

Introduction to Urban Planning
Prof. Harshit Sosan Lakra
Department of Architecture and Planning
Indian Institute of Technology, Roorkee

Lecture - 39
Zoning Regulation

Welcome to the course introduction to urban planning. We have been saying that in order to execute the combined vision for the city aligned with the region and country. We have certain enablers like power, defined roles and responsibilities, plan tools procedure methods. We had seen all these things. Today we are going to look at one of the most important and strongest method of control Zoning Regulation.

Zoning Regulation, which is used for controlling the quality of life, give a city of coordinated and beautiful look, facilitate efficient use of resources and guide the direction of growth. At the same time, you should remember we are moving more towards flexible planning and reducing the control. Further you may recollect code finding of 1971. In which the court finds zoning ordinance exclusionary in Oakland at Madison case in USA.

New Jersey judge ruled that Madison townships zoning ordinance was illegal, because it prevented as many as 90% of the region's residents from getting housing in the township. The first time that zoning ordinance was completely invalidated for being exclusionary. So, one need to take all this in perspective while using any tool for control.

(Refer Slide Time: 02:02)

Learning Outcomes

- 1 Able to explain the meaning of the term Zoning
- 2 Able to review the purpose of Zoning
- 3 Differences between Zoning Regulation and Structural Regulations
- 4 Discuss and list out aspects of Zoning
- 5 List and identify Different Land Use Zones as per guidelines
- 6 Discuss the principles of Zoning
- 7 Review the Case study of draft Bhopal development plan

So accordingly, our coverage will look into the meaning of terms Zoning, we will review the purpose of Zoning, we will try to understand the differences between Zoning Regulation, and Structural Regulations. We will look at Different aspects of Zoning, we will look at Different land Use Zones as per the guidelines, we will look at Principles of zoning, we will walk through in this particular session we will walk through the case study of draft Bhopal development plan.

So accordingly the learning outcomes expected, learning outcomes will be that after completion of the session. You should be able to explain the meaning of the term zoning, you should be able to review the purpose of zoning, you should be able to differentiate between zoning regulations and structural regulations and so on. And further you should be able to discuss and list various aspects of zoning.

You should be able to list and identify land use zones as per the guidelines, you should be able to use them also, you should be able to discuss the principles of zoning and comprehensively you should be able to review the case study of draft Bhopal development plan and overall relevance of the tool with its ground translation and its eventual impact on the community.

Looking at what zoning means? The meaning of the term zoning as understood in the town planning cells is used as aspect of planning for allocation of land for specific purpose and activities, control of the use, height and construction of the building and regulation of population density in particular area. Zoning is a planning control tool and the way governments regulate the physical development of land based on its usage, purpose, geology and so on.

It is the regulation and restriction of land users based on predetermined plan. It defines the rules that govern what and where people and institutions can and cannot build in our cities, towns and suburbs. With zoning we conceptualize height, volume and usage of the building as an architect, engineer or owner of the property. The purpose of zoning is to protect and conserve the value of the land.

(Refer Slide Time: 04:37)

Purpose of Zoning

Avoid Incompatible Land Uses

Examples of incompatible land use.



(City of Turlock, 2020)



(Pinterest, 2021)

Looking at the broader purpose of zoning it is to avoid incompatible land uses coming together;

(Refer Slide Time: 04:45)

Purpose of Zoning

- Avoid incompatible land uses.
- Prevent misuse of the land, building heights and densities.
- Direct the development of the city.
- Securing convenience.
- Health
- Safety
- General welfare

Prevent misuse of the land. Determine the building heights and density. Also look at how to give direction to the development of the city need to secure convenience Health Safety and to look at the general welfare of the people.

(Refer Slide Time: 05:05)

Zoning Regulation and Structural Regulations

Zoning Regulation

- Use of character
- Height and density of buildings
- Parcel of land in a community



(Innovative, 2014)

Structural Regulations

- Building materials
- Workmanship



(Interact, 2021)



Looking at the difference between zoning regulation and structural regulations, zoning regulations are meant for the use of character, height and density of buildings and they prescribe how each parcel means the plot of the land in a community or in a city may be put to use. Whereas the structure regulations imposed restriction on the building materials it goes further into details into the building materials and workmanship, and form of specifications of the work.

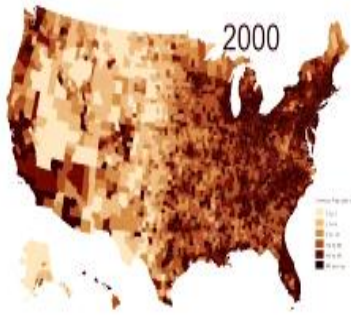
Looking into the power of zoning the zoning power, how it is executed, we see that zoning power is executed through the process of approval of plans for the proposed use and structure and by the means of site supervision. So that is how, by approval system by supervision system, we execute our zoning power. Looking at the aspect of zoning, zoning is related to main 3 aspects one is density zoning, height zoning and the third one being use zoning.

(Refer Slide Time: 06:16)

Aspects of Zoning

Density Zoning

In density zoning, the density of population in the residential areas is controlled by means of suitable rules and regulations.



2000

26


In density zoning the density of population in the residential area is controlled by means of suitable rules and regulation.

(Refer Slide Time: 06:24)

Aspects of Zoning

Height Zoning

The height zoning aims at controlling the height of buildings with due consideration of contents of the buildings and the street width/ the marginal open spaces for the provision of light and ventilation.



27

Whereas in the height zoning; the aim is at controlling the height of the buildings with due consideration of the content of the buildings and the street with the marginal open spaces for the provision of light and ventilation.

(Refer Slide Time: 06:39)

Aspects of Zoning

Use Zoning

Use zoning is the most important aspect of zoning. It defines the use of various parts of the town such as:

- Residential zone
- Commercial zone
- Industrial zone
- Recreational zone
- Special Areas

Zoning

30

Whereas use zoning which is one of the most important aspect of the zoning, it defines the use of various parts of the town such as whether the use can be residential or commercial or industrial, recreational or special area. So, we have seen different aspects of zoning. Now we look at different kind of zones overall there could be 43 use zones at the development plan level, within 10 land use categories at the perspective level. Permissibility could be decided by the town planner depending upon the requirement and feasibility.

(Refer Slide Time: 07:23)

Principles of Zoning

The key principles, which need to be considered, are:

- To provide functional distribution of work centers and living areas.
- To optimize travel distances and increase an efficient functioning of activities.
- To promote economic development for all sectors.
- To preserve sensitive areas.
- To rehabilitate and improve the quality of life for the residents.
- To secure health and safety.
- To segregate nuisance areas or special uses- logistic, warehouses, wholesale, airport etc.

(ICDA, 2018)

33

So, now looking at the; principles of zoning. So, the key principles which need to be considered are one to provide functional distribution of work centres and the living areas optimize the travel distance, you see how much we travel these days, and to increase in efficient functioning of the activities. Further to promote economic development. The whole intention of the urban area is for economic development.

So to promote economic development for all sectors of the economy by providing more economic space and efficiency to preserve sensitive areas at the same time to look after the forest, parks sensitive natural resources heritage area and water bodies and so on, further to rehabilitate and improve the quality of life for the residents. So likewise, we also look at securing health and safety of by segregating the hazardous industrial uses, so you may also see in the example which will follow.

Further to segregate problematic areas or special uses, such as logistic, warehouses, wholesale airport, etcetera. So now we want to look and try to understand all these things through the case of draft Bhopal development plan 2031. And we will particularly look into volume 3, we will try to understand different zoning aspects and kind of control exerted through the process and how it guides developments. We have taken this example because you have already seen the analysis as well as the proposal version of the city.

So it will be easier for you to comprehend how we are translating that here. So just to briefly refresh the problems which we had seen in Bhopal to the draft Bhopal development plan. We are not covering all of them just picking a few like challenge of conserving urban forests water bodies and built heritage as well as presence of low density area FAR and ground coverage, as well as the observation about lot of commercial activities coming in residential areas and then also mixed land use activities were seen more in the residential area.

Likewise, you see that they observed that there is lack of industrial activities as well as observations were about haphazard diversion of land and growth of illegal colonies. So in order to address many of such kinds of problems the zoning plan was created and the proposal. So in the proposed land use plan Bhopal city, we see that different use zones are identified. Use zoning is very important as it defines the use to various parts of the town.

(Refer Slide Time: 10:14)

9.1. Simplified Urban Land use Classification

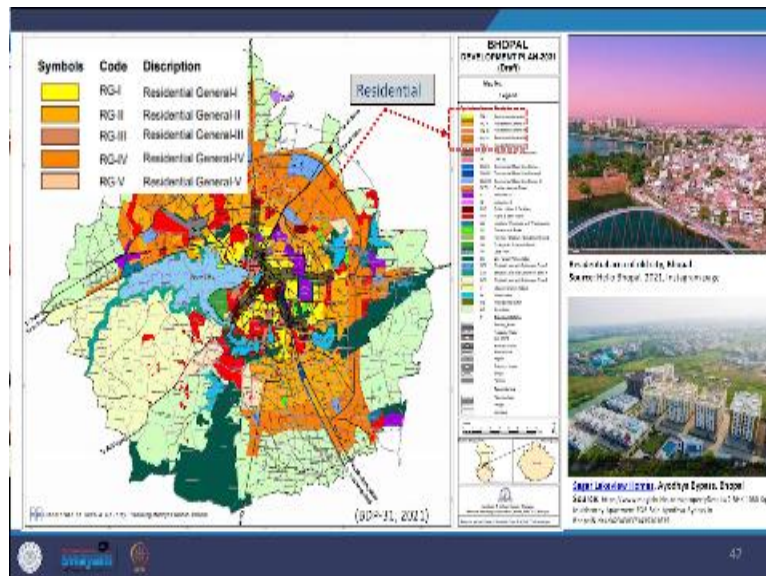
Table 9.1: Simplified Urban Land use Classification

Level I			Level II		
N	A-N	Use Category	N	A-N	Use Zone
1.	R	Residential	11	R-1	Primary Residential Zone
			12	R-2	Unplanned/ Informal Residential Zone
2.	C	Commercial	21	C-1	Retail Shopping Zone
			22	C-2	General Business and Commercial District/ Centres
			23	C-3	Wholesale, Godowns, Warehousing/ Regulated Markets
			24	C-4	Service Sector
			25	C-5	Regulated/ Informal/ Weekly Markets (TCPO Study on Zoning Regulations)
3.	I	Industry	31	I-1	Service and Light Industry
			32	I-2	Extensive and Heavy Industry
			33	I-3	Special Industrial Zone - Hazardous, Noxious and Chemical

(URDPFI, 2015: 382-387)

Well the put to the zones are usually classified into various categories, you may also look at simplified land use classification given in table 9.1 and URDPFI guidelines 2015 page 382. I have taken the snip here for your reference. So, you can see the range of categories which are specified here and then the codes which are used for that and in the kind of zoning it is. So here we will walk through the example of proposed zoning from Bhopal development plan looking at the zoning plan in particular use zoning proposed first city to resolve different identified issues.

(Refer Slide Time: 10:53)

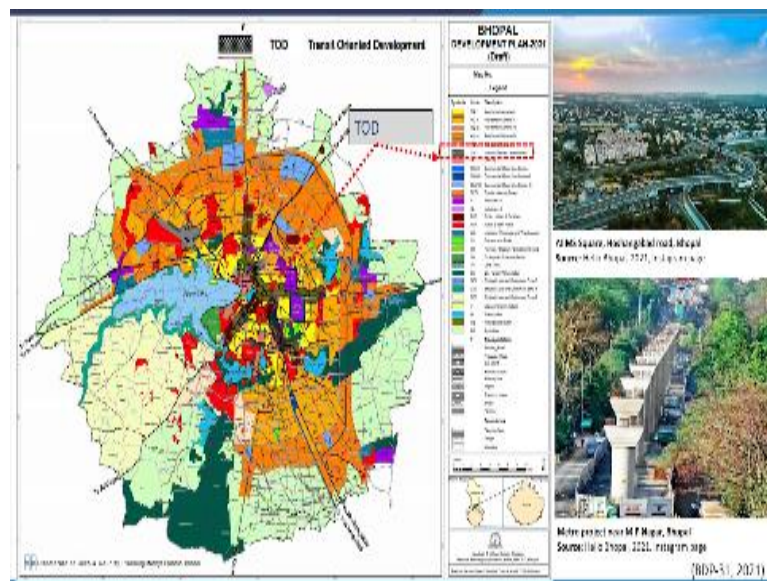


First we see the residential zone which is further categorized into 5 sub groups shown from yellow to brown colour. You see, category 1, based on the existing residential zone, you see category 2 which is the proposed residential zone, you see 3 categories which is the zone for

the purpose of preservation of certain areas in the city. Likewise, you see zone 4 which is the zone delineated for the purpose of urban expansion of the city.

And the zone 5 you see it is designated for low density to maintain and preserve the ecological sensitive ecology of the city of Bhopal. So, we see by use zoning different conditions and intentions are addressed even within residential category. We learned about TOD in our class as an encouraged trend in planning for efficiency and for environmental and economic concern, we see here how TOD is translated into the land use zone.

(Refer Slide Time: 12:03)



So, in the map you can see transit oriented development TOD shown in brown grid along the prime movement corridors. Transit Oriented Development Zone is delineated as an overlay along the phase one of the metro in this particular city. The purpose of this zone is to allow more number of people to live and work near the metro corridor. This zone is made up of existing all this structure which shall be incentivized to redevelop with higher FAR.

The incentivized redevelopment of the zone shall be undertaken preferably through the local area plans you may also integrate think about the local area plan. We studied about the local area plans will be prepared to ensure that the plot is utilized properly efficiently through the merger amalgamation and it addresses to the widening of the roads and then it allows parking management and then also allows pedestrianisation in this particular zone.

(Refer Slide Time: 13:08)



The Zone has been delineated 500 meters on either side of the metro alignment; principally all plots falling completely or partially within this 500 meter buffer from the metro alignment shall be included in TOD. The purpose of this zone is to allow and enable more number of people to live and work near the metro corridor. So, you can see how it has been done here. In order to promote compact TOD in the city and integrate land use and transportation interface this particular concept is introduced.

So transit oriented zone is an effective tool to promote compact, transit oriented development within the walking distance of public transit nodes such as BRTS and MRTS stations, sustainable transitory oriented densification is planned to be achieved through TDR. So that is the plan are proposed by draft mobile development plan and transit oriented zone is identified as 500 meter buffer distance on either side of the metro line one and two, you had seen in the map.

It is anticipated that to Zed transit oriented zone will include people to prefer to use public transit, provide housing, employment, entertainment and civic functions within walking distance of the transit nodes. It will encourage it is anticipated that it will encourage residents and workers to drive their cars less and ride public transit often.

(Refer Slide Time: 14:41)

Floor Area Ratio (FAR)

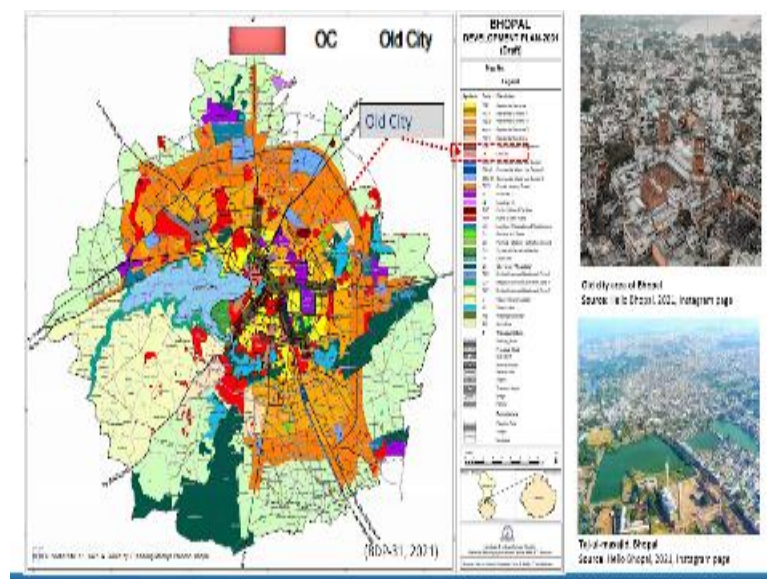
Permissible Floor Area Ratio

Base FAR	Premium FAR	TDR	Total Permissible FAR
1.25	1.25	0.5	3.00

(DDP-32, 2021)

So we see that mobile development plan specifies permissible FAR. So FARISM means to control the density is also a aspect of density zoning. Here you can see in the TOZ, higher FAR is being offered higher than the residential area. So here you see it is 3 FAR are permissible whereas for the residential it was 2. You may also reconnect your thoughts to type and levels of plans. Now we will look at all cities zone.

(Refer Slide Time: 15:19)



All cities zone is the zone which has been exclusively identified to delineate the core wall city and extensions with its distinct character and heritage features and fabric. The purpose of this zone is to incentivize heritage conservