

# TPS as a Spatial Planning Tool for Infrastructure Development: Case Study

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**Abstract**—Town Planning Scheme is no new term in the traditional planning practice. Though origin dates back a century the potential of TPS is hardly identified. Continues amendments in the Town Planning Act lead to the evolution of TPS as a common tool for managing and operating urban development across the country. TPS with parallel development plan evidently yields inclusive development of urban area, which now has become mechanism for infrastructure development. Spatial planning framework of the process inclines implementation of higher level goals in small scale urban development. Land-pooling and land-reconstitution method used in process fulfills the overreaching goals of spatial planning by improving land economy and real estate market beyond securing the landowners right in land. Transparent role of local authority as facilitator counter the long term need of urban sprawl while improving overall urban built environment. Inclusion of public interest and hearing individual request of local stakeholders exhibit the democratic nature of TPS. This paper attempts to study a TPS example as proposed by Raipur Development Authority. It also tried to identify the positive and negative parts thereby suggesting future course of action. The result thus obtained indicate eminent role of urban local bodies in spatial planning and infrastructure development.

**Keywords:** Town planning scheme, Spatial planning, Land-pooling and Land-reconstitution.

## 1. INTRODUCTION

Indian planning practice is mostly influenced by European planning concepts, among all, spatial planning is one of the most common term which is used in the modern planning practice in India. Spatial planning is universally recognized as tool to organize and manage planning outcome within concerned jurisdiction. In India, spatial planning process tried to integrate land use planning with infrastructure planning through national policies, comprehensive Master plan and Development plan at state level. Comprehensive planning are those plan which has a long term goal and long term objectives of land use and development. The goal thus envisaged are implemented with help of local planning authority. Piecemeal planning for infrastructure development by privatization is underpinned the fragmented development of urban area. Development plan with Town Planning Scheme

facilitates equitable and inclusive development of urban area.<sup>[1]</sup> Town planning scheme focus on much detailed infrastructure and land use planning. Through linkage with development plan inclusive development is achieved. Regulation for TPS preparation falls in state legislation hence process and guideline varies throughout India.

## 2. TOWN PLANNING SCHEME

Town planning scheme was first introduced by "Bombay town planning act" in 1915. The act then enabled local planning bodies to prepare TPS for the area within their jurisdiction and to collect betterment charges for development. Eventually it was realized that the act is leading to fragmented development of scheme area within the planning boundary, with no universal linkage between other part of city and future goal. By the time it was necessary to amend the act which resulted in the form of " New Bombay Town Planning Act : 1954". New act introduced the Development plan in to the legislation and now more comprehensive city wide goals are proposed by DP and TPS are used to plan in relatively smaller are with much more detail conferred to DP. The act was enacted across the Maharashtra state which holds Gujarat then. After the formation of Gujarat several amendment in the legislation lead to broad acceptability of TPS<sup>[1]</sup>. Wide success and peoples acceptance of the scheme made it universal and it is now applied across the country.

TPS is based on land pooling and land reconstitution method in this method government agency act as facilitator. A group of land owner pool together, and the land thus obtained is planned with all necessary amenities and infrastructure. The process consumes approximately 40 percent of land area and rest planned area are distributed among the land holders proportionally. In order to recover the cost incurred in the development government agency keeps some of the land and sell it along with collection of betterment charge among the benefitted land holders.

### 3. RAIPUR AT A GLANCE

Even before the formation of Chhattisgarh state Raipur was an important city in central India. It had been a center for commercial agricultural and industrial activity. After the title of capital city in 1st November 2000 the importance of the city increased and city boundary expanded at high rate Population growth rate is 50.54% in last decade. Population projection in 2031 is estimated to be 29.21 lakhs<sup>[2]</sup>. With 36.5% Urban Population, Raipur is one of the fastest growing urban cities in India. It is expected that the Raipur will have 50% Urban population by 2020. Continuously increasing population lead to unplanned and unapproved development in the city territory which lead to the degradation of urban life. According to the 2011 census 50 % of city population is living in the slum some of them in really deprived condition. Housing shortage in Raipur is of about 55.50% i.e. 1.52 lakhs and average housing need every year is 4000<sup>[3]</sup>.

