

BLUEPRINT FOR SUSTAINABLE DEVELOPMENT OF URBAN VILLAGES: A CASE STUDY OF ALIPUR VILLAGE, HARYANA

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Abstract. Urbanization process that is characterized by radical expansion of urban built up areas and rural urban migration has produced a new type of neighbourhood called Urban Village. In rapidly developing and urbanising countries like India and China, numerous urban villages dot the urban landscape and display typical characteristics of high density housing, migrant settlement, and a deteriorated urban environment. These urban villages are a result of dynamics of land use transformation of agricultural land resulting in an urbanized rural context and population. This research paper discusses some approaches that have been researched to address the sustainable development of urban villages. Sustainable development rests on social, economic and environmental aspects that have been largely ignored in urban planning policies. This research paper compiles the attempt to apply the principles of sustainable development through a multidisciplinary perspective in an undergraduate studio of urban design. The students documented and analysed an urban village, Alipur on Gurgaon Sohna Road in Haryana, through the lens of sustainable development. The proposed interventions pose solutions grounded in social, economic and environmental aspects. This perhaps is an indication that addressing the interconnected layers and issues could generate guidelines for steering urban village towards sustainable development.

Key words: sustainable development, strategic intervention, rural migration, peri urban areas, urban sprawl.

1. Introduction

Urban villages are former rural villages that retain their social and rural characteristics while the neighbouring land gets urbanised. These villages are pockets of rural settlement either in the midst of highly urbanised cities or in the peripheral zones where the transition to urbanised areas is still under way (Liu *et al.*, 2010). Urban villages are a result of

landuse transformation of agricultural land resulting in drastic improvement in economic situaion and an urbanized rural population. They are often seen as transitional neighbourhoods with a mix of rural and urban society. These transition zones between rural and urban areas are a result of urban sprawl. Urban growth that is an outcome of demand for dwelling, industry and business and

expands beyond city boundaries and causes occupation of agricultural lands and forests is defined as urban sprawl (Karakayaci, 2016).

Urban villages are a result of radical expansion of urban built up areas and are generally characterised by land use transformations, vacuum of state regulations, self-organised grass root governing bodies, migrant settlements, informal rental market, property rights redistribution and some traditional norms and networks (Liu *et al.*, 2010). Urban Villages or 'Villages in the city' (Lin and De Meulder, 2012) are created by the process of urban expansion. While the agricultural land is used for new development, the residential area is retained by the villagers. This was done to save the developer or government from compensation or relocation of these villagers. The traditional agricultural economy of urban villages diminishes but the housing areas provide means for alternative livelihoods. Urban village housing and migration provide livelihood for landless farmers and housing for migrants (Hao *et al.*, 2013b).

As the development of urban villages is not checked by authorities or regulations, the growth is random and often substandard. The development undergoes 3 stages: expansion, densification and intensification. As yards and open areas are encroached upon, roads become narrower and village density increases. Continued demand leads to upward expansion and intensification and increased pressure on the land and other resources (Hao *et al.*, 2013a).

While there is a huge concern about the unregulated development of urban villages and the crowded and cluttered urban form leading to unhealthy living conditions, the urban village is seen as an

unregulated asset. They offer low rent housing and low cost living for rural migrants thereby reducing cost of living in the city. This "new type of urbanism" is described as "a mix of landscapes with commercial, residential and agricultural activities" juxtaposed in a complex spatial relationship (van Oostrum, 2021). They become hubs for affordable housing, micro entrepreneurship, production and social amalgamation (Naik, 2022). These residual villages are enclosed by urban development over a period of time (Hao *et al.*, 2013a). However the planning that steers the neighbouring cities excludes these villages from any foresight and their growth is organic and rampant often leading to low quality, high density housing without development controls, unhealthy living environment, severe infrastructure deficiencies and unsuitable land use (Liu *et al.*, 2010).

The urban land economics shows the significance of master-planning and phasing and social and commercial infrastructure. There is relatively little research on urban sprawl that focuses on environmental impacts (Johnson, 2001). Urban sprawl is considered to have negative effects on open spaces, agriculture and nature preservation (Hidding and Teunissen, 2002). There is hence a need to steer the growth and development of these villages in a manner that balances the sustainable ecosystem of the urban rural character in the many layers that are juxtaposed to create their existing state.

Urban development involves analyzing many urban aspects and specialists from fields like urban planning and urban design. The planners tend to focus on physical planning and ignore the socio-economic, political or environmental

issues (Fang and Pal, 2016). The issue of urban villages is rarely addressed from the multidisciplinary perspective and almost never creates a sustainable solution.

The main research objective is to create a more holistic development strategy for the urban village into a conceptual framework of sustainable development. This research paper documents an attempt to understand the urban village as a multi-layered phenomenon in the context of rapidly urbanising villages. Through delayering the complex phenomenon of urban villages, this paper intends to arrive at pointers that can guide in creating a sustainable development plan for urban villages.

