

Urban Planning and Design Approaches for Redevelopment: Case of Indian Railway Stations Redevelopment

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Abstract

Urban society's spatial and functional needs are reflected in the theories that revolve around planning and design. These theories evolve and shape urban policies that are the frameworks for the future. The practice of these theories differs across the world because of the unique history and geography of urban areas. However, theories encompass a wide range of subjects that occur repeatedly. It is important to understand and contextualise the theoretical discourse and to be pragmatic in it. Indian cities are undergoing redevelopment at an unprecedented pace and mode. Many central and state institutions are capitalising on their land. Indian Railways has undertaken the redevelopment of its railway stations. For this, guidelines as manuals have been formed to address aspects considered crucial for the station environment. This has been a novel initiative by the Railways as policies and strategies on redevelopment are far and few. The policy makers of redevelopment consider certain aspects crucial to address, and certain others are sidelined. What could be the reason for this? There are underrepresented sectors that fail to get into the mainstream policies on redevelopment. To understand this discrimination, a list of urban concerns was prepared through the discourse on urban issues in research Papers. The list was expanded by including concerns highlighted by theories on urban planning and urban design. This was considered as a list of factors with which Case studies of redeveloped Railway Stations were examined. It was concluded that some factors are not included in the policies or in the framework of guidelines. The reason could be difficulty in the proper understanding and articulation of these urban issues.

Keywords: Redevelopment, urban planning, planning and design, Cities, Railway Land Development Authority.

INTRODUCTION

Redevelopment has become an integral part of Indian cities. Redevelopment policies, strategies and manuals are being formulated by the state agencies to make the process more robust and address all the relevant aspects of urban life. What ails our city can be addressed in redevelopment, as this is a great opportunity to first envision and then construct a city that is inclusive and efficient.

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For this, policies have to be sensitive to the needs of the parcel of land and to its urban context. The urban issues that the city grapples with must consider the ongoing discourse on urban issues and persistent urban planning and design theories. This can help the experts to review the framework within which policies, manuals and strategies are proposed.

PART 1: Urban Planning and Design Theories and Discourse on Indian Cities

Urban Planning and Urban Design differ in scope and practice. Urban planning is to strategies, formulate policy, and regulate urban functions or groups of urban functions. Urban planning is concerned with regional, city and area scales. Urban Design, however, has a sensory and visual dimension to it. It can be of human scale or monumental, but its prime focus is legibility of space. It looks at scale in terms of Neighbourhood, precinct, street and squares (Urban Design Lab,2022) [1].

The two often overlap, and in practice, the boundaries between the two are often blurred. Often to analyse new urban projects, both urban planning and urban design have to be critically examined as there are overlaps between the two.

History Trajectory of Urban Planning and Urban Design in Indian Cities

India's post-independence urban planning and urban design have been largely influenced by Western planning ideas and philosophy. During the time of Independence, India had three very different Western models to emulate for its towns. The first important contribution was by Patrick Geddes. His 'conservative surgery' approach to redevelopment in Balrampur and many other small towns and villages was sensitive to the existing spatial fabric (Munshi,2024) [2]. He favoured the cleaning of water bodies rather than filling them up. He proposed smaller interventions rather than bold architectural statements. He was associated with the Town Planning Act of 1915, Mumbai, which was people-centric and rooted in an evolutionary or incremental approach rather than blatant uprooting of settlements, as it would amount to disruption of communities (Cavale, 2017) [3].

Between 1939 and 1951, Otto Koenigsberger added to the earlier proposal for Jamshedpur. His linear proposal and two zones, as industrial and residential bands, were appreciated for their simplicity. In Bhubaneswar, he indianized the popular Western ideas of garden city and neighbourhoods in the layout (Sinha, 2011 [4] Das,2023) [5]. In addition, he, along with three others, wrote an important manual on 'Tropical Housing and Construction', Climatic Design. This became an important reference for students of Architecture (Lee,2018) [6].

