

Seminar Report

On

SLUM REHABILITATION

Submitted in partial fulfillment of the requirements

Of the degree of

Masters of Technology

By

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CERTIFICATE

This is to certify that Ms. More Manali Jaybharat Seat No. CM00I001 had successfully completed the seminar work entitled "SLUM REHABILITATION" under the guidance of Dr. Prashant P. Nagrale in the partial fulfillment of M.Tech. in Construction Management.

Date: 02.11.2017

Place: Mumbai

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CHAPTER – 1
INTRODUCTION

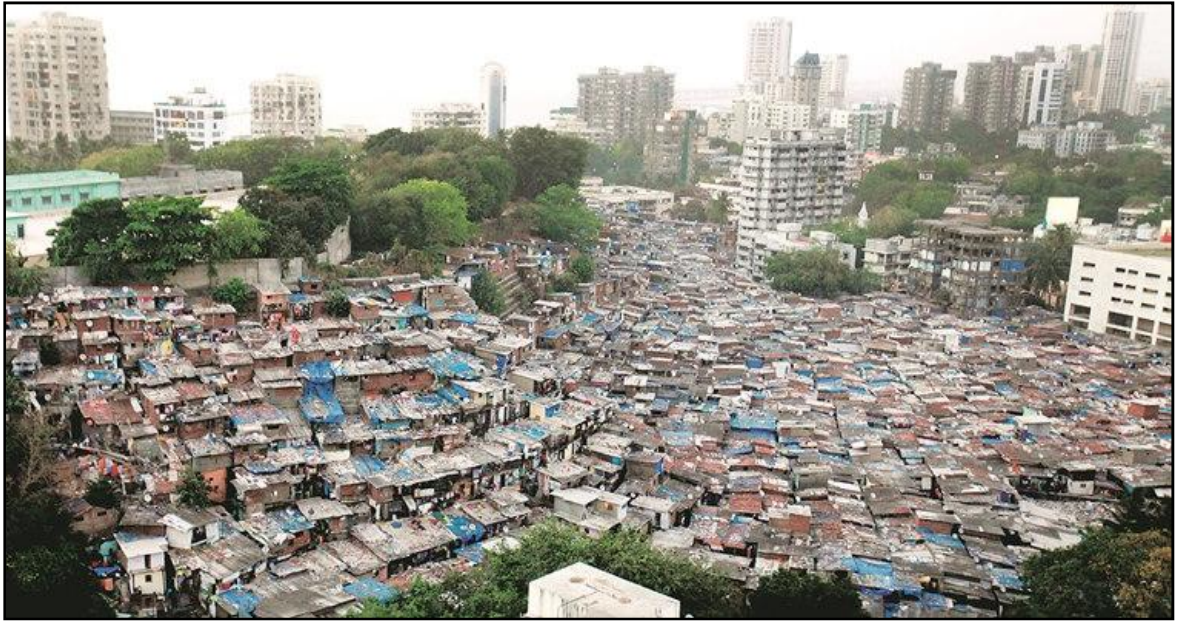


FIG. 1.1 SLUM IN INDIA

1.1 WHAT IS SLUM REHABILITATION?

With an ever increasing number of slums emerging almost daily across the metros in the country, it was imperative that the Government took prudent steps to check this occurrence. Due to unavoidable circumstances, the dwellers in these slums, lead an unhygienic lifestyle and have poor standards of living.

Keeping this in mind, the Government of Maharashtra has brought an amendment to the Maharashtra Regional and Town Planning Act 56 and introduced a nodal agency Slum Rehabilitation Authority (SRA). SRA brought forth a Slum Rehabilitation Programme that analyzes and reviews existing positions of slum areas in the city. The SRA then devises plans for rehabilitation of these identified slum areas and ensures that the slum rehabilitation scheme planned is executed to the best of SRA abilities. The Slum Rehabilitation Authority (SRA), in India enables property developers to rehabilitate slum-dwellers in-situ and compensates the landowner and developer by awarding them with the Transferable Development Rights (TDR).

1.2 NEED FOR SLUM REHABILITATION

The metropolitan area of Mumbai spans an area of 437 square kilometers (approximately 170 square miles), with an estimated population of 10 to 12 million people. Six million of this urban populace is categorized as squatters or slum dwellers. This slum population has 2500 settlements in the city occupying about 2500 hectares of area, which constitutes a mere 6% of the total land area. Unlike other cases, the slums in Mumbai have settled on private lands (50%), State Government Lands (25%) and Municipal Corporation lands (25%). The conditions of these slum occupations are dangerously unhygienic and are defined unfit for human habitation due to reasons such as overcrowding, lack of ventilation, electricity or sanitary facilities by the Census of India.