Rapid growth of Raipur is benefitting it with growth in infrastructure and facilities over a small period of time Raipur has become center for education and other services currently Raipur hosts many national importance institutes like NIT, AIIMS, IIM, HNLU and more to come. Increasing service and facilities are attracting people from the surrounding and hence it is necessary to take up proper intervention. Raipur Development Authority is a sole body which is responsible and accountable for the execution and operation of urban development in the city. Raipur Development Plan 2021, aims at providing a planned and coordinated growth of the city with all necessary physical and civic infrastructure.

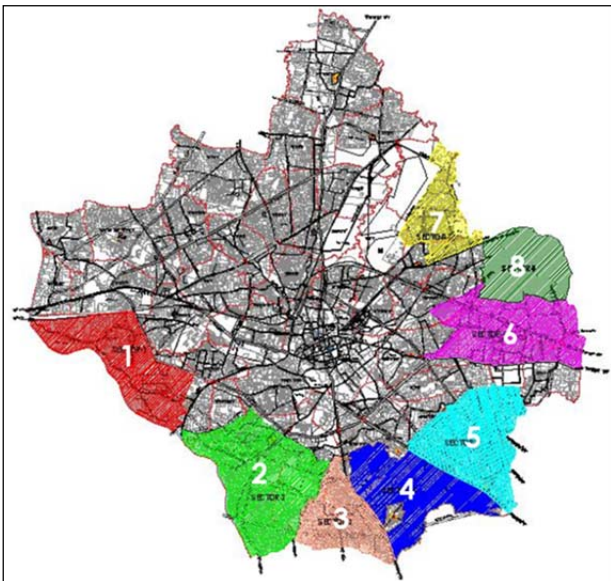


Fig. 1: Location of TDS

To achieve the long term goal, RDA has proposed to take up town development schemes in the existing city periphery in 8 sector (Fig. 1). Along with the multiple other planning activity

RDA has already taken up the TDS 1 and TDS 4 and notification for TPS 5 is already published. Total area for the all scheme is 6697.24 Ha.

### 4. SPATIAL PLANNING AND INFRASTRUCTURE DEVELOPMENT

Spatial planning interests integration of spatial dimension of planning. Spatial planning is specially an American and European planning concept.<sup>[4]</sup> Although scope of spatial planning varies across different country, it is generally engaged with identifying long or medium term objectives and strategies for territories, dealing with land use and physical development as a distinct sector of government activity, and coordinating sectoral policies such as transport, agriculture and environment.<sup>[5][6]</sup> Spatial planning refers to inclusive development of community by providing infrastructure with maximum efficiency. Development advocates preserving the true identity of community and facilitating small scale urban renewal through self help and public participation.<sup>[6]</sup>

In Indian planning system spatial planning is concerned with judicious and sensible use of land. In Indian constitution according to the entry 18 of the Seventh Schedule (the State List), land falls within the legislative competence of the states. The reason why policies related to town planning and land use are not very same across the country. Spatial planning, therefore is the responsibility of various state government in India. Spatial planning has different level in planning system starting from national level to local urban bodies, in the paper hence we are concerned with case study of a city, approach will be limited to local level spatial planning. Department / Directorate of Town and Country Planning are responsible for preparation of Master plan for the city while local urban bodies or development authority are enabled to implement the plan.

Planning system in Chhattisgarh follows the "Chhattisgarh Nagar Tatha Gram Nivesh Adhiniyam, 1973" to manage and operate objective related to planning and development. The act authorizes Raipur Development Authority to take necessary action to achieve objective specified in Raipur Development Plan 2021.

### 5. LAND-POOLING AND LAND-RECONSTITUTION

In general Land pooling method refers to land consolidation through pooling together a group of land. concept of land pooling and readjustment is based on equitable and efficient land development to achieve planned and effective growth in urban area with cooperative, self help public participation. Rapid Urbanization is leading to sprawling and fragmented development along the city periphery therefore consolidation for Greenfield and Brownfield area development is necessary. Land pooling helps to redevelop and revitalize the haphazard development with improvement in public infrastructure and public amenities.

The land pooling mechanism performs transformation of irregularly shaped land parcels to appropriate plots of different nature. The plots are delineated to suite the best economic outcomes. A part of pooled land are associated with public uses and proportional deductions are made to the each plots for equitable land development. The contributed land may include fraction of plots designated to planning authority to finance the development. In the Land Pooling process unlike Land Acquisition, land parcels are not abducted from land holders, where as it is tried to allot plots at the same land parcel. The process of land pooling involves public hearing for democratic development, public participation is eminent domain of land pooling mechanism.<sup>[1]</sup> Wide acceptability of the method is evidently a result of its equitable and democratic nature.

