Analyzing the Role of Land use Planning and Development Regulations in Solan city

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Abstract

Solan City situated right at the entrance of Himachal Pradesh is the second most populated and fastest growing urban area in the state. The city is significantly an industrial, educational, health and tourist hub attracting lot of visitors and travelers. Moreover the Government has recently notified it to be the third municipal corporation of the state after Shimla and Dharamshala. Though the city is in its very early stage of growth, but is chocking under traffic jams and environmental challenges. The major issues that the city is facing are unplanned and haphazard growth, traffic congestion, poor transport planning and lack of proper land use plan.

The aim of the research is to evaluate the role of land use planning and development regulations for integrated and sustainable planning of this ecologically sensitive place. Lessons can be learnt from urban issues that Shimla city is facing due its unplanned growth and development till date. Consequently the government is putting emphasis on urban management of new upcoming cities and taking an action in time.

The Expected Research outcome can be a helpful document for the state government in the present process of its formation of Municipal Corporation. Subsequently a strong comprehensive development plan for the city can be prepared addressing its social, cultural, economical and environmental issues and become trendsetter for other similar future cities.

Keywords: Transport planning, Land use planning, Development Regulations, Sustainable planning, Ecologically sensitive.

1. Introduction

1.1 *An overview of Solan city*

Solan the fastest growing city in the state of Himachal Pradesh, also known as mushroom city of India is situated at the foothills of Shivalik ranges. The city is also the entrance gate of the state (fig.1). Solan is 65 km from Chandigarh and 45 km before Shimla situated on National Highway-22. The city is centre point of routes to Punjab, Haryana, Utterakhand, Chandigarh and Jammu Kashmir. Solan city is located at 30.92°N 77.12°E (meteorological centre shimla). Average elevation of the city is 1502 meters (5249.34 ft) from sea level. Situated in cold and cloudy climatic zone, the city has favorable climatic conditions as maximum temperature barely reaches 30 degree celcius and has mild winters as compared to Shimla. Geographically the city has workable terrain which is milder than shimla as the terrain is less steep than neighboring areas. The place has pine forest surrounding and experience heavy rainfall in monsoon season. The nearest airport is at Shimla and Chandigarh. Solan has a railway station built during British rule.

Fig.1: location map

1.2 *Historic Context*

Solan a Municipal Council is also the district headquarters presently. The history of Solan goes back to the era of Pandavas. According to traditional belief, Pandavas lived here during their exile. The documentary evidence shows the origin of Solan is dated around seventeenth century. The city once was the Capital of Bhaghat or baraghat meaning twelve passes, a princely state.

The emergence of the city particularly was a result of trade activities as it is situated on the trade route, connecting upper parts of the state. The name Solan is said to be derived from Goddess Shoolini whose temple is located at the core and the city grew next to it. During British rule a post office, an administrative office was set up here. A brewery was also constructed in the year 1853 as the place naturally had high quality water resources and is now one of the oldest breweries in India. A National Highway and a railway line were laid through the region till shimla and a railway station was built at Solan and was opened in 1903.

Post independence the city was under Mahasu district but on 1st November, 1972 the Solan district evolved on the administrative map of the state as district headquarter. Hence, the city which was once a small settlement compromising of

only three market places with residential accommodations within namely upper bazar, lower bazar, ganj bazar (wholesale market) is now spread over an area of 3343 hectares = 33.43 km^2 of land has transformed into an established city. In its phases of development the city grew haphazardly due to lack of proper land use planning and development regulations.

1.3 *Aim and Objective*

The aim of this research paper is to create a model for the Land use Planning and Development Regulations in Solan city for its sustainable and integrated development. The objective of research is to analyze the existing issues resulting in the unplanned and haphazard growth of Solan city and formulating strategies for its comprehensive development.

1.4 *Methodology and scope*

Studying and understanding the socio-economic scenario of Solan city, its ecological sensitivity, existing planning and developmental regulations, infrastructural needs of the city which ensures comprehensive planning and also ensures a holistic, dynamic, responsive and integrated approach for its future development is the basic step of the methodology. It shall also include carrying out primary and secondary survey, both quantitative and qualitative. The process shall follow conducting Interviews of local stakeholders to understand their needs and expectations from the city. The next step shall be to study the case example of shimla city to understand the problems arising out of unplanned development. Another case example will be studied of a successful planned hill city to get better results out of the research and bring practical solutions for issues indentified with Solan city and give an integrated approach for its future development planning.

2. Research Background-issues and challenges

Solan city saw the fastest growth after the year 2005 when state was opened for investors from outside the state as till than people from outside Himachal could not purchase land in the state for setting up industries or business setups. Solan saw the sharpest growth as it is nearest place to neighboring states (H.P.S.I.D.C). The growth pattern of the city shows that the city grew along the connecting roads like Rajgarh road, Shimla-Chandigarh National Highway, Jaunaji road, Basal road, Sabathu road, Barog bye pass road, Solan bye pass road, a typical pattern of an Indian city growth. But all its growth is organic and unplanned.