2. Material and methods

Urban villages are rampant in rapidly urbanizing countries like India and China. Extensive research on urban villages in China has indicated that strategic interventions and policy changes can lead to sustainable development of urban villages. Research also indicates that sustainable development rests on social, economic and environmental aspects which have been largely ignored in urbanism studies and urban planning policies. The research paper compiles the attempt to apply the principles of sustainable development through a multidisciplinary perspective in an undergraduate studio of urban design. The students adopted the methodology of documenting and analysing an urban village Alipur on Gurgaon Sohna Road in Haryana. The village was divided into three parts along its main spine and documented and analysed in terms of chronology, traditional and modern built up area, land use and land ownership, building heights, core and peripheral areas. The

methodology included multiple interactions with the inhabitants and a survey was conducted regarding the basic profile of the inhabitants, their educational background, their social status, functioning of local governing body, access to basic facilities, the understanding of their immediate environment and their aspirations for the future of their village. The studio proposals were based on urban village space, examining it on everyday usage, liminal space and the concept of neighborhood space (Kochan, 2015). The research paper compiles the attempt to analyse the urban village, Alipur as a result of increasing urbanization and understand its morphology, space and dynamics as a phenomenon that is juxtaposed by contradictions like urban-rural, tradition- modernity, expansion-densification, local and migrant community. The methodology involves putting together the various layers of Urban Design - visual, social, functional, environmental and economic - and coming up with design parameters that steer the growth towards sustainable urban transformation.

2. 1. Sustainable Development Approaches of Urban Villages

"Sustainable development may be described as development that addresses the needs of the present without compromising the ability of future generations to meet their own needs" (Pan and Du, 2021). The important factors of sustainable development are social, economic, and environmental. Another aspect added later was the cultural pillar. Social sustainability refers to creation of sustainable and inclusive spaces that promote the wellbeing by addressing people's needs for spaces where they live and work. Social sustainability may be further divided into societal, cultural and

political factors (Pan and Du, 2021). Economic sustainability is long-term economic growth that does not create negative consequences on the socio-cultural and environmental aspects of the communities. Environmental sustainability is the protection and maintenance of environmental resources for future generations. This includes climatic, ecological, environmental, and spatial dimensions factors which are interlinked and also constitute the three pillars of Sustainable Development Goals. A careful analysis of social, economic and environmental aspects can result in a more inclusive, resilient and sustainable development. Research indicates that there are policies that focus on spatial and institutional aspects of the villages but environmental, aspects have been largely ignored (Pan and Du, 2021). The UN General Assembly adopted Sustainable Development Goals (SDGs) in September 2015 to build a more sustainable world (David, 2018). SDGs are considered as an outcome of cooperation and common objective to arrive at a balance between human development and environmental protection (Shao *et al.*, 2021). It has been researched that partnership with local government and other stakeholders can support integration of the SDGs into local policy. University-city partnership could also play an important role in translating and embedding SDGs into local policies (Fox and Macleod, 2021).

The city is a complex system where multiple types of urban neighbourhoods coexist with different characteristics. This enables the sustainable operation of the system and enhances its resilience. In contemporary China, environment is the key theme to be considered for urban planning and policy making and can serve as an inclusive medium to link

multiple aspects (Pan and Du, 2021). Inspired from the philosophy of Three Ecologies (social ecology, mental ecology, environmental ecology) (Guattari, 2000) collaboration between urbanists, planners, architects, landscape designers, and social reformers needs to come together to ensure sustainable development (Pan and Du, 2021).

Based on research in China, Lin and De Meulder recommend strategic urban project approach in upgrading or urban renewal of areas. This encompasses vision development, collaboration of stakeholders and implementation of actions. Labelled as 'acupuncture method' these strategic interventions deal with a specific part but impact the whole. They contribute to sustainable development through optimization of usage of space, thereby ensuring the functioning of infrastructure, transport networks and distribution of resources. Thus, the sustainable development of urban villages require enhanced connections, stakeholders' participation in top down as well as bottom up approaches, an integrated strategy at city level and mediating role of spaces, visions, integrated strategies and specific actions that address opportunities and problems in strategic locations (Lin and De Meulder, 2012).

In India also, the dilemmas of urban villages are being recognised as the cities expand. The gap in planning responses is also evident as the existing planning approaches focus on regional and city level planning keeping the urban transition within urban villages aloof. Also communities remain the end receivers of all planning initiatives but have no role in decision making. Thus, participatory planning and contextually relevant approaches are needed to

address the existing challenges and sustainable development path of urban villages.

An Urban Village Development Plan (UVDP) framework was prepared to address the existing gaps in local planning interventions for urban villages in NCT (National Capital Territory). The UVDP Framework provides a broad guideline that could be used by government bodies, municipal authorities, research agencies or communities to develop urban villages in NCT.