## 6. CASE STUDY OF KAMAL VIHAR (TDS 4)

The process of TDS preparation and salient features of Kamal Vihar is discussed in this section. The scheme is one of the largest TPS in the country with total area of 647.84 Ha, located within 5Kms from city core. The scheme is initiative to accomplish a part of comprehensive goal envisaged in Raipur Development Plan.

### Process of development

As stated in previous section regulation and legislation related to land development false within the state list, TDS of Raipur is processed according to "Chhattisgarh Nagar Tatha Gram Nivesh Adhiniyam, 1973". Though the process is similar to that of TPS of Gujarat, variation does exist. The broad process of TDS preparation is enlisted below.<sup>[7][8]</sup>

- Surveying and defining boundary of the entire project area.
- Marking the cadastral boundaries and tabulating area of each ownership.
- Preparing a base map.
- Marking the boundaries of TDS.
- Layout of roads in planning area.
- Tabulation of final plot sizes.
- Redistribution of plots.
- Landowner's meeting.
- Approval of the draft scheme.
- Formation of a committee.
- Hearings and modifications by the committee.
- Notification and development work.

### Salient features of Kamal Vihar

Planning in relatively large area are often challenging for development authority hence Kamal Vihar is developed in 15 sectors, subsequently detailed planning is incorporated. Kamal Vihar is planned to provide well planned and adequately serviced land for rapid urban growth in a fair and equitable manner. Plot in Kamal Vihar are planned with improved regularity of shape, improved accessibility, availability of

facilities in the neighborhood and better linkage with other parts of the city. The improved potential of Kamal Vihar resulted in increment of market value.<sup>[8]</sup>

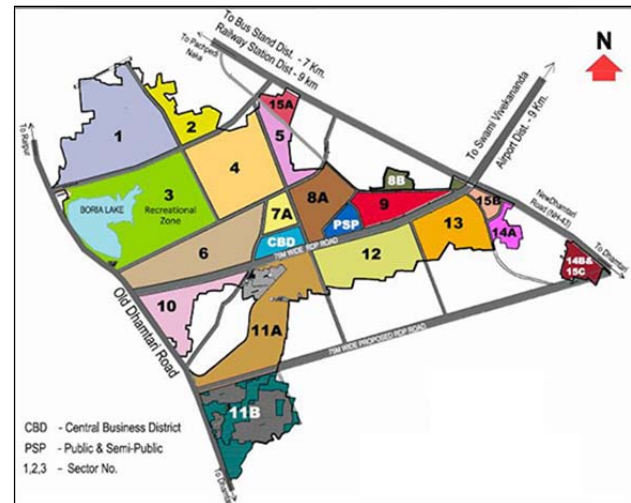


Fig. 2: Kamal Vihar sector layout

### Hosing and social balance.

Development of Kamal Vihar produced 1001 individual residential plot for sale. The plan had provision to provide housing for EWS and LIG people and hence more than 8000 dwelling unit is proposed for EWS and LIG Housing.

### Housing with service

Plots produced in the plan are serviced plots and ready for operation. Individual land holder were allotted with developed and serviced plots and hence benefitted with increased value of land up to four times the original price. While in land acquisition original land holders do not get benefitted, Kamal Vihar improved land price for land holder therefore it is widely accepted.



Fig. 3: Proposed layout of Kamal Vihar



### Urban renewal through cooperative efforts

Kamal Vihar is based on land pooling mechanism therefore Greenfield in city periphery is developed in to a planned urban serviced land by sharing land from local land owners. The process of planning involved with public and private hearing which encourages public participation and more democratic development.

### Provision for social facilities

Social facilities such as educational institutes, community area, recreational parks are planned in shared land. While Planning for EWS and LIG plots judicious area are provided for social facilities. This facilities are planned to achieve maximum efficiency of community by providing equitable allocation of land. Accessibility of social facilities are maintained to minimize average access time and to curtail traveling expanses.

### Physical infrastructure

Kamal Vihar is equipped with well designed physical infrastructure network with water supply, drainage, electricity, sewage network, sewage treatment plant, electrical infrastructure including solar lighting and underground supply network, telecommunication service network. plots of the scheme are designed to serve plug and play connection.

