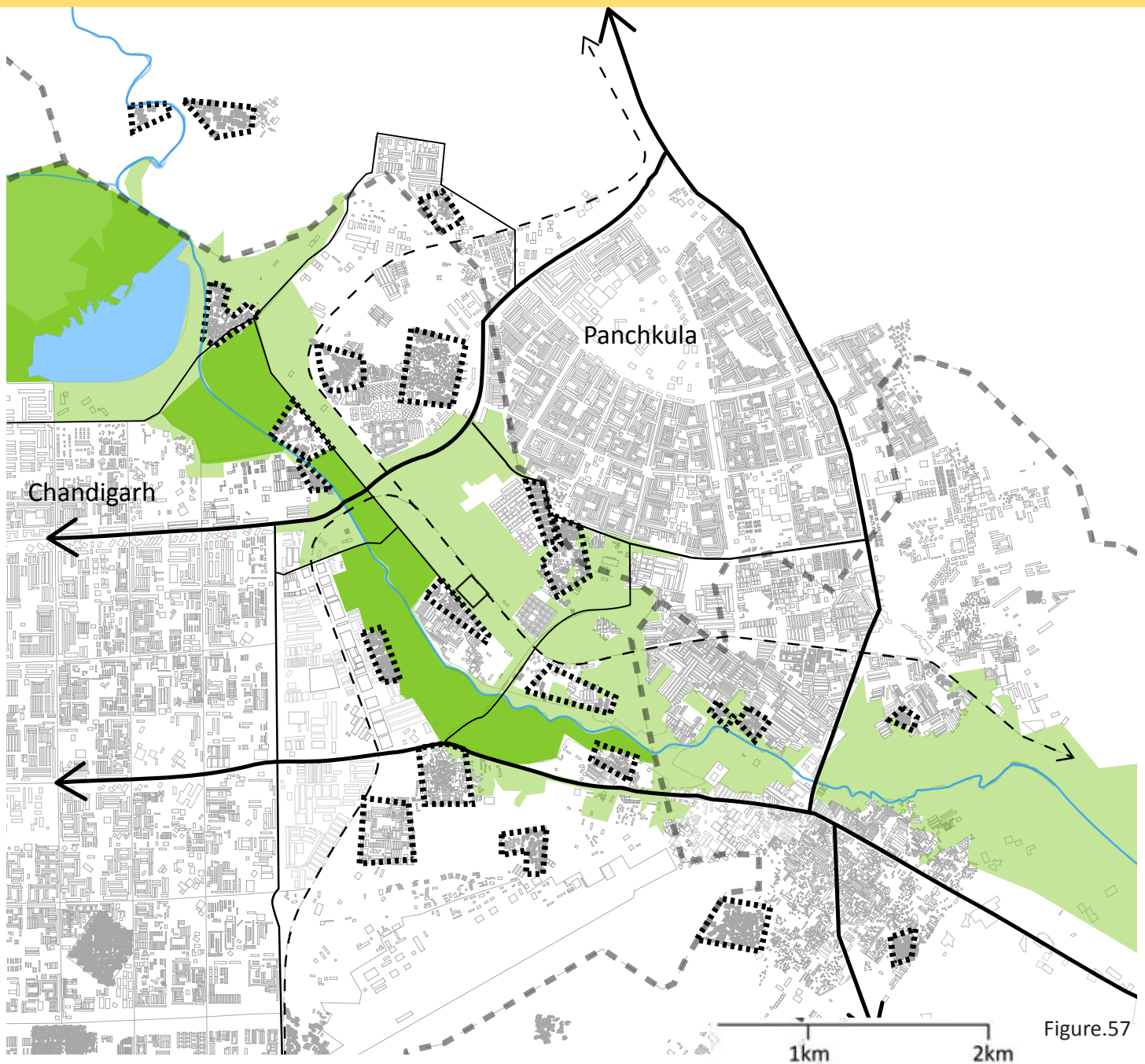


Figure.57

Source: Drawn by the Author. Showing the informal and formal interventions in the green belt

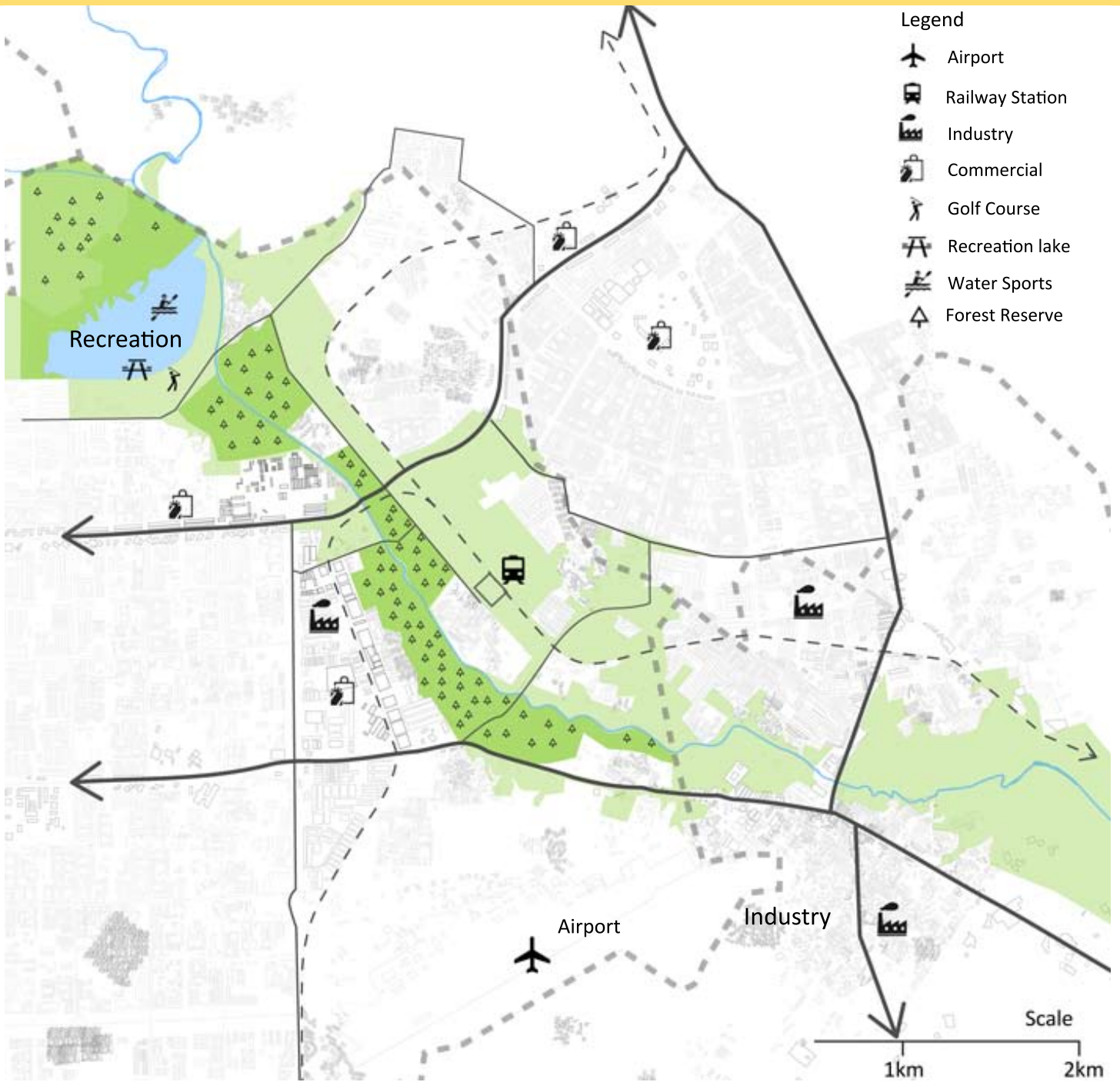
The third part deals with the prospects of new developments and existing urban conditions along and within the green belt, which can be a main trigger for investment and protection of the area.

The map above tries to distinguish between different urban settlements in the green belt. As there has been a big intervention of informal or unrecognised urban settlements and small villages in the belt, hence making it crucial to place them better and foresee if they can become potential participants with in the new framework.

Helping them form complete and well defined edges and neighbourhoods which can be more valuable financial and social investments.

Further this map also helps understand the kind of housing typologies that work and are being extensively useful in the area, considering its growing on a very fast pace and under very little government control.

Also it opens up points where investment housing sector can be beneficial and can help create and a more dynamic urban morphology.



Source: Drawn by the Author. Showing the different characters of the whole area

Figure.58

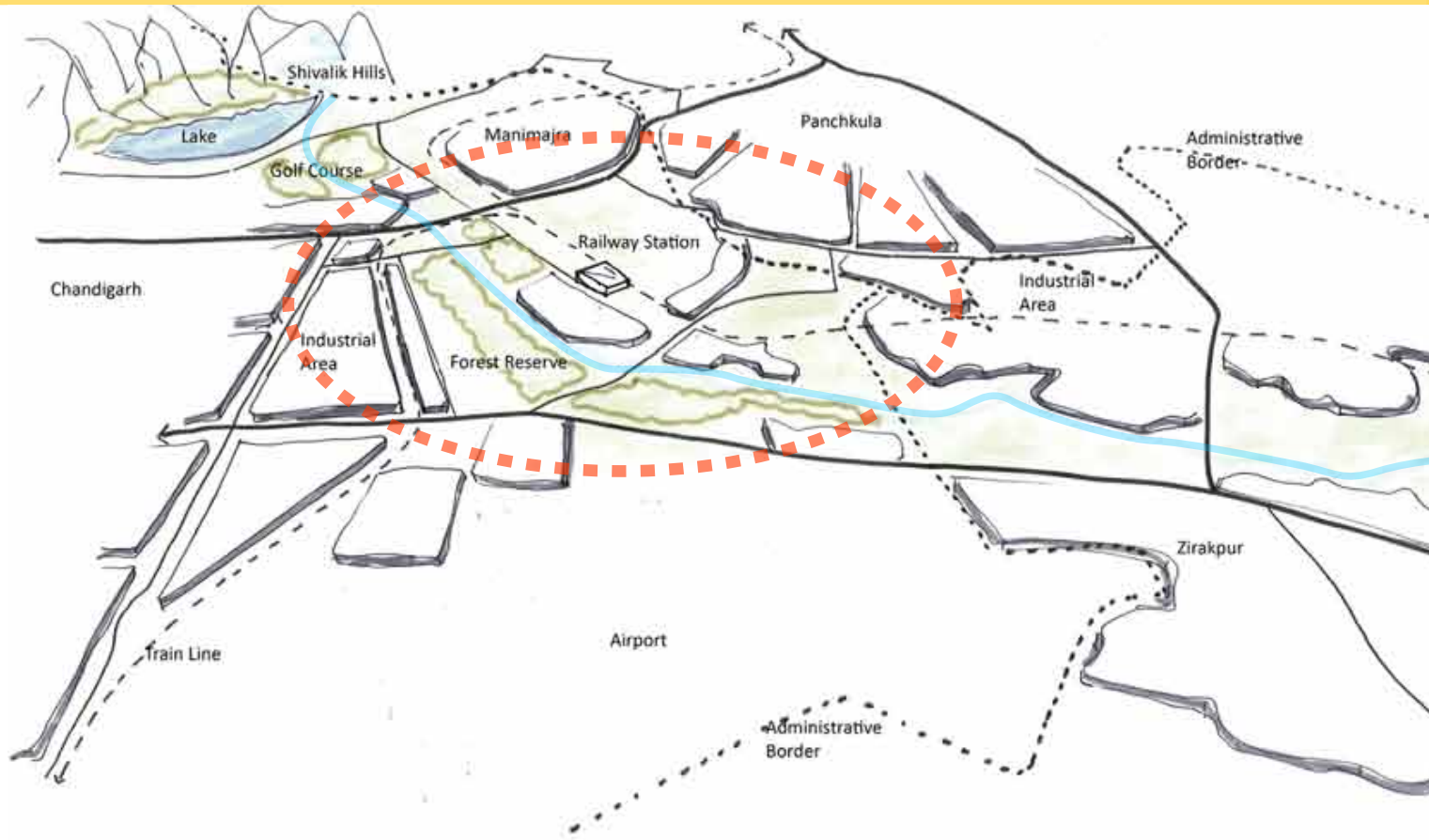
Based on the above analysis the map above discusses the different qualities of the green belt. Where most of the recreation activities are located in the northern part of the belt along the existing lake and golf course, while the central part which is majorly under transition, as a result of industrial area going through a change into a more commercial belt and green belt being occupied fast through the settlements and other activities.

Also the location of railway station is making it crucial the growth and development of this part, influencing a fast growth and intense settlements within the area.

While the southern part is majorly a new developed zone grown as a result of its location and connection to the main infrastruc-

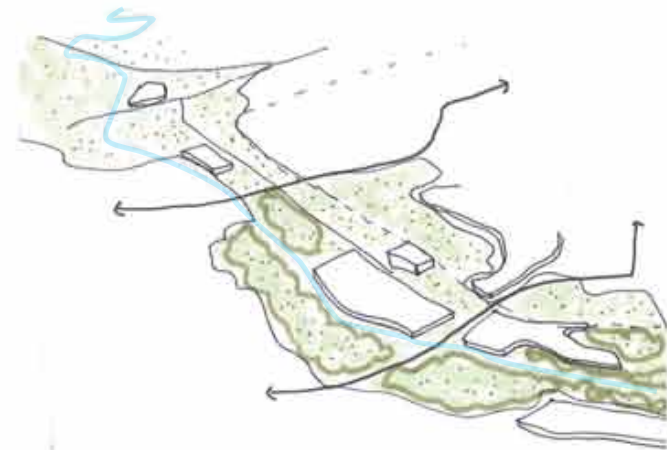
ture arteries. And is further expected to grow in the next couple of decades into a more industrial zone, where the location of the airport is also enforcing more development.

The map helps provide a more collaborated idea of how the belt is going to grow and what are the different aspects and opportunities within the area which could be further taken further, while maintaining the belt and the river.