2. 2. Urban Villages in Haryana

In North India, the phenomenon of urban villages started emerging as the capital Delhi expanded into the neighbouring states of Haryana and Uttar Pradesh. Villages in inner city of Delhi continued to densify while those on periphery are urbanising rapidly as new peri urban areas emerge (Mathews *et al.*, 2020). Despite proximity to the Delhi National Capital Region, Gurgaon remained rural and pastoral till the 1970s (Naik, 2022). The developers used political influence to bring in regulation that allowed them to acquire land and influence planning and infrastructure development from the 1980's (Gururani, 2013). In 1975, the Haryana Development and Regulation of Urban Areas Act (HDRUA) allowed landowners to acquire development licenses from the State government for the purchase and development of land. The developers could directly negotiate and purchase land from landowners within controlled areas (Cowan, 2018). Through the introduction of a license system the private sector acquired and developed 85% (35,000 acres) of urbanisable land in Gurgaon between 1981 and 2013 (Gururani, 2013). The city's exponential growth is attributed to the

aggressive deployment of private capital by developers (Searle, 2016).

Haryana's urban planning legislation exempts all residential village land (*abadi*) from urban land acquisition and planning and development leaving pockets of rural urban village. These urban villages are demarcated from urbanisable land by a boundary line called '*lal dora*'. This boundary line between agricultural and village residential land was created by the colonial administrators to distinguish agricultural taxable land from the residential areas. Consequently, as rapid urbanisation began, the state and private developers were able to purchase only agricultural land, leaving pockets of urban villages that were excluded from land acquisition or development and planning regulations.

Gurgaon-Manesar Urban Development plan 2021 prompted vast expanses of the villages' agricultural land to be included into the urban real estate market. In 2010, developers approached Haryana government to expand the urbanisable area to include 2000 acres of land in neighbouring Sohna (Cowan, 2018). Many urban villages along Gurgaon Sohna highway are impacted by the urbanization and expansion of hubs like Gurgaon, Badshahpur and Sohna. Gurgaon Sohna highway is currently under a massive project of improving mobility via flyovers and widening of the highway. There are many housing condominiums and shopping malls that have emerged on the two sides of the highway, and many are in the process of construction. Some of the villages on Gurgaon Sohna road are located on the edge of nature and urbanization with Aravallis lining the western edge along the highway. There are natural slopes that converge in numerous small water

bodies within the villages. This further emphasises the need to steer development of these villages in a sustainable manner keeping the natural, economic and social dynamics in balance.

2. 3. Case Study of Alipur, Haryana

Alipur is one of the many urban villages impacted by the rapid urbanization in the area. It is located in Sohna Tehsil (administrative part) of Gurgaon district in Haryana, India. The total geographical area of the village is 589 hectares with 591 houses. It is situated 8km away from sub-district headquarter Sohna (tehsildar office) and 17km away from district headquarter Gurgaon. According to Census 2011, Alipur has a total population of 3,398 peoples, out of which male population is 1,789 while female population is 1,609. Literacy rate of Alipur village is 72.19% out of which 79.49% males and 64.08% females are literate. As per 2009 statistics, Alipur village has a gram panchayat system (democratic system at village level) of local governance (refer Fig.1).

As per the interviews conducted by undergraduate students, the villagers claim that Alipur has been known to exist since 1632 from the times of the Mughals. It was named Ali that later became Alipur. The existing population is a mix of "Rathi" and "Dagar" communities that coexist. Agriculture was the primary occupation. But now the occupations have diversified with some villagers in the armed forces. Many are working in the neighboring hubs of Sohna or Gurgaon. There is also a small migrant community that lives on the periphery towards the Aravallis. These include workers from Bihar and Chhattisgarh. The important buildings include temples, *chaupals* (separate

community buildings for Rathi and Dagar communities), schools (private and government), wellness center, government offices and a large open lawn that has been allocated for outdoor sports. The locals call it the stadium (refer Fig. 2).

As part of urban design studio in an undergraduate programme in architecture, the study of Alipur was done from a holistic multidisciplinary perspective. The present morphology was studied as an outcome of social, economic and political conditions; the morphology was also understood in relation to the connectivity and ecology.

The village was divided into three parts along its main spine and documented and analysed in terms of morphology, land use and land ownership, building heights, core and peripheral areas. Each part was studied by groups of students as an outcome of the multi-layered phenomenon of socio-cultural, economic, political and geographical layers (refer Fig. 3).

A survey was conducted and the village was analysed from the perspective of sustainability. In the survey, the following needs were articulated by the inhabitants which were further analysed by the students.

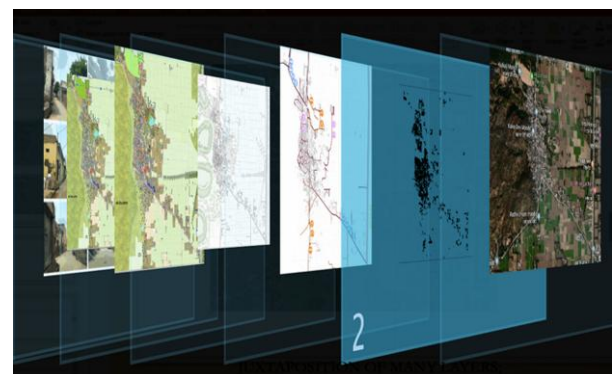


Fig. 3. Morphology as a multi layered phenomenon (Source: Author).



