

City planning and realities - *A case study of Chandigarh*

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1.00 ABSTRACT:

Chandigarh designed by Le Corbusier as ‘Administrative City for definite population (500,000 people) has completed fifty years of its inauguration. Population has already crossed one million mark. Almost double, otherwise for which city was designed for two new satellite towns were added immediately next to the city by two states, Punjab and Haryana violating the periphery control and changing the very shape of original Master plan which was based of Le Corbusier’s planning.

Master plan’s legislation consists of Periphery Control, providing a green belt of 16kms. around the city consisting of 47 sectors. Each neighbourhood unit (sector) is 1200x800 mts. and has a population ranging between 5000 – 35000. Northern sector has less density than Southern Sectors.

All sectors are further under Architectural control, which consist of Frame Control, Material Control, Elevation Control etc. Also there is hierarchy of Road System (7Vs). Landscape is another feature incorporated in initial master plan.

Paper will bring out these initial legislations and further assess their validity in view of changing needs. A big hurdle at present is that there is large number of people who treat city as a 'painting' from Master Corbusier. Anything done by him is not to be touched upon and then always there are people who want to freeze everything in the name of "Architectural Heritage" thus crippling the very idea of a "Living city". Paper will give analytical view of socio-economic situation, problem of slum dwellers who form 1/3rd of population of city and are on ever increase. Question broadly is should people's participation in building their own city be cut down by framing rules/regulations in the name of policies framed by group of people from expert category and who have no roots to the tradition of land. Should planners be given this exclusive right, while designing future cities.

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1.01 Preamble

Architecture to a large extent is a product of the age. It cannot isolate itself from social conditions, the thinking and objective and the ideals of age to which it belongs. The static condition in regard to architecture in India in the last 200 or 300 years really was reflection of the static condition of the Indian mind or Indian conditions. In fact India has been static architecturally considered for the last few hundred years. The great buildings we admire date back to earlier period. We were static before the British came. In fact the British came because we were static. A society which ceases to go ahead necessarily becomes weak. The weakness shows in all forms of creative activity.⁽¹⁾

1.02 The Site

Government of East Punjab in late March 1948 selected Chandigarh site out of three possible recommended sites. 1) The Ambala site, 2) Chandigarh site, 3) The Ludhiana site. “The site chosen is free from the existing encumbrance of old towns and old traditions. Let it be the first large expression of our creative genius flowering on our newly earned freedom”.⁽²⁾

- 1) Prime Minister Nehru, 17th March 1959, Exhibition of Architecture, New Delhi.
- 2) Nehru after his first visit to Chandigarh – Punjab Government construction of the new capital of Chandigarh – Projected Report – undated. Ambala a cantonment is 48km SW of Chandigarh, Ludhiana is one of the industrial town, 90km NW of Chandigarh.

Notification dated March 23, 1948, Government of East Punjab placed whole of the area in Kharar Tehsil under prohibition for the purpose of building and the sale of building. Total area proposed to be acquired for the two phases of the development of new capital consisted approx. 28000 acres of land in 58 villages with a population of 21000 people or 6228 families.⁽³⁾

Lying on the longitude of 76° 48 minutes and latitude 30 degrees 50 minutes, the altitude of Chandigarh varies from 304.8 to 365.76 above sea level with extreme climate temperature rising to unbearable 45° Celsius in summer and falling to almost freezing in winter. Total rainfall of 1.01 mts. mostly from July to August in summer and January February in winter. Prevalent winds are from south-east in summer and north-east in winter. Favours for hot season for building consideration was based on Mughal and traditional village buildings.⁽⁴⁾

3) P.L. Verma, “A note on the New Capital” page 3 1948

4) Maxwell Fry “Problem of Chandigarh Architecture” Marg (Bombay) Vol. 14 No. 1 Dec. 1961 page 20

2.0 The Architects

ALBERT MAYER – consultant to USHA (United State Housing Authority) FNA (Federal Works Agency), New York State Housing division, member of Committee on Post War Housing, The National Association of Housing official, had served as director of the National Public Housing Corporation.

Albert Mayer came in contact with Indian as an officer in the United States Army Corps of Engineers World War II, was introduced to Mr. Nehru by an Indian friend Humayan Kabir, a Nationalist Muslim, who arranged a meeting in 1945. Pt. Jawahar Lal Nehru was destined to become the first Prime Minister of Independent India.

After discussing the possibilities of starting some model villages Mayer returned to New York. Mayer returned on Nehru's invitation in 1946 for the assignment of planning new villages in India – but his first assignment was of master plan of Kanpur and during this time he met Mahatma Gandhi and was blessed for rural projects in Uttar Pradesh.

In January 1950, Governor of East Punjab wrote to Governor General of India.

“We have now reached what appeared to be final site of our capital. It is to be Chandigarh. Planning is to be entrusted to Mr. Albert Mayer. On May 10, 1950 in Washington DC, before an August audience of Planners and architects, Mayer presented his aims for Chandigarh”.