1.WATER

Poor connection to the river



2.FOREST

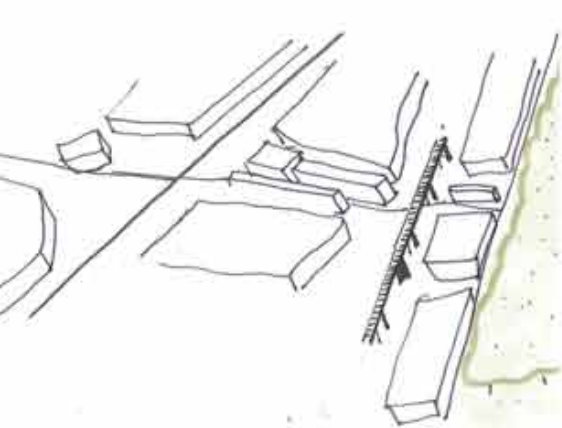
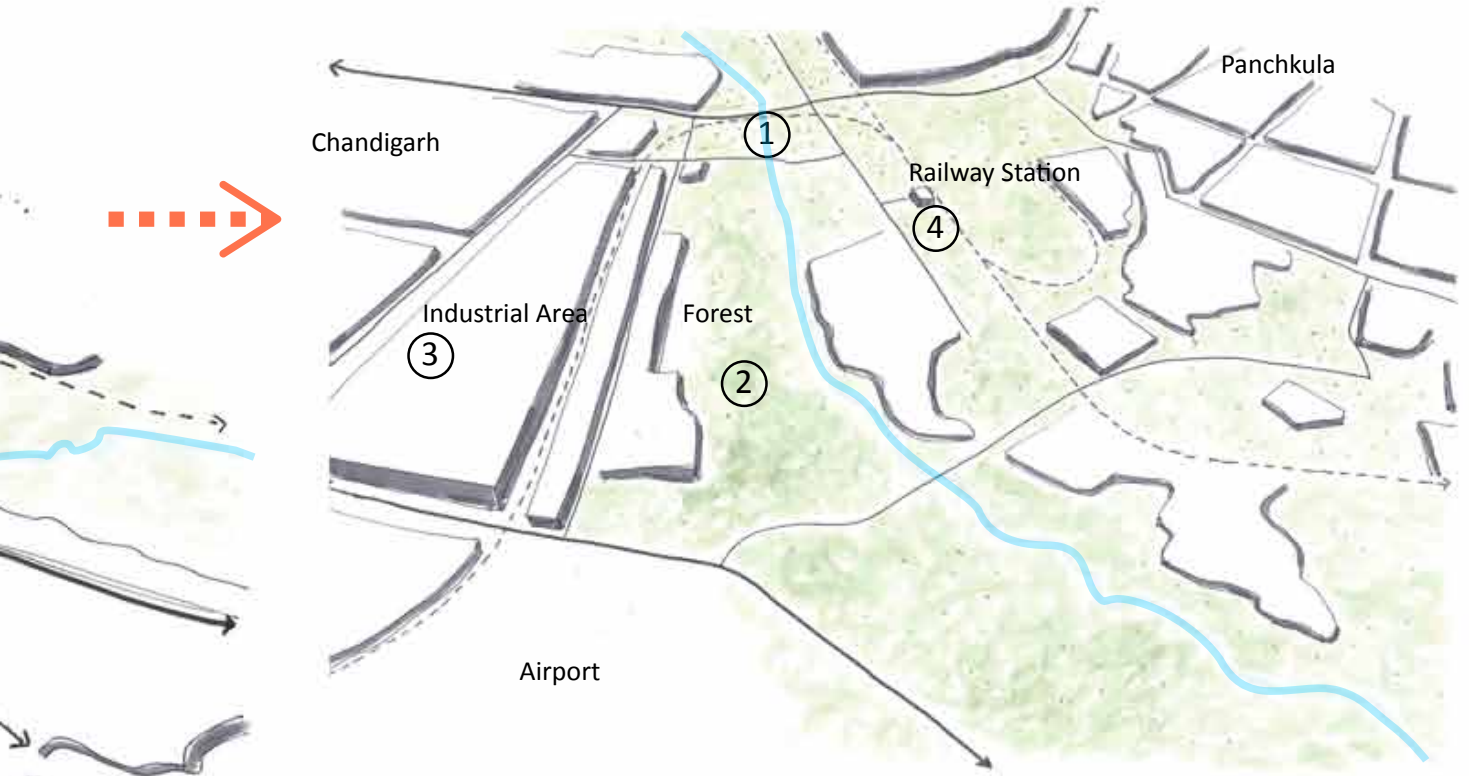
Depleting forest reserve

Source: Drawn by the Author. Drawing the focus onto one part and the major concerns

The diagrams help make the transition between the vast scale of the green belt and the design opportunities easier by focusing on the important values that the project considers important and which could potentially trigger both the reservation of the ecological and social values in the future context.

same time, the values consider the need to understand the context and value the inherent qualities of the place trying to make a fluid transition between spaces.

Where it is important to be connected and cities to grow at the



3.INDUSTRY

Changing use of industry

At the same time trying to understand the multiscalar approach ,via taking action on both sides of the spectrum, helping both the local and regional scale to have a close relationship while the new plans and bigger aspirations are being imagined.

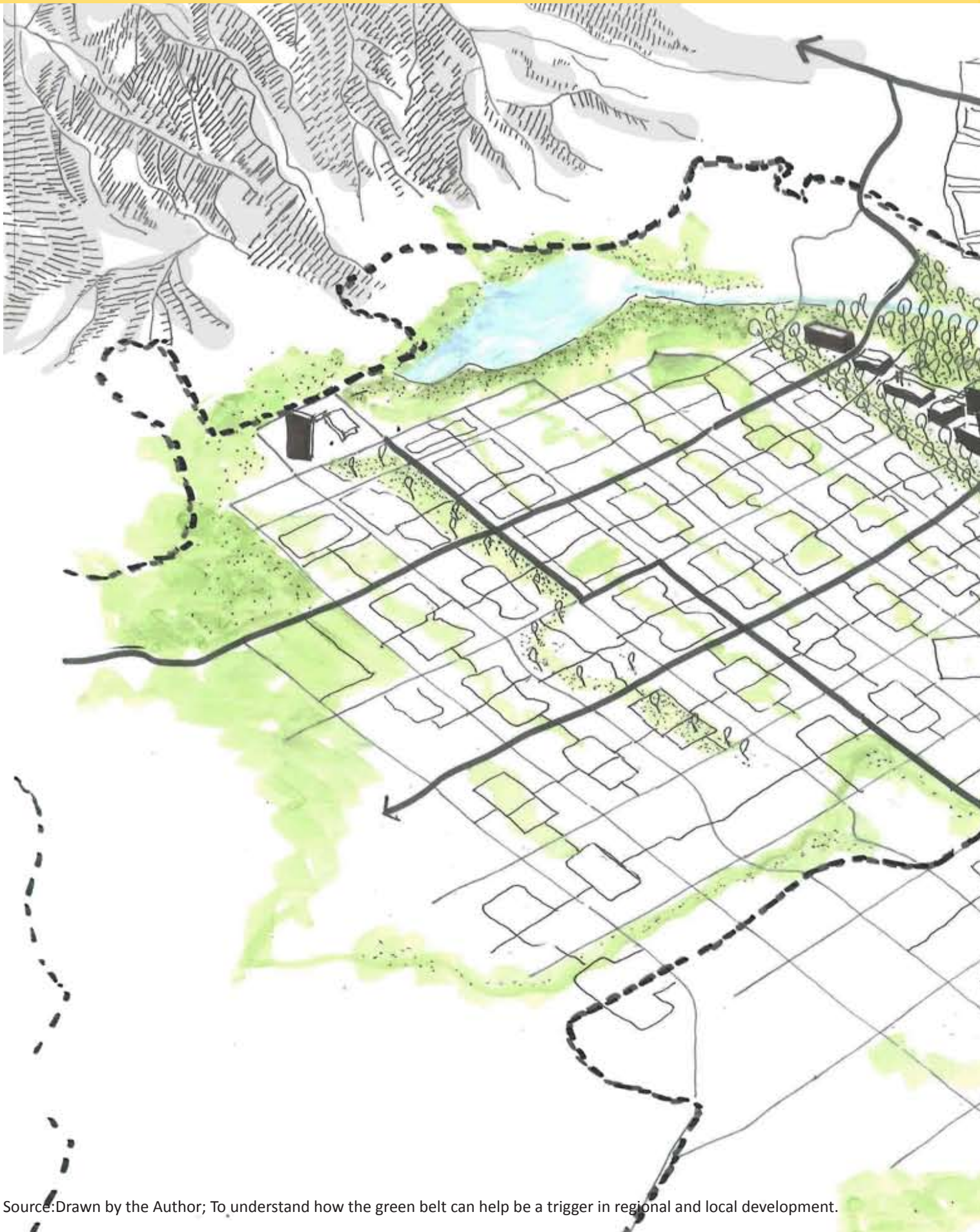
Further, in the process trying to give new values to the existing elements and considering the already existing transition that the

4.TRAIN STATION

New meaning of the station

place is going through and sensitively evaluating what could be used out of it.

Figure.59



Source: Drawn by the Author; To understand how the green belt can help be a trigger in regional and local development.



Figure.60

D E S I G N C O N C E P T

“The city is in itself the powerful symbol of a complex society. If visually well set forth, it can also have a strong expressive meaning.” Kevin Lynch ,The image of a city.

Landmark



District



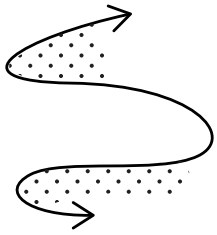
Path



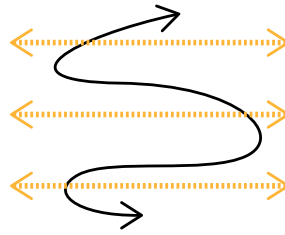
Existing Condition



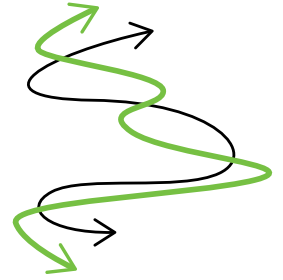




Forming a network between different undeveloped and open edges, directing their growth and participation in the region.



Connecting the different cities and administrative boundaries with soft interventions, also giving opportunities for a more interactive environment.



Adding to a more greener and relaxed environment within the dense urban fabric, while knitting all the different parts together into one unified urban form.

Figure.61



Figure.62



Figure.63

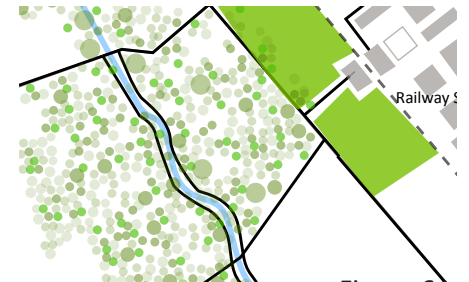


Figure.64

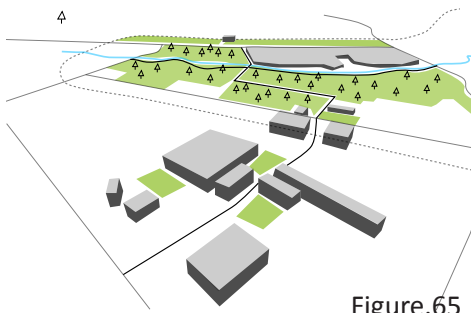


Figure.65

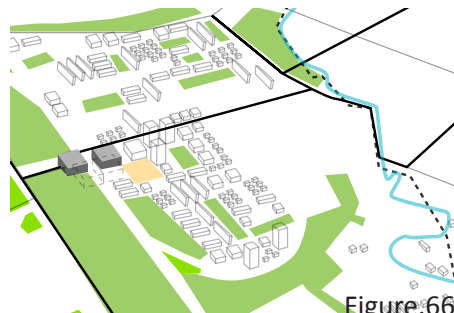


Figure.66

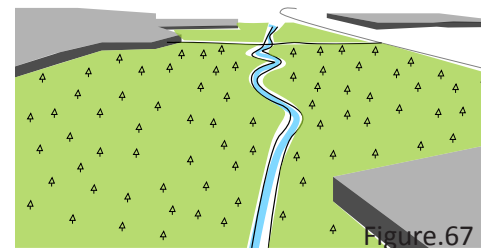


Figure.67

One of the first and the defining elements of design is the paths. As they help in creating a clear structure for the growth of the place. While this done by a series of actions of creating a seamless network of bike lanes and pathway between different important buildings, or areas which are in transition and are further expected to grow.

Further it helps in creating a close and softer relationship between the two cities, which is already existing with the help of highways and big roads, but these paths can add a new layer which can help neighbourhoods and very local places connect by very easy and simple, walking and bike lanes, helping the

different cities to combine together much more easily and in a seamless manner.

The other important aspect encourages that the already depleting layer of green belt and the river belt which is almost close of distinction, become woven into the fabric of the already existing network and create a new pattern as a result. Where both the ecological values are kept and the already existing are more closely knit together while creating some new places for new things to happen.

To achieve the above discussed different aspects and also add value to the given piece of land, it was vital to understand the actions in terms of their response to their environment. To do the same, they have been divided into a series of regional ,city and local scales to closely understand their direct impact on the surrounding.

Which also further helped understand the concept of space and time ,into spatial actions and what and how and to what extent they will impact the given environment.

Based on the same the first map describes the paths in the given area, and how they help weave the place into one big comprehensive urban place. At the same time, it becomes more clear that the action has a very local impact and will infact help all the neighbourhoods to become more well connected via these interventions.

Further the next action involoes the connection of places via more urban roads, also called the V3's in context to chandigarh's masterplan and the initial ideas of planning.They basically help connect important urban places and also instigate new developments and commercial activities to happen along them.

While the area is already well connected but there are parts where the important points seem loosely held as there is no consistent connection between them carrying them from once place to another and making them a part of a larger network.

The third part of the action involved the already newly emerging infrastructure line between the industrial area and the residential back end of panchkula through the southern side.Though the road has already started to emerge because of intense pressure on the two other main connections , but the layout of the road, its profile and the development along it is still not very well defined.

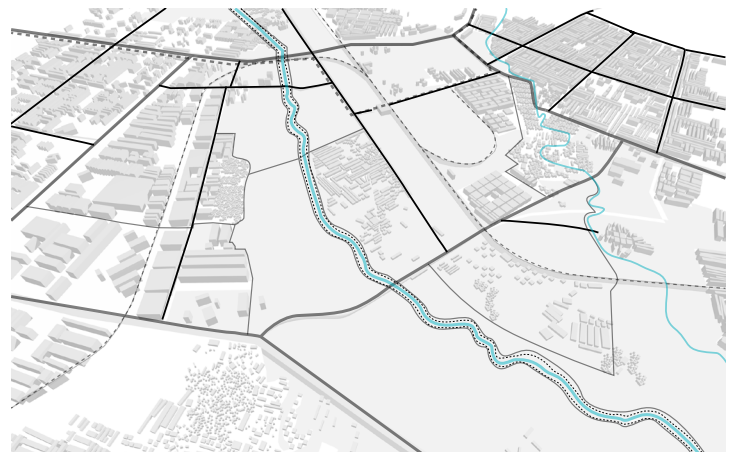
This action involved giving it a proper place in the heriarchy and also its designed as a V2 road its impact goes beyond just local and city scale.As it will help reduce the pressure on the other two main arteries by taking the everyday traffic to this lane and also help the settlements inside the green belt to take advantage and become a more readable and active part of the process.

Further their individual profiles help explain how they would work and interact within their conditions and locations.



Local scale

Figure.68



Urban scale

Figure.69



Regional scale

Figure.70



Figure.71

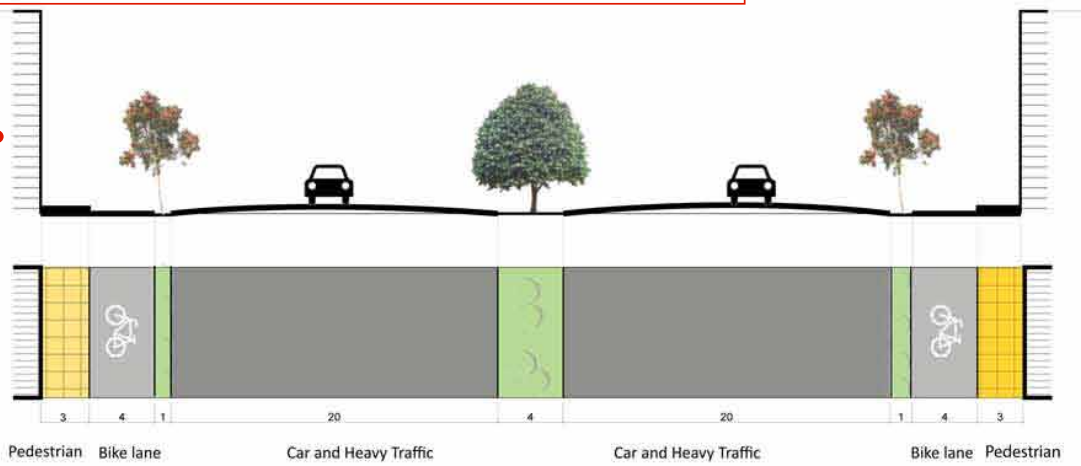


Figure.72

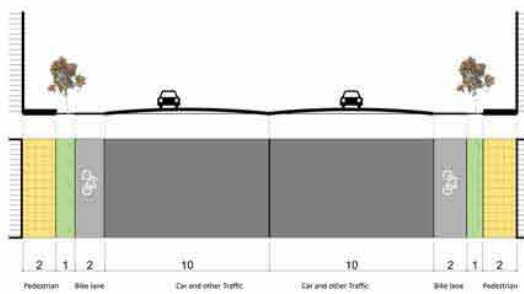


Figure.73

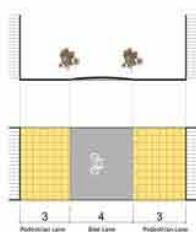
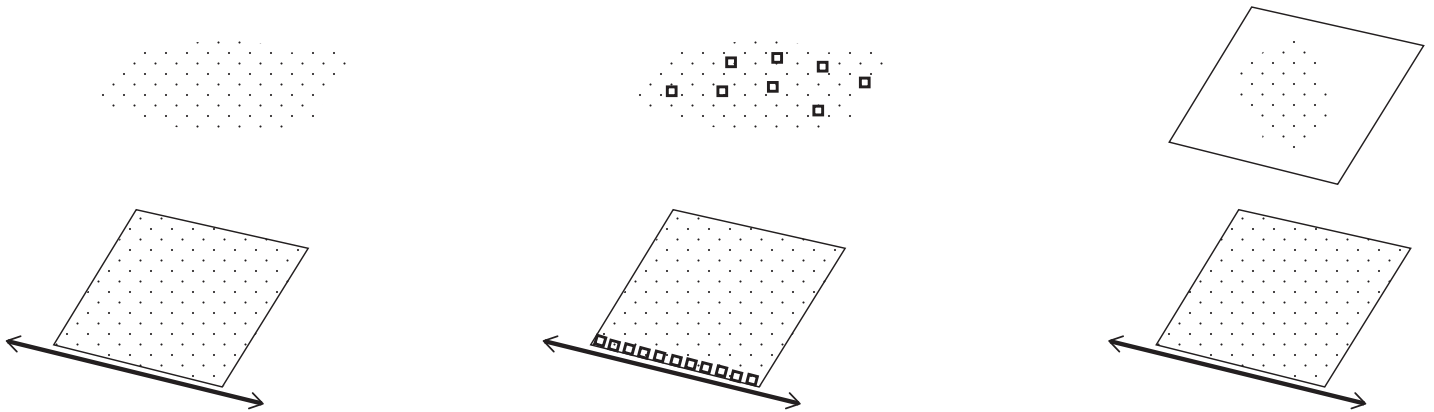


Figure.74

Source: Drawn by the Author. Showing the different actions taken and how they help form a new and a better urban environment





Redefining the edges of the areas where informal and unorganised settlements have taken place making the area more urban and denser in nature.