Fig. 1. Documentation of Alipur, Gurgaon, seen here as a satellite image and the drafted version on AutoCAD (Source: Author).

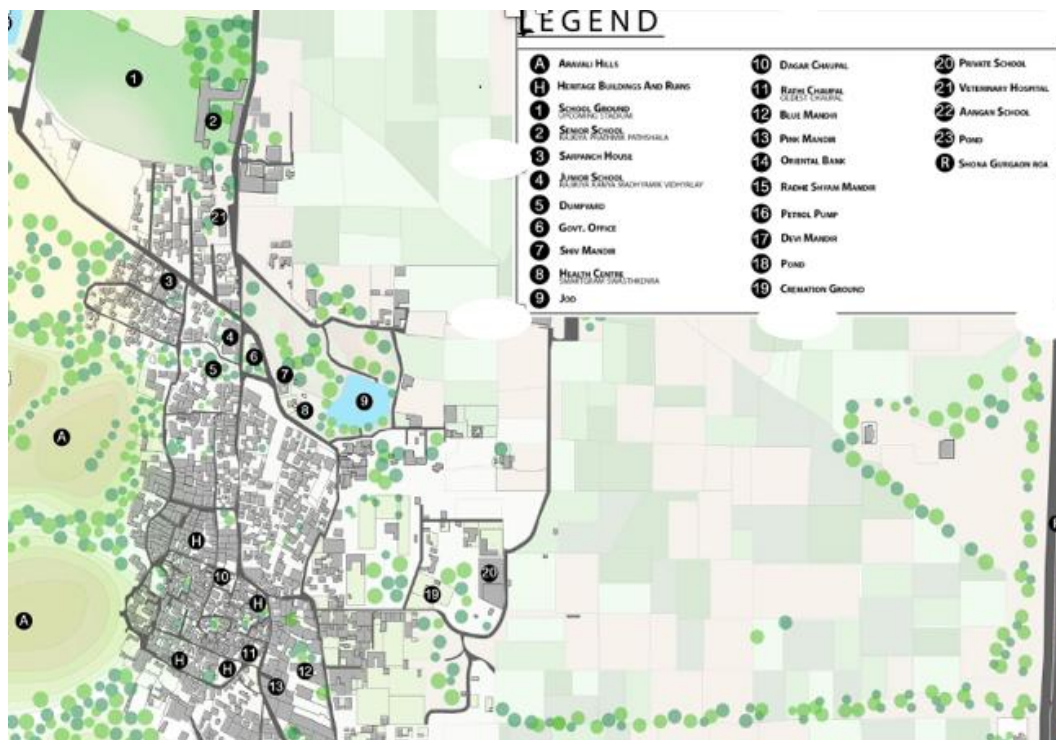


Fig. 2. Plan of Alipur showing the major landmarks (Source: Author).

1. Access to basic facilities including water: The villagers collect drinking water from the water purifying facility set up by Non Governmental Organisation, Pranab Mukherjee Foundation in the village. There is no natural source of water. Owing to the natural slope of the land, there are three water bodies which are collection ponds located in the village. The main pond is located towards the North of the village. However the water of these ponds have

not been put to any use by the village and the *jhod* lies neglected and inaccessible due to overgrowth of vegetation.

2. Empowerment of women and children: Students visited the village several times and noticed the visible absence of women from public spaces, streets or open spaces of Alipur during the day time. After 9 pm, they noticed presence of some young women in the large ground that the locals have termed as the stadium. Some young

women came together after finishing all the household chores to exercise in the large ground. They were being trained for fitness by a retired army officer from the village community. The village did not have any clear spaces for the women to interact or come together for any purpose. Even though Pranab Mukherjee Foundation had put together a computer facility to train the villagers but there was no footfall due to the remoteness of location. There are no distinct and accessible public spaces for women and children in the village.

3. Diminishing community interactions and spaces: The students observed that the village streets and parks did not show much sign of activity. Most inhabitants show restricted movement within the village and hence limited interactions. For a village with a local governing body, there were inadequate interactive community spaces or interactions among the inhabitants of Alipur.



Fig. 4. Students interacting with the local women at Alipur (Source: Author).

Students interacted with some village elders who were seen in a gathering inside a house to smoke *hukka*, the traditional community cigar. Their traditional sit outs and *chaupals* (community gathering spaces), *chabutras* (raised platform for sitting) and verandahs facing the streets seemed to be redundant. The character of streets had

also undergone transformation due to rural urban shift with the increase in vehicles on the narrow streets (refer Fig. 4 and 5).



Fig. 5. Covered entrance areas and *chaupals* are non-functional due to vehicles on the village roads (Source: Author).