“In modern advanced country like USA. We are so surrounded by vested achievement, by so many facts and figures and well-developed techniques, so many highly developed technical means of one kind or another, that we are almost never able to shake ourselves loose from them, not able to put them out of the way while we concentrate on ends and objectives, not able to consider calmly and think completely through. We can in a sense really only improve. We cannot re-shape things entire and mold them to the heart's desire. And if we are not very careful, we even get further confused by piling complicated ingenious means on top of each other, still further burying the ultimate causes and objectives”.

I need to call your attention to the futility of our super-highways and our 3-level crossings, which never for more than a short time catch up with themselves. You all know of our handsome parkways in the New York region. What you may not know is that various organizations have published directions on how to avoid them because they are overcrowded. These detours are of course the poor old inferior roads they replaced.

In planning *de novo* as we are doing in India, we are free to formulate ideas and objectives as clearly and boldly as our creative spirit permits. We call in facts and techniques as we find we need them, and in sequence with our developing thought and study – but they are simply handy tools; they do not clutter up our thinking.

We want to create a beautiful city. Since the City Beautiful concept was thrown out fifty years ago, and the functionalists and the sociologists took over, the concept of a large and compelling and beautiful unity has not been enriched by these important later additional and integral concepts, but has rather been replaced. We have creatively fused them, but we are unabashedly seeking beauty.

Can anybody who has studied our proposed new civic centers here – such as for example Foley Square in New York, or the Chicago Civic Center, seriously claim that they have turned to some of the great exemplars to the Concorde in Paris, the Piazza San Marco, St Peter's and studied them... to extract the essence.

Our basic purpose is to create a sense of pride in the citizens, not only in this his own city, but in India, its past and its potential imminent future... We are seeking symbols, to restore or to create pride and confidence in (the Indian) himself and in his country. ⁽⁵⁾

- 5) Mayer's address to Conventional Symposium "Urban and Regional Planning" Washington DC May 10, 1950 American Institute of Architects – Oct 1950 PP 171-73

Mayer work on Chandigarh also included his other associates Mathew Nowicki and Clarence Stien. Separation of pedestrian to vehicular, neighborhood idea (done earlier with American Traffic engineer W J Cox) were direct linked to his work for greater Bombay and object was not to make a city of bold winged – engineering and cantilevers but a city in India idiom fused with modern simplicity, functional honest and imaginative sweep.⁽⁶⁾

Helping Mayer further were Julian Whittlesey, Milton Glass, Clarence Slien, James Buckley, Ralph Eberlin, Clara Cottey and Mathew Nowicki. Applying prevalent American principles, plan of Mayer's Chandigarh was based on two units.

1) Neighborhood groupings 2) Site conditions to shape city character, road system, the parks. Fan shaped plan which emerged was based on English garden movement, Green belt towns together with Los Angeles suburbs, Baldwin Hills, super blocks. It lacked originality though functionally efficient.

Nowicki offered “the leaf plan”, also blending modern architectural solution with Indian way of life. Work done on Chandigarh for six months came to an end with death of Nowicki while returning to America on August 31, 1950.

2.01 Le Corbusier's Plan

Punjab Govt. informed Mayer by the end of Jan 1951 that work for architectural development has been given to a group of architects from France and England. (Le Corbusier and Jeanneret from France, Maxwell Fry Jane drew)

6) Mayer's report - May 12, 1950

Long before being on team, Maxwell Fry has described Le Corbusier blue print for city of tomorrow as fit for living in “only by robots”⁽⁷⁾ He remained ‘unconvinced’ regarding Corbu’s modular measurement. Fundamentally different in their training, Le Corbusier introduction to architecture came through art and he never for look art to build the city at Chandigarh was not for highly industrialized nation of west but for a predominately agricultural society just recently emerged from Colonial rule.

Le Corbusier arrived in Feb 1951. Along with Verma, Fry and Jeanneret in a rest house and new plan of Chandigarh was **“as good as done in four days”**. Mayer met all above in May 1951 and was told of shortcomings done earlier by him on city plan by the new team. Mayer fought a losing battle. Le Corbusier consolidated which included influence on Mayer’s friend Pt. Nehru, who visited on April 2nd 1952, the City of Chandigarh. Work was divided neatly between Le Corbusier and his associates. Le Corbusier in addition to revising the plan of Mayer, architectural control of the new city reserved the designing Capitol for himself. Fry, Dew and Jeanneret were given the responsibility of directing actual construction of the city. Housing for govt. employees, schools, shopping centers, hospitals, etc. Assisting their works were Indian architects.

Le Corbusier’s plans main feature ‘7V Rule’ determined the essential function – creation of the sector. City center was further to be designed by Le Corbusier. Besides giving shape to a picture he painted in 1930 entitled ‘La Main Rouge’, first of three monuments of Chandigarh ‘Open Hand’ to receive the newly created health, open to distribute it to its people and to others, a beginning of new era too, the era of harmony to the age of machine.

- 7) Fry letter to Richard Neutra, Sept. 9, 1940, New York Oxford Press 1982 – pg. 193

City planning was now domain of Le Corbusier who has told Thaper and Varma, ‘when they first knocked on the door of 35 *rue de sevres* in Paris on a bleak November day that “Your capital can be built right here, we at 35 *rue de sevres* perfectly capable of finding the solution to the problems”.⁽⁸⁾ (French minister of Reconstruction and Urbanization M. Claudius Petil (1948-53) first recommended Le Corbusier to Thaper & Varma on his visit to Europe). (P.N. Thaper, the Administrative in-charge of Capitol project, Varma Engineer, Capitol project)

With a philosophy of Town Planning of “Sun, Space and Quiet” yet Le Corbusier was never interested in Urbanism, he only tuned to it when he couldn’t get enough commission as an architect.⁽⁹⁾ Certainly Chandigarh as a town plan, never was the brave new world that Nehru presumed it to be (far from being a futurists city it is not even a contemporary one)

8) Le Corbusier in Oeuvre complete – 1946-52 (Zurich, Girsbergeev 1953)

9) Charles Correa – “The view from Banares”.

Chandigarh conceived as planned government city in two phases, accommodating uprooted strong traditional people, migrating due to partition of India in 1947, promised 500,000 in 70 sq.kms of area with a label of being a material symbol of the spirit and potential of independent India – the vision of future – unfettered by tradition of past⁽¹⁰⁾ The city would also be last word in beauty, in simplicity and in standards of such comfort as it is our duty to provide to every human being.⁽¹¹⁾ Catering to poorest to poor⁽¹²⁾ as visualized by the Swiss-French-English architects. The city now far from initial vision after the years as planned for definite population has already double the population, physically increased in the form of Chandigarh Urban Complex projected with 62 million people with over 5700sq. miles and slums within and outside periphery destroying the most sacred periphery control ever thought but less exercised / monitored or less conceived.⁽¹³⁾ Was it all result of Le Corbusier idea does not work and his building was never conceived with the Indian psyche?⁽¹⁴⁾ “Planned city finally turning to ‘evolved’ organic city” is the will of people occupying city determines the future of the city? In its infancy Chandigarh has become old to die and be reborn –

3.01 The Master Plan

Primarily the standardized 800x1200 meter ‘sector’ and hierarchical circulation resulting from Le Corbusier theory of 7Vs resulted into a well ordered matrix of this generic completing itself into two phases ‘sector 1-30’ in first phase and development up to 47 sectors in second phase. The ‘sector’ itself was a self sufficient, introvert unit, enclosed by fast moving V3 road running NW-SE.

Recognizing the aesthetic role of trees in urban design, a comprehensive plantation scheme was also devised for the entire city⁽¹⁵⁾

15. Each V4 road, crossing in the middle of sector with shopping was planned with a different colors of flowering trees to give separate character to each V4 in different sectors.

3.02 Administrative Government City

Primarily built as government city to accommodate and serve as capital city after Lahore and Shimla, building which came up in the formative years were large treats of 'Government housing' ⁽¹⁶⁾ built with almost same vocabulary from house of Chief Minister to a peon (13 type govt. houses were designed) with exposed bricks, sunshades, uncluttered mass of simple geometric lines. To control unpredictable vagaries of private housing and to ensure realization of form conceived by them takes root, it all came under architectural controls.

4.01 Controls

Urban Control in Chandigarh were to operate at three levels, The Periphery, The Master Plan and Architectural control on 7Vs, city centers and housing (conceived areas include two major V2 roads (Madhya and Jan Marg) the city center (Sec 17 and Sec.34) and neighborhood shopping on V4

All system of construction in city is governed by construction and architectural treatment of exterior controls. A schematic design with 17'-3" bay size in commercial sector and of standardized facades of set heights were produced. Full architectural control was applied to shops, the only variation being in the interior layouts.

16. Largest and most innovative compound to accommodate 20,000 people who moved within first 3 years.
17. AR Prabhakaran, Marg Vol 15 no.1 Dec 61 pg.55

Clause no.4 of the Capital of Punjab (Development and Regulation) Act, 1952 reads as follows:-

(1) For the purpose of proper planning or development of Chandigarh, the State Government or the Chief administrator may issue such directions, as may be considered necessary, in respect of any site or building either generally for the whole of Chandigarh or for any particular locality thereof, regarding any one or more of the following matters, namely:-

- a) Architectural features of the elevation or frontage of any building:
- b) Erection of detached or semi-detached building or both and the area of the land appurtenant to such building:
- c) The number of residential buildings which may be erected on any site in any locality:
- d) prohibition regarding erection of shops, workshops, warehouses, factories or buildings of a specified architectural character or buildings designed for particular purposes in any locality:
- e) Maintenance of height and position of walls, fences, hedges or any other structural or architectural construction:
- f) Restrictions regarding the use of site for purposes other than erection of buildings.

2) Every transferee shall comply with the directions issued under subsection (1) and shall, as expeditiously as possible, erect any building or take such other steps as may be necessary to comply with such directions.

4.02 Architectural Control

While initially government housing was designed and city constructed of mostly of these 13 type houses accommodating from Chief Minister of State of Punjab & Haryana to the lowest, peon, yet 70% of housing in Chandigarh was to be of private building. Yet these private building do not appear to be private because of they are built under strict rigid system of architectural control. Chandigarh was to develop both in private and public sectors, while most of commercial building (along V4 road, city center and along V2 roads) are under architectural control private housing by and large not been left to its own fate. Following architectural control is functioning in Chandigarh.