Helping these locations take advantage of these locations and make them more organised and self-sustaining settlements in nature, also making them part of a larger network.

Suggesting areas for growth and intervention, wherever possible to make the urban form more comprehensive in its nature.

Figure.75

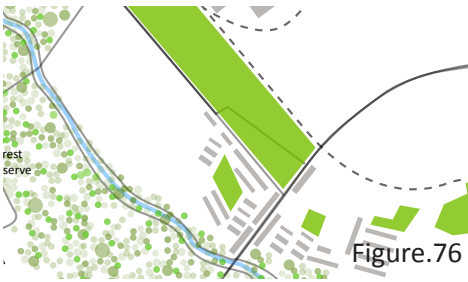


Figure.76



Figure.77



Figure.78



Figure.79



Figure.80



Figure.81

Considering the fact that most of the developments that have taken place within the green belt, most of them are either informal or unrecognised or smaller villages which have gained some momentum and grown to sizable scales. Evaluating their present condition and the need to recognise them rather than just eradicating them from scratch, the action involved two main steps.

The first one is to organise them as well-defined structures and create neighbourhoods out of them rather than leaving them loose and undefined. Which in a way could lead to re-densification and re-organisation, but given more focus on the living conditions and amount of space required for greens and open spaces needed within the area, it helped create a more structured settlement.

The second action involved making them part of the larger network they are part of to let them grow and become potential participants rather than leaving them as areas of just residential use. As their individual and local craftsmanship could help them become potential and more contributing partners in the system.

The third action taken deals with the potential densification of areas which are good locations and not of ecological concerns anymore. Which could further become the generators of economic growth and vitality for the place.

For building up the districts and creating more interactive neighbourhoods, the similar actions taken to understand them through space and time.

It was crucial as some of the actions create very local and everyday experience while some have a much more regional impact and help align the goals of future investors and stakeholders to take a stronger position.

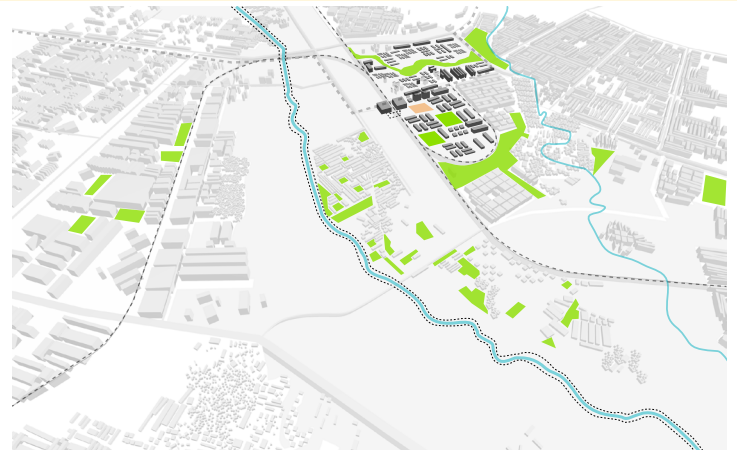
The first map describes the regional impact, where, the location of railway station and in future, addition of the metro station adds a lot for commercial and economic value to the place. Where the area surrounding to the station, which is not in much use, because of condition and intense intervention of the informal settlements. This could be a potential zone for commercial investments and for activities to generate more money for the area and also give a better place to city's minds to nurture new ideas.

Also it gives apt place for new and more residential neighbourhoods which can be developed as a result in the same zone.

Further, on the urban scale all these opportunities gives a new opportunity for the smaller commercial to get a new place and become a more comprehensive part of the region. Based on the earlier programs of the Chandigarh's plan, where most of the V3 'sand V4's had commercial activities with HCF (house cum office) and SCF (shop cum Office) spaces allotted to generate a multi-cultural and vital space within each neighbourhood.

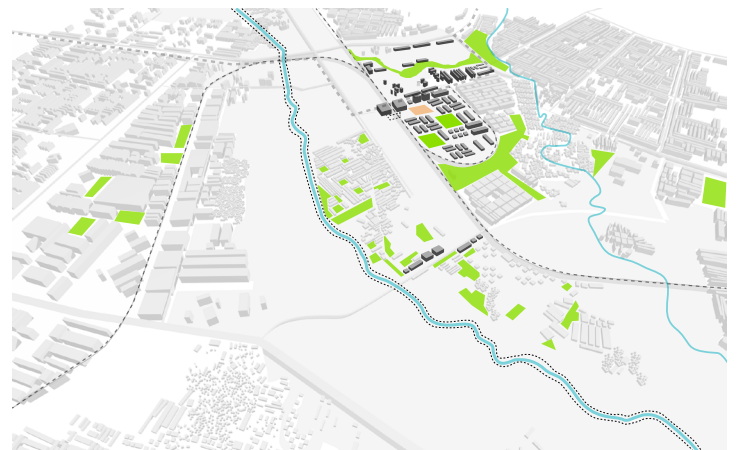
This can help both economic growth, generating vital and energetic and synergetic spaces and also make the area more social than rather just a path between two points, helping the banality of sameness.

The third action involves the sensitively re-densification of settlements and areas within the green belt to give them a more organised and structured set up than letting grow in loose forms. The idea is to place them more strategically in these already existing places rather than uprooting them to far fetched areas and creating newer situations of the same kind. And rather organising them better so that can become better initiators of new processes, than building new neighbourhoods from scratch. Also as they are placed in good strategic points it might further help add to land values and further commercial incentives for the state parties.



Regional scale

Figure.82



City scale

Figure.83



Neighbourhood scale

Figure.84



Figure.85



Figure.86

The diagrams help understand how the different ideas can be practically taken into action, via building up the left over spaces with in these zones and understanding there demands and how these neighbourhoods need to be.

Also an important aspect of the same is to know what sort of new densities are evolving and how these neighbourhoods are changing and what are the newer demands of an emerging society.

Also, as their development as potential areas of building up livable environments also can add to the potential commercial and economic value of the place. It can help in making new and interesting new advancements in knowing how new and future urban environments need to be in a growing developing economy.



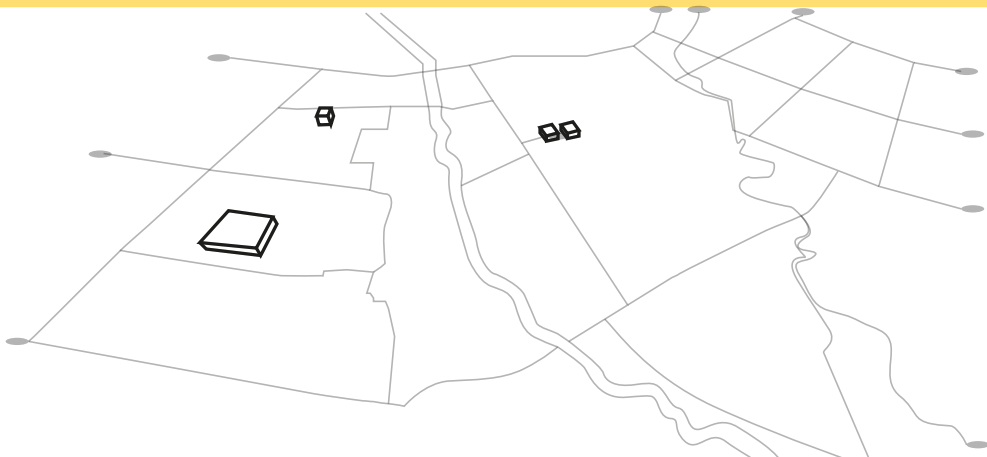
Figure.87

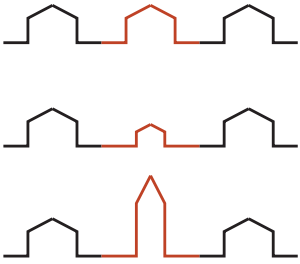
The second map describes the same, by understanding the location of the railway station and the demand to be well connected and need for good living and work environment.

While these actions are taking place, they also , bring about potential for new places to grow with in the same region and become stronger participants and help these ideas bind together better in a more synergetic collaboration.

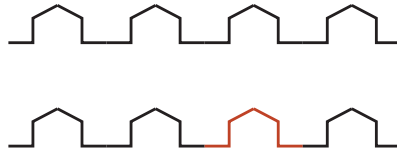


Figure.88

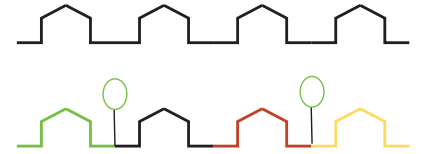




Redefining identity and giving a more prominent individuality to the buildings around and the area.



Directing new identity to the buildings losing significance and in need for reuse. In the process giving character to the area.



The actions can help in adding versatility and vitality to the area and help it in making it a more human scale in nature.

Figure.89

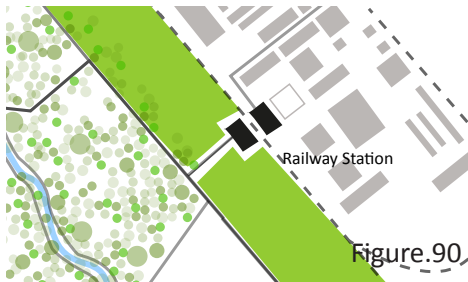


Figure.90

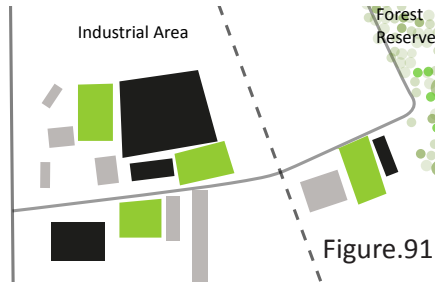


Figure.91



Figure.92



Figure.93

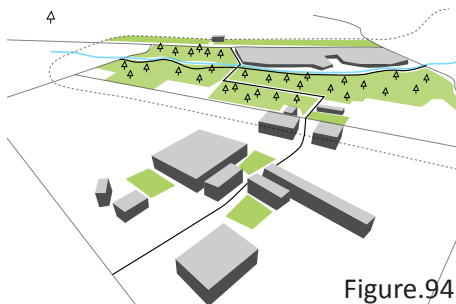


Figure.94

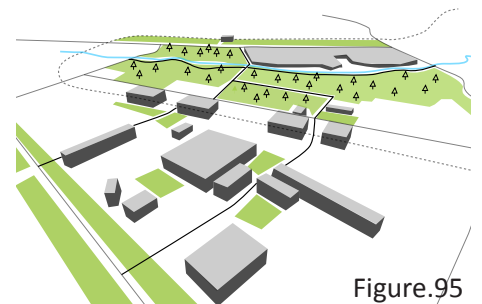


Figure.95

In the process of adding new neighbourhoods and more continuous spaces, it is important to find nodes, where people can stop and spaces which can add quality to the experience of being within this area.

And to the same the above diagrams try and understand the main aspects of the making landmarks, which help associate one to the place also adding quality to the area.

The first is to re-define the existing buildings which can be changed into something more vital and purposeful, as most of the factories in the industrial area are now run down.

The second action is to find places, like railway station, existing malls, and significant places, where normally go, which can be made into more extensive places and make them experiential in nature.

The third is to make these areas, in itself small, cultural spaces, more like secret spaces within a city, which one experiences, while one goes along different places.

Source: Drawn by the Author. Showing the different actions taken and how they help form a new and a better urban environment

To understand how these actions can be carried forward into actual actions in the present conditions, all the three main actions were divided into three scales again.

The first map here, explains the need for vitality within the area. As one hand it helps make the transition from the mundane city life, to a more relaxing, green and spacious environment, but at the same time, it also adds another layer by, creating small intimate gardens and small public places, where one can pause and spend more time, adding to the social life of living in Chandigarh, which was a crucial aspect which was studied while designing the city.

The second part of the diagram discusses the significant growth of different landmarks which are already existing and the ones which can grow in the future, adding liveliness and fun to the place. Also giving a new meaning to the already existing and crazy growth of super markets, malls and commercial places. Helping them bind in a more significant and meaningful manner to the urban environment.

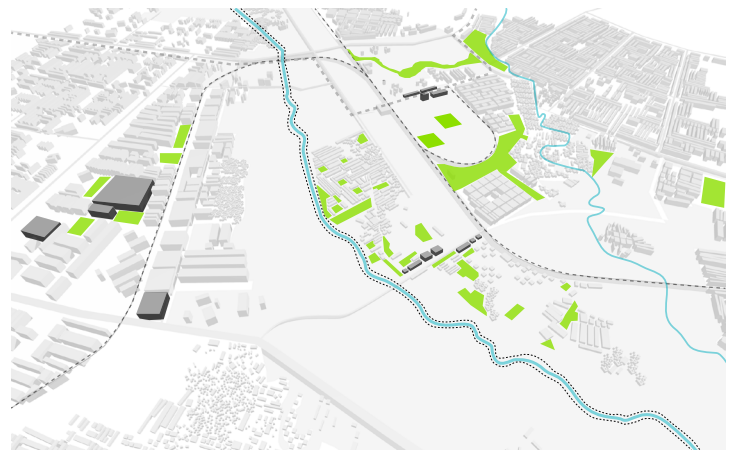
The next part of the action involves placing the railway station, which is in the green belt as a much more potential place, than what it is right now. It has the potential of becoming a very nice point of joining many different scales of interaction from a regional to a very local scale interaction. As with the addition of the new metro line this point of contact can become not only a face of the city, but also a very vibrant and active place with all kinds of local and urban and regional scale interactions taking place in one place at one point in time.

Further, it also acts as a generator of newer activities which can happen in the place because of good connectivity and placement. And the city park in front of the railway station can add to the multiple levels of interactions in this process.



Neighbourhood scale

Figure.96



City scale

Figure.97



Regional scale

Figure.98



Figure.99

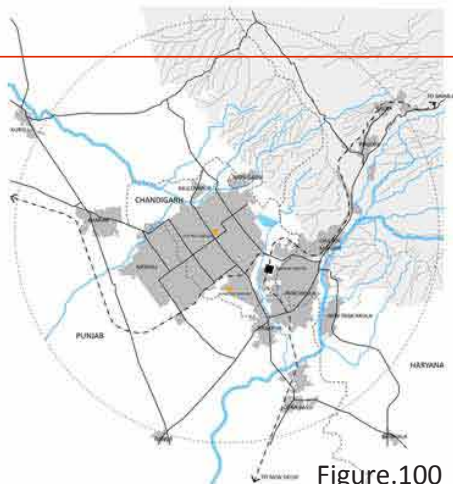


Figure.100

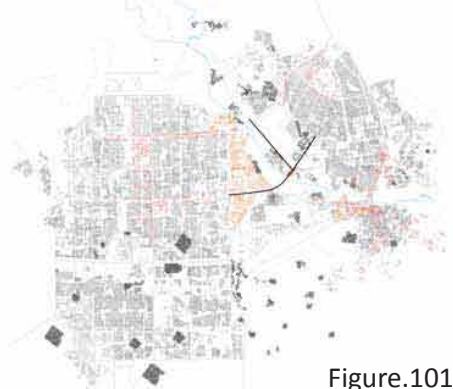


Figure.101



Figure.102

The maps here, describe in detail how the landmarks have a more substantial impact on different scale. And how by giving a different outlook to the railway station and to giving a new face to the old run down buildings very small actions can have very large impact on the larger environment it is part of.

Where on one hand a station adds to a regional perspective, giving it a potential position in its larger context, the new commercial and other added activities can add more vitality and vibrance to the urban environment, give a new meaning to the otherwise mundane, paths, leading from one place to another.

Further, how these small interactions between small buildings and areas, can add to a very soft environment and subtle nuances to the way we experience the city in general.

Further, the next diagram on the next page helps understand how all these actions help create a more urban, and vibrant urban place, from a depleting and almost distinct green belt and help understand how these important areas can get new meaning in our changing contexts and demands, helping both existing and upcoming to adapt and co-exist in close harmony.

Source: Drawn by the Author., how the interventions have an impact on different scales



Source: PICTURE TAKEN BY THE AUTHOR, Explaining the present condition of the green belt

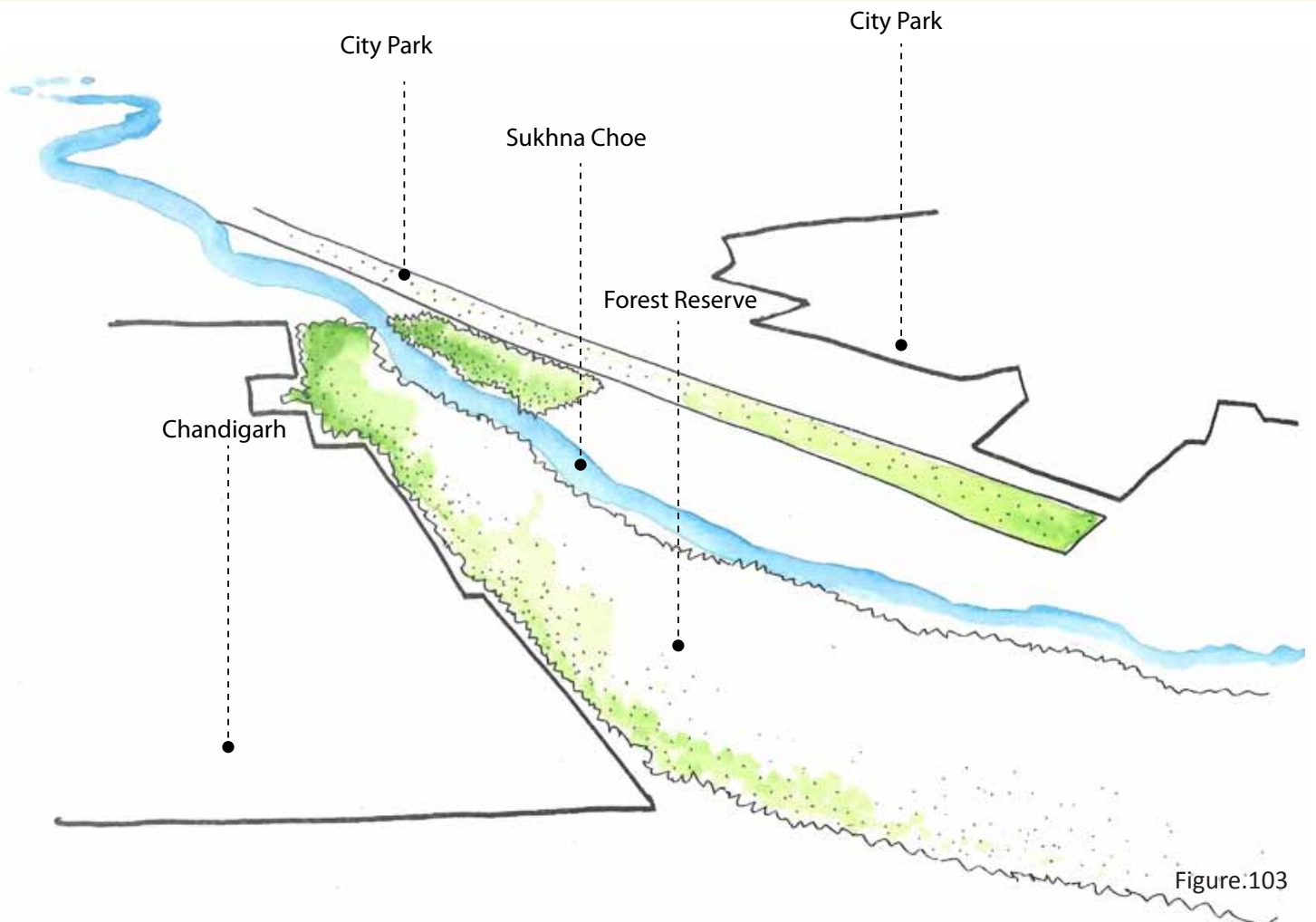


Figure.103

Source: Drawn by the Author, explains the design and its benefits to ecological concerns and urban environment.

It is vital to the project, how the existing ecological values are prioritized and further add to the existing condition. With the formation of an eco-sensitive zone along the river belt, the intervention helps both in the condition of the water, making it a more integral part of the city. It also helps give more importance to the forest reserve.

As the river is a non-perennial river and part of the large monsoon catchment zone. The development of a 30 m eco-sensitive zone on both sides of the river helps make more room for the water. In the most rainy seasons and make it useful as a park for the rest of the year, with possibilities to walk and bike along the water, making it an attractive place to visit.

Further, the intervention acts as a medium to connect both Chandigarh and Panchkula in a much softer way, opening both the cities out to the green belt.

The intervention also acts as a tool to help preserve the values

of the garden city value, while being adapting to the neo-liberal forces of city building.

With intense metropolization on the rise with in the region, the preservation of the green belt and the water catchment zone, also helps give new meaning to the existing values while making way for new developments and projects to take place.

By making it into an attractive place for the people to visit and use this green belt, it can act as a trigger in adding vitality and interactive space with in the fast expanding region.

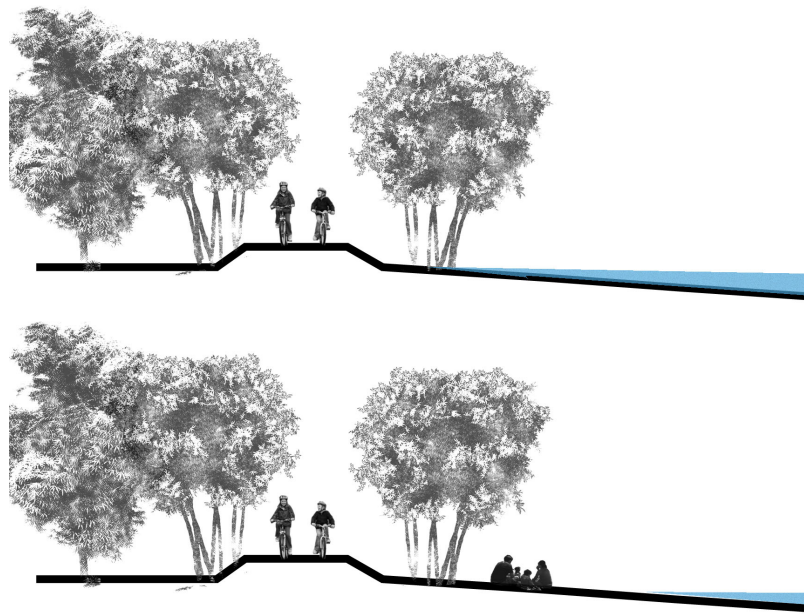


The catchment zone acts as an interesting point where the city can interact with nature in a much more intimate manner, while the area is acting as a place for collecting monsoon water. Also it helps as forming a more seamless connection between the mountain ranges and the fast expanding region.



Source: Drawn by the Author, explains the intervention in the water catchment area and its qualities

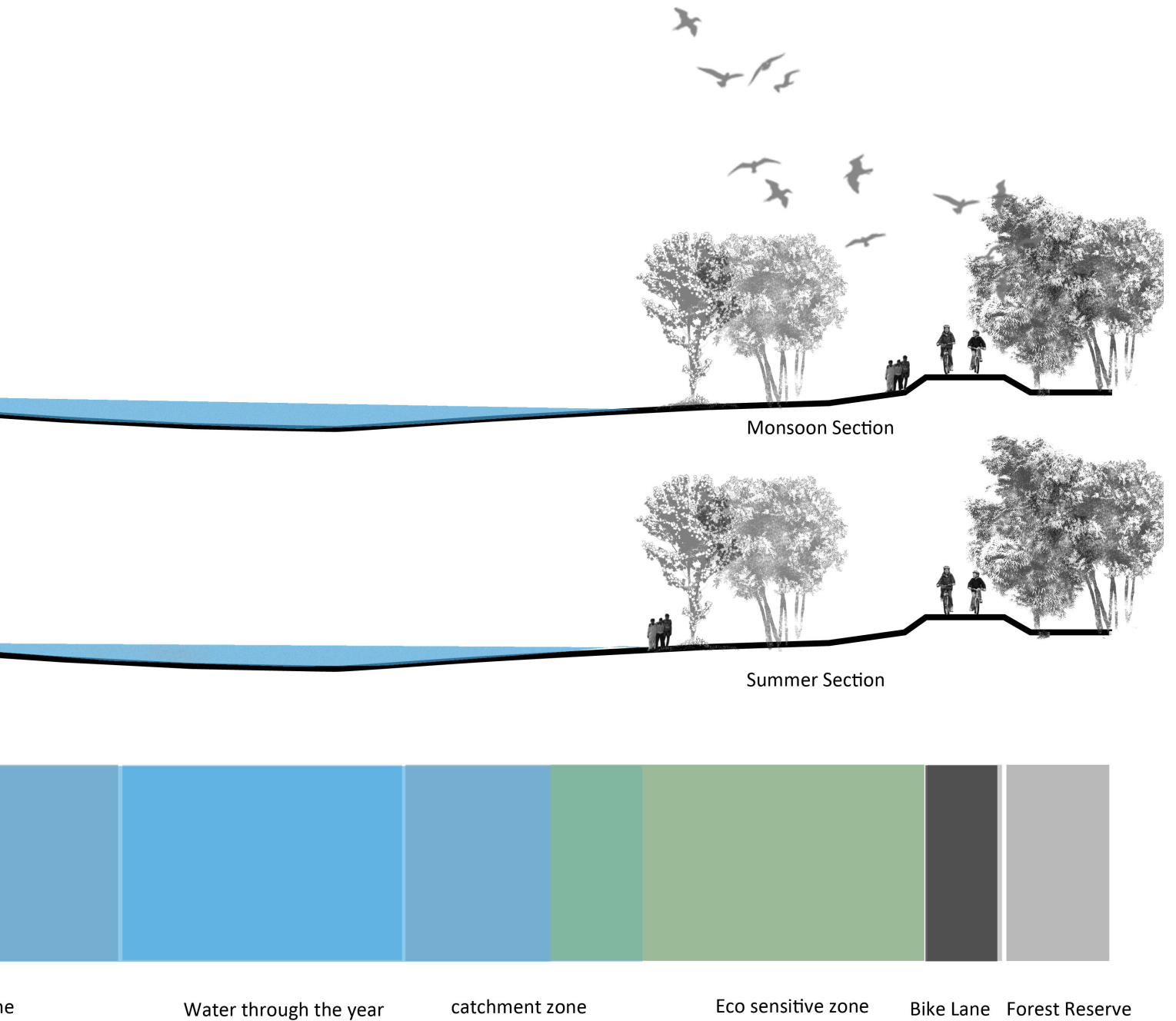
Figure.104



Through the section below, it becomes clear how the intervention makes more room for the water. The eco sensitive zone along the river is 30 m wide on both sides, making enough room for the water to get collected in the monsoon season. And the same place can be used for recreation in summers and rest of the year. Also the biking lanes along the river on both sides of the river add to the recreation activities that can take place in the place and help the green belt to get well connected with the city and other recreation facilities in the northern part of the city.



Forest Reserve Bike Lane Eco sensitive zone catchment zone

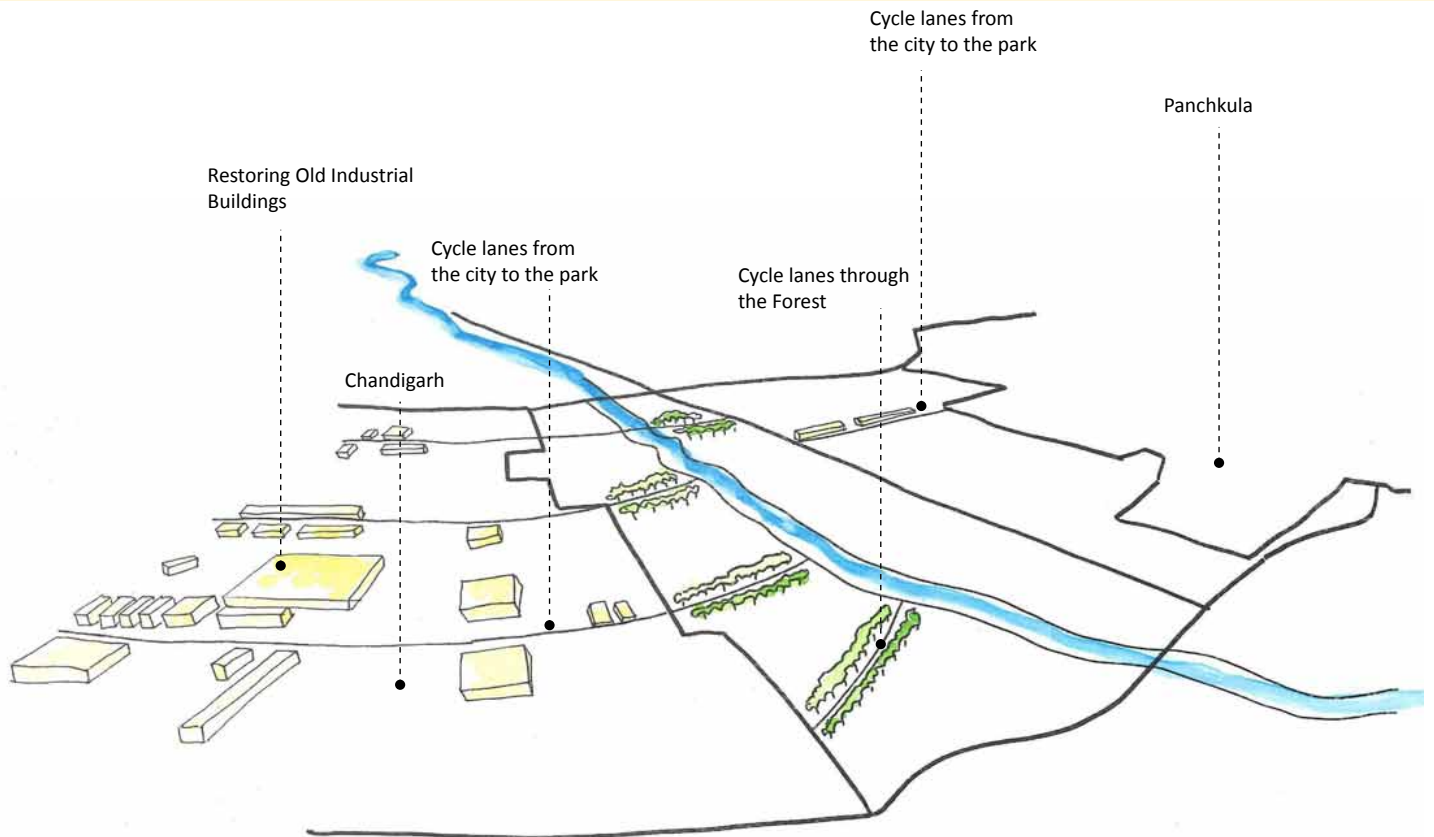


Source: Drawn by the Author, explains the Section of the water catchment zone in detail

Figure.105



Source: PwC. The author looks at the condition of the bike lanes



Source: Drawn by the Author, explaining the impact of bike lanes

Figure.106

The second action that the project focuses is to connect the green belt and the catchment zone to the rest of the existing fabric. Though the connection between the cities is already present, but its made stronger via connecting them through these softer interventions, connecting the neighbourhoods and making an everyday interaction possible.

