Seminar on "The Changing Urban Environment"

Paper on "Challenges of Architecture"

The architecture of the Indian sub-continent has a very long lineage. This extended time span gives as a historical backdrop of monumental dimensions. Archeological evidence of the Indus Valley Civilization has shown us that well-planned and architecturally cohesive cities existed in the north-western region of this sub-continent as early as 2500 B.C. Excavations at the site of the city of Mohenjodaro reveal a clearly defined urban pattern of major and minor streets, a compactly structured built form suited to the harsh climate of this region, and distinct public buildings set within the residential quarters.

The historical dimension forms only one axis of a description of Indian architecture. Another axis is formed by the variety of land forms and natural resources. The geographical boundaries of India extend over such diverse terrain that an extraordinary spectrum of environmental conditions is covered. These range from the almost equatorial climate of the Andaman and Nicobar islands group in the Indian Ocean, to the sub-tropical coastal areas of Kerala and Tamil Nadu, the plateau regions of the Deccan peninsula, going northwards to Central India, west to the desert regions of Rajasthan, the fertile plains of the basins of the Indus and the Ganges river systems, the monsoon-fed forests of the North-East, and the vast mountain regions formed by the Himalayan ranges, which include the picturesque and fertile Kashmir Valley as well as the almost arctic deserts of Ladakh. The architectural responses to this variety of environmental conditions have evolved over time to present a most extensive typology of building forms.

Andaman and Nicobar Islands

Padmanabhpuram Palace complex, Kerala   *Dwellings Salem, Tamil Nadu*

Hampi – The Deccan Peninsula

Chanderi Town, Central India   *Orchhe fort, Central India*

Udaipur, Rajasthan

Benaras, Basins of the Indus and the Ganges river systems

*North – East*

Himachal Pradesh

Mubarak Mandi, Jammu &Kashmir

Ladakh

The formal language of Indian architecture is, however at its best, most deeply influenced by the third axis formed by the philosophical tradition, exemplified by ancient and powerful schools of thought such as Vedanta and Buddhism. Architectural canons for building and town planning were set out very early in several treatises which provide a great reservoir of knowledge instrumental in generating a humane built environment. Prominent among these treatises is the "Manasara" which dates back to the 5th century A.D.

These several factors have resulted in a remarkable cultural diversity, perhaps best exemplified in the form of the various towns and cities which have evolved over time across the country.

The temple towns of Madurai and Srirangam in South India, in evolution for the last six centuries or so, represent a cosmic vision of hierarchically layered reality; the plan is formed by concentric geometries around defined canters.
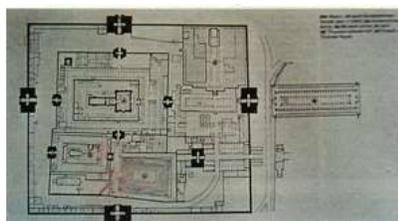
Madurai – Plan   *Srirangam - View*

In contrast a more organic pattern can be found in the weaver's town of Chanderi in Central India. This town, first established in the 15th century A.D., has a plan defined by the natural topography and a social order representative of the broad divisions of caste in medieval Indian society.
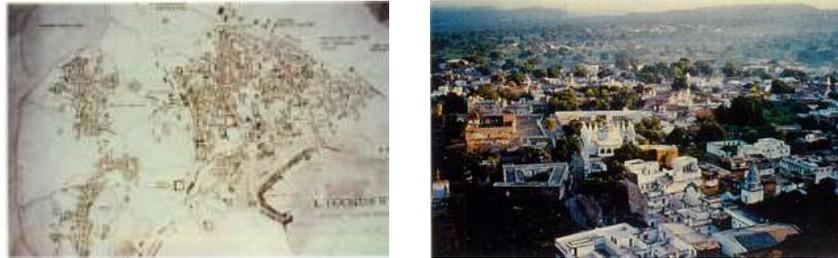
Chanderi

A distinctly different architectural language has emerged for the riverbank city of Srinagar in the Kashmir Valley in northern India. The river forms a major transport artery in this valley, and the city has developed mainly over the last 300 years along both its banks, to provide a finely woven and contextually rich urban form on a human scale.
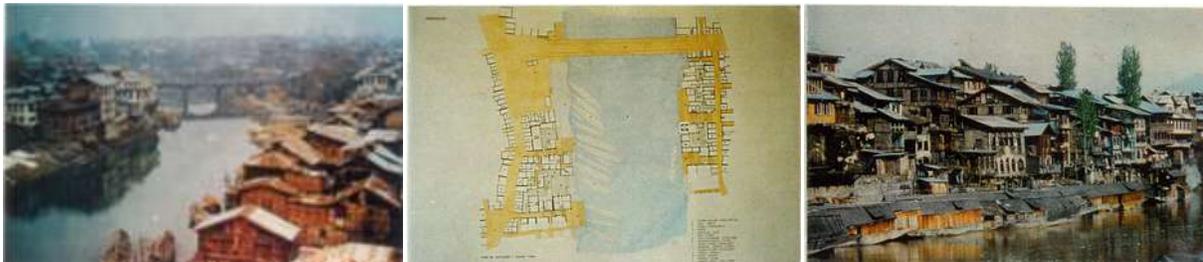
Jhelum river – front development, Kashmir

A most significant exercise in city planning in the early part of the 18th century A.D. resulted in the development of the city of Jaipur in Rajasthan, west-central India. The plan for the city is based on a nine-square mandala adapted to take advantage of the natural features of the site. The layout incorporates a carefully planned water supply and drainage system integrated with the distribution of people and facilities according to a hierarchical street patterning based on social order, climatic considerations, and the overriding concern for a scale suited to the needs of the inhabitants.

Jaipur, Rajasthan

Different from the indigenous city types just mentioned, there are two important examples of European town-planning ideals translated for application in the Indian context in this century. These are the city of New Delhi designed by Sir Edwin Lutyens in the first quarter of this century, and the city of Chandigarh designed by Le Corbusier around the middle of this century. Both these examples have enriched the formal vocabulary of urban design and architecture, thus contributing to the increase of plurality in architectural expression.

New Delhi
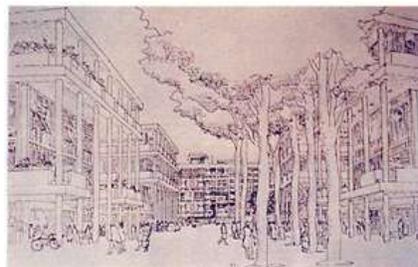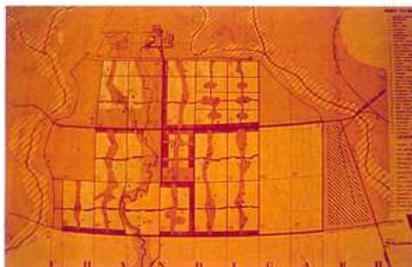
Chandigarh

Against this multi-layered backdrop the realities of present day life in India pose very special challenges for the development of a contemporary architectural ethos. Post-independence India has been subject to a developmental model mainly dependant on centralized economic planning and large scale industrialization. This has contributed to a rapid growth of urban canters due to a massive influx of migrants from the rural areas. Today almost a quarter of the country's large population is located in cities which are ill-equipped in utilities, infrastructure and institutional support necessary to service the very large numbers.

The Central Business District, a backdrop to medieval Delhi

As these expanding cities become home for so many people they undergo transformations to meet the diverse requirements of a great variety of physical, economic, and cultural conditions. While researching into the changing urban phenomena in India, some of us architects, planners and social scientists, have identified 3 distinct types of city which together constitute the urban settlements of today. We have identified these 3 types as:

1) The organically evolved town, which forms the core of each settlement and often has a historic significance; this type would be exemplified by the residential neighbourhoods of the town of Chanderi in Central India, and by the densely built-up quarters of Shahjahanabad, the old city of Delhi.

Chanderi

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Shahjahanabad, Delhi

2) The second type is the planned city, which constitutes the modern extensions laid out according to the designs of town planners, engineers and architects; this can be exemplified by the sector plan of one of the neighbourhoods of the city of Chandigarh, and by some illustrations of parts of New Delhi - a market in a residential neighbourhood of the Imperial zone of New Delhi - a residential area for government officials developed subsequent to the colonial period - a high density housing development by the Delhi Development Authority built for the general public in the last 5 years or so.

Chandigarh

Lady Hardinge road, Imperial zone of New Delhi

Kaka Nagar, New Delhi

(Residence for government officials)

Vasant Kunj group housing, New Delhi

(Dwellings for general public)

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3) The third urban type is formed by the spontaneous developments generated originally by the very poor migrants, and now increasingly by the more affluent, as colonies which do not have legal sanction of the municipal authorities. These developments emerge on marginal urban lands and in the many twilight zones which are a result of the misfit between the organically evolved and planned parts of the city. Such spontaneous settlements are marked by an almost total lack of urban services, except such as are obtained through piracy, a physical fabric in various stages of temporariness, and to sustain this existence of marginality a social support system which is internally cohesive and grounded in traditional values.