Also, urban space is constantly changing due to which cultural heritage is threatened and often destroyed. This requires an interdisciplinary and multifaceted approach so that the accelerated urban development does not threaten the cultural heritage.

4. Dependence on the neighbouring cities: The village also seemed quieter during daytime since the inhabitants of Alipur are dependent on the neighbouring town Sohna for employment and supply of all commodities. The local stores are very few with limited supply of products. They cannot meet the demands of the population of Alipur. Also, most villagers and migrants found employment in Gurgaon and had to travel there for work and supplies. Alipur is dependent on the two neighbouring hubs, Gurgaon and Sohna for all its commercial and employment needs.

5. Ignorance towards ecology and the natural terrain: Alipur sits precariously on the foothills of Aravallis (refer Fig. 6). The natural slope of the land culminates in the collection ponds. However, the inhabitants are ignorant of the importance of their natural terrain and

the slope. The community inhabits an ecologically sustainable landform that drains and conserves water naturally. The importance of the mountain range, Aravallis as a landform is critical for the whole region. The waterbody towards the north of the village, sits on the main social and commercial spine of the village but it is neither used by the villagers nor by their cattle. The weeds and vegetation around it have overgrown due to neglect rendering the waterbody completely inaccessible. The area around the water body as well as the area around the foothills of Aravallis are isolated. The villagers are ignorant of their significance. Conserving the Aravallis and the natural slope and water collection points is significant not only for Alipur but for the region.



Fig. 6. Alipur, located on the foothills of Aravallis (Source: Author).

After discussion with locals including the elders and the *sarpanch* (head) of the village and a detailed analysis, students drafted proposals in terms of strategic interventions leading to sustainable growth of the village:

1. Access to basic facilities including water: The proposal included development of area around the main water body or *jhod*. A water treatment plant to be installed and the area around it to be cleaned to develop as a usable green area for the local inhabitants. This would not only sustain the pond as a natural collection point but also provide the village a green space along the central spine which may be used for recreational purpose (refer Fig. 7). A group of students also identified this zone around the waterbody to create an axis perpendicular to the North South spine of the village (as shown in Fig. 8).

2. Empowerment of women and children: The village was mapped in terms of gender based activities. Activities were mainly mapped around the central North- South spine of the village and usage established at different times of the day. It was noted that women and girls were active around the connection to the school. There was also a sharp increase in the route to the open ground (called stadium by locals) in the evenings. Based on the usage pattern, spaces were planned on strategic locations along the route to enhance security as well as accommodate functions meant for women and girls (refer Fig. 9).

3. Diminishing community interactions: Spaces were identified in Alipur where the villagers could gather for important discussions, computer education classes and other interactive collaborative activities. These spaces would not only help the community interactions but also provide alternative employment opportunities to the community that is transitioning from agrarian livelihood due to change in land use of agricultural land (refer Fig. 10 and 11).

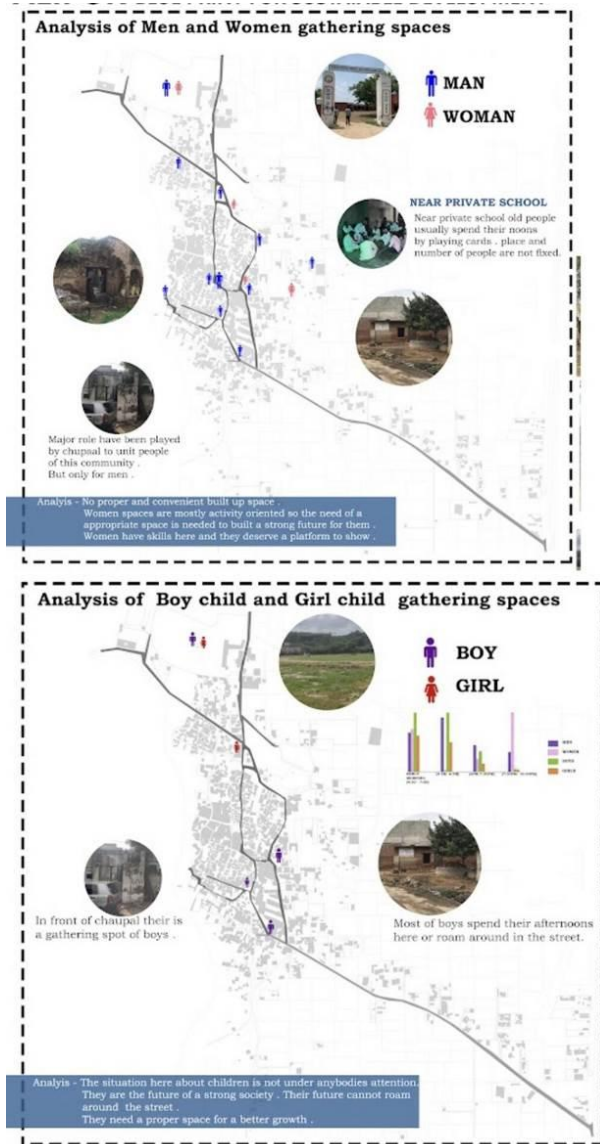


Fig. 9. Analysis of gender based space usage along the central spine of Alipur (Source: Author).