The process helps, also to add value to the already under transition industrial area to get a more distinct quality while the major industrial plants shift towards the southern part of the region for better connectivity and resources. Helping give back the city more room to expand and a cultural quality it can make use of.

These interventions will help add a softer network for the region to interact on a more intimate level, giving the city multiple scales and levels to interact.

In a metropolitan region growing at such a fast pace it is vital to add these interactive spaces within its fabric to add vitality and character to the place. And these paths, not only focus on enhancing the use of bikes and walking around the city, but also through these additions add to the interaction between the city and the nature.

As many old industrial buildings are already going through a large transformation and becoming more commercial in nature, it helps these areas to take advantage through these bike lanes and can add to many other cultural activities within the region.



Source: Drawn by the Author, Key plan to understand the edge details

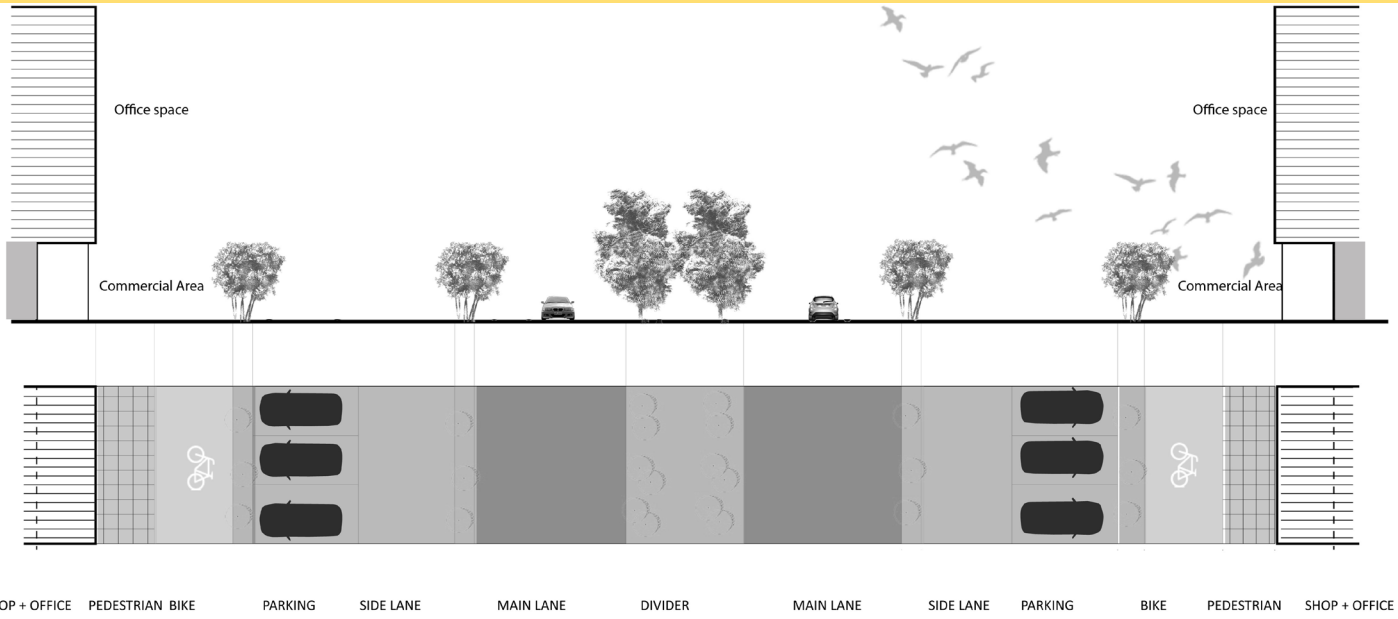


Figure.107

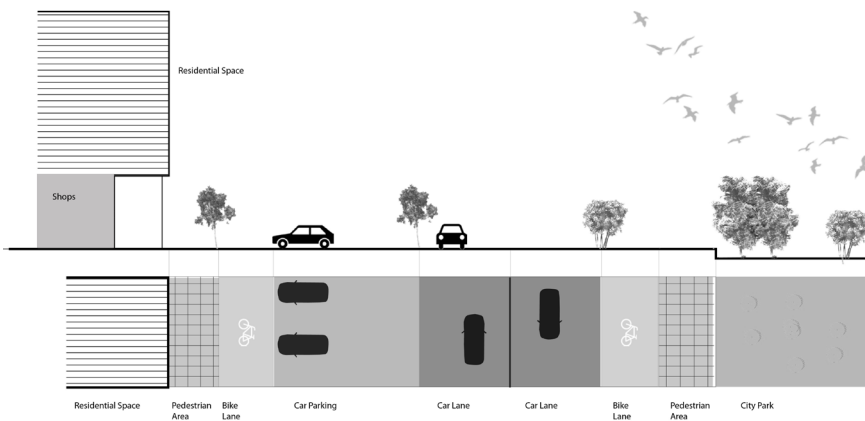


Figure.108

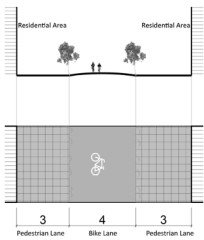


Figure.109



Source: Picture taken by the Author, Looks at the new developing areas

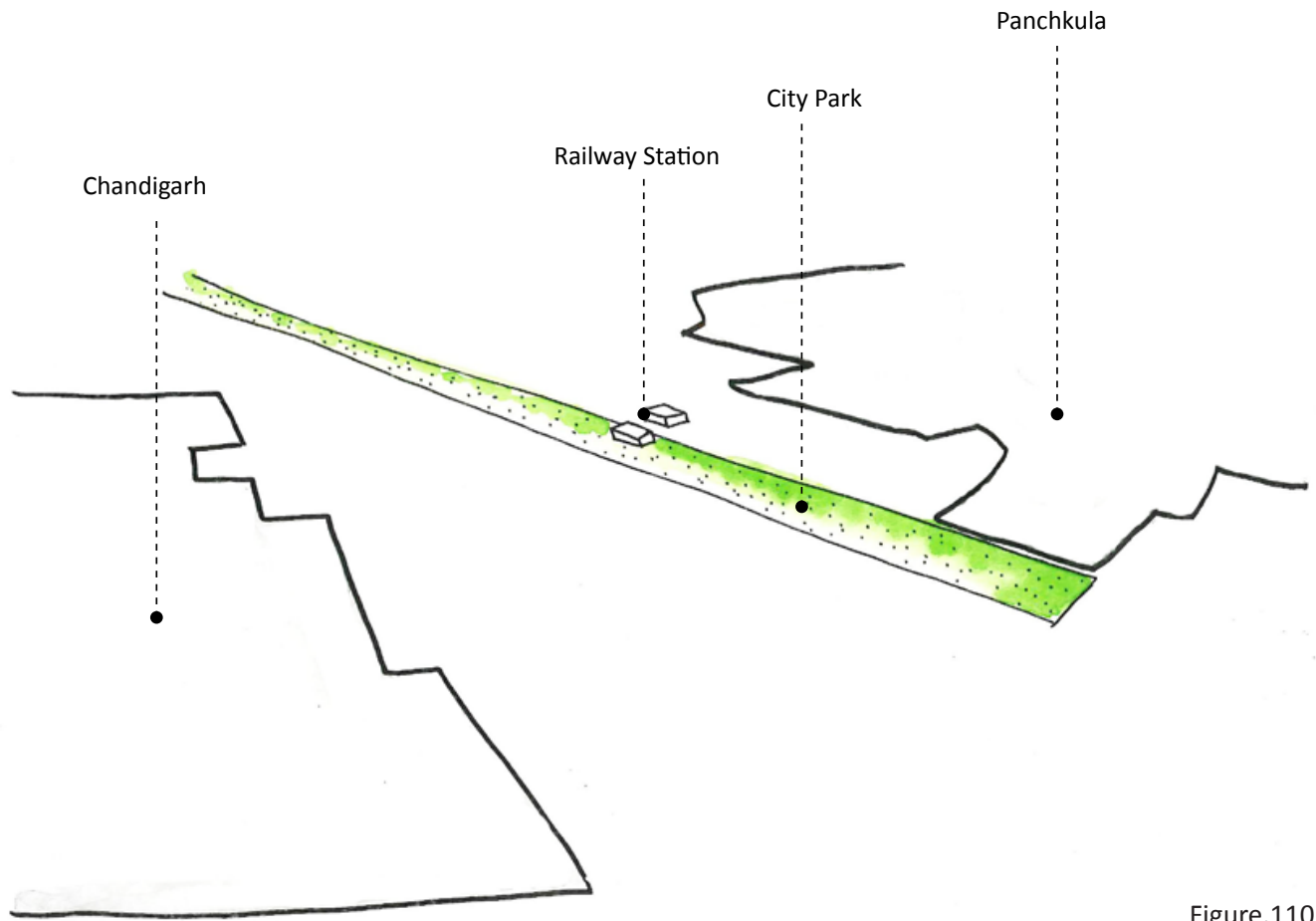


Figure.110

Source: Drawn by the Author, explains the Development of city park and railway station

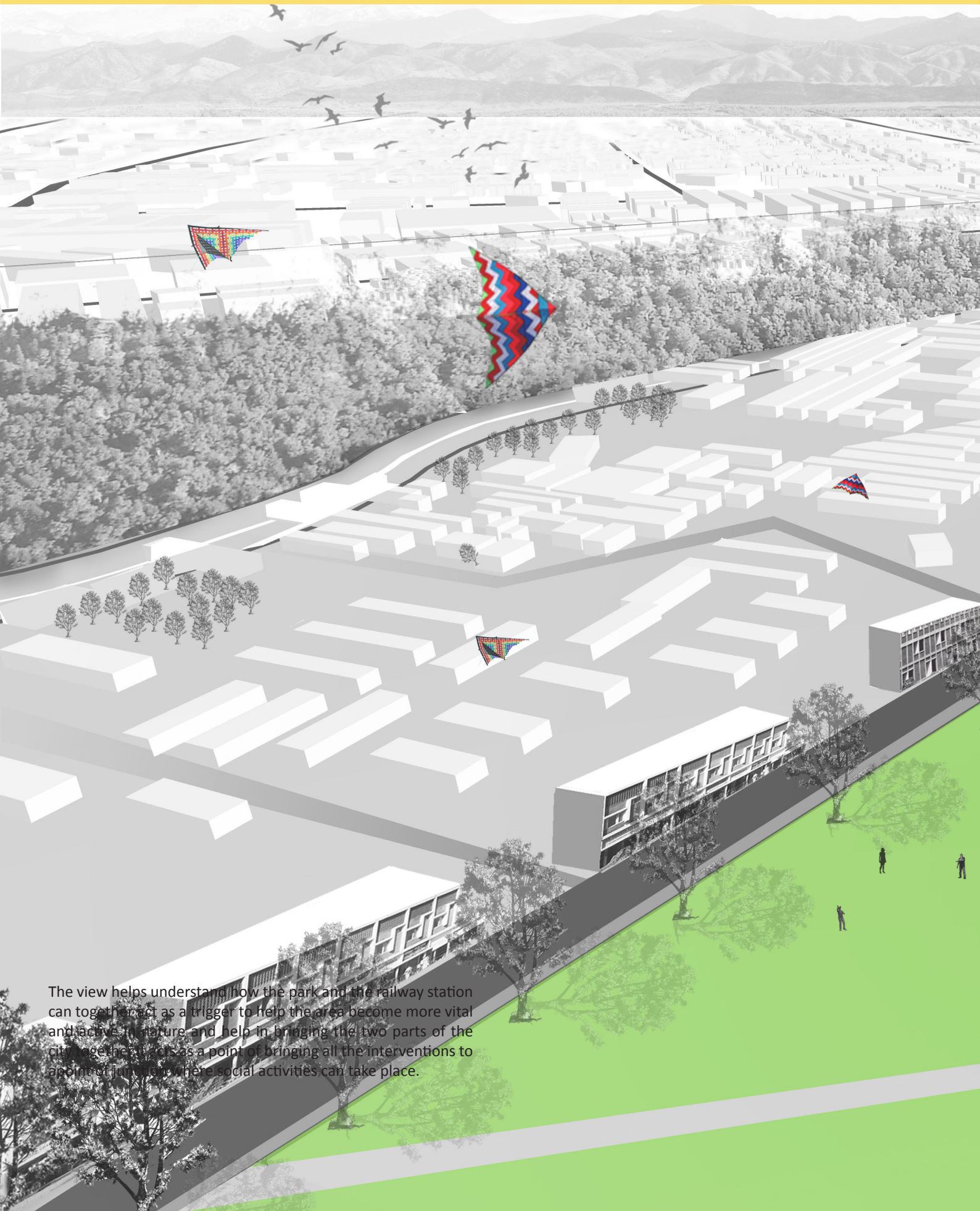
The third action deals with the addition of the city park and the possibility to give the railway station a new value within the present context.

As most part of the green belt is depleting, so by preserving the existing forest reserve and making room for a new linear park along the river adds many possibilities for this place.

As this park becomes a place where people from different cities and government organisations can come together. It can act as a tool for multiple government organisations to come together and work towards a regional development. Also becomes an interesting point for people not only from the areas along the belt to come and enjoy the park, but also because of the location of the railway station in the middle of the park, acts as a crucial part in making the park an important part of the region for easy and quick accessibility from different parts.

Further the intervention can help improve not only the condition of the belt and open the city out to its backyard, it also helps improve the quality of the area and helping more private investments to take place within the belt.

The park can act as a trigger to improve the condition of the depleting green belt and act as a catalyst for future developments to take place in a more organised manner.

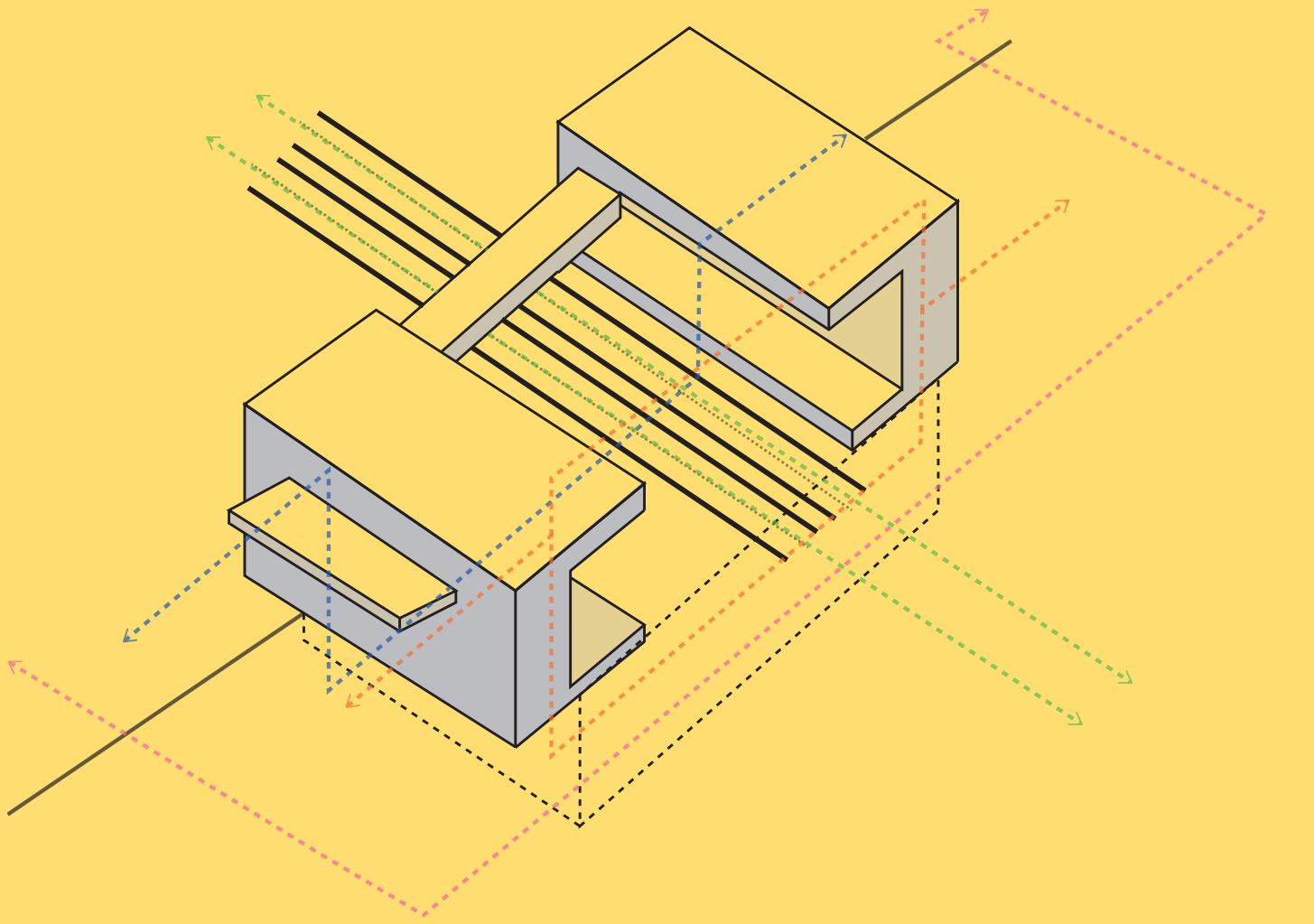


The view helps understand how the park and the railway station can together act as a trigger to help the area become more vital and active. It also helps in bringing the two parts of the city together and acts as a point of bringing all the interventions to a common junction, where social activities can take place.



Source: Drawn by the Author, explains the impact of the green park and railway station.

Figure.111



Metro line Bike Movement Train Movement Cars Movement People Movement
Source: Drawn by the Author, explains the movement pattern in the railway station Figure.112

The diagram here discusses the movement pattern of the railway station with the addition of the new part for the metro line. The station is one of the important elements within the location.

And with the development of the new metro line the projected growth of the place can help improve the future developments and actions within the belt.

For the same reason it is hence the effort to use it as a trigger to help more developments to place by making the area well connected into the local and regional fabric.

Further the railway station is one point in the location where interactions through all mediums of transport take place, with

people from ranging all kinds, local as well as regional and travellers.

Also, with the location of the city park along it, it can trigger many newer developments and can act as an interactive place where all the different types of communications take place.

The diagram shows how different mediums of train, metro line, people, bikes and cars can move within the railway station.



Source: Picture taken by the Author, Looks at the housing typologies with less focus to green in the region

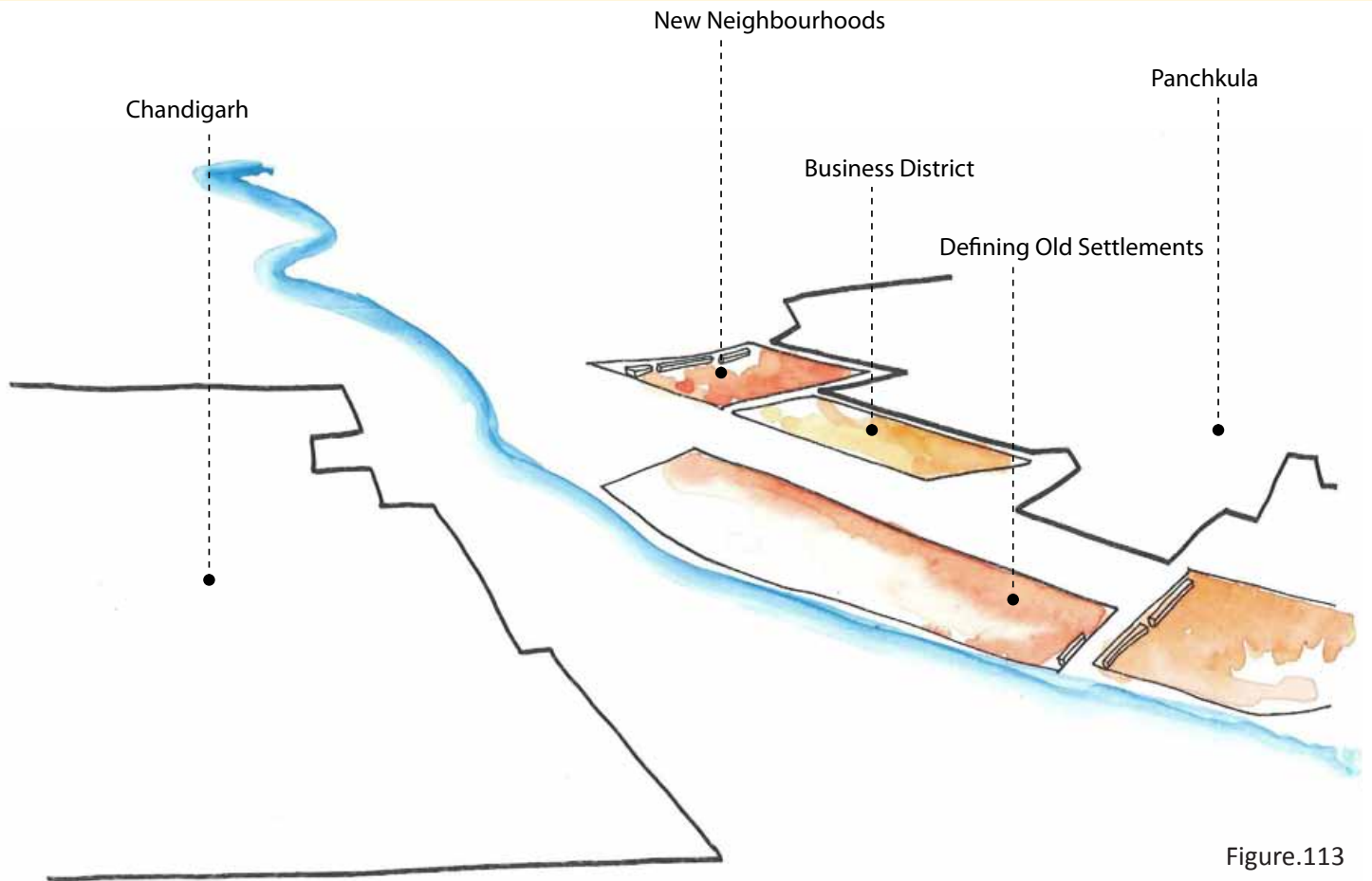


Figure.113

Source: Drawn by the Author, discusses the importance of neighbourhood building

As a result of intervening in the green belt and opening the city to its backyard, there are many new possibilities which can happen as a result. With improving the area, not only does it make the area more active and vital but also helps many new investments to take place.

With a high need for housing and other developments the development of the green belt can give scope and potential for future private investors to find potential possibilities to invest here.

Also the existing settlements, which have come about over certain time, and most of which are also more village like, or informal in nature, can become more recognised and have more character and identity as a result.

Helping them grow into neighbourhoods and formal districts which can not only be more formally recognised but also be more participative in the entire system, by making use of the network they are part of.

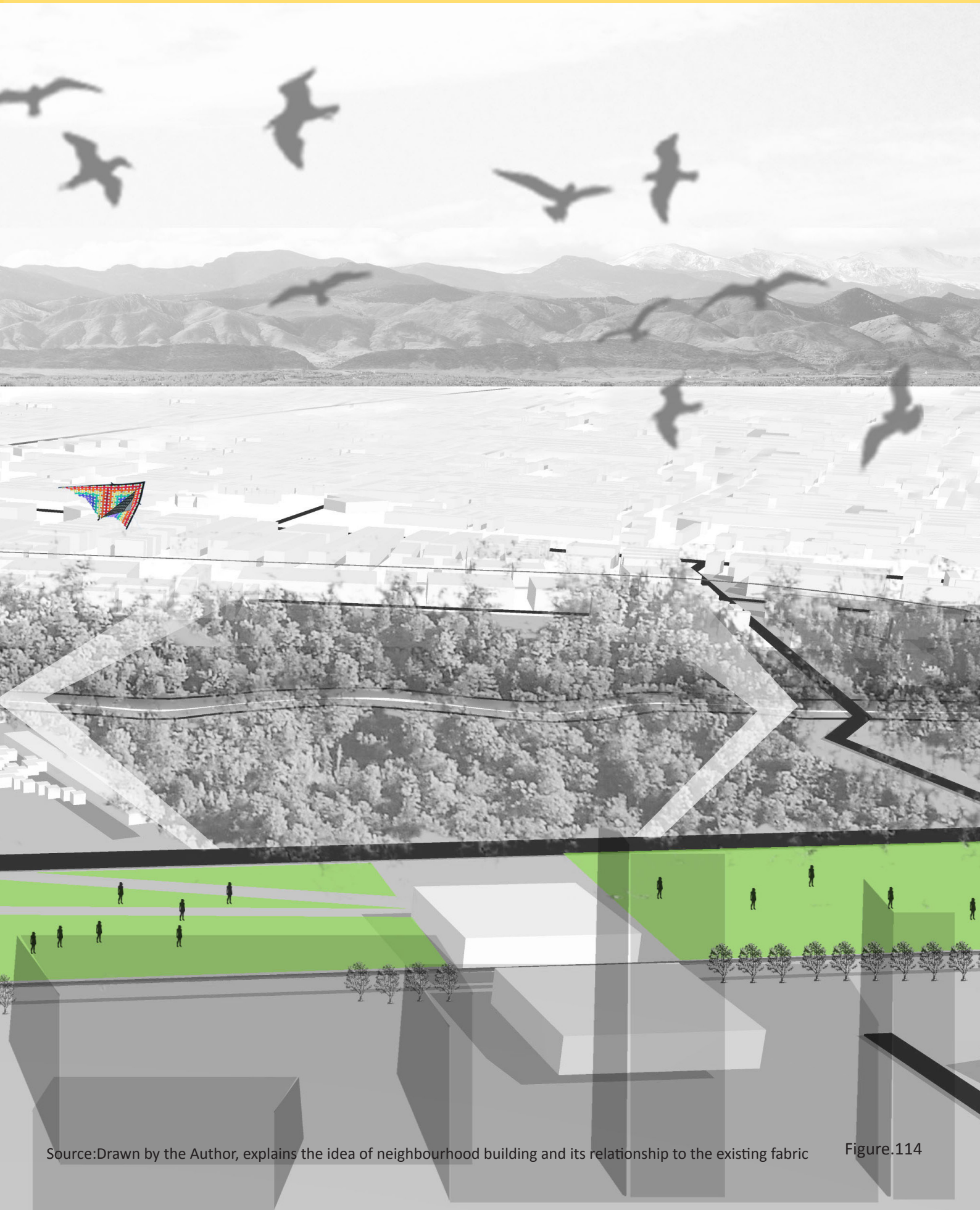
Also by adding newer mixed use typologies of commercial and office spaces and commercial and residential spaces many new mixes can take place and also add to the character of these places and help turn the informal commercial activities to more formalised ones.

Also, the higher connectivity through the railway station and the newly proposed metro lines the area can benefit as it gets more well connected and more accessible within its larger context.

Further, the addition of softer networks, of bike lanes and walking pathways helps the area to get more interwoven into the already existing fabric of both the cities. And also help make the transition between the cities and the green belt more softer.

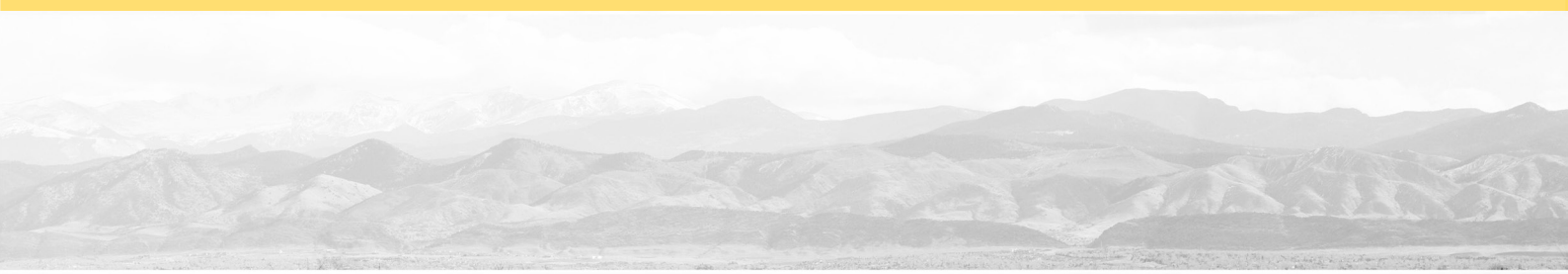


The view looks at the future possibilities and the relationship formed with the existing fabric as a result. And how through network of pathways and intimate connections with in different neighbourhoods a more interactive space can be formed.

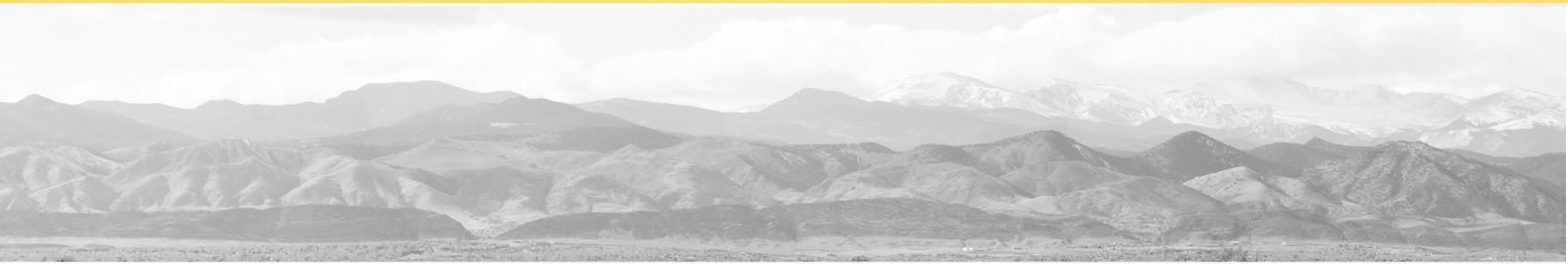


Source: Drawn by the Author, explains the idea of neighbourhood building and its relationship to the existing fabric

Figure.114



The View looks at the over all sense of space that is formed as a result of all the interventions done. Also helps understand how the multi-scalar approach and combining both planning and design can help transform areas under ecological depletion and extensive urbanisation, into more progressive examples for growth while giving due importance to ecological concerns.



Source: Drawn by the Author, explains how the area can change into a more vital and vibrant place

Figure.115

REFLECTION



Source: Drawn by the Author, explains on the local scale the impact of the interventions

Figure.116

On the local scale the area can act as an example to how intervention at the local scale with the regional perspectives in consideration can help form more livable and vital city environments.

Also, it brings about the relevant question of how fast urbanisation ended to consider the importance and significance of ecological concerns and how the urban environments and landscapes needs to be adapted to the current needs and aspirations of the society.

Further, the addition of the park and the water catchment zone not only open the city to its depleting backyard, but also help make the transition between different cities smoother.

It was influential to the project to understand that the missing link between the local and regional scale needs to be understood more in detail and comprehended in more precise manner.

In order to make the future cities, and expansions and vast urbanisations as a process a more well defined and well-organised process.