Tilak bridge Sqatters colony, New Delhi

These three urban types, different from each other in terms of their age, physical structure, cultural characteristics, and political rationale, do not easily integrate to form a sustainable whole. Undoubtedly one of the major challenges facing the architects of today is to resolve this variety of built form into a cohesive and harmonious urban structure while respecting the cultural diversity inherent in these existing urban phenomena.

The complexity of human organization and social life is further compounded by the sheer magnitude of the numbers involved. Indian cities are growing at a rate which is quite alarming. Unchecked urban migration combined with inefficient management of resources, and a social system which is not adequately responsive to the scale and pace of technological change, constitutes another great challenge facing planners and architects today.

This challenge of very large numbers does, however, have positive implications as well. The requirement of building today, new constructions as well as up gradation of existing structures is of enormous magnitude. Furthermore, the variety of building types, from the humble homes of the poor, to commercial and institutional projects which embody the complex and pluralistic culture of contemporary Indian life, to the technologically sophisticated industrial structures and plants, is a rich enough mix to inspire a whole generation of architects.

The response of the architectural profession to these challenges is reflected in an illustrative cross-section of some recent work:

- To rehabilitate a large group of itinerant street performers, at present squatting on public land in West Delhi, this housing design proposes a sensitive adaptation of the user's cultural values and life-style.

Anandgram sqatters colony

- a residential cluster planned to accommodate some of the very poor victims of the Bhopal gas tragedy of 1984, this project provides affordable houses designed to promote community interaction.


Bhopal gas victims housing

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- a low-rise high density housing neighbourhood for members of the press corps of New Delhi, provides an urban environment at a human scale while optimizing climatic control through building form.

Press Enclave

- for the teaching faculty and administrative staff of the University of Kashmir at Srinagar, this design proposes terraces of maisonettes each with their own garden, arranged on the site to make maximum use of solar energy, with a system of footpaths which provide direct vistas of the beautiful lake forming one edge of the site.
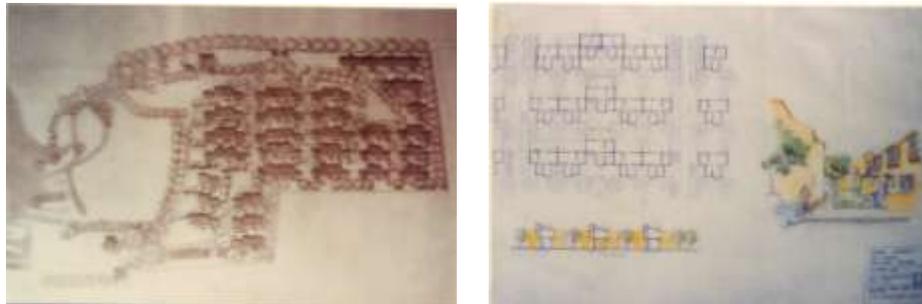
Kashmir University staff housing

- the campus of the Indian Institute of Management at Bangalore, uses an architectural vocabulary of local stone masonry and reinforced cement concrete for the buildings set around a variety of public spaces, enclosed and open-to-sky.

Indian Institute of Management, Bangalore

- a strong regional idiom is expressed in the design of the National Institute of Immunology at New Delhi, while the spatial and structural geometry is developed to match contemporary institutional requirements.

Indian Institute od Immunology

- Situated in the heart of New Delhi's business district, the headquarters of the Life Insurance Corporation of India are housed in a sculpturally powerful composition using sophisticated technology set off within a frame of indigenous stone-clad surfaces.

LIC building

The recent advances in industrial development have had their effect on building technology available today. At the same time there exists a great repertoire of traditional construction techniques and indigenous crafts which enrich the building trade, thus setting up a dynamic interface between sophisticated technology and life sustaining craft. Out of this emerges the promise for the development of a vital and region-specific architectural idiom.

The post-independence generation of Indian architects has addressed this challenge of rediscovering an appropriate architectural idiom with commendable seriousness. Even though the shadow of two great masters of modern architecture, Le Corbusier and Louis Kahn, looms large over the profession in the example of the city of Chandigarh, built in the 1950's, and the campus of the Indian Institute of Management in Ahmedabad, as well as several smaller projects there, built in the 1960's and 70's, a significant section of the architectural profession has attempted to go beyond the obvious lessons of modernism. They have tried to find an indigenous and authentic expression for the building requirements of the great majority of the

people who are neither economically well-endowed nor socially privileged. A number of projects, of different scale and complexity, in different parts of the country, in rural as well as urban areas, demonstrate the growing maturity of solutions which address the issue of environmental appropriateness and vernacular idiom in Indian architecture.
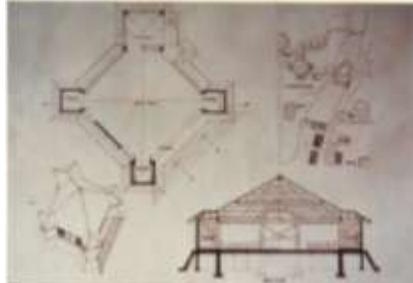

Capital complex, Chandigarh   *Indian Institute of Management, Ahmedabad*

- An experimental project located in Bagnan Village of West Bengal, has evolved a climatically and culturally appropriate prototypical community building which was built by rural artisans.

Mother and Child Care Centre, Bagnam

- Housing in Trivandrum, Kerala, making very economic use of local materials to provide a variety of spaces appropriate to the climate and locale.

Centre for Development Studies, Kerala

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- An orphanage in Bhopal, central India, conceived as a children's village with independent houses grouped around a series of garden spaces, and community buildings for educational, health-care and administrative needs, all built with indigenous materials and techniques.

SOS Children's village, Bhopal

- Located in the immediate vicinity of the 16th century monument of Hauz Khas in New Delhi, this recently built house carefully echoes its context. By skillful use of stone elements and traditional techniques, this contemporary building merges most effectively with its historic surroundings.

Residence, Hauz Khas village

- This house in New Delhi, responding to its suburban context, utilizes traditionally inspired screens to provide shelter from the climate and the street outside. The habitable areas are grouped around an internal courtyard which focuses and extends the living spaces.

Kubba House

- This pilot plant for developing tissue culture is part of the Tata Energy Research Institute near Delhi, and is specially designed to conserve energy while providing clean rooms with artificially controlled environments. The orientation of the building and disposition of rooms and services is such as to conserve energy on 3 fronts: (i) Embodied energy - minimizing the consumption of energy in production of building materials and their transportation, (ii) Installation Capacity - reducing energy demand by climatic design and systems integration, and (iii) Operation - efficient systems design and management.

Tata Energy Research Institute

Such attempts at devising an indigenously - rooted, contextually framed, economic, and energy-efficient architecture, gives us some indication of significant directions in the evolution of contemporary urban built form.

However the challenge of evolving an architecture which is suited to the requirements of very large numbers of the poor and under privileged is a continuing search. In recent years this problem has been identified in greater detail and depth.

Research studies done by governmental and voluntary agencies as well as by some educational institutions, have highlighted possible strategies for physical design, social infrastructure, and financial management. A number of experimental low-cost housing projects have been built in different parts of the country. Yet this is a problem area which grows in magnitude as well as complexity, and architecturally satisfactory solutions for housing the urban poor are difficult to find.

One recent example which does demonstrate that it is possible to devise cost-effective yet humane solutions is the Aranya township being developed for the city of Indore in central India. The planning for this settlement which is to rehabilitate the slum-dwellers of Indore city, was based on extensive surveys of existing slums to identify the resident's life-patterns, techniques of building, and the particular forms of social and spatial organization. Special attention was paid to the engineering of the urban utilities networks to safeguard public health in the long term. The design of the individual houses was only suggested to the new residents in the form of a prototypical neighbourhood built on a small part of the site. The architectural quality expected to emerge in this township over a period of time is illustrated by a conjectural drawing.

Aranya, Indore

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Aranya, Indore

Perhaps the greatest hope for the future lies in the development of a professional ethos which is responsive to these challenges of historical continuity, of scarce resources and large numbers, of socio-cultural complexity and technological contradictions. The professional role of the architect has undergone great transformation since the beginning of this century. When the first modern School of architecture was established in Bombay in 1914, the primary objective was to train architects to serve as draftsmen for the civil engineers who controlled the formal building sector. At the same time in Delhi, Edwin Lutyens and Herbert Baker, two British architects were beginning the task of designing and construction of the new capital city of India. However this exercise was circumscribed by the restrictive values of colonial empire building and this did little to promote a better understanding of the role of the architect in society, thus inhibiting the development of a responsible professional ethos.

It was only in the 1950's when another capital city was to be constructed, this time for the partitioned state of Punjab, that a fresh set of values were made evident to the architectural profession in Indian. The planning and design team, led by the French architect Le Corbusier, brought about a new awareness of the potential and role of the architect. Since then the participation of the architectural profession in the national developmental effort has been increasing. Yet the Indian architect today is predominantly advising and designing for the privileged and the rich. A greater sense of social responsibility towards the economically weak, and a more profound concern for the physical environment, for husbanding natural resources and using ecologically friendly technology, could direct the profession into a more mature phase. This would provide the necessary pre-conditions for meeting the challenges of creating a healthy and civilized urban future.

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October 1991.

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