

Innovative Urban Land Management Techniques for Infrastructure Development

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Abstract: In India, urban land management is a state subject and each state has their own urban land supply policy. The aim of research paper is to identify the best land management techniques in India based on performance indicators and to develop an innovative technique using a combination of various tools to enhance the quantum of supply of urban land. The SMART (Sustainable, Marketable, Aesthetical, Rational and Transit Oriented) Model was developed to improve the performance of the Land Pooling land management policy in India. The SMART model was implemented for TPS no 32 and 12% extra urban land was provided for infrastructural development in TPS no 32.

Keywords: Guided land development, Land acquisition, Land pooling & redistribution, SMART Model

1. Introduction

Land acquisition is adopted as urban land supply policy in most of the state of India as urban land management is state level subject. It has become a time consuming process as well, sometimes it leads to unending litigation. On the other hand the owners, whose lands are acquired, feel that they have not been adequately compensated. Guided land development program is used in the north part of India for supply of urban land, but failure in commitment from private developers/colonizer, it is about to fail in concept. The Town Planning Scheme has been followed as an alternative method to assemble the land for urban development activities in a faster and financially affordable manner without taking recourse to compulsory acquisition of land. It is basically an area planning technique patterned on the concept of land re-adjustment. Disadvantages like time-consuming process, land revenue and title problem, land speculation fails to attract other states developers. Statistical analytical approach to evaluate basic three policies like land acquisition,

In this paper some of the innovative methods are discussed to make land pooling methodology more efficient. Land revenue and land development are like a two sides of a coin which complement each other, and a new methodology is proposed to overcome the land revenue issue in urban land management.

Land Management Practices

Land assembly and development mechanism are undertaken for achieving the optimum social use of urban Land and to ensure adequate availability of land to public authority and individuals. Public private participation is achieved in land development through various techniques. Some of the land assembly techniques also promote flexibility in land utilization in response to changes resulting from the growing city. The various mechanisms to assemble and/or develop land are enlisted below:

Land acquisition

“Land Acquisition” means the acquisition of land for some public purpose of a government agency for individual

landowners, as authorized by the law, after paying a government-fixed compensation to cover losses incurred by landowners from surrendering their land to the concerned government agency the land acquisition process can be undertaken by the State or through private initiatives.

Land pooling & redistribution

Land pooling and Readjustment Land Pooling & Readjustment approach is found to be better as it involves Public Participation. In this method, the public planning agency or development authority temporarily brings together a group of landowners for the purpose of planning, under the aegis of the state-level town or urban planning act. There is no acquisition or transfer of ownership involved, there is no case for paying compensation.

Guided land development

Another alternative to compulsory land acquisition has negotiated the land purchase as pursued by private colonizers. This was made possible for the first time in India under the Haryana Municipal and Regulation of Urban Area Act, 1975. The Act permits developers to negotiate direct purchase from farmers for large scale land assembly for urban development. This land is generally located on the fringes of existing towns and the negotiated prices are three to six times higher than the government rates. Land assembly is also completed relatively easily.

Limitations of Current Practices

Land Acquisition

- It is unfair for the original owners of the land, mainly farmers, as they cannot enjoy the benefits of the development.
- Under this method, the majority of the farmers lose their cultivatable land and they are forced to join the pool of urban labour because of their inability to invest wisely the money received in compensation.
- The increase in the pool of urban labour adds to urban problems such as the growth of slums, increase in the crime rate and increased informal sector economic activity.

- Any person who needs land for urban use has to approach the urban development authority. Inefficiency in the human land process results in a slow approval process. The development authority ends up becoming a bottleneck for development.
- Development agencies using the method of bulk LA end up being powerful large-scale land developers, controlling vast urban resources and providing the space to breed corruption and an unethical paradigm, in which the government plays the role of facilitator.