4.03 Full Architectural Control:

This applies to all the commercial buildings and residential houses along the shopping streets of sectors (V4s). Formally the houses in these streets were only controlled as to the definite building line and the height and the manner of the use of building materials, whereas the larger plots were under no architectural control. This proved unsuccessful and standard design for houses were prepared in which the interior could be altered by the owner as long as the exterior was not vitally affected. For shops, complete designs have been provided from the very beginning.

4.04 System of Construction and Architectural Treatment of Exterior Controls:

This applies to all the buildings in city center and to all the commercial buildings along the V-2 avenues. This system in the city center is based on a grid of columns, fixed floor heights and fixed 17'-3" shuttering pattern on concrete and system of glazing or screen walls behind the line of columns. The interior planning is at the discretion of the owner, and in the exterior certain variations are permitted to give variety to the architectural composition. Along the V2 avenues the basic principle is the same as in the city center but other types of treatments have been evolved for the Facades.

4.05 Schematic Design Control:

In cases where special types of buildings occur in the Architectural control areas, a schematic design is prepared on the basis of which the developer prepares the final designs in consultation with the Chief Architect. This has so far been applied to the design of cinema buildings in the City center and to the petrol station.

4.06 Architectural Control:

In this system the design has to be prepared in consultation with the Chief Architect by a qualified architect employed by the developer. This applies to the residential buildings along certain important areas like the avenue at the foot of the hills, (Uttar Marg), along the leisure valley and certain V3s. This is to ensure a certain architectural standard in these areas.

4.07 Frame Control:

This is perhaps the most important control introduced recently on all the small plots upto 10 marla (250sq yds) category, where the houses have to be built in terrace formation. In fact lack of control on this type of plots began to result in extremely poor architecture, and since no one could predict what his neighbor would do with his building, good street picture in such areas became impossible even if good architects were to design building. It is well to contrast terrace housing with the detached houses in big plots, which good or bad do not influence the street picture so much as they are surrounded by trees and are visible in glimpses. Bulk of housing in Chandigarh is provided in terraces; and lack of control on such streets foreshadowed the evil consequences. Frame Control comprises in fixing the extent and height of the party walls and a top course connecting these, thus forming a frame. The building portion which can be of any design stays behind this frame. Certain standard sizes of doors and windows have been specified from which a person may choose and use in any manner he likes. In this way harmony is provided by frame and variety by the individual treatment of any building.

4.08 Gates and Boundary Walls:

All the gates and boundary walls are also to conform to standard designs, which also add to the unity of the street picture.

All these controls, which were followed like a bible, are now being revised by state formed 'Building byelaws Committee', which mainly consists of representation both from administration and public mainly consisting of people from commercial establishments.

4.09 Landscape and Gardening:

Corbusier sums up the ideas of town planning thus: “The sun, space and verdure” are the ancient influences, which have fashioned our body and our spirit. Isolated from their natural environment, all organisms perish, some slowly some quickly, and man is no exception to this general rule. Our towns have snatched men from essential conditions, molested them, started them, falsified them, embittered them, crushed them, even sterilized them; the third generation to live in great cities tends to sterility. Fashioned throughout millennia by the conditions of nature, man cannot with impunity disrupt the natural order. Shut up in masonry walls and conditioned to the smell of petrol fumes, men in large towns lead a cramped and unhappy life, deprived of the essential joys of life – sun, space and verdure. Unless the conditions of nature are re-established in man’s life, he cannot be healthy in body and spirit.

The fundamental elements are: accord with the laws of nature; harmony of actions in the recurrent cycle of the solar day of twenty four hours; experience of the essential joys; an intensity in consecrated work and in consecrated leisure; definition of the métier of the contractor; exploitation of the architectural revolution accomplished in the laboratory by the 19th and 20th centuries; the idea of unity regulating the doctrine of the built domain and its necessary overhauls; the intervention of the law giving reuniting again nature with the built work in the land, in the province, in the region, in the town, determining the scales and types of built volumes and tracing new routes; the whole in conformity with the law of the land.”

In search of the sun, space and verdure, man drifts from the ancient town and establishes himself, in garden suburbia. Ultimately, the so-called garden towns also develop and expand, reducing the outskirts of the towns to miserable shabbiness. Nature melts under the invasion of roads and houses. Horizontal garden towns in the grip of the tentacles of the ancient city are ultimately reabsorbed and the promised seclusion became a crowded settlement.