FIG. 1.2 LACK OF SANITATION FACILITY

Apart from this is the unaccounted-for population of an estimated 1 million that live on pavements, with absolutely no providence. In addition to this, an estimated population of 2 million people lives in old, dilapidated and often illegal structures called ‘chawls’ of Mumbai. This means that almost a staggering 80% of the population of Mumbai lives in sub-standard of unsafe conditions with a continuous threat of displacement. This brief description depicts the dismal condition of a basic human necessity: housing, in the financial capital of one of the fastest growing economies of the world. (RH Jagdale - 2014)

A rapidly urbanizing population and the inadequacy of city governments to meet its demands have meant a critical housing and infrastructure shortage. It is estimated that there are roughly 100 million slum dwellers in the country. The Slum dwellers are important contributors to the development of the city by rendering their services to the citizens & organizations. To bring this weaker section in to the mainstream of the society, it is necessary to give them at least proper shelter. The contributions of slum dwellers to the city’s economy – as industrial workers, construction site laborers, domestic servants, rag-pickers, hawkers and a wide range of small scale trades is vital to the city.



FIG. 1.3 RAG-PICKERS LIVING AT SLUM AREA

CHAPTER – 2
REVIEW OF LITERATURE
PART A

Summary of relevant Technical papers

2.1 REHABILITATION OF SLUM: A CASE STUDY OF WEST ZONE OF SURAT CITY BY PATEL ACHAL S, PROF. HIMANSHU J. PADHYA

One of the greatest challenges that India faces according to census 2011 is increasing population and urbanization. Surat, the second largest city in Gujarat state has a dominant role in the sphere of economic and industrial activities in South Gujarat region. Rapid urbanization is direct result of rocketing population. The problem has been accentuated by continuous migration of the rural population in search of better working opportunities in the city. The aim & objective is to rehabilitate the slums of west zone of Surat city as well as to become a west zone slum free. The city is divided into seven zones and in 114 wards of the Municipal Corporation.



FIG. 2.1 SLUM AREA OF WEST ZONE OF SURAT CITY

2.1.1 PLANNING PROPOSAL: HOUSING FOR THE URBAN POOR

Low Rise Apartment: In this proposal, low rise (G+3) is provided for different five slum pockets. Low rises are provided where the huge number of slum dwellers is living on slum pockets. There are total 1344 households (slum dwellers) living on the different five slum pocket. In this proposal total 42nos of low rise buildings (G+3) are provided with public amenities, recreational area, and 9mt wide internal roads. In the public amenities, 2 number of anganwadi, one shopping complex and one police station is provided.

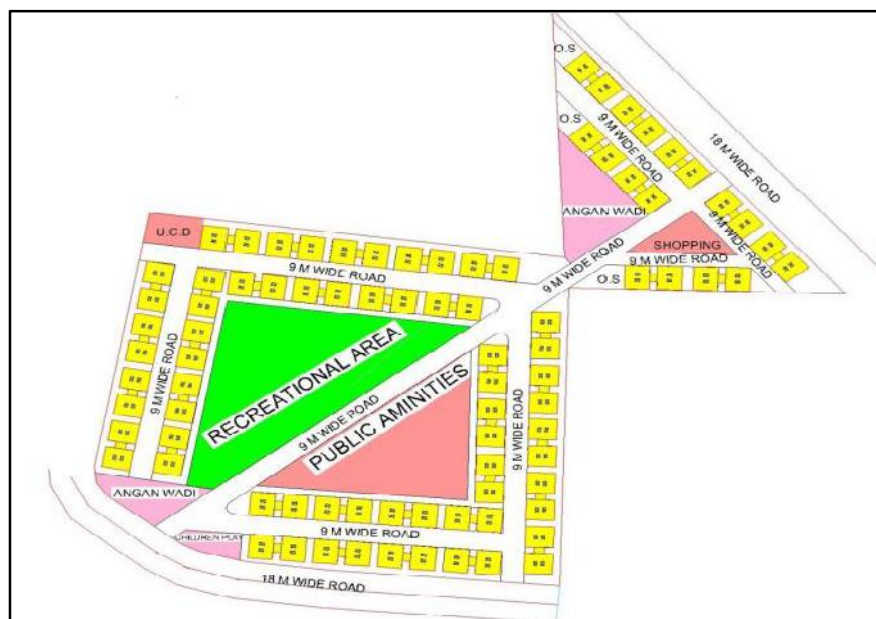


FIG. 2.2 PROPOSED PLAN OF WEST ZONE

In low rise building there are total 8 units on each floor so 32 units are in one building. In this proposal following physical infrastructure facilities are proposed.