The major issues that Solan is facing are, the city is not having fixed land use plan and roads, streets has been encroached upon by unauthorized construction. Lack of transport planning, the road network has been developed without thinking about the local demands of the city stakeholders. A ribbon development is at pace causing dangerous multiple nodes for traffic moving on main roads. The schools do not have pick up and drop points and the students are evacuated directly on to the main roads and national highways at beginning and closure of school hours. The heritage zones are not defined.

The residential areas are also hosting industries like medicine factories, workshops, carpentry and other commercial activities. Growth of squatters, urban villages, and unauthorized constructions has begun. Solan has some open areas like Jawahar Park, Children Park and Thodo ground (fig.2), but are not well connected and very badly maintained. The main commercial zone doesn't have proper parking facility, pedestrian walkways, greenery, public services and safe shopping area. The main commercial streets are very unsafe for natural disasters. City is not having working sewerage system. The natural water bodies are contaminated as the sewer is dumped into ground through soak pits and nearby natural streams which feeds lower regions like Punjab, Chandigarh, Haryana and Delhi. The natural drains has been blocked by unplanned construction activities which can cause havoc during heavy rains as these hilly regions very often witness micro and macro cloudbursts.

Fig.2: Thodo Ground hosting Shoolini Mela

The cultural activities of the communities are ignored till today. The socio-economic, cultural and the existing environment of the place, in process of formation of Municipal Corporation are not given importance. Non inclusion of the stakeholders in discussions during framing of the strategies for city's up gradation to Municipal Corporation is a concern. Their needs and expectations from the city are unnoticed. *City needs strong Land use Planning and Development Regulations to make it a livable place for future generations.*

3. Literature review

The development regulations include vast variety of standards, procedures for development and use of land. It also sets guidelines for infrastructure and public space development in a planning area. These regulations are developed, elaborated and enforced, aiming to protect environment, social structure, general welfare, security, safety, health and wellbeing of public and communities. The regulations shall adopt the standards and procedures which promoted the development patterns that are needed the most by the communities

Land use planning is the bases of integrated development of a city. It is the process of regulating the land use with an effort to create sustainable socio-economic, cultural and environmental developments results with judicious use of resources. The aim and objective of land use planning is conservation of environment, controlling the urban sprawl, reduction of transportation cost, and prevention of conflicts of land use, creation and management of urban open spaces and green areas, minimizing pollution, and help in creating sustainable communities (NPTEL).

4. Case examples

Case examples of shimla city in Himachal Pradesh and hill city of Lavasa near Pune in Maharashtra are studied to understand the issues and work out strategies to be proposed for Solan city.

4.1 *Shimla city*

Shimla the summer capital of India during British rule is the present summer capital of the state of Himachal Pradesh. This is the largest city of Himachal Pradesh. It is a classical example of how a hill city shall not be developed. Shimla though is the oldest city of the state, has an interim development plan even after seventy three years of the independence. The haphazard organic growth of the city over the years has made it unlivable and unbearable for the local residents and tourists and visitors coming from other places.

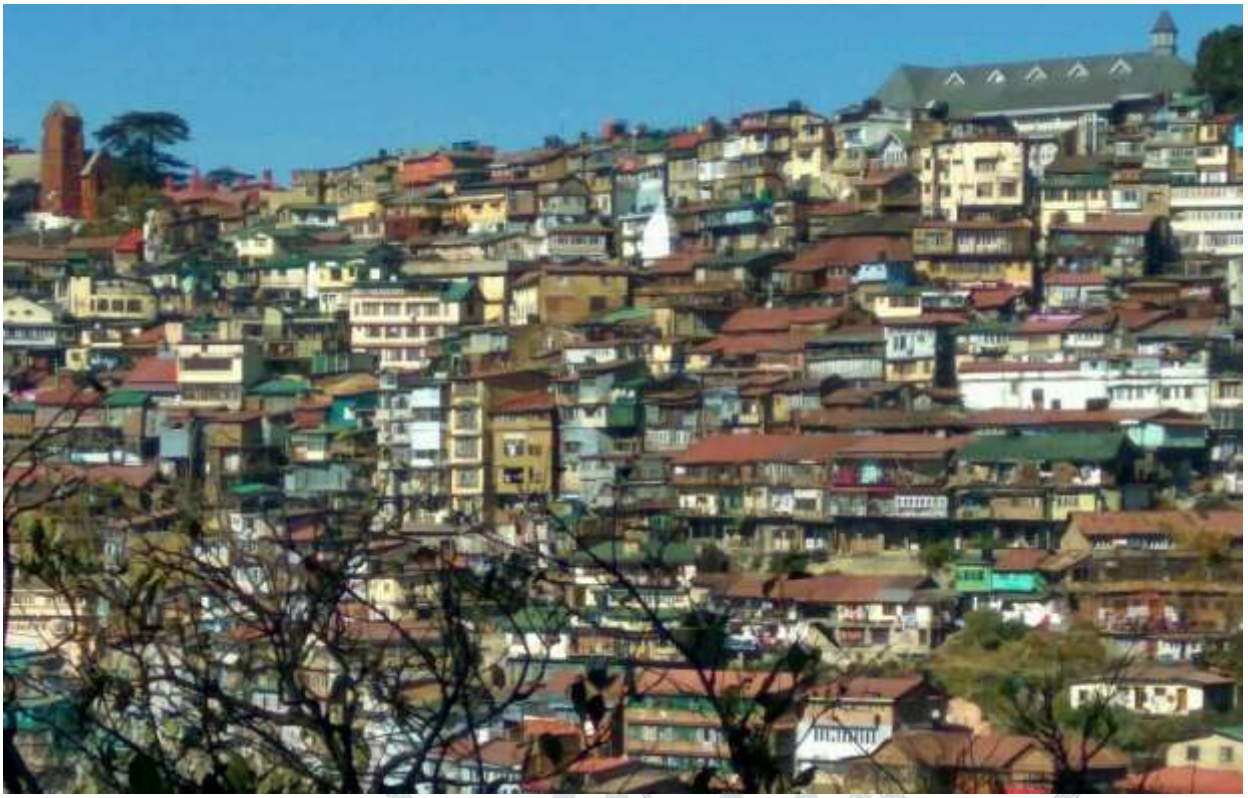

Fig.3: Highly dense core of the shimla city with most of the structures aged out

Present form and scenario of Shimla city tells the story by itself. Situation went from bad to worse and eventually in the year 2017 national green tribunal banned all the future construction activities in the core area of the city and restricting other areas to two floor construction of buildings. Highly dense old core area of the city (fig.3) has aged and is in bad state with dilapidated structures, with no regulations or guidelines to its revival. It is densely populated and people living in unlivable environment causing harm to the mental and physical condition of the residents. The only open urban space the mall and ridge is often overcrowded by tourist influx leaving no open areas for the local residents. People live in continuous threat of losing their life to hazards like calamities due to heavy rains, old retaining wall collapse, structure collapse as most of the buildings are more than hundred and fifty years old. Fire breakout in the area can be highly fatal as the area is inaccessible to fire tenders and vehicle. Poor land use planning, unsustainable development regulations and poor infrastructure development planning in the city has done irreversible damage to the city growth.

The latest example of the poor urban infrastructure development is the construction of a multistory parking for tourists at Tutikandi traffic node which will force approximately three thousand vehicles to the already choking traffic point creating havoc during peak of the tourist season. Shimla has seen worst kind of traffic jams in the past which created newspaper headlines. Poor development has resulted in increase in crime rate, decline in health of the citizens and badly damaging the environment of this ecologically sensitive place. There is a need to learn lessons from shimla city and make better land use and development regulations for other new upcoming cities in the state.

4.2 ***Lavasa city***

Lavasa is the first planned hill city of India near Pune in the Mulshi valley of the Western Ghats (fig.4). Inspired from the town of Portofino in Italy, it is the city developed by a private developer and is still under the process of its development of later phases. It is planned over an area of 25,000 acres (100 sq.km) and 8,000 acres (32 sq.km) project developer is HCC. It is planned on the principles of new urbanism where working and recreational places like shops, offices, business centers are at a walking distance. Focus is more on swift public transport which reduces the need of private vehicles. Hi-tech techniques of water conservation and renewable resources of power are the focus. Priority been given to pedestrian and focus on neighborhoods and development of sustainable communities. Environmental balance been given utmost importance and seventy percent of the land is designated as natural landscape and eighty percent of the population will live and work in twenty percent of the land.

Fig.4: a view of hill city of Lavasa

4. Proposed strategies for land use planning and development regulations for Solan city

The strategies for integrated development of this young and fast growing city shall reflect in land use and development regulations.

Strong zoning and land use planning should be framed. The city should be divided into different zones keeping in mind the existing land use, social and cultural practices, ecology of the place. City has rich forest cover in and around. The existing green cover should be preserved and put under green zone barring all construction activities. The barren lands may be indentified and marked for future development of residential, commercial, industrial usages with a view of developing more sustainable communities with reachable distance in between residences, work places, commercial and leisure activity areas. More open areas can be developed in core zone by shifting the public offices to better accessible zones with parking facilities and aged out government buildings after demolition shall not be reconstructed. These areas shall be used for urban open spaces. The existing villages on periphery of the city are still carrying agricultural activities. These agricultural lands shall be put under agriculture land use zones and barred for construction activities other than residences of the farmers. The hazardous industries like pharmacy and other noise creating units shall be shifted from residential zones to periphery of the city to defined industrial zones. The industrial zones should be fixed with smooth accessibility from residential areas. Sliding zones should be indentified using technology and shall be banned for construction and further promoted for green areas.

More effective development regulations which can solve the existing issues should be implemented. The existing core area of the city which doesn't have open spaces shall be provided with higher FSI and more number of floors (21 m building height) against existing, that is three floors maximum. The core area shall have FSI of 2 or 2.5 against existing FSI of 1.5 and 1.75. The ground coverage shall be reduced to 40% from existing bylaws of where is as is. For reconstruction projects the present bylaws says that the building can have same coverage what is existing. More FSI with reduced ground coverage will result in densification and will reduce the ground coverage and more open spaces will appear gradually. New upcoming residential and commercial zones later can be given more FSI and building height up to 25 m, to lure people to shift from core area to other upcoming zones. Transfer of FSI shall be allowed so the people who lose the benefits of construction in restricted zones can avail the FSI in their other lands which are suitable for construction.

Fig.5: Commercial Street, the Mall road Solan during festivals

Fig.6: Commercial Street, the Mall road Solan during Covid pandemic

The effective strategies to remove existing problems should be included. The mall road, Commercial Street (fig.5 & 6) in the city should be barred for vehicles and enriched with streetscapes, and leisure activity areas, public parking around this zone and should be allowed for mix use of floors like SCF and SCO's. Alternative routes shall be developed to make way for vehicles that are moving through this route to their destinations. Places which are important from tourism point of view shall be given place in land use plan and provided with development regulations for sustainable tourism growth. Like private places with green covers can be allowed for eco tourism and village areas (fig.7) can be allowed for home stays, agriculture tourism, and cultural tourism. Levy of heavy taxation is concern for the village population after their inclusion in Municipal Corporation. Their routine activities will also be restricted like keeping domestic animals for diary and other products. This has resulted in agitations by the village communities against their inclusion into urban area. This is the result of their non inclusion in stakeholder discussions and understanding their needs and demands. Such forced inclusions are not good for the sustainable future growth of the city. Their needs and expectations shall be taken care in the newly defined urban area. The social, economic, cultural and environmental scenario shall be considered for these village areas in land use and development regulations after inclusion in Municipal Corporation.

Fig.7 Basal village at periphery of Solan city recently included in Municipal Corporation

The heritage structures should be preserved and provided with set of regulations in development plan. The religious structures which are crowded from all around shall be restricted for construction around it at least for a radius of 50 m. Multistoried parking may be provided near to Shoolini and Sheetla mata temple along with rich streetscapes on leading streets. Old jail area, Jawahar Park, Children Park and old bus stand area shall be upgraded and used urban open spaces.

Public transport shall be given utmost priority for reaching to commercial streets and workplaces. Defined places shall be preserved for local fairs and festivals around the city as Solan is a city of festivals. Over the years these cultural events were ignored and this resulted in unorganized gatherings along highways and main roads during these events. This can be seen in Deonghat mela, Ochghat mela, Chambaghat mela, Kumarhatti mela and other local festivals been celebrated by local communities alongside the roads. Except Shoolini fair the biggest of all fairs where the Thodo ground, the only open space available in the core area is been used. Open spaces should be provided for such cultural activities.

5. Conclusion

Learning from the past the Solan city need a strong comprehensive land use and development regulations which addresses all socio-economic, cultural and environmental issues.

The most important work is to formulate the process of preparing the land use and development regulations. The principles of urban planning should be implemented in formation of land use and development regulations. The zoning regulations framed should give utmost importance to sustainability of community growth, address environmental issues and integrated development of the city. Densification shall be allowed as it helps in reduction of cost involved in infrastructure development and its demand. Solan has milder slopes as compared to shimla hills. Hence vertical growth can be allowed. This will help in reducing horizontal growth and save more areas for green spaces and preserve existing green parcels, avoid its conversion to brown fields.

Organizing Charrette to prepare set of effective integrated development regulations is needed. The Charrette will help organizing planning workshops to collect information from the stakeholders about their expectations from the city. This will ensure that the regulations developed will address the issues of the urban area comprehensively. Use of technology is also very much required to form a comprehensive development plan. Geographic information system (GIS) will play a very important role in land use planning. Transects may be specified as it will help in preservation of environment and ecological balance. Transect with a hierarchical scale of environmental zones will define the land parcels by its character, like urban, rural areas, forests and ecologically sensitive zones. In planning, transect will help managing sustainable growth by land use planning around the physical character of land pockets. This shall help in development of sustainable communities and also the preservation of

natural and historical character of Solan city's environment, thus setting up foundation for integrated growth.

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