According to Corbusier, the real solution lies in the Vertical Garden City in which the superimposed buildings rise above the park which contains amenities such as sports grounds, crèches, primary schools and clubs. The housewife is also liberated from domestic work. By the concentration of a large number of dwellings in one building, considerable area of open ground is liberated, the site effectively enlarging and merging with surroundings countryside. The dwelling unit allows the organization of common services such as water supply, electricity, air conditioning, medical services, sports and education. The corridor street lined with houses on both sides is abolished, and in the place of confusion architectural amplitude of simple splendour results. The towns no longer a senseless pile of stone and masonry but becomes a park, and man and nature are harmonized. Avenues of trees, sometimes three to five rows thick, provide green walls and grouping of trees in the form of rectangles, squares and circles creates green rooms.⁽¹⁸⁾

“The keys of town planning are in the four functions – Living, Working, Recreation and Circulation. The base of the City Plan is a rectangular grid of heavy traffic roads enclosing the self-contained neighborhoods or Sectors. The road and sector system almost completely separates vehicular and pedestrian traffic. The sectors are interconnected by the shopping street running across, and by park belts, lengthwise. The pedestrian can thus traverse the city in both directions without walking on the major traffic streets. The fast moving traffic is restricted to the rectangular grid of heavy traffic roads, which are designated V2 and V3. These roads are at the outer sides of the Sector. Inside the sectors, protected from fast traffic are the V4, V5, V6 and V7, which provide access to the houses, shopping center, schools, hospitals etc.

The avenue of the Capitol consists of a heavy traffic automobile highway of a parallel band of parking, a large pavement on each side with shops and arcades and high buildings.

(18) M.S. Randhawa, ICS, First Chief Commissioner of Chandigarh, U.T. , landscape and gardening flowering trees in India – Indian Council of Agricultural Research

Also outside this and parallel to it is the eroded valley. This road has been planted with green grass and ornamental shrubs, like the bougainvillea. Footpaths, which are provided at the sides for pedestrians, are shaded by four to five rows of trees.

On the one hand, it seems useful to demarcate the automobile highway by a border of high trees, and on the other to unite with the one glance the entire width of the avenue in question, the shops, pedestrians, parking cars and the localized contacts with the eroded valley and the leisure space. It is equally necessary to cover the pedestrian promenade with shade along the shops.

For the car route, a single or double row of trees with high foliage will permit the eye to travel across. This will be with light and evergreen foliage to avoid the need for sweeping.

For pedestrians, a multiple row of trees with very heavy deciduous foliage is required so that the sun's rays may pass through in winter. There must also be some evergreen trees with dark and glistening foliage.

This arrangement will contrast the height, the thickness, the colours and the permanency of the foliage, and will explain the various functions of this essential artery of the City.

V3 receives only high-speed traffic. Choice and planting of trees should be studied to give the best conditions, especially in relation to the glare of the sun. There are two directions of the V3s: horizontal V3s parallel to the Station Avenue, and vertical V3s, which are parallel to the Avenue of the Capital.

The situation for the horizontal V3 is not serious because the sun in summer is almost at its zenith at this time. On the other hand, the vertical V3 will be in a bad way in winter when the sun is low on the horizon, and its rays are in the same directions as the vertical V3. That is why the trees must be chosen and planted differently. On some of the roads, evergreen trees with large umbrella like crowns like *Ficus infectoria* have been planted, and in course of time their crowns would meet, forming a green tunnel. For horizontal V3, the trees should have light foliage.

It should be noted that the difference in the tree planting of the horizontal and the vertical V3s will at once make it clear to the users in which direction they are traveling.

The V4 is the place where the most intense activity of the urban life of the sector is assembled. The V4 will be the street, which will give its own character to each Sector. Consequently, such a V4 will be different from the others and finished with special characteristics, because it is indispensable to create a great variety across the city, and to furnish elements to classification to the inhabitants. All the possibilities of nature at our disposal are to give to each V4 a personality that will maintain itself in the whole width of the town and thus tie up five or six sectors traversed by a V4.

To specialize the character, each V4 has been planted with trees having different colors of flowers. For example, one V4 is yellow another red and yet another blue.

The V4 should be lively. Consequently, unlike V3s, it can have several different types of trees as well as different types of shapes and mixtures of foliage, deciduous as well as evergreen.

For roadside avenues along V4 roads, trees, which provide shade and are also beautiful, have been selected. Trees with a regular shape such as cypresses, Lombardy Poplar, Asoka, and chorisia are suitable for formal planting schemes. On interior roads where the shape of the crown is not so important, trees with beautiful flowers and foliage such as kachnar, jacaranda, coral tree, amaltas, gul mohur, pink cassia, silver oak and Pride of India have been planted.

The countryside with these trees will be interesting and pleasant in all the months of the year. In summer, the trees would provide shade and in winter sunshine, as the deciduous trees will permit the sun's rays to pass.

Ample areas have been provided for parks in the master plan of the Capital. For these parks informal planting has been adopted. Interior belts with their continuous flow combine with the outer green belts to give a verdant feeling to the whole city. They also give a sense of direction and dramatically culminate in the Capital. Facing the parks are building groups such as the Public Library, Art Gallery, the Museum and the Girls College. There are narrow greenways connecting major parks, and an area of seventy-five acres has been allowed for a zoological garden, and hundred acres for the botanical gardens.

Bioaesthetic planning is closely connected with town planning. Before the towns arose, there were groves of trees, meadows, moving horizons, hills, mountains, rivers and lakes. By building disorderly piles of houses, many beautiful views have been obscured. This has been avoided in Chandigarh by staggering the sitting of houses in such a manner that the Mountain View is not obscured even at the ground level. Trees have been carefully chosen with due regard to color of flowers, beauty of foliage and shape of crown. In addition to utilitarian and aesthetic aspects, trees in city areas constitute an effective buffer against dust and noise, and also act as windbreaks. Moreover, when planted properly they link up individual masses of buildings in a harmonious whole, and enhance their architectural appeal by presenting a foil of texture, color and form by way of contrasts.

ANNEXTURE

For the establishment of an immediate “Statute of the Land” by Le Corbusier.

5.00 City of Chandigarh.

1. Definition of Use of Chandigarh

Chandigarh is a city offering all amenities of life to the poorest of the poor of its citizens to lead a dignified life. Chandigarh is a Government city with a precise goal and consequently a precise quality of inhabitants.

On this presumption, the city has not to be big city (metropolis?) – it must not lose its definition. People say that life must come in the city from other source or activity specially industry. Industrial city is not the same as an administrative city. One must not mix the two. It seems that complement of the original definition should be the invitation of forces, which can supplement the forces of the city not opening a conflict of rivalry. We must take care that any temptations do not kill the goal, which was foreseen at the moment of the foundation of the city. Therefore, naturally, old doors must be opened to actually unknown initiatives. It appears that the future of Chandigarh will be opened to all the cultural factors in different kinds of manifestation teaching (schools) university, new science of imparting audio-visual training etc, etc – in one word, all kinds of knowledge).

Means to express and to disperse the thought (editions: books, magazines and eventually printing of books, magazines etc.) Means to express and disperse arts (in time and space history and geography). All the kinds of reproduction of art-witnesses (editions: visual means – photographs, diagrams etc. at different scales). Diverse manifestations of exhibition, shows theatre, festivals, creations of highest modernity etc. Such manifestations reclaiming the organizations and use of traveling, possibilities of hostelry etc.

For the culture of the body there can be created an organism having at disposition any possibilities of meeting for competitions or tournaments.

All this will afford the creation of a “Chandigarh Label” which will be the guarantee of quality and worth emulation.

5.02 II The Four Functions

(CIAM “Charter of Athens”)

The force of this Charter lies in giving the first place to the dwellings: the environment of living – the family under the rule of “24 solar hours.”

The second place is given to the ‘working’ which is daily act of human obligation.

The third is the culture of body on one hand and an intellectual leisure on the other.

When all these goals have received their definitive containers it is possible to give to each of them a respective rightful place and at this moment can interfere the problem of realizing the contacts: that is “circulation”.

5.03 III

With this line of conduct, the urbanism of Chandigarh emerged. The date concerning the dwellings was an artificial one. The charter of 13 categories; The city arising is one of 2½ storeys which has brought many appreciable factors but which is now placed before the pressure of the city’s development, it is; “What will be the future?”

Concerning the working, Chandigarh being an administrative city, two centers have appeared; one of Government: the Capitol Complex buildings and parks and its precise situation in the landscape. The second is the “Town Hall” placed in the City Centre.

What are the other workings? The one which answers to the possibilities which are listed in the paragraph (ii) coition, festivals etc. They ask for precise locations on the ground of the city. One part is already realized in location and in building: the University, the colleges and schools with proper zoning. (The principle being that forms are located in the green on the limit of the city and the latter located in the internal NE SW belt of green)

A small reserve of ground was given for an undefined industry east of the city near to the station. Very little of this ground remains today available.

5.04 **Constituent element occupying the ground of the city.**

- a) The Sectors.
 - b) The 7Vs which are 8
 - c) The resulting geography: concentration and dissemination (in the city and out of the city)
 - d) Indispensable facts, unacceptable facts (their biology)
 - e) Statute of the land.
 - f) Augmentation (appreciation) in the value of land by clever methods.
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- a) The key of the modern urbanism is “the Sector” which is a container of family life (24 solar hours: night and day). The contents being from 5,000 to 20,000 inhabitants (approx.) Chandigarh has 30 sectors: each sector has its provisions, the schools (kindergarten and primary) the necessary maintenance organization, the food, artisans (repairs etc) the daily leisure (movies etc.) all traversing in the middle of each sector – it is the “V4” (see below) The V4 given the horizontal connection between the contiguous sector. The sectors are also specially devoted to all what concerned family life (man, woman and child) day and night. The sector is surrounded by high speed roads with bus stops every 400 meters and giving the eight entrances in this social group. The fundamental principle of the sector is that never a door will open on the surrounding V3s; precisely the four surrounding V3s must be separated from the

sector by a blind wall all along. In consequences, the sector will never receive transit buses or cars. If there were today any actual organizations which have broken this rule, it should be set right. However, the V4 can accept the through passage of cars and buses but only at low speed. Each sector will have a green properly oriented in the direction of the mountain constituting a band vertically connecting a series of sectors. In these bands will be installed the diverse schools and the sport fields.

b) “The 7-Vs which are 8”

It is the rule, which was established before ten years at the demand of the UNESCO to try constituting an eventual acceptable proposition of urbanism for general world application. The resume of these 7-Vs for this present report (which has to prepare “The Chandigarh Statute of land” is the followings:

Seven kinds of ways (which are now 8) can bring in the modern life the solution of contacts between different organisms, which constitute the containers of the activity of the machinist age. The V1 is the going throughout the continents, traversing rural areas and cities.