1. Drainage: Underground R.C.C. pipe drain of 250mm diameter. Location of manholes at 30 m distance. The connection will be made in existing SMC trunk line.
2. Water Supply: Underground pipe line of minimum 150 mm will be laid & connected with SMC main trunk line.
3. Streetlight: 6.0 m G.I. pipe poles at 20 m distance will be laid with tube light fittings.
4. Roads: All internal roads of 9 m width will be constructed with residential street type design.

5. Pavement: All surrounding areas will be made Pacca by paver block.

6. Solid waste collection: In this door to door collection of garbage will be provided for the slum dwellers.

2.1.2 TOTAL PROJECT COST

The total cost include Construction cost as well as Infrastructure cost is shown in table :

Particulars	Total cost (in Lacs)	Cost per unit (in Lacs)
Construction cost	2890	2.15
Infrastructure cost	322.56	0.24
Total cost per unit:		2.39

TABLE 2.1 TOTAL PROJECT COST

2.1.3 CONCLUSION

West zone is having 55 slum pockets because it is a developed area of the city. The main objective of this work is to study the existing scenario of slum dwellers and based on that provide suitable housing strategies for the slum dwellers.

This study is mainly focus on the choice of slum dwellers as follow:

- House will be nearby their work place
- They will be provided transportation facilities
- EMI will be less as possible as govt can do

2.2 IMPACT OF SLUM REHABILITATION PROJECT IN BANGALORE CITY: A CASE STUDY OF PANTHARAPALYA BY DR. B. SHANKAR1, B. S. VASANTHI

2.2.1 GENERAL

Bangalore is one of the fastest growing cities in Asia and it is at the crux of problems associated with rapid urban development, which constitute 576 slums. Bangalore city has 576 slums, which constitute 7,24,441 slum population and 1,64,786 households as per 2014 figures of the Asha Kiran Mahiti of Karnataka Slum Development Board; of which 232 are declared slums and 344 are undeclared slums.

The Basic Services for the Urban Poor (BSUP) project was planned in three phases. The Karnataka Slum Development Board identified 30 slums including Pantharpalya slum, which was selected in the first phase for rehabilitation project by considering it as one of the most vulnerable slums in terms of socio-economic conditions, physical infrastructure (water supply, toilets, pavements, street lights) and land title. It occupied in an extent of 20000 sq.mts. It is bounded by Bangalore-Mysore State Highway on eastern side, storm water drain on western and southern sides and 5.5mt wide road on northern side. The situation in terms of socio-economic condition and physical infrastructure namely water supply and sanitation were in vulnerable conditions. People were erected houses according to their wishes and there was no security of land tenure.

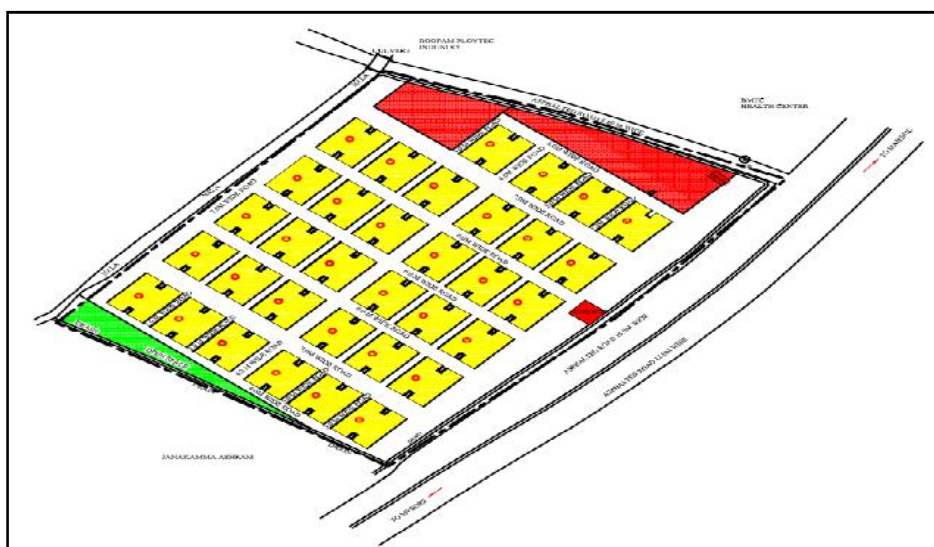


FIG. 2.3 PROPOSED PLAN OF PANTHARAPALYA

Plot Area : 21150.30 Sqm (5.22 Acres)