Source: Drawn by the Author, looks at the intervention on the urban scale

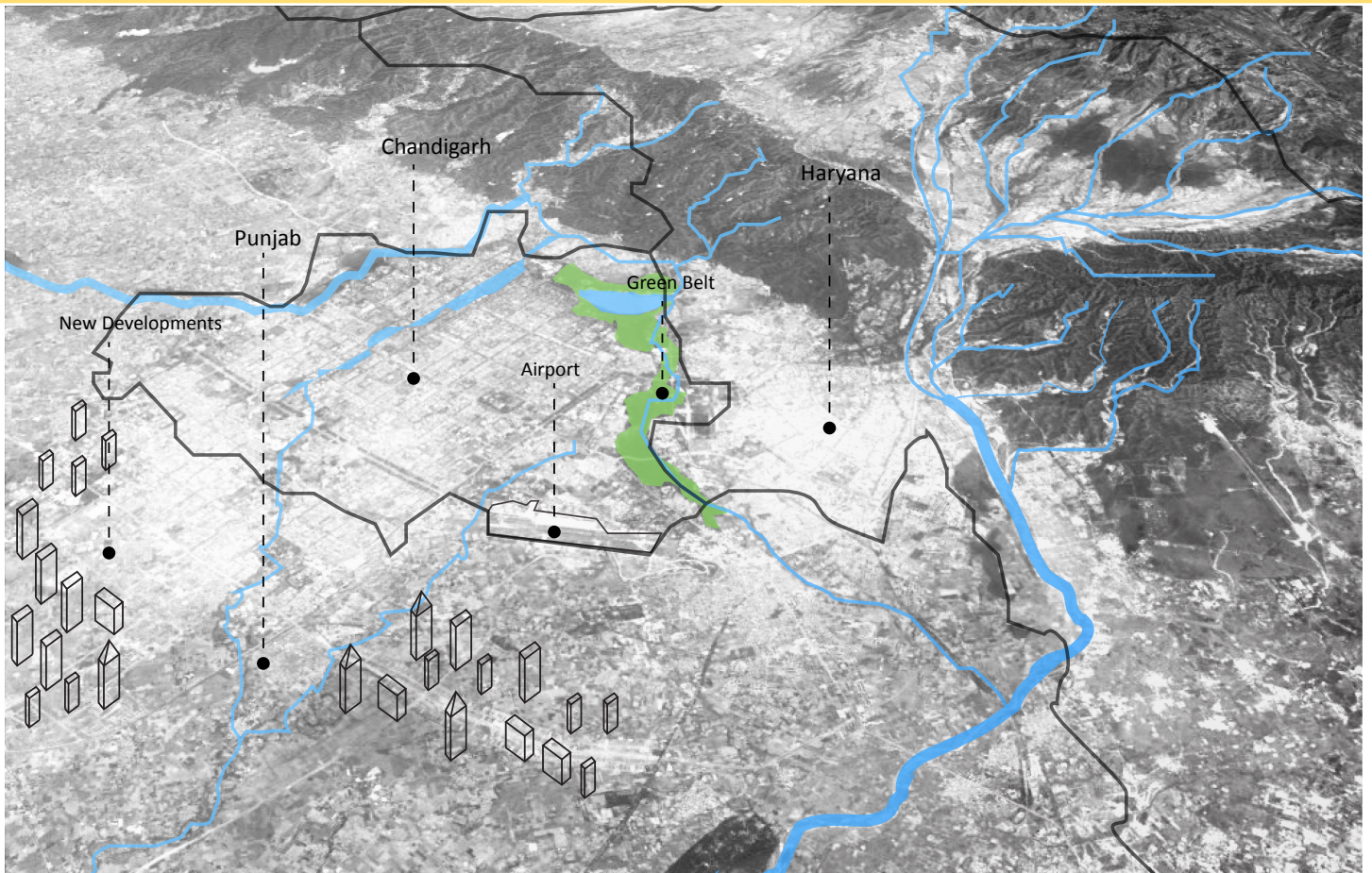
Figure.117

On the urban scale two main aspects were very vital to the project. Firstly the relationship the city shares with its surroundings and how over time the transition needs to become more fluid in order to make the region grow more faster and in a comprehensive manner.

Apart from that the other factor that is of concern is to adapt the values of its inherent design in the present conditions by giving

the green belts the much required importance and making them a part of the city.

Also, it is vital to understand the importance of ecological values and how they can become part of daily life systems rather than depleting over time. And how we can make use of these values and bring about much more comprehensive urban fabrics.



Source: Drawn by the Author, reflects the interventions and its impact on the regional scale

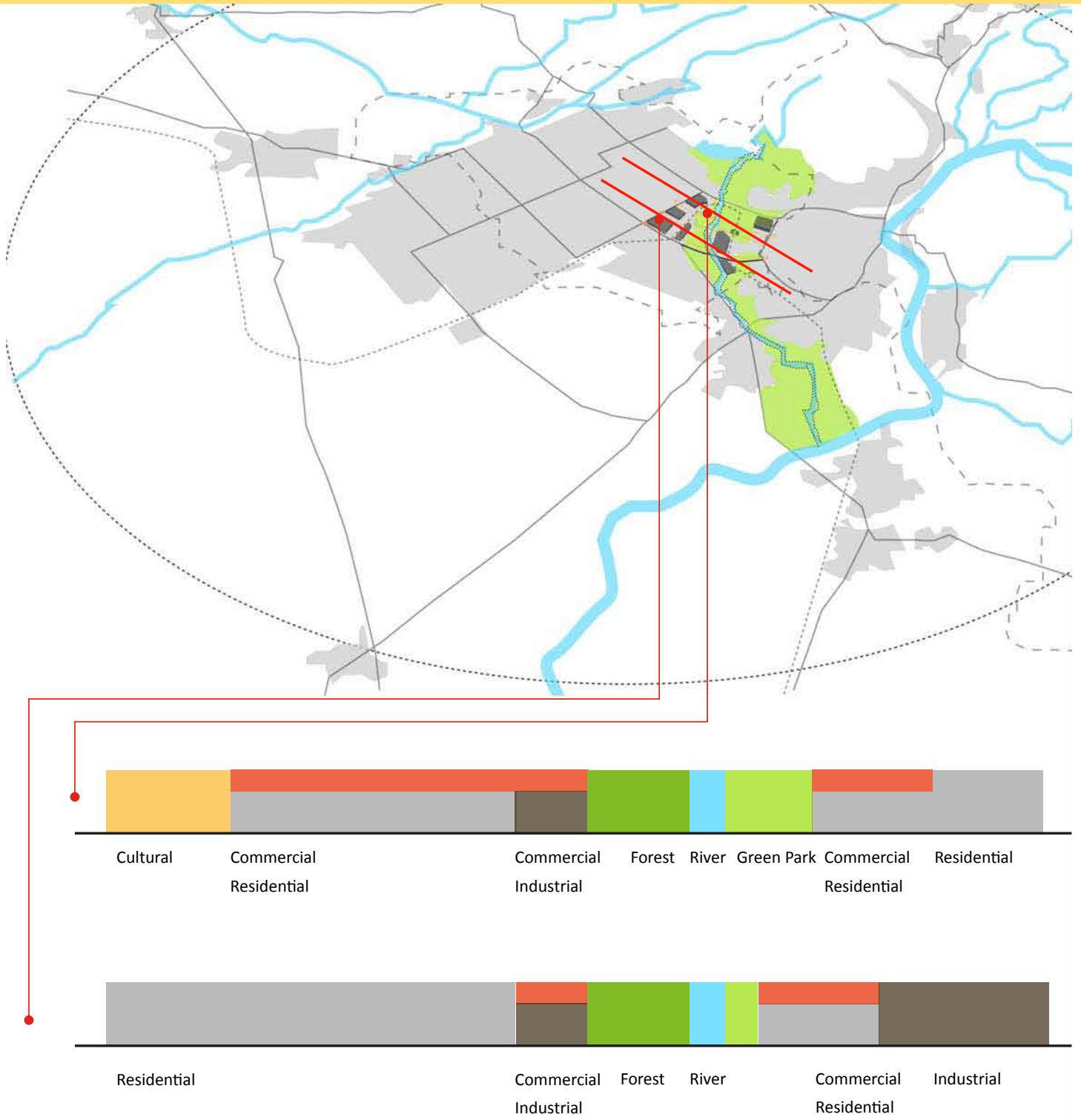
Figure.118

On the regional scale, the project focuses on making the connection between the new future developments and the existing fabric more subtle. By trying to keep the existing values intact and by adapting them to the newer future visions and connecting them to local scales in order to make inter-woven urban environment.

Further, it also helps establish the region as a more well connected, not only through the means of infrastructure, but also through green-infrastructure and urban fabric which concern

our daily urban environments and have impact on the daily life in a city.

Another part it adds focus to, is the possibility for multiple stakeholders, concerned government organisations and administrative bodies to collaborate and form more comprehensive visions for the region at large.



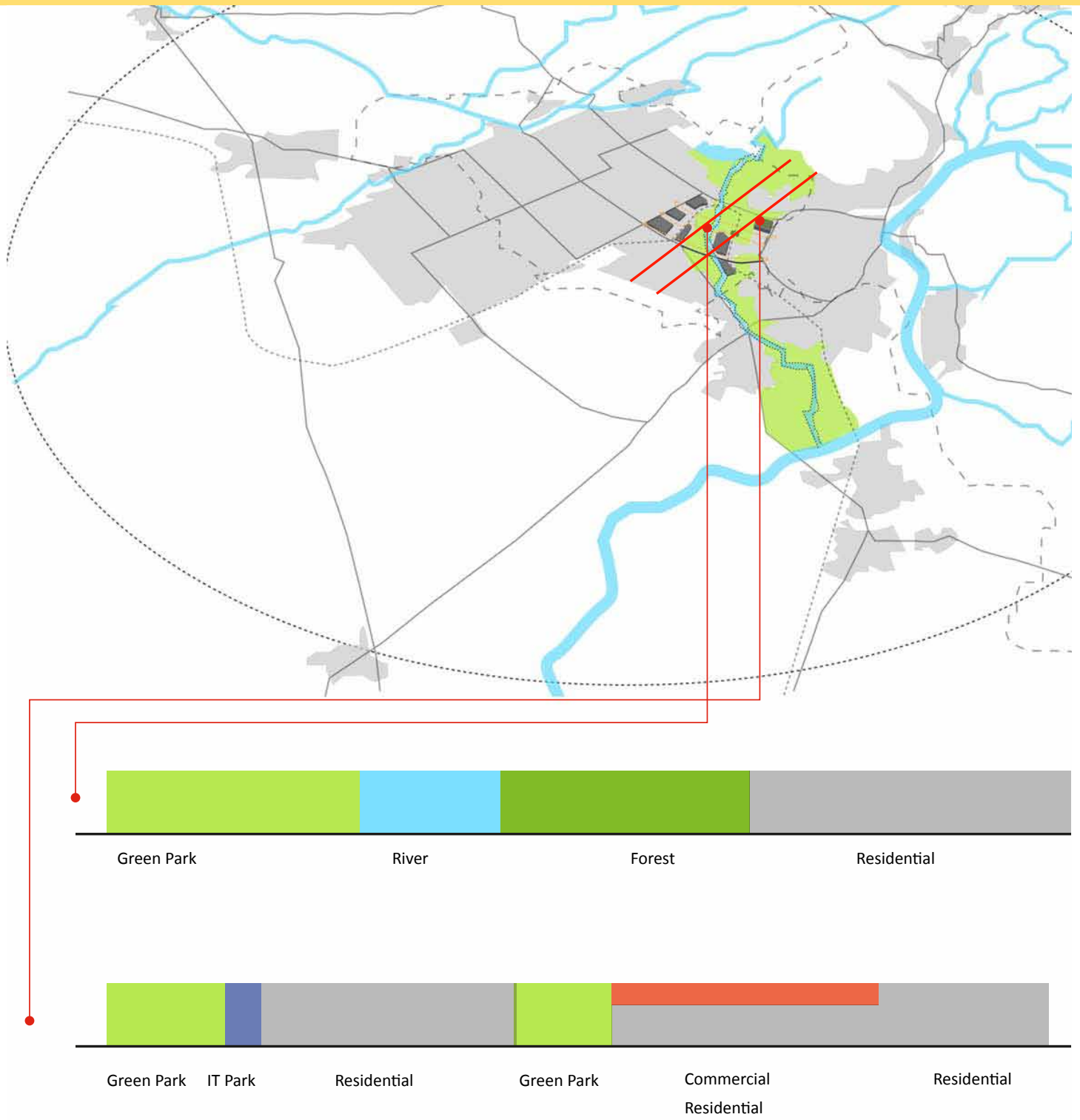
Source: Drawn by the Author, explains how the region can take advantage from its green belt

Figure.119

To understand how these actions interact once they are put in place, it was important to see ,how they help in the transition from one area to another more seamlessly than the existing condition of no actual physical contact between any of these places.

activities are blending into each other creating a new moulded layer of activities and actions which is a combination of existing, expected and new aspirations.

The sections help give a larger perspective of how different ac-



Source: Drawn by the Author, explains how the region can take advantage from its green belt

Figure.120

The sections in this diagram help also understand the different aspect of the issue, which is of ecological concerns and how that interacts with the growing urbanisation and growth of newer and fast developing investments.

place in the future, further also taking into consideration the need to value the green belt and need for maintenance of the water channel for its capacity to hold water during monsoon.

These sections help understand how this transition can take





Source: Picture taken by the Author. Showing the regional roads

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Peri-urban spaces

Conflicting global economic networks and local governance policies forming a new conflicting urban pattern in metropolitan areas in a post-liberalized India

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Abstract – Constantly fluctuating global economic trends are challenging the way cities are growing and creating a new socio-spatial dynamics in India. These changes in the cities are both because; the demands of a growing nation are changing, as it enters a more stable phase of its economic and social growth and also because of India's constantly progressive position in the global market since the 1990's. Enforced government plans and policies are further adding different layers of conflicts as they are not able to match with the economic pressures, in addition helping create a much complex and new urban pattern in the fast growing urban peripheries of these cities. With a new set of values, and demands, aspirations where the society is looking at its counter global standards, the government policies are still curbing the growth of these urban areas and further decentralising and privatizing its resources, adding even more conflicting layers. The paper tries to highlight different actors and acknowledge their interdependency in shaping these peri-urban spaces.

Keywords – Governance, Peri-urban, Global Networks, Metropolis

1 Introduction

The purpose of this paper is to investigate, the increasing diversification in the city cores with respect to its peripheral zones in the case of fast emerging metropolitan regions in a post-liberalized India. By taking a broader perspective of global and local scales from a spatial standpoint, the paper intends to review the importance of synergy between global trends and local government ambitions and their spatial consequences. And further aiming to add to a much larger discourse, which could have more applicability in India and other developing countries.

Constantly fluctuating global economic trends are challenging the way cities are growing and creating a new socio-spatial dynamics in India. These changes in the cities are both because; the demands of a growing nation are changing, as it enters a more stable phase of its economic and social growth and also because of India's constantly progressive position in the global market since the 1990's.

This comprehensive pressure on one hand is making the city cores more compact and dense, on the other hand it is leading to an immense amount of urban growth within and around its peripheries. Forming a sort of "mixed-space" (Dupont, 2007), an emerging

intermediate space between the urban centres and rural spaces.

Where there already exist pressures on management as a result of overall rapid growth and large agglomerations, these new urban peripheral zones are making administration and governance of such areas even much more complex (Dupont, 2007). Moreover, the multiple stakeholders and individual ambitions tend to make the process more segregated. Resulting in a lack of recognition of such transitional zones, and creating a disparity socially, economically and spatially. Another side is the non-existence of focus given on environmental issues, which is directly and indirectly affected as a result, and is constantly losing attention in the growing competitiveness between different stakeholders. Thus making it vital to review current global and national economic inclinations and position them more comprehensively in the local markets in order to forecast the future scenarios more precisely.

To understand these growing gaps between different actors more in detail, the paper makes an attempt to take its position from a global perspective on networks and metropolis towards an understanding of the local and regional narratives in context to India, in order to highlight certain reservations in these planning ambitions and their spatial impacts and fall backs.

The paper is divided into four parts where, the first part tries to focus on a broad understanding on world cities and networks and their interrelationship and its spatial aspect from the point of view of (Friedmann, 1986), (Priemus & Hall, abcd). Later, the second section puts emphasis, on its direct impact in the Asian market and Government policies and growth controls in order to come out as a more competitive market (Rondinelli, 1991). While in the third section, (Shaw & Satish, 2006), (Dupont, 2007) help build a more regional and local relationship with the global inclinations with the recognition of peri-urbanisation in context to India, the paper tries to look at several ways to review different ideas and bring about the challenges posed in these conflicting conditions. And the last part explains the conclusions and some recommendations by the author.