Town planning scheme

- The timelines proposed in the regulatory framework are too long. It takes approximately four years from conceptualization to the final sanctioning of the TPS. The State Government actually takes much longer to approve the various stages. The TPS thus takes far too long to prepare and implement. In view of changes in technology, the timelines can be easily reduced.
- The processes are far too centralized and too much power is vested in the State Government to approve and sanction the DPs and TPS. The State Government is responsible for undertaking both substantial reviews and procedural reviews of each and every DP. There are no limits on the time it takes for this and there is a tremendous amount of corruption.

New Alternatives

The study tries to find out the deficiencies in the current Land pooling methodology and providing scientific Solutions. The basic aspect of the solution is to have a higher ratio of urban land allocated towards the Infrastructural Development. As per the evaluation studies land pooling is best performance techniques for supply of urban land, but at a same time it has failed to supply titled urban land to the end users. Land acquisition is a good technique for planner's point of view, but at the same time it has failed due to the longer time frame and higher ration of unsatisfied land owner in a subject of compensation. A combination of both the tools may result in a new approach of land management. Some of the modifications in land pooling methodology and acts are required to frame new policy.

Earlier land pooling and readjustment [LP&R] is now replaced with land acquisition and redistribution [LA&R] method. Few changes in acts and combination of techniques will give free hands to planners for more infrastructural space. Original land owners will be satisfied due to appropriate compensation. Three basic modifications in methodology are highlighted below.

- Instead of temporarily pooling the land, it should be acquired under the land acquisition act 1894. As per the original act land is redistributed to original land owner with same agricultural land title. It is very difficult and lengthy process to convert land in non-agricultural form. In this new policy land was first acquired by local authority and land is return back to land owner with single paper non-agricultural format with defined land use.
- TRC [Transferable rights certificate] is issued to land owner having area less than 2000sqmt. Others are facilitating with land readjustment approach. It was

found in critical review and analysis of town planning scheme that 10% to 12% of land having area less than 2000sqmt. Smaller plots fail to provide mass housing with better infrastructure facilities. In new policy, small plots are replaced with TDR and those lands are used for infrastructure facilities.

- Where there is a shortage of land for infrastructure more Floor space index [F. S. I.] can be offered as compensation. For social and physical infrastructural facilities more F. S. I. is offered to adjacent land owner.

Innovative Models for Land Management

Incentive Model

The incentive FSI model has encouraged the landowners and developers to come forward and redevelop the old buildings, rehabilitate the slum area, construct co-operative housing societies, and cease buildings from the tenants with a small carpet area for better redevelopment, and more. The implementation of incentive FSI in the TPS scheme is to create extra space for infrastructure. It can be done on a case to case basis, for example where there is a need for a huge chunk of land or extra land towards infrastructure facilities, it may be that five to six plots can be given incentive FSI and the government can get extra land for the widening of the road in that area. In the TPS area, where the width of the road is less and rate of traffic congestion is high, incentive FSI can be used. With the help of the Incentive model, 12.00 mt road is converted into 24.00 mt without the dissatisfaction of the land owner, by giving them incentive FSI. This model has the potential to be used for retrofitting and redevelopment projects. This model can be introduced at the time of designing of draft TPS to get a higher ratio of land allotted for public purpose reservations.

Transfer of Development Rights Model

In the TDR concept, the potential of a plot of land identified as intensity of built-space, guided by the FSI or FAR, has been separated from the land itself and made available to the land owner in the form of TDR to be utilized by the owner from the inner zone (originating area) to an outer zone (receiving area) specified by regulations. TDR helps to make the land more marketable, one of the important aspects of the SMART model. TDR is a market based technique that encourages the transfer of growth from places where a land owner would benefit less from the development to places the land owner will be benefitted more after transferring the rights. In some cases-environmentally sensitive land such as open grounds, agricultural land, historic landmarks or other important land where certain type of development is not possible-such land can be used for new civic amenities development and land owners can use a TDR certificate for better development. TDR model facilitates removal of small plots from the layout and it's used for public purpose infrastructure facilities and TDR allotted to the owner of the land against the acquisition of land.