The V2 take immediately the succession of V1 at the beginning of the city. Other V2s can be the trainings of international municipal will of greatness and usefulness together.

The V3s are a new kind of roads devoted exclusively to vehicular traffic (specially fast traffic) these ways must be interrupted the least. They are surrounding the sectors as explained above.

The V4 is the right place of the 24 hours life of a sector. It is a linear event and particularly in Chandigarh. It should be situated on the shadow side (which is the SW side)

The V5 are roads, which assure the internal distribution of traffic inside a sector.

The V6s have to give access to the doors of the dwellings. V5 and V6 must never receive a transit traffic (bicycle, cars and buses)

The V7 is situated in the green ribbon going SW to NE in the direction of the hills. The V7 gives the vertical contact between the sectors and crosses the V2 station and the V2 south and two other horizontal V3s. We can affirm soon that the V7 (for pedestrians only) has to V2 and V3 with parallel (foot bridges) which can be made now or later depending on the situation (conjuncture). These bridges must immediately be drawn on the urbanism plans from now on.

The traffic of the bicycles, to wheelers, auto-cycles will have to take a separate way along the green ribbon with the intention to realize the function of the bicycles in the modern city. These 7 ways have been named after the creation of V7 because of the recent appearance of the cycle with the two wheels the entire world over. The two wheeled vehicles have never to use the same way as the four wheels and the three wheels, Chandigarh is the first application of this new system of roads – one must add that for the creation of urbanism, drawing, discussions, meeting, this designation of V1, V2, V3 etc. has brought an extraordinary clarity.

c) **5.05 The resulting geography: Concentration and dissemination (in the city and out of the city).**

“Charter of Athens” of the CIAM has proclaimed the four functions of the urbanism (as already given above). Each function is to be contained in one container, it is one building. The first problem is to give the specific size of this building. The first problem is to give the specific size of this building according to each function. The modern life has to locate all its activities in containers of conformed size: “unites do grandeur conform” (for living, industry and for leisure, school, museum, etc. “sports”).

Each of these tools (“containers of conformed size”) has to find their rightful place on the land. Their locations must be fixed on the paper (plan) with their necessary surrounding. The contact will be given by direct or indirect ways, which have to be foreseen and fixed from the beginning.

Some of these containers constitute a concentration; the other dissemination. At Chandigarh the place was given to the family containers (the Sectors”) for the work place was given in the Capitol, University, City Centre, and a limited industrial area.

d) **5.06 Indispensable facts: Acceptable facts (their biology)**

The human factors must be put on the summit; it is the relationship between the cosmos and man. Law of the Sun is of the greatest importance. In Chandigarh, the Sun must be controlled, so that the day hours can be employed for working. It is a technical intervention in the domain of construction of dwellings and public buildings.

The air, which will be breathed, is a condition of human life. The problem of “aeration” (breathing) is very important.

The control of noise is to be introduced in the urbanistic conception like in the construction of buildings – specific technical problem. The three following words express the problem to be solved: Air-Sound-Light.

- e) **Statute of the land:** This denomination express exactly what is to be done? The duty of an authority is to be honest; it is to control things, which belong to a regime of rules (existing and understandable), which have to be created by the will of a collectivity. In other words there exists true merchandise, which has to be sold to true customers, and which will never lose their primitive value in the case of arbitrary decision coming later.

Is it possible to conserve such realities during the time, which is going on?

The Statute of Land is the description of what is proposed and has to be proposed in the future and the engagement of the authority that such realities will never be destroyed by inattentive resolution or decisions.

When a national Bank signs a paper (a bank note) promising that this paper has a value fixed at a figure printed on it, it is impossible to change it except for an unexpected national or world catastrophe.

The statute of the land has also to include the date of the creation of the city as it has also to foresee some possibilities of evolution or change, which are hidden in the future.

f) **5.07 Appreciation of Land**

When such a working has been made in a city: obtaining the money, buying of necessary ground, first bye-laws, permitting to begin construction, arriving of the first inhabitants, selling of the first plots etc.

A phenomenon is born: it is the appreciation of land. A game, a play has begun. One can sell cheap or at a high price; it depends on the kind of “tactic and strategy” put in this operation.

One phrase must be affirmed: “The good urbanism makes money; the bad urbanism loses money:

The problem is also to be vigilant: one must sell true merchandise; nothing must be allowed to provoke circumstances, which will bring loss to any single habitant.

One has the “Statute of the Land”. It is like a seed. What can be grown from the seed? It is in the hands of Administrator.