2 Global economic networks and its impact on local space

World Economic networks are crucial in shaping our urban spaces and are becoming critical in their impact on forming local places. And considering the opening up of Indian economy since the early 1990's it has brought a lot of changes to Indian large cities. To understand this in detail, this part of the paper tries to understand the economic patterns and their direct relationship to urban systems. As the scope of the subject is wide, the paper will limit to the findings of (Friedmann, 1986), (Priemus & Hall, abcd) (Friedmann, 1972) (Lepage, Huriot, 2005). While opening the argument to many different aspects, at the end it is intended to keep the discussion broad, but in the process build up a basic framework towards Asian and Indian context.

From a dynamic starting point given by (Castells, 1972), (Harvey, 1973), forming a relationship between social ecology, better understood with population and space, to rather, a product of forces set by its correlation with industrial capitalism (Friedmann, 1986). It opened the discussion by considering the city, not just as a subject of natural spatial dynamics but as a much broader network of an urban system that a city is part of. Rather, later the world city hypothesis, made a direct relationship with world economy, making a new starting point of political enquiry (Friedmann, 1986). As he clearly quotes (Friedmann, 1986),

"The form and extent of a city's integration with the world economy, and the functions assigned to the city in the new spatial division of labour, will be decisive for any structural changes occurring within it." (p-70).

Explaining that a city is an integrated social and economic system at any given location or region, which under varying intensity and form of different local factors, link it to a larger world system and make it a part of a global hierarchy (Friedmann, 1986).

On the other hand, while explaining the Metropolization process, they further acknowledge the rise of service and information economy and contemporary globalisation, helping in the recognition of a city not only as a metropolis but much beyond

that understanding (Lepage, Huriot, 2005). Later, defining a metropolis a very large city, where population concentration is not the only condition making it into a metropolis (Lepage, Huriot, 2005). Also the far-reaching effect it has on the social structure, is a part of it.

Adding to this, is its capacity to give rise to new spatial patterns of infrastructure and mobility, adaptation to a new set of values and a new social class and the importance of its location in the global network system, is also similarly pointed out by (Friedmann, 1972).

Corresponding to this, (Priemus, Hall, abcd) explains the impact by "*Death of Distance*"(p-339) and increasing significance of urban networks and networked cities as a new urban phenomenon. While explaining in detail about the process of urbanisation, sub-urbanisation and de-urbanisation they cite that

"Urban places do not lie together, but form parts of networks of connected places."(p-344)

Where they clearly point out that this economic revolution from an industrial to more business-oriented services with a crucial participation of Information Technology has had a profound impact on the new evolving urban forms and development (Priemus, Hall, abcd). Though further explain that, it has reduced the need for actual human interaction, it still is able to create the need for people to interact, socialise and relate to each other, making it vital to strengthen our urban spaces and making them more inter-operable and inter-connected and responsive to these factors.

Hence, the idea of a city's growth and development is not just based on just social and its natural resources and its not a comparable reference anymore, as it is connected to a bigger network and world systems making it more complex.

To sum up, urban systems interconnect to a much larger network, comprising of multiple factors, stakeholders and crucial concerns, which will be further be discussed in a more Asian context with an emphasis on government policies and urban growth controls.

3 Development polices and growth controls creating new urban spatial patterns in Asia.

Government development policies and future ambitions and further imposed controls can play a significant role in moulding the urban patterns of metropolitan regions. This section of the paper will discuss these aspects in an Asian context with a concentration towards India and its cities and government organisational responses. This part will have major influence of (Shaw & Satish, 2006) and (Rondinelli, 1991), where one points out developments in the Asian governments re-focusing their development polices and the other draws attention to the metropolitan restructuring in a post-liberalized India via examining its different agencies and their impact on city growth polices.

Rapid urbanization and growth in Asian countries in past few decades has created a huge challenge for the governments and also private sectors to comprehend and respond to the physical expansion of its cities, and the corresponding demand for employment by the new urban labour force, infrastructure and services required as a result (Rondinelli, 1991). Also, later explains, that though many Asian governments tried to control and achieve more "balanced" urban patterns by trying to keep the rural and urban population at there respective places and reducing the concentration of certain mega cities, there ambitions were much less successful considering there lack of effective implementation and not keeping them for required time spans to get desired results and impacts (Rondinelli, 1991).

In addition to this, (Friedmann, 1981) also points out that the idea of a balanced urban growth in the Asian countries focuses more on reducing the difference between income earned and wealth accumulated. Stating that,

"What is meant instead is a sense of systematic inter-relation between countryside and city in which their notorious differences in levels of living and opportunity will become progressively less pronounced." (p-246)

He asserts that, rather than concentrating on decentralising them further, they must concentrate on making the difference more diluted.

In addition to this (Friedmann, 1972) mentions that while many political and economic stakeholders concentrate on the growth and national capital, subsidiary growth centres spring up on the peripheries which eventually become a parallel urban administration in the order.

While on the other hand, pointing out that more systematic relationship and recognition of zones between rural and urban centres would help form well organised urban patterns than trying to balance them by interventions in social statuses and slowing down the growth of its mega centres (Rondinelli, 1991).

Further, (Chang et al., 2004) explains the concept of contemporary urbanisation in India and other Asian countries as

“A complex interplay of processes and agencies operating at different scales” (p-415)

In addition stressing on the need for looking at cities as a collaboration of both local and global influences (Chang et al., 2004). Making it a complex set of actors with different actors with individual ambitions creating a series of complicated network of concerns at different scales.

With, India’s level of urbanisation projected to reach as far as 40% by the year 2030, from the current 20%(Mohan, 2005). This projected increase is also on one hand enforcing government agencies to consider more investments in infrastructure, mobility, and other services, and simultaneously it need to make them comparable to its global counterparts by use of the term “completely makeover” to define its large cities (Prasad, 2004).

It is clearly pointed out by (Shaw & Satish, 2006), as they bring to notice that the global impacts on the growth and development of Indian cities cannot be studied or understood in isolation. As its clearly pointed out that most of the economic and spatial growth happened mostly after the 1990’s after the Indian economy opened global market. Leading to a lot of cities becoming more urban in nature and saw an intensified growth of jobs, opportunities, recreation, housing, services and many other facilities. In the process adding to an increase in demands for more work and recreation

spaces, leading to great expansions of its cities (Shaw & Satish, 2006).

Though (Rondinelli, 1991) clearly arguments the lack of importance given to problems of urbanisation and attempts to deal with them by the Asian governments, with a clear reference to the emerging urban patterns in cities showing a great impact of government polices. Further, making it more vital to understand the weaknesses in the system applied and assess future alternatives.

Based on this, the next part would concentrate on the metropolitan regions and formation of peri-urban spaces as a result of this interpenetration of organisational actions and their spatial influences mainly in Indian context.

4 Peripheral urban spaces and there conflicting status in India

The rapid growth of cities in India has led to extreme spatial expansion leading to a formation of a new kind of mid-way space between urban cores and the rural peripheries. This segment will try and understand these spaces with an intended limitation of keeping it to just Indian context, considering the vast frame of the subject. And to recognize it in a much more precise way, the research by (Dupont, 2007) is reviewed. As she tries to emphasize on the prominence of these spaces and also the need to recognise them as different zones rather than being a lost void between different specific spaces.

She explains, that these spaces are never neutral but rather transitory spaces as a response to diverse and conflicting stakeholders, government and societal ambitions and their lack of required attention given to these intermediary spaces (Dupont, 2007). Making it rather essential to understand the varied forms of urbanisation, land uses, use of natural resources, which help form these spaces develop around the urban centres of Indian metropolises.

Further, she points out that, Post-liberalization policies in India focus on decentralisation and privatization of its responsibilities, which will in addition multiply the number of stake holders involved and making it even more complex to control these situations (Dupont, 2007).

Bringing about some important points, firstly if these political and government reforms of decentralising actually going to help these areas, as most of these area lie on the administrative boundaries of the city making them not a part of any specific administration. However, the (74th Constitutional Amendment's Act) has recognised these "transitional areas" and granted them civic status, but left to the different states to acknowledge them on their own. Making the some of these zones under the legal jurisdiction while others remaining far beyond the control of any urban administrative body (Dupont, 2007).

Which only adds to the second more concern, as leaving it on the different state governments to decide these statuses, leaves a large room for disparity, as larger cities can have more development with the willingness of its end users to invest more in there areas for the availability of private resources, as a result strengthening the process of segmenting of cities between rich and poor (Kundu, 2003).

While the last and rather positive aspect of this is that can bring about many more new actors to the forefront rather than just the traditional stakeholders, acknowledging there potential role within the society and giving them an opportunity to become a more significant part in the urban governance (Shaw, 2005).

Though in the larger global context, these peri-urban spaces seem to be the most preferential zones for specialised infrastructures and investments, on a much local level they have many administrative and institutional inconsistencies, which need a more sensitive and thorough outlook in order to make these metropolitan areas as more potential participants in the large global network (Dupont, 2007).

It is established that metropolitan regions cannot assessed in isolation anymore, rather need to be understood as a part of a much larger network and global associations. Following which even government objectives and policies and further actions also need to modulate and adapt accordingly. As in case of India, with its promising place in the global market these actions need a broader foresight and need to be tackled with responsibility.

Taking the framework from this discussion, the next part will be author's conclusion built on the review of these broad views and conflicting realities.

5 Conclusions

Based upon on a series of broad views on the position of metropolitan areas in a global network system and inconsistent government plans especially in the case of India, the author would conclude with some remarks in this section.

It is established through first section of the paper that the global economic movements have a large impact on the urban structure of cities and defines their urban patterns in a large way. Further in context to India and other Asian countries this influence since the early 1990's has been more powerful and apparent. Resulting in a lot of economic and as well as social reforms in these countries to deal with these changes and to some extent control them and organise them better.

As already mentioned in the government polices segment, mentioning the vast size of these cities to already control and manage there growth majorly in the case of India is a difficult task, and there efforts have mainly been even less impactful because of different administrative and location factors with global economic pressures by trying to enforce growth.

Further, while there is a large focus on the city centres as they are part of well-defined administrative boundaries urban, a parallel vast expansion has happened around there peripheries is getting recognised as a periphery, already taking an almost comparable position as the city centres.

It is well established by the review that not only global economic forces but also government plans and ambitions have also been a major factor in creating a disparity in the social and urban patterns of metropolitan cities in India. Making it fundamental to have a much broader understanding towards implementing them.

Further, essential aspect is that the government organisations are promoting decentralisation and privatization of services, further sharing the responsibilities, also adding more layers and stakeholders in the process

which needs to be properly planned and assessed to have valuable results and not end up adding multiple actors and make the process even further complex.

Finally, these peripheral urban spaces are not having a spatial but also social effect, adding a new layer of society, with a new set of values, and requirements and aspirations but spatially and socially, both because they are more affected by the administrative agendas and are more globally connected and associated, which is both an advantage and a critical aspect of their spatial location and significance. Henceforth making it significant both scientifically and socially to analyse them and respond to them.

6 Recommendations

The paper gives an overall perspective about the different aspects concerning the metropolitan regions in India, and the growth along their peripheries, with broad arguments about its direct connection to the world economy and important place in the network system.

Helping understand the importance of various aspects concerned both local and global it adds valuable studies relating metropolitan areas in India and other parts of the world. Also points out concerns about different aspects of location, governance and administrative issues, parallel to giving abroad view on the aspects of world systems.

For further research and design and planning in the growing metropolitan regions in India and other Asian countries, the paper helps understand the role and significance of various actors involved and the impact of their actions spatially. Which helps broaden the perspective of the researcher or designer to understand the on going dynamics and the challenging realities and conflicts rising as a consequence.

With this study a much better recognition of the local realities and their global counter actions and regional policies and their interdependency is further strengthened. Finally, the paper also adds to the larger discourse on an on going urban pattern in many developing countries and raise the need for further study.

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Title

Re-envisioning Chandigarh: Role of urban peripheries in formation of metropolitan regions in the case of Chandigarh and its surrounding Region.

Keywords

Metropolization, Peri-urban, Global networks, Green infrastructure, Governance.

Introduction

The project is located in Chandigarh, a modern city, designed by the renowned architect Le Corbusier, in the 1950's. The subject has gained attention in the past years as the region is going through intense change and rapid development, creating a complete new face of the place than what it was imagined to be. Also it explores the loop holes in the planning policies and systems which are further adding to the complexities by making the urban patterns more segregated in morphology. The project also intends to highlight that urbanisation in India, cannot be a one way process or just making huge master plans and expecting new cities to grow, but rather, a multi-level and intensely interdependent process that needs to be understood and sensitively intervened from both sides of the spectrum, of rather big planning policies and a simultaneous action on a much smaller and local scale. In order to do the same different actors, existing conditions and possible future trends need to be closely examined and evaluated.

The project also opens an important subject, of how ecological reserves of the city and region are fast getting extinct as a result of their intense pressure to grow, urbanise and densify. As the city is not only rich of ecological reserves, but its initial masterplan had strongly respected its context and the green belt and water reserves and structured in mainly along the main green arteries from the Himalayas and the infrastructure hierarchy designed to plan the city. But what is crucial is that over time though the infrastructure has redefined itself, the green belts have somewhere lost significance and leading to extinction as a result of the growing region.

Through the subject, the intend of the Author is to open up a dialogue for the urgent and vital need for change in perspectives in urban planning and policies and further designing the urban environment rather than aspiring for creating an urban life which does not belong to the place.

Aim of thesis

For the same, the project aims to recognize the new emerging urban patterns and forms in the neo-liberalized India, by understanding the interrelationship of global economic forces and its local impacts. While this postmodern urban model is being constantly challenged with the rise of a new spatial and social culture, there is a need and demand for a responsive and more sensitive perspective towards its growing demands. The project intends to explore this new phenomenon, from a much broader perspective to a more local and specific case, to further establish a better understanding of the fact to its local consequences.

Also, as the project also explores the interdependency of multiple actors and stakeholders and their varied aspirations and interests, it helps add more layers to the complexity of already sensitive urban forms and opens up new perspectives for research. Through this project, it is also intended to understand the global phenomena better and explore other national and international case studies, to help further realise the growing change in spatial patterns. And, as the project deals with different administrative borders and government actors, it aims to help understand the missing alignment in the policies with economic systems and their lack of collaboration, initiation in cross border conditions. Finally, it intends to add to the larger discourse over the subject, and open up new possibilities and approaches, which could be further beneficial in India and other developing countries.

Methodology

In context to the vast scale of the project it is crucial to have a structured methodology to understand and further intervene in the subject through design and spatial planning. Also it helped align all the research through theory and analysis of the sight into a more structured approach to certain crucial subjects.

Apart from having a strong and clear theoretical framework of planning and design it was vital to the subject to have a structured approach towards the actions to be taken. Considering the same and based on the prior theoretical base, a multiscale approach helped to both understand the project and align it in a hierarchy of order, space, time and actions.

Further, setting up clear framework for planning and design helped to form a set a parameters, which further facilitated the alignment of all the different actions to be taken in context to a set of given values and concerns.

Relationship between Research and Design

The project needed to understand very precisely the crucial values of the modern city planning and the new ideas of the network city to comprehend what the change that is on going with in the context of Chandigarh is inherently built up of. And this was made possible the theoretical research and their impacts on spatial environments. In order to give a place to the new design actions with in the strong context, research and analysis of the area helped make a comprehensive pattern, which could be translated, further into the hypothesis and predicting expected future changes. Hence making it rather logical to take the design actions logical in their place and more impactful in context to time and space.

Relationship between the project and the wider social context

The project draws a strong attention to the fact that the rate of urbanisation is almost going to go from 25% to 40% in India in the next 10 years (as per the national census). The fact in itself puts a large focus on these growing metropolitan regions and the demand for them to become bigger, grow faster and get connected to their larger contexts. Making the subject a large growing phenomenon and its urgent need to be taken up more effectively as more and more cities are going through similar changes, especially in India.