The third was the bold vision for the ideal city of independent India that took root in Chandigarh. It was a modernist city with a grand utopian vision. (Rai N, Singh AK, 2007) [7] Chandigarh's planning has been extensively discussed for both its merits and its failures. It is recognised for its monumentality, greenery, wide roads, and laid-back life. It is criticised for its stagnant and restricting urban form and its strict division between functional zones. also debated for the grand vision of a master architect versus an evolved city built by people more organically (Bagchi,2001) [8] (Arvind Chauhan, 2023) [9].

Out of the three visions, the last one had a lasting impact as it was a popular initiative by a star architect. Jamshedpur and Chandigarh encouraged the sectoral, neighbourhood plan in Indian towns and cities. The Geddes' initiatives, though very relevant, failed to be adopted as a mainstream strategy for redevelopment (Pirvu D, 2009) [10].

Immediately after independence, India adopted Gadgil's doctrine, which was about a division between traditional sectors of the economy (such as agriculture and cottage industries) and the new industrial sector technologies. (Grimsey D, 2004) [11] It was convenient to plan for the two sectors as separate from each other. Chandigarh had people like M.S. Randhawa, a biologist and a civil servant who was instrumental in greening Chandigarh and concurrently developing model villages, indicating the then ease of transferring ideas from rural to urban landscapes. Although the country had bifurcated the two sectors. Over time, the villages have become sustainers of cities, and a lot of attention and efforts are made to ensure that cities attract growth and prosperity (Alexander ER, 2022) [12].

Present Discourse on Urban Planning and Urban Design

A lot of discourse on urban planning and urban design in India has been about the informal sector. Informal sectors are considered inherent to Indian cities. Ananya Roy has emphasised informality to be considered as a process of urbanisation in Southeastern countries. There has been a lot of effort by the

government to make the informal sectors formal. But it has not given the desired results. Many initiatives for the informal sectors have been adopted in the form of incremental planning and self-help design methods. Policies support the informal sector in many ways, but policies also push them into the margins. There is a paradoxical factor in planning for the informal in the city. It is indeed a fascinating phenomenon to see the informal sector thrive so well along with the formal sectors of the city.

Indian cities adapt to seasonal spatial demands and are kinetic in nature. Rahul Mehrotra has highlighted the kinetic-ness of Indian cities where public spaces accommodate seasonal cultural manifestations. The transient nature of the city's space makes it more vibrant, and the ephemeral character of city life opens many opportunities for urban design (Deshpande, 2022) [13].

'Right to housing' is the other concern that has been in focus since independence. Post partition, the issue was to house the migrants from Pakistan and Bangladesh. Later, the focus shifted to accommodating the slum dwellers and unauthorised colony dwellers into planned housing. Understanding the root cause of housing shortage and housing disparity has been highlighted by writers such as Gautam Bhan. According to him, traditionally housing policies have looked at tenure security and material adequacy of housing but its viability, that is the housing tenure, location, work and services too have to be included. (Bhan,2017) [14] (Palier B, 2013) [15].

Transport and commuting is another sector that planning and design are occupied with. Inter and intra commuting through roads, railways, highways and airways has been planned to give swift movement of goods and people. Within the city, public transport and the metro lines are being integrated. Walking and cycling as alternatives to cars are being advocated by experts to promote a healthy lifestyle and to encourage non-polluting commuting. (Tiwari, 2023) [16]. Planning connectivity between cities and states is directly connected to the environment. In this, the challenges have been cutting down trees and easy access to fragile ecosystems, which create more problems than solutions. For example, the road network on the hills in the north has been criticised by environmental experts.

Along with transport, housing and informal sectors, establishing the Indian identity, rather than chasing and cloning a global image, has been important for our cities. This has been emphasised by urban designers such as Charles Correa and BV Doshi. Correa emphasised culturally rooted planning, and BV Doshi endorsed and showcased equity and incremental planning. Critical regionalism often goes missing when architects are sidelined or pushed to take shortcuts. This establishes mediocrity instead of allowing creativity.