Revenue Model

Land revenue or land tax was the major source of revenue for the government of India from the time of Mughal and British rule. In some of the states or areas, the individual system was adopted under which the revenue settlement was made directly by the government with the individual or

cultivator. In order to reduce the long term court matters and minimize the effort and the human resources required to convert new tenure agricultural land to old tenure agricultural land or old tenure non-agricultural land, this research proposes a revenue model. This model has not been used previously, since this has been a practical problem faced by developers in the last decade. This revenue model will provide some easement and help in reducing the time duration for the new title of the land. Under the deduction of land for TPS development, the government can decide to deduct those lands up to 60% instead of 40% under the Town Planning Act 1976. This extra land will be used for infrastructural development. In return, the new land tenure holder gets the old land tenure titled for non-agricultural use.

Benefits to government

- 1) Availability of extra land [resource] without LA.
- 2) Land at cheaper rate.

Benefits to stakeholders

- 1) Easy conversion of new tenure land to old tenure. Under the traditional method, it takes nearly 2 years for approval.
- 2) Fast development without investment.
- 3) Avoiding legal matters. Out of 100 revenue cases, 40 are due to new tenure land.

SMART Model

The SMART model for TPS is the combination of all the above discussed tools, which can be used on a case to case basis, which will result in a higher ratio of urban land allocated towards the infrastructural development. The SMART model will create an urban branding and it is required to follow global architectural styles which can include the provision of nodes and landmarks, urban squares, urban streets and etc. In order to create urban branding in the state of Gujarat, it is necessary to do some modifications in TPS ideology and methodology. This new methodology of urban land management will increase the supply of urban land in a smarter way, hence it is called SMART.

The incentive model rejuvenates the old TPS area for **sustainable development**. The TDR model makes the city dynamically **marketable**. The revenue model increases transparency. Deleting smaller plots and encouraging bigger plots, creating extra urban space for amenities, wide roads and providing urban squares increases the **aestheticism** in the city. The **Rational** distribution of the amenities makes the city look regular and uniform. With an incentive FSI model, the width of the road can be increased which will give space to accommodate a better **transit system**. Also, the tall buildings on the side of the road will provide a better urban canyon effect and a skyline effect to the city.

The main vision of this SMART model is to help the planner to take a step towards a sustainable city without affecting stakeholders. Using the Incentive model, TDR model and Revenue model together in the SMART model for TPS, on a case to case basis, will help in planning a larger area (greater than 100 ha.) and will result in the development of sustainable cities in India. The SMART model increases land for infrastructure development by 15%. All tools in the

SMART model were tested in a court of law. Less infrastructural cost with sustainable development. All to gather 1, 2 and 3 Model can be used for Master planning in 300ha. [Approximate 3 TPS] This will also result in a sustainable development in Indian cities. The SMART model has the capacity to supply nearly 20% more land towards infrastructural development with the optimization of the cost of infrastructure.

2. Conclusion

Urban land management exercise is very crucial, complex and connected with many issues. Therefore, it needs careful consideration to arrive at amicable solutions. In the Indian context, it is more vital because land is a state subject. As per practicing professionals & policy makers Land pooling and readjustment known as TPS, Gujarat model is considered as best performing policies. It is difficult to evaluate the land value for compensation point of view in land acquisition method. Therefore the land pooling and readjustment method should be promoted to create extra land for infrastructure development. Incentive FSI model: This model will be able to generate 5% extra land towards infrastructure development. TDR model: The benefit of TDR should be given to landowners having a land area less than 2000sqmt. As per assessment 7-12 % of the total area of TPSs have plot areas less than 2000sqmt. Generally, this land can be made free for infrastructure development. Revenue model: Land having new tenure can be deducted as 60% instead of 40%. So that overall 3-10 % land can be free for infrastructure. SMART model is composed of all above three techniques. By application of the same 11.16 % (10-15%) land can be generated towards infrastructure.

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