**Chandigarh
17 December 1959**

LE CORBUSIER

6.00 Present Scenario

Chandigarh to Chandigarh Metropolitan Region

- 1) 6.01 I Phase I Population 150000
Sector 1-30
Density: 40 persons/ha
Total area: 43sq.km.
 - II Phase II Population 350000
Sector 31-47
Density: 144 persons/ha
Total area: 70sq.km.
 - III Phase III Re-densification of Phase I if population goes beyond 500000. (Present population is touching 1 million marks)
The Punjab new periphery control act 1952 was enacted by which 8 km. Green belt provided around the city boundaries which was further extended to 16kms in 1962. Main objectives were to:
 1. To prevent slums and haphazard growth.
 2. Forests to be protected.
 3. Agriculture area/water resources to be protected.
 4. Brick kiln and surface mining to be regulated.
 5. No development upto 90 meters on either sides of major roads and 30 meters on other roads.
 6. Religious buildings and houses were permitted “abadi area”.
- 2) 6.02 Re-organisation of the state of Punjab was done in the year 1966. Chandigarh now a Union Territory became also the capital of two states namely Punjab and Haryana. Physical features were as under:
 - 1) Union territory of Chandigarh – Total area 114sq.kms, capitol city 17sq.km, 26 villages 44sq.km. Out of the total periphery controlled area Union Territory of Chandigarh had 44sqkm. State of Punjab 1021sqkm and Haryana state 295sqkm

- 2) Constructions of farm houses and poultry farms in 16km in green belt were allowed.
- 3) Chandigarh Urban Agglomeration (CUA) area.
Government of India in 1972 formed a high powered committee to ensure integrated development of the region. Ministry of works and housing de-marketed CUA area which consisted of :
 - i) Union Territory of Chandigarh.
 - ii) SAS Nagar and 27 revenue villages in Punjab State.
 - iii) Panchkula, a new town of Haryana and 23 revenue villages.

6.03 LAYERS OF CHANDIGARH URBAN AGGLOMERATION AREA

Layer 1 -	Sector 1-30	Pop.150000	Area 43sqkm.
Layer 2 -	Sector 31-47 Air force Railway station	Pop.350000	Area 27sqkm.
Layer 3 -	Sector 48-56 Manimajra	Pop.250000	Area 44sqkm.
Layer 4 -	CUA area SAS Nagar Sec.56-71 Industrial area SAS nagar Panchkula, Sec.1-17 Cantonment,Chandimandir	Pop.350000	Area 435sqkm.
Layer 5 -	Between CUA boundary (Chandigarh, SASnagar,Pkl) and 16km radius belt.		

3) **6.04 CHANDIGARH INTER-STATE CAPITAL REGIONAL PLAN 2001**

- 1) Plan approved by high-powered committee in 1984 with a projected population of 2.5million and an area of 2431sqkm. The key feature of this plan was it was non-statutory with intent to reduce rate of growth in layer 1 and 2, regulate growth rate of 3 and 4, eccerlate growth rate in layer 5 and 6 (area beyond 16km. Green belt)
- 2) Growth trends 1981-91. Showed population growth was higher in layer 3 in U.T. relativity high in layer 4 and low in layer 5 and 6.

4) **6.05 CHANDIGARH INTER-STATE METROPOLITAN REGIONAL PLAN 2021**

- 1) Consisted of Union Territory of Chandigarh and eight tehsils of adjoining districts. (Roopnagar ,Kharar, Rajpura, Fethagarh of Punjab State). Panchkula, Kalka, Nalagarh area of Haryana state, which extended to a total area of 5612sqkm. with the radius extending to 50km and total projected population of 6.5million out of which 1.8million in layer 1,2 and 3 , 1.2million in layer 4 , 3.2million in layer 5 and 6.

Far from the Le Corbusier's idea of a 'Definite City' city has stumbled to the natural pressure including political. Within the city area large open spaces planned for "cared for body and spirit" have become the heaven for slum dwellers to an extent that at present 33% of the city's population is from the slums.

CONCLUSION

Future cities have to be designed for 'human' and not for 'robots'. Technology, which has widened the distance between man and nature, cannot be advocated as the bases of planning. City as a 'settlement' for a community cannot be standardized or be a multiple of any 'generic' like 'sectors' in Chandigarh. Future of cities lies in past from where they must continue and develop. New city planning is to be understood and drawn right on the site along with people and their roots, who put soul to otherwise 'Dead' city. To view that Chandigarh can be planned right at 35 *rue de Sevres* was as childish as Le Corbusier's genius. People must be given expression in terms of buildings where they have to live and work and live life rather than control them to boxes (mass housing in Chandigarh). Urban character has to come out of collective will of people who make the city.

Regional planning, statutory monitoring and subject to change just like stream, which under natural force changes its course, should be part of accepted norms for planned city. 'Icon' and ordinary (Borrowed from Jen Henkett article – Modern Movement Heritage London & New York E & FN 1998) cannot be planned. These are to be generated by people and adopted in that sense. Only this recognition can truly create 'Icons' and ordinary. Chandigarh Capitol Complex if not visited by people cannot be idealized as 'Temple of Democracy'. Future city must generate the feel and warmth of community living.

Achieved 'Icon' status not due to designer's vocabulary but status is given by 'adoptive ness' of people. Rock garden by 'Nek Chand' in the very heart of great settings of Le Corbusier Capitol is more of an 'Icon' and then any other element in that space because it is visited by people who can establish familiarity of space produced there. Inability of modern city planning to carry cultural continuity, organic, and regional style has plugged the life with which city must beam to be its soul.