A lot of planning and design effort has been put into zoning and the segregation of land uses. For example, the industrial sectors are shifted to the fringes of the city. There are polluting and non-polluting industries that are placed in the urban fabric to complement the city. On the outskirts of Delhi, in Gurgaon, along the national highway, are the non-polluting industries, Udyog Vihar. However, since mixed use has its merit and is gaining popularity, there is an attempt to mix compatible uses in planning. These changing ideologies in planning raise many questions that require research and analysis. The contention is that the tendency to accept ideologies from the Western intellectual space without critical deliberation can create more problems than resolving them.

Pollution, Climate change and uprooting trees and ecosystems for new projects are concerns that are repeatedly raised when any development project is proposed. Despite many policies and frameworks to protect the environment, we continue to breathe polluted air and live around dirty rivers and drains. We continue to concretise the city by cutting trees.

Theories related to Urban Planning and Urban Design

Planning is applying knowledge and wisdom to ensure a future for human comfort and excellence. Design is to make efforts to achieve a purpose. It is deliberate and has a favourable end as its purpose.

City planning and design are spatial, policy and resource allocation. Both have a social agenda and are supported by technology. These are continuous processes but are achieved as time-bound steps. Planning is a result of how we articulate the problem. Therefore, the vision of planning is important.

Planning theories address a particular concern. For example, theories on planning for equity in the distribution of resources would involve the distribution of resources across income groups or social backgrounds. It would include inter-generational resource management. It would have social and sustainability dimensions to it.

Theories on People's Participation in the process of building the city would include the social aspects of planning. As stakeholders might be many and their representation may involve prior knowledge of the social behaviour. Many researchers have classified theories of urban planning and urban design. Andreas Faludi classified Urban Planning theories as Substantive and Procedural. Subsequently, normative theories of what ought to be achieved through planning were added to the list. Later theories that elaborated on the unique conditions of a certain period in history were considered as a separate class of theories. In summary, we can list these theories as follows (Table 1).

Urban Design theories have been organised in many ways by Kevin Lynch, Mather Carmona and by John Lang. For this research, Carmona's organisation on Social, Visual, Perceptive, Functional, Morphological and Temporal dimensions of the city is adopted (Table 2).

Planning and design for Urban Redevelopment

Patrick Geddes, on his vision for Indian cities, had emphasised the need for evolutionary planning. For redevelopment, he proposed conservative surgery. Being a visionary, he emphasised the community ties and the importance of identity giving form. He could foresee the limitations of grand vision and therefore had favoured judicious use of resources in a country struggling under foreign rule. British architects were aware of the shift that they were bringing in the spatial vocabulary and therefore tried to improve the existing architectural style by modifying it. This resulted in the Indo-Saracenic style seen in many structures built by the British, such as Mayo College, Ajmer and Rashtrapati Bhawan in Lutyen's Delhi.

Table 1. Planning theories and their concerns (Adapted from Andreas Faludi, Susan Fainstein).

| S.N. | Theory | Concern |
|------|--------------------|--|
| P1. | Substantive Theory | Purpose and Vision of Planning, Planning for Well-being |
| P2. | Normative Theory | Representing the marginalised section of society and representing the unrepresented in the decision-making machinery and in the planning and design process. |
| P3. | Normative Theory | Accessibility for all, equity in the distribution of resources and inclusivity in the planning process. |
| P4. | Normative Theory | Sustainability and judicious use of material resources |
| P5. | Normative Theory | Safeguarding and Enhancing the natural environment and Ecological systems |
| P6. | Procedural Theory | Planning for housing for all and ensuring green spaces, clean air, clean water, electricity, and adequate employment opportunities. |
| P7. | Procedural Theory | Infrastructure planning at national, regional and city scales using an ecosystems approach where possible. |
| P8. | Procedural Theory | Traffic Management and alternate, sustainable commuting, Transportation of Goods |
| P9. | Procedural Theory | Generating, allocating and managing Capital and resources |
| P10. | Procedural Theory | New City, Towns Planning, Green Field Development accommodating urban functions |

| | | |
|------|--------------------|--|
| P11. | Substantive Theory | Institutional allocation of responsibilities, converting theories into policies, and allocating responsibilities for their efficient dissemination |
|------|--------------------|--|