### Transportation network

Scheme is Provided with Scheme Level - 75 meter wide 6 lane Major Ring Roads. Other roads are 45, 30 & 24 meter wide lane with footpath, street light, cycle track, service corridor & green corridor. Road networks are planned for congestion free traffic with provision of Rotaries and signalized intersections. Development plan level road network are implemented.

### Linking Development plan and Master plan

The whole scheme was an initiative to implement the objectives suggested by Raipur Development plan 2021.

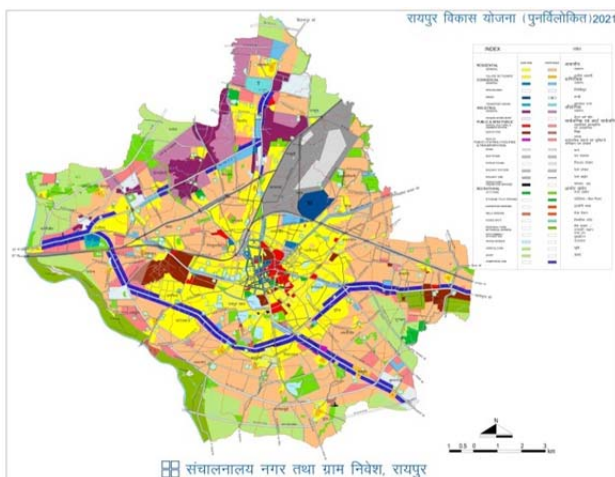


Fig. 4: Raipur Master plan

The proposed road and land use of master plan in the Raipur planning boundary were implemented within the reach of scheme boundary. example of such development are proposed RDP road MR21, MR39, ring road no. 4 and proposed residential land use.

## 7. DISCUSSION

Case of Kamal Vihar (TDS 4) is a successful example of TDS in Raipur. At the beginning of paper we have identified certain characteristics of spatial planning system in India and potential outcomes of spatial planning and infrastructure development. The potential outcomes and features of Kamal Vihar identified from case study do full fills the objective of spatial planning. Provision of infrastructure and planned development of community without abduction the local land owners maintains the social balance within the community. Right of land owners are secured and urban renewal is initiated through planning for individual detailed sectors with keeping comprehensive objective intact. For the case of cities like Raipur with rapid growth and demand for more residential land TDS may have a great scope but applicability of TDS in other cities are yet to be explored.

From the case of Kamal Vihar role of local planning authority is observed and crucial finding can be made. Spatial planning in the Indian planning practice basically deals with allocation and distribution of resources viz. land, fund, manpower etc. inclusion of self help and public participation in TDS are deciding factors for success of such scheme. The land pooling model of development used in TDS is another reason which helps government agencies to act as facilitator instead of developer.

## 8. OVERREACHING GOALS OF SPATIAL PLANNING

TDS is an initiative by RDA to response the need of growing Raipur. Development in past through private developer lead to the unbounded and fragmented development in city periphery, but it also brings light in to the need of proper action for residential development. The need is positively responded with proposal of TDS, out of which TDS 4 is accepted by community. Looking towards future prospects TDS 5 is notified and planning process is initiated. Planning of TDS promoted the housing and urban land reform as we observed the price of urban land has increased more than four times of its original prize. Provision for LIG and EWS sector in the planning scheme will maintain the socioeconomic balance in urban area.

Improved built environment, facilities with all future infrastructure and amenities in Kamal Vihar will improve real estate market in Raipur with keeping intact private rights of land owners. Provision for serviced land lets users right to develop the house in their desired way and time.

## 9. CONCLUSION

Role of local urban bodies experienced in case study proves the need of ULB's to focus in to facilitating rather producing urban infrastructure. As TDS is long and complex planning process, argument for availability of adequate manpower at local level needs to be tested in detail. Application of TDS as spatial planning tool to provide infrastructure in urban area is successful in Raipur. The planned approach to maintain urban growth keeping future goals and identity of community are the key to equitable and efficient development. Admitting TDS has attained excellent appreciation for infrastructure development in Raipur, its acceptability in other cities of Chhattisgarh is still a question. Overall process time, operation and management of produced assets are other dimension of study for TDS which further needs study and exploration.

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