FAR : $9208.22 \times 4 / 21150.30 = 1.74$

Sr. No.	Land Uses	Area	Percentage
1	Residential	9208.22 Sqm	43.5%
2	Open Spaces	634.50 Sqm	3%
3	Civic Amenities	1903.52 Sqm	9%
4	Roads	9404.06 Sqm	44.5%

TABLE 2.2 AREA PROVIDED

Sr. No.	Number of Blocks	Unit Per Block	Total Dwelling Units
1	Ground Floor Units	8	272
2	First Floor Units	8	272
3	Second Floor Units	8	272
4	Third Floor Units	8	272
5	Plinth Area per Unit		29.13 Sqm
6	Carpet Area per Unit		25.03 Sqm

TABLE 2.3 HOUSING DETAILS

2.2.2 PROJECT IMPACT

The impact assessment was carried-out by employing structured questionnaires, interviews, visual analysis. Interactions were held with the beneficiaries and the personnel who implemented the project. Ten percent sample survey was administered for 100 dwelling units with a **Random Sampling Technique**. The physical, social, economic and environmental impact assessments were carried-out.

SWOT ANALYSIS

STRENGTHS

- In-situ Rehabilitation project enabled them to provide pucca dwelling units to improve the quality of life and safe living in a neighbourhood approach.
- Adequate infrastructure like bore-wells, sumps and overhead tank for water supply.
- Community hall (418 sqm), which provided in the layout is useful for community participation and Information Education and Communication (IEC) activities.

OPPORTUNITIES

- Strengthening of welfare association and community based organization, which enable them to access to income generating activities and access to formal loan facilities which will helps them in improving their life standard.
- There is a scope for involving Welfare Association in maintaining the common areas, assets and structures.
- Collection of user charges for water supply and electricity to be introduced.
- Optimum utilization of the community hall.

WEAKNESS

- Partial implementation of zoning and building regulations.
- High dwelling unit density (516) above the average 344 dwelling units/ hectare approved in the first phase DPR. These energy intensive structures will add to stress on existing infrastructure like power and water supply.
- Solid waste disposal in the side drains and open areas within the locality.

THREATS

- Sustainability
- Attrition at upper level dwelling units.

2.2.3 CONCLUSION

The in-situ rehabilitation, which was carried out in Pantharpalya Slum has contributed for improving the quality of housing. The project has benefitted largely to the urban poor though, certain dissatisfactions in terms of quality of construction, sustenance of infrastructure and its maintenance including community involvement.

CHAPTER – 3
REVIEW OF LITERATURE
PART B

3.1 OBJECTIVES

The primary aim is to explore slums to understand their impact on sustainable urban development. To achieve the above aim the following objectives were formulated.

1. To explore existing slums and understand how slum rehabilitation and resettlement projects work.
2. To understand the attitude of slum dwellers towards urban sustainability. Also examine why rehabilitation and resettlement projects are not achieving considerable success.

3.2 EXISTING SLUMS AND THERE IMPACTS IN MUMBAI

On looking at Mumbai from an aerial view, one can see many small and large scale black spots, so called slums and hutments sitting in the different pockets of the city. As slum pockets cover a mere 6 percent of the land in Mumbai, they hold about 60 percent of the total population (CBC, 2006).

All the slums in Mumbai are not merely residential, but have many commercial units such as, shops and small scale industries. However, in Mumbai a high rate of migration to the city from the rest of India resulted in the growth of slums. Redevelopment of low-cost housing could not accommodate all the migrants (Dalvi, 1997; Giridharadas, 2008). Slum growth started about a half century back. During developments a group of people were displaced from certain locations without provision of alternative housing and other facilities, which resulted into the some of the existing slums today.

At the same time, though several organizations are working, lots of efforts are made and investment spent to control the growth of slums; still sustainable urban development is far from a considerable level. It is reported that 55 percent of the total population is living in more than 2,500 slums located in different parts of Mumbai (O'Hare et al., 1998).