Table 2. Urban design theories (adopted from M. Carmona) and conservation theories and their concerns.

| S.N. | Theory | Concern |
|------|---------------------------------------|--|
| U1 | Functional Dimension: | Planning and Design for inclusive public spaces to facilitate social interaction. |
| U2 | Functional Dimension | Connectivity and linkages between the site and surroundings and encouraging pedestrians and cyclists.. |
| U3 | Morphological Dimension: | Urban Form, respecting and enhancing continuity in aesthetic expression and material Incorporating the tenets of critical regionalism in the built form expression , Ensuring flexibility in Urban Spaces to make them vibrant and efficient |
| U4 | Perceptual Dimension | Coherence and Legibility in built environment |
| U5 | Social Dimension: | Use of space by social groups, study and implementation, social identity through built form, civic pride and inspiration. |
| U6 | Temporal Dimension: | Change in form and function over time |
| U7. | Visual Dimension | Impact of image and aesthetics of built form |
| U8. | Evolutionary and integrative Design | Forming, criticizing and improving the agencies and instruments of Urban design |
| U9. | Expanding knowledge base | Building further knowledge based on past experiences, best practices, new technologies and innovations. |
| U0 | Heritage conservation, Adaptive Reuse | Authentic conservation and integration of Heritage precincts and value-giving structures |
| UD11 | Adaptive Reuse | Reusing the old building stock for new functions while enhancing its structural and aesthetic component |

Jane Jacob had criticised the modernist master Architect/Planner approach to city renewal. She emphasised that instead of building new cities, the existing city can be reinvented by its people and relying on one individual to transform the city would never give the desired results.

Today, PPP collaborations have led to drastic and transformative redevelopment in Indian cities. The PPP model tends to focus on generation and allocation of capital. It has many times led to further marginalization of the unrepresented social groups. Financial collaborations are time bound and often compromise on creative expression. Redevelopment is often treated as greenfield development, as the mechanism fails to acknowledge or protect the existing assets such as the community ties, character districts, fragile ecosystems of wild plants and trees. To attract investment, the redevelopment projects aspire for Global aesthetics and hence use a material vocabulary that may not be suited to local climatic conditions.

PART 2: URBAN REDEVELOPMENT & INDIAN CITIES

Indian cities are currently in a redevelopment mode. Redevelopment at a massive scale in metropolitan cities has become a planning tool to upgrade the city. Redevelopment is to address the pressure of population increase due to migration, to upgrade the building stock and to address the pressure to project a powerful and independent nation image that is in line with India's global aspirations.

Many old districts and areas within the city are being redeveloped with current policies of mixed use, Transit Oriented Development (TOD) and higher FAR. Central Vista redevelopment in Delhi and Bhendi Bazar redevelopment in Mumbai are some of the recent redevelopments that have raised many concerns.

Railway Stations' redevelopment is another large-scale redevelopment that is simultaneously being

planned in many towns and cities of our country. Railway stations are entry points into the cities, towns and villages. These are nodes of transit that offer facilities required during travel.

Indian Railways has been a very important connectivity infrastructure of our country. It occupies land connecting far-flung regions of the country. It is present in all the predominant cities and towns, near villages, on hills, at altitudes as high as 7407 feet. In recent times, the redevelopment of Railway Stations has been spearheaded by the Indian Railways. The redevelopment has also undertaken the commercialisation of Railway land. And this change in land use of railway property to commercial has been allowed without the state's interference or local laws. However, there are guidelines or frameworks to enable redevelopment prepared in the form of manuals by the Railway Land Development Authority (RLDA)

Railway Stations Redevelopment

This project is part of the broader Amrit Bharat Station Scheme. Railway Redevelopment as per the letter of the Railway Ministry to all zonal railway offices issued on 4th May 2022, has the twin objectives of

1. Encouraging commercial and business functions within the station premises and designing and planning for them as city centres.
2. To strengthen connections to Railway stations within the city fabric.

For this the Indian Railways had made a special purpose vehicle (SPV) called 'Indian Railway Station Development Corporation', (IRSDC). It was a joint venture of Railway Land Development Authority (RLDA), Rail India Technical and Economic Service RITES and Indian Railway Construction International Limited (IRCON). It was to be the nodal and project development agency and was active in forming guidelines and in ensuring world-class standards to modernise the Railway stations. IRSDC has been dissolved at present, and zonal railways are looking after the station redevelopment projects and construction.

Guidelines and Policy Framework by IRSDC

Since the Railway stations have a legacy dating back to the British era, India is dotted with railway stations of heritage value. IRSDC has issued guidelines and manuals on protecting the heritage assets. IRSDC has also issued other guidelines, such as 'Form-based Codes' along with the TOD policies for the redevelopment of Stations. There is a manual on 'internal planning', on 'Environment Management', which has been detailed out along with several other aspects.

Form- based code and the historic built Fabric: In the manual, Form-based controls of station redevelopment, there is a provision to safeguard the historic built fabric by giving appropriate distances and cones of vision. Height around heritage structures, too, has been regulated on the basis of the height of the structure itself.

Redevelopment guidelines have been facilitated by devising cards, which are the Buildable Volume Card (BVC), Street Regulation Card, and Heritage Regulation Card. There are listed parameters that are adopted depending on whether the premises have a heritage structure or not, and whether buildings together form a spatial coherence, such as a street, etc.

Form-based codes stipulate the cutting of minimal trees within the station premises. In its 'Environment Management Vision', afforestation on vacant railway land between sections is carried out by the Railway authorities or the Forest department of the concerned state. For this, there has been a memorandum of understanding between zonal railways and the respective state forest department for the plantation of trees along the railway track without changing the ownership of land.

Along with afforestation, there are water management, waste disposal and management, efficiency in energy consumption, and the use of renewable energy resources of energy. All these have been detailed in the manuals issued by IRSDC.

Railway Redevelopment, Urban Planning and Urban Design Concerns:

IRSDC has prepared manuals to ensure that the crucial parameters of railway redevelopment planning and design are addressed. Out of the 17 concerns listed in Tables 1 and 2, concerns that are underrepresented are 1. Representation of the marginalised sector in the decision-making process, 2. Protection of the existing natural environment and 3. Critical Regionalism.

Redevelopment Case Studies

There are railway stations in metropolitan cities, in upcoming towns and far-flung villages. Depending on the surroundings and their potential, these are being updated for modern amenities.

Typically, railway users want to get to their destination as soon as possible and rest and wait at the platform. It is only when the trains are delayed, or they need to hop onto a connecting train, that the cloak room is used to store luggage. To mix the two functions, one of waiting and the other of moving towards the platform, lifts, escalators, and motorised walkways are essential.

In the redevelopment proposals, the vacant railway land around the main station is being utilised. Over the years, railway land value has appreciated, and the area around stations is more intensively used. Railway stations are transit nodes of the city, often with heavy traffic flow. These have heavy footfall of passengers with luggage and of vehicles ferrying the passengers. Most of the railway stations are chaotic, as a large informal sector exists around them. By commercialising the vicinity, the volumes of vehicles and users will increase manyfold. Redevelopment, therefore, if intense, will have to address the surroundings as well. Commercialising a railway station implies that the traffic segregation and management would be challenging.

Like most of the central Government and State Government development projects, are under the PPP model (Tabassum,2013) [17]. The railway stations are being redeveloped on a PPP model with a Design-Build-Finance-Operate-Transfer (DBFOT) strategy (World Bank,2021) [18].

The following are the three case studies that were taken to relate the manuals to recent redevelopment case studies.

Case Study 1

Chandigarh Railway Station Redevelopment was envisioned to modernise the facilities and to connect the nearby townships more efficiently. As Chandigarh Railway Station connects Chandigarh, Panchkula, and Ambala to the rest of the country, it is an important destination for the north of India.

The station is being redeveloped to provide an airport-like experience for passengers with modernised facilities, a food court, and covered bridges.

The new building is going to be four floors high with a floor area of app. 2520sq.m. and a common roof that extends on both sides of the railway line.

Case Study 2

Charbagh Railway Station Redevelopment, Lucknow

One of the most important railway stations in the North of Delhi, before independence, was Charbagh Rly Station. Lucknow was an important political centre for the Mughals and the Rly station was an important destination after Delhi. Charbagh Rly station was built in 1923 by J.H. Horniman with assistance from consulting engineer Chaubey Mukta Prasad. It is in the Indo-Saracenic style. It houses two stations, Lucknow Junction (North East Railways) and Lucknow Charbagh Railway. Station (Northern Railways). It is considered one of the most elegant railway stations because of its style.

The redevelopment work is to upgrade the infrastructure, streamline the commuters' movement,

provide comfortable pause points to the commuters and to provide improved retail spaces in transit. Along with these, more efficient connections to important surrounding transit nodes are being woven into the commuters' movement network. In addition, more built-up spaces with retail and commercial space are being introduced within the Railway station premises.

Case Study 3

New Delhi Railway Station: It is one of the most ambitious proposals for railway station redevelopment, where the roads approaching the station are being widened to relieve traffic. The station is going to have a large roof with twin domes under which concourse, platforms and other supporting infrastructure would be housed to make waiting, boarding and alighting the trains more 'dignified'.

High towers with commercial, residential, and recreational functions will surround it. The station is proposed to have food courts, waiting lounges, retail and escalators for the commuters (Centre for Social Design (C4SD), n.d) [19] Figure 1 Image of proposal for New Delhi Railway Station Redevelopment

In all three schemes, the purpose of redevelopment is more than updating the station facilities. In Chandigarh, the goal is to improve connectivity with the surrounding roads. In Lucknow, it is to conserve the existing heritage structures and to add commercial space to the station premises. In Delhi, the purpose is the same as that in Lucknow. That is, to make use of the potential of the land, which is now much higher in its value and has a highly advantageous location. Accommodating new functions by commercialising the land and upgrading the surrounding roads and pedestrian linkages, in the redevelopment proposals, the heritage aspect of New Delhi Railway Station is missing. The reason could be that over the years, the station has addressed its functional requirements and, in the process, done away with the heritage aspect.

Method of Analysis

As we can see, Tables 1 and 2 have a list of concerns emanating from planning and Urban design theories. Some of the concerns may not be directly applicable to the Railway Stations' case studies, as the information on them is not easily accessible. For example, revenue generation and allocation are processes achieved through many stages and phases. It is difficult to generate this information. Another example is that Greenfield redevelopment and its tenets do not apply to this research, as it looks into redevelopment.

In the legend above, the railway stations mentioned in (Table 3a and 3b) are taken as the case studies. Out of the two, New Delhi Railway Station is not yet redeveloped, so its proposal has been considered as the case study. Secondary data has been compared for the analysis.

In Table 4, the first column has the relevant concerns from Tables 1 and 2.

Tables 3a and 3b Are the tables of legend.



Figure 1. Proposal for New Delhi Railway Station, Source Indian Express, Sept4,2022

Tables 3 (a, b) Are the tables of legend.

| Table 3a: Legend | | Table 3b: Legend | |
|-------------------------------------|----------------------------|------------------------------|---------------------|
| <i>Redeveloped Railway Stations</i> | | <i>Addressal of Concerns</i> | |
| C1 | Chandigarh Railway Station | A | Attempted |
| C2 | Charbagh Railway Station | N | Not Attempted |
| C3 | New Delhi Rly. Station | P | Partially Attempted |

Table 4. Planning, UD and conservation theories and their concerns, Rly station redevelopment R, 1. Chandigarh Rly. Stn, 2. Charbagh Rly. Stn. and 3. New Delhi Rly. Stn.

| Railway Stations | | | | | | |
|------------------|--|----|----|----|--|----|
| Point | Concern | C1 | C2 | C3 | | |
| P1 | Purpose and Vision of Planning and Urban Design, Planning for Well-being | P | P | P | | 3P |
| P2 | Representing the marginalised section of society and representing the unrepresented in the decision-making machinery and in the planning and design process. | N | N | N | | 3N |
| P3, P4, P5 | Safeguarding and Enhancing the natural environment and Ecological systems | N | A | N | | 2N |
| P6 | Planning for housing/ urban functions for all and ensuring green spaces, clean air, clean water, electricity, and adequate employment opportunities. | A | A | A | | 3A |
| P7 | Infrastructure planning at national, regional and city scales using an ecosystems approach where possible. | A | A | A | | 3A |
| P8 | Traffic Management and alternative, sustainable commuting, Transportation of Goods | A | A | A | | 3A |
| U2 | Connectivity and linkages between the site and surroundings, and encouraging pedestrians and cyclists. | A | A | A | | 3A |
| U3 | Urban Form, respecting and enhancing continuity in aesthetic expression and material Incorporating the tenets of critical regionalism in the built form expression, ensuring flexibility in Urban Spaces to make them vibrant and efficient | N | A | N | | 2N |
| U5 | Use of space by social groups, study and implementation, social identity through built form, civic pride and inspiration. | P | A | P | | 2P |
| U10 | Authentic conservation and integration of Heritage precincts and value-giving structures | N | A | N | | 2N |
| U11 | Reusing the old building stock for new functions while enhancing its structural and aesthetic components | N | A | N | | 2N |

The concern about Vision is partly addressed. (Table 4) The vision is to modernise the railway station and to upgrade it, but it does not include the social and ecological aspects of railway stations. Similarly,

the marginalised group of people, workers, porters and informal vendors have not been included in the design and planning process. This requires a participatory approach. Although meetings were held and presentations were made to the general public and the experts. The marginalised groups are not a part of such processes.

Rainwater harvesting, water recycling and waste management have been streamlined; it is the natural ecosystems that are not included in the planning and the design process. Agencies such as the National Green Tribunal (NGT) and the State Pollution Control Board (SPCB) have regulatory methods to address the environmental aspects of redevelopment. But an active and creative approach in the planning and design stage can bring innovation in Railway Station design.

IRSDC, as a nodal agency, has prepared manuals on Heritage, Environment, Station's interiors upgradation, and TOD for efficient use of travel modes. However, the railways' informal sector has not been included in any manual, indicating its absence from the spatial planning and design process. Similarly, in Chandigarh, a vast tract of natural green area has been taken over for the station expansion. There is no address to such a drastic shift. Most of the Railway stations either follow the vocabulary that complements the heritage structures that they have. However, over time, many stations have lost their heritage character, and such stations end up following the aesthetics of the universal global image. There is hardly any attempt to use local aesthetics

CONCLUSIONS

The Redevelopment of Railway Stations has adopted an elaborate approach to cover the aspects most relevant to Railways. This has been one of the most rigorous and inclusive processes of any of the other redevelopment works proposed or executed by other state and Centre-run agencies. The planning and design theories around Redevelopment are scarce. In policy, redevelopment is treated as Development and is not very different in its dimensions. Policies on the protection of nature, wilderness, and planted or landscaped green are missing in redevelopment projects. The protection of informal workers at Railway Stations has also gone unnoticed. Railway Stations as entry nodes to a city, town or Village need to reflect regional and local aesthetic sensibilities, which are overlooked unless the stations are ASI protected. Railway redevelopment Policies need to address this.

To address the issues that a redevelopment needs to focus on, it is helpful to have a detailed framework of urban theories and use that as a checklist to understand the lack of knowledge or lack of attention to certain urban issues. Other state and central agencies need to formulate similar frameworks and guidelines to ensure that redevelopment is treated as an opportunity to improve the urban conditions.

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