4. Dependence on the neighbouring cities: As part of economic sustainability, a need for a commercial market was identified in Alipur. The village is completely dependent on the neighbouring hubs of Sohna and Gurgaon for all its commercial needs. Morphologically an alternative spine parallel to the existing one was created to take the pressure from the central spine and a space was identified to build a commercial market for the villagers (refer Fig. 12).

5. Ignorance towards ecology and the natural terrain: As the village is transitioning from an agrarian rural to

urban character, the focus of inhabitants is more on adapting to the change. Being disconnected to their agrarian way of life also drifted them further from the natural ecology of the land within the *lal dora* limits. The increase in built mass in terms of densification and the growing rural migrant population has made the village grow indifferent to their natural terrain (Aravallis and the water bodies). The students analysed the built form in the village core and found ways to connect the growth with the natural features of the land. They proposed green areas and parks in the core area of the village as well as around the *jhod* to reconnect the natural features to people's lives.

3. Results and Discussion

After careful understanding of the three pillars of sustainability, and the methodology of application in urban villages in China and India, the study on Alipur was conducted in urban design studio of an undergraduate group of students. A model of analysing and proposing interventions was devised by delayering the existing morphology. The layers of the natural topography, human settlement, vast agricultural land accessibility network and mapping of human activities were separated for the purpose of analysis (refer Fig. 13). The existing morphology was a resultant of the interface of the different layers. The land with its geographical features was understood as a sustainable terrain that was overlapped with urban settlement starting from the dense core and moving sparsely towards the periphery. This residential settlement indicates connectivity and usage patterns that reflect the living culture of the settlement. The vast green expanse of agricultural land is the dynamic part that changes in land use and becomes the greenfield project for urban expansion resulting in

livelihood and cultural transformation for the urban village. Understanding the various layers and their dynamics, long sessions of interaction with the locals and addressing the needs of the local inhabitants helped the students identify the gaps. Sustainability of urban villages that rests on social, economic and environmental aspects was addressed through this process of delayering and understanding the dynamics of each layer. The proposed interventions understood the various dynamics at play in the urban village. The proposal indicated that through detailed and meticulous understanding of these layers, it might be possible to propose a blueprint that connects the various underlying factors of the urban village. The resulting proposal should allow for expansion and development of the village in a sustainable way.

As the land around the village gets urbanised, the impact of these dynamics should not attempt to reduce the identity of urban villages to a slum or deteriorated urban environment. Instead of engulfing the urban village, there can be a balance between the urban rural character with a planned gradual transition. Some area outside the *lal dora* can be allocated as buffer area to allow developmental projects for the urban village. Since all development is primarily commercially driven with real estate being the central focus, the inclusion of urban village development must be inherent to the economics of sustainable development of the area. The policy makers must include the social, economic and environmental aspects of the village before allowing for drastic urbanisation of these peri urban areas.

The urban village should be integrated in the overall urban planning and allowed

to expand, given adequate connectivity, independent economic growth and a long term vision. This should be included to develop a blueprint for the existing villages before any development is planned in the adjacent sites.

The integration of the village within the larger urban, regional and ecological context is important. The issues of a transition of rural pocket in a vast urbanised context must be dealt with sensitively so the transition is smooth as well as planned to allow for expansion that caters specifically to the village. *Lal dora* areas may be allowed an expansion buffer to allow for this transition such that all their future needs are met. Also the regional and environmental integrity of the area must be given priority over the immediate commercial gain.

4. Conclusions

The main research objective was to create a more holistic development strategy for the urban village into a conceptual framework of sustainable development. By delayering the village Alipur into different morphological elements, and overlapping these with social, economic and environmental aspects, an understanding was developed to create relevant interventions. A model was developed to delayer the existing morphology (refer Fig. 13). This was overlapped with issues relevant to the population and the region to arrive at strategic interventions.

The paper's findings have highlighted issues specific to Alipur as well as issues that address the entire region along the Aravallis. The findings can be helpful to highlight directions that improve existing urban villages and urban renewal policies. The findings could also provide guidance for inclusive and sustainable

urban renewal practices in cities in similar situations all over the world. The overlap of sustainability and development is critical for these urban villages to sustain themselves in the rapidly transforming context.

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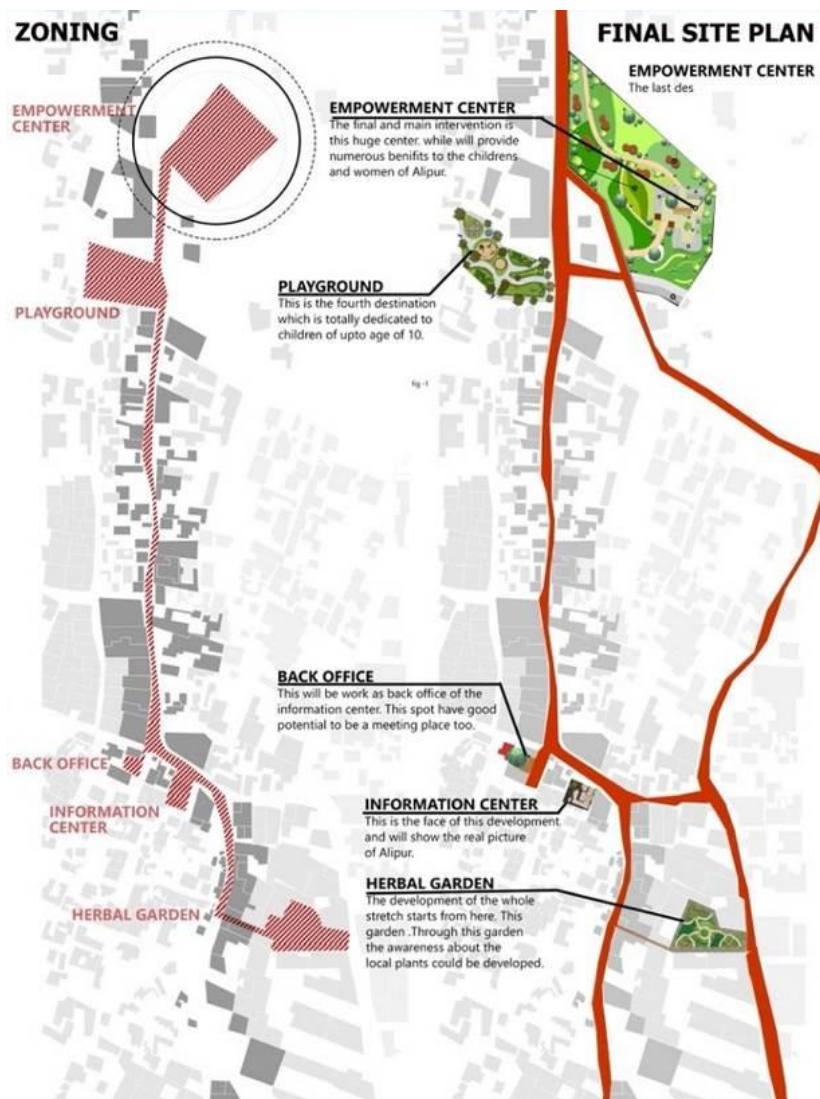


Fig. 10. Identification of spaces along the main spine to accommodate functions for women and children (Source: Author).

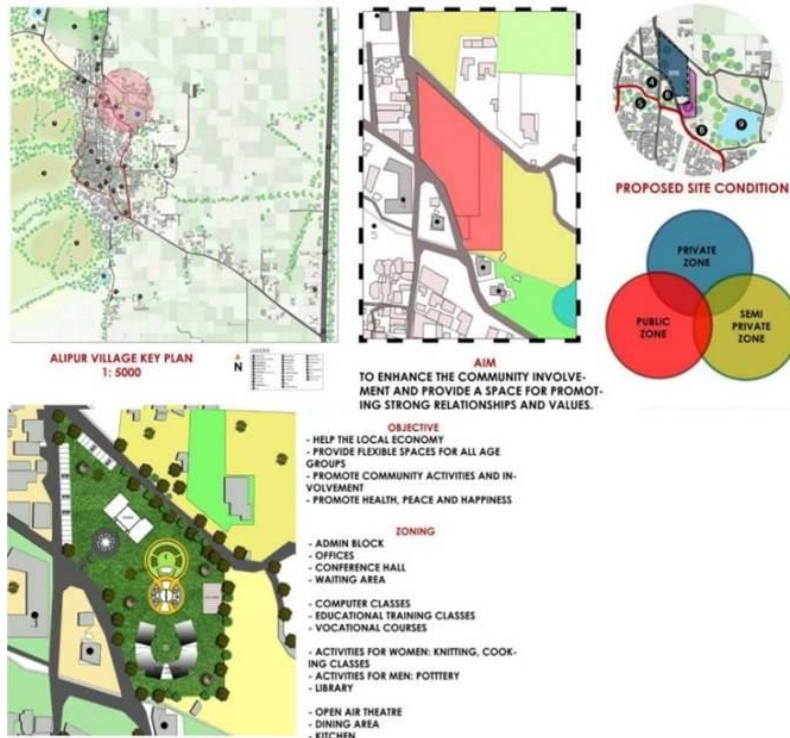


Fig. 11. Identification of space for community interactive zone in Alipur (Source: Author).

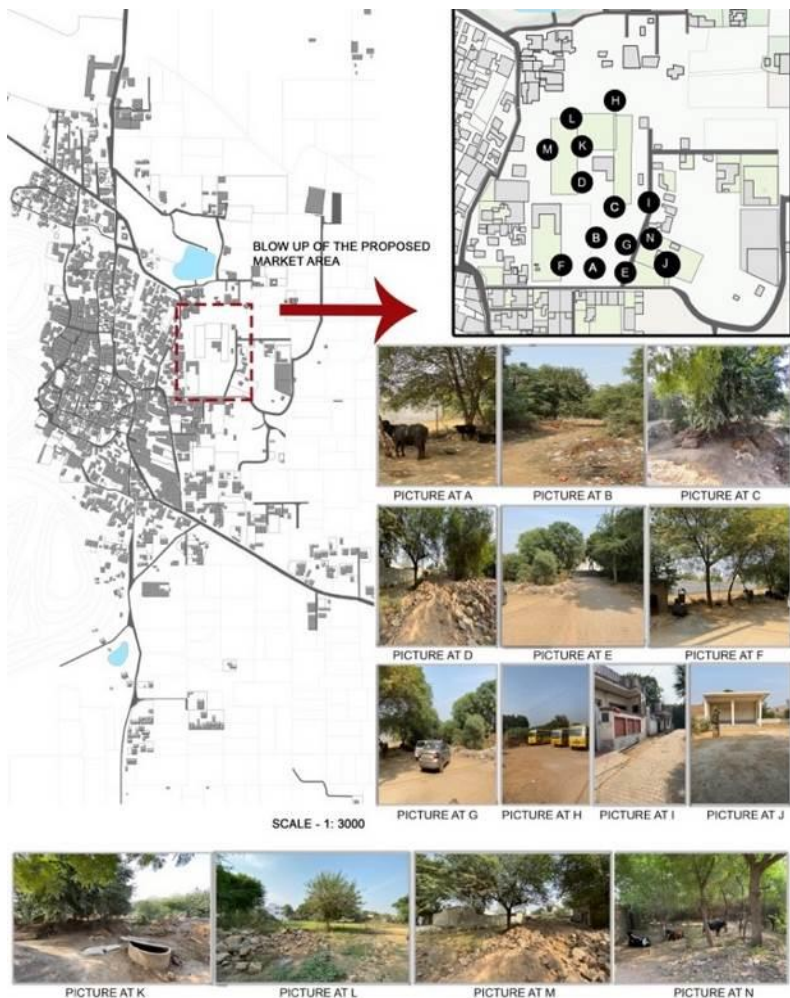


Fig. 12. Identification of space for expansion of the village perpendicular to current spine (Source: Author).

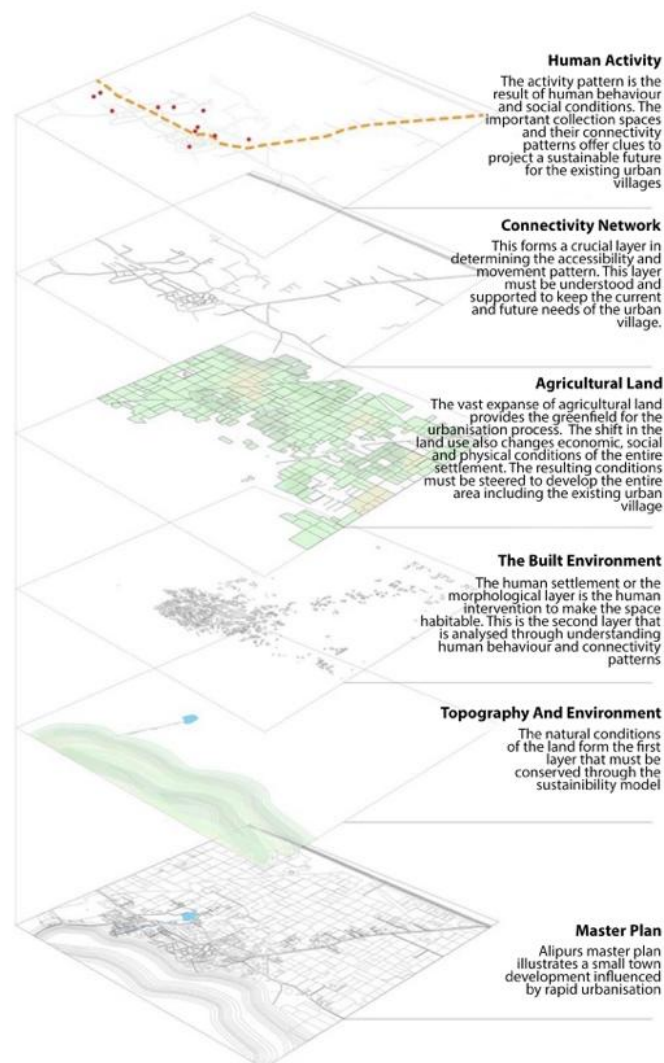


Fig. 13. Model to delayer the existing situation and project a sustainable future from the existing conditions (Source: Author).

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