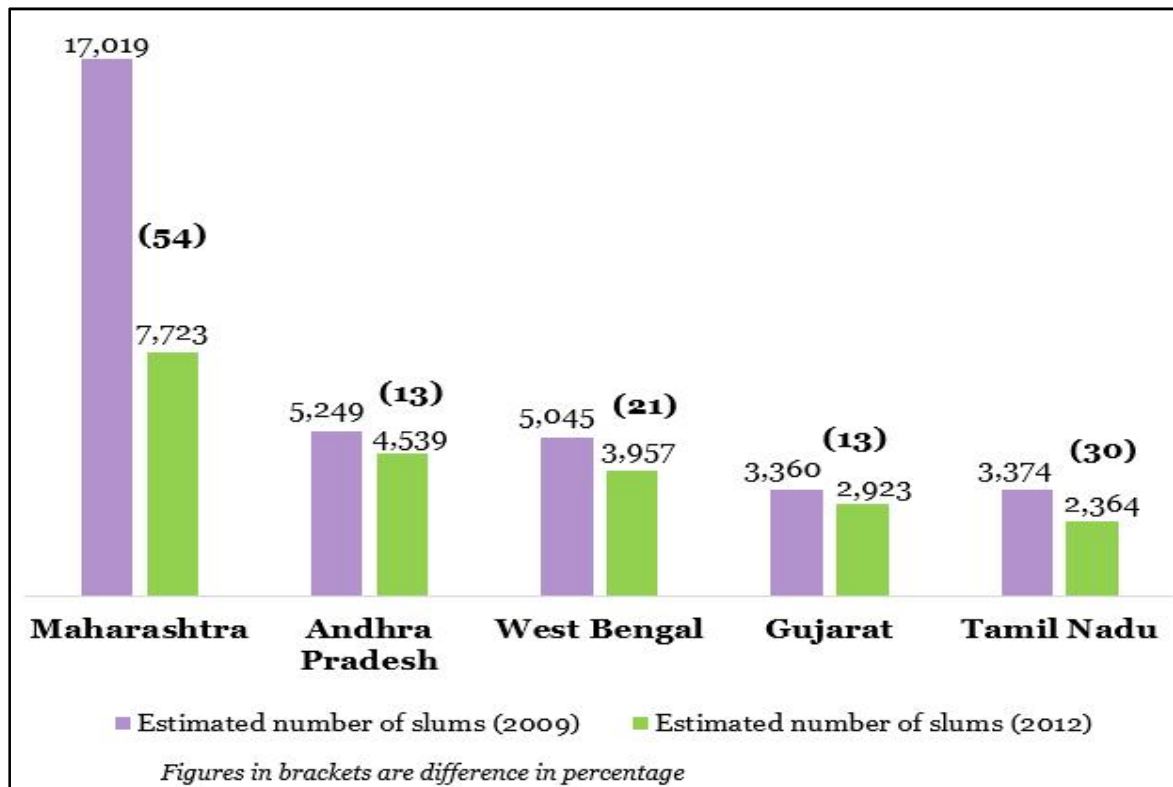


FIG. 3.1 SLUM IN URBAN INDIA, 2009 & 2012

(Source: MOSPI)

About 50 percent of these slums are spread on private land, 25 percent on state government land, 20 percent on municipal land and the remaining 5 percent on Central government and housing board land (Dalvi, 1997). It is reported that there are 5 million slum dwellers, 1.2 million slum families eligible for rehabilitation in Mumbai; and rehabilitating all of them will cost over INR 210,000 million,” (Iyer, 2005)

However, rehabilitations of slums put pressure on middle-class people resulting in paying more taxes to the governments (UN-Habitat, 2003). Moreover, the available and reserved money for the improvement of urban areas is utilized for development of existing slums which results in an overall undeveloped urban area.

TABLE 3.1 SLUMPOPULATION IN MUNICIPAL URBAN AREA OF MMR (2001)
(MMRDA, 2001)

Sr. No	Urban Area (Municipal Corporation/Councils)	Slum population in 000's	Total Population in 000's
1	Greater Mumbai	5823.51	11914.40
2	Thane	420.27	1261.52
3	Kalyan-Dombivali	34.85	1193.27
4	Navi Mumbai	138.62	703.93
5	Bhiwandi	111.30	598.70
6	Mira Bhayander	37.24	520.30
7	Ulhasnagar	53.72	472.94

A study by Davis, in 2004, reported that, populations in the slums are often undercounted. Also, slums which exist on the maps; where a census has been done, exists a variation in population between the census and the actual population. In another study by Nijman, 2008, it is argued that, often, there is a variation in the actual boundary, location and population of the slums. Moreover, some slums in Mumbai do not exist on any maps, thus formal surveys and census have never been done with these slums (Nijman, 2008). Also, it was found that there was a significant difference in slum location and size population count in the actual census recorded by Greater Mumbai and in the field. The outcome of this above mentioned study reported that slums population and size are far more than the actual numbers mentioned in the census records.

3.3 MUMBAI: BLAZE OUTSIDE BANDRA RAILWAY STATION CONTAINED; FOUR, INCLUDING ONE FIREMAN INJURED

The massive fire which had engulfed shanties in the Garibnagar Slum in the Behrampada area in Bandra East. The fire broke out at around 4.20 pm when municipal officials were carrying out an anti-encroachment drive outside the busy station, with flames rising over a part of the overhead bridge on the east side of Bandra railway station. Huge tufts of smokes could be seen billowing over the Bandra station and four people were injured. Train services on the Harbour line, between Wadala and Andheri stations were temporarily non-operational due to the fire. However, all train services have now resumed services. The skywalk which had caught fire has been shut completely to avoid any mishaps.



FIG. 3.2 FIRE AT SLUM AREA NEAR BANDRA STATION

The hawkers and slum-dwellers bore most of the brunt, losing their belongings to the fire. "Some furniture and windows of the booking office at the south side FOB at the Bandra station got damaged due to the fire from the nearby slums. A fire broke out in a slum near

Bandra station (East) on Thursday, as gas cylinders exploded during a demolition drive by the Brihan Mumbai Municipal Corporation (BMC) in Garib Nagar.

The blaze, which started around 3pm, soon spread, burning down a few shanties and damaging a part of a railway ticket booking office in the vicinity. The fire was brought under control at 7.20pm. Two firemen and one resident from a slum in the area suffered minor injuries.

More than 50 structures including shops were demolished, as part of the action to the area within 10-m of Tansa pipeline. Alka Sasane, assistant municipal commissioner, said, “Around 350 structures from Garib Nagar are to be demolished over three days. Residents of 35 structures are eligible for rehabilitation. We had sent notices to residents even in 2015. Such fires are caused by residents to stop the demolition drive. The drive will continue on Friday as



FIG. 3.3 EFFECT OF FIRE AT SLUM NEAR BANDRA STATION

Harbour railway services from on the Chhatrapati Shivaji Maharaj Terminus-Bandra-Andheri and Vashi-Andheri were shut down from 4.25pm as slum dwellers threw their belongings on the tracks. The services resumed at 4.40pm.

3.4 METHODOLOGY

HOW THE SLUMS REHABILITATION PROJECTS WORK?

Slum Rehabilitation Society (SRS) is one of the oldest and active nongovernmental organizations (NGO) in Mumbai and working with a different approach to slum rehabilitation. Its strategy to improve slums is by promoting the "self-development" approach to prohibit the profiteering by an individual or organization. The main beneficiaries of self-development approach are both the occupants and the city. A slum rehabilitation scheme can be taken up on the plots that are notified, categorized and approved as a slum by the local government. If any of the plots covered by a slum is reserved for non-buildable reservation, then during the resettlement and Rehabilitation the plot area should be more than 500 m² and minimum ground coverage should not exceed 25 percent by the slum rehabilitation.

With self-development approach, slum dwellers get an opportunity to appoint a developer for execution of proposal. Slum rehabilitation and self-development in Mumbai is financed by 're-housing the slum dwellers' in multi-storeyed buildings on one part of the land and selling the other part at commercial rates in the city. Also, 70 percent of the eligible slum dwellers from hutments can come together to form a society to implement the slum rehabilitation scheme. If the area is too dense and difficult to get a satisfactory sale component (as declared by local government), then the rights for developing the commercial area can be transferred to the northern suburbs under the scheme called Transferable Development Rights (TDR). The Floor Space Index (FSI) permissible for a scheme depends on the number of slum dwellers to be rehabilitated, but should not exceed 2.5. Also, after providing low cost housing, ex-slum dwellers living in an apartment receive help in the form of subsidies; tax reductions over a 20-year period and concession for an apartment maintenance. The tenement assigned to a slum dweller is for a minimum period of 10 years from the date of allotment and cannot be sold during that period.

Every slum structure existing on or before 1st January 1995 are eligible for rehabilitation and cheap housing. All the eligible residential slum structures are provided with an alternative tenement admeasuring 225 square feet preferably at the same side, irrespective of the area of their slum structure. However, tenements can be transferred to a legal beneficiary if approved by the Chief Executive Officer (CEO) of SRA. A onetime sum of INR 20,000 per tenement is recovered from the developer for subsidizing the monthly maintenance of the building. Flats

are allocated by an open lottery system and in rare cases family do get a chance to choose flats depending on individual circumstances (handicap, old age, etc.).



FIG.3.4 SRA BUILDING

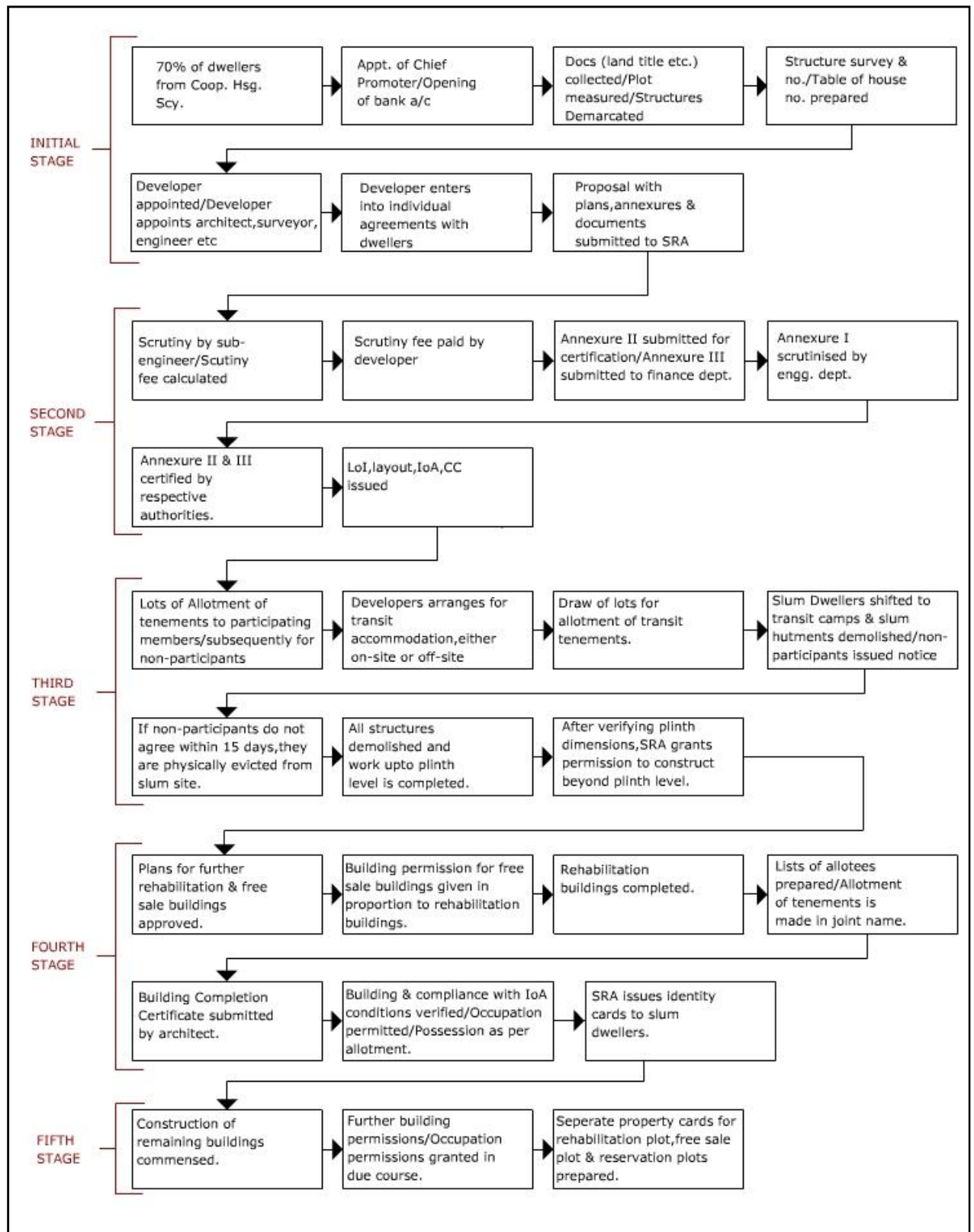


FIG.3.5 STAGES OF SLUM REHABILITATION

3.5 SLUM REHABILITATION AUTHORITY (SRA)



Approach – I (1950 – 1970)

- to remove the slums and protect the land.
- Large Area of public land encroached by slums.

Approach – II (1970 – 1990)

- The removal and control of slum proved futile.
- The Maharashtra Slum Area (Improvement, Clearance & Redevelopment) Act, 1971 came in existence.
- Census of hutments carried out in 1976 and Identity Card/Photo passes issued to Slum Families.
- Basic amenities such as water, drainage, toilet, pathways, street light were provided in slum area.

Approach – III (1991-1995)

- Redevelopment of slums started under SRD by making provision in Act and Rules.
- Redevelopment of slum was made permissible for censuses slum or slum dweller whose name appeared in the Electoral Roll of 1985 with FSI upto 2.5.
- The Scheme proved not effective.

Approach – IV (1995 Onward)

- Formation of AFZULPURKAR COMMITTEE which recommended Slum Rehabilitation scheme.
- Committee estimated 80% slum rehabilitation is possible in situ.
- Committee relies on philosophy that “if inequality has to be removed there has to be unequal law” as giving free tenements to slum dwellers is not supported by housing philosophy but slum dwellers deserve this preferential unequal treatment to bring them into mainstream of social, cultural and economic fabric of this pulsating city.

3.6 Floor Space Index

The state government is all set to increase the floor space index (FSI) for slum rehabilitation projects across the city from 2.5 to a whopping 4.

In simple terms, this means that if a builder in a slum rehab scheme could construct a five-storey building with FSI 2.5, he could now go up to 15 floors. (FSI is the ratio of the permissible built-up area vis-a-vis the size of the plot.) An increase in the FSI would allow developers additional construction on slum land, which would give them windfall profits under the free sale component. Town planners fear this will further burden an already creaking infrastructure and increase human density on such plots.

The government's proposal comes barely days after the chief minister's office cleared an enhanced floor space index of 4 for the Mumbai-based developer HDIL for rehousing 80,000 slum families encroaching on airport land.

UPSIDE TOWN

1. Under the SRA scheme, assume ten acres house approximately 10,000 slum dwellers.
2. With an FSI of 2.5, builders could construct a maximum of up to five storey's, with very little open space between the buildings.
3. With an FSI of 4, the buildings can now rise up to a minimum of 15-16 storey's in mega redevelopment schemes anywhere in the city or suburbs.

CHAPTER – 4
DHARAVI REDEVELOPMENT
PROJECT

(Slum Rehabilitation Authority)

Dharavi Redevelopment Project

4.1 Introduction:

Dharavi is the largest and highly populated slum pocket in Asia. Govt. of Maharashtra has accepted the proposal submitted by Architect, Mr. Mukesh Mehta for the redevelopment of Dharavi which, after suitable modifications, will be implemented through the Slum Rehabilitation Authority (SRA), according to the norms of S. R. Act of 1971.

4.2 Development Plan:

According to SRA norms, the slum dweller whose name appear in the voters list as on 01.01.1995 & who is actual occupant of the hutment is eligible for rehabilitation. Each family will be allotted a self-contained house of 225 sq.ft. Carpet area free of cost. The eligible slum dwellers appearing in Annexure II certified by the Competent Authority will be included in the Rehabilitation scheme. Eligible slum dwellers will be given rehab Tenement in Dharavi.

4.3 Transit Tenements:

During the implementation of this project, Dharavi residents will be provided with transit tenements, in close proximity of Dharavi or in Dharavi itself. The developer will bear the cost on account of rent of the transit tenements but the cost of expenditure of consumables like water, electricity, telephone etc. will have to be borne by the slum dwellers.

4.4 Sustainable Development:

The development plan for Dharavi has many amenities in it; viz. wider roads, electricity, ample water supply, playgrounds, schools, colleges, medical centres, socio-cultural centres etc. For proper implementation, Dharavi has been divided into 10 sectors and sectors will be developed by different developers. The total duration of this project is accepted to be of 5 to 7 years. Rehabilitation building will be of 7 storeys.

4.5 Development Procedure:

After considering the redevelopment plan, a detailed plane table survey has been carried out to know the ground realities. Also, consent of the slum dwellers to join this project is being obtained. After obtaining suggestions & objectives from the public for the revised development plan, the same will be finalized by Govt. For each sector a detailed sectoral plan will be prepared by the selected developer in consultation with SRA. This will be placed before the public for suggestion/objectives and then finalized after due amendments.

4.6 Appointment of the Developer:

Global tenders will be invited from developers for this project. The developer will be evaluated technically and financially by a Committee headed by the Chief Secretary of Government of Maharashtra. Each developer is required to explain his development strategy in his sector and obtain objectives & suggestions from the residents before starting the development process.

4.7 Development of local Industrial units:

Taking into consideration the various industrial units in Dharavi, it is being proposed that, non-polluting industrial / businesses will be retained in Dharavi itself. All the established businesses and manufacturing units will be encouraged and will be provided with modern technical and economical strategies for sustainable development.

CONCLUSION:

- Rapid urbanization is direct result of rocketing population. One of the most chronic and intense problem of urban life is slums. Slums exist in almost every metropolitan city of the globe.
- Slum population makes positive contribution to the city economy by active participation in productive activities. Efforts must be mobilized to control the future growth of unhygienic slums and improve living condition of the people.
- This gives the result of benefitting the urban poor to improve their quality of life.
- Slum Rehabilitation activities have increased the density of construction in Mumbai. The state government should be careful of not overloading the already strained infrastructure and environment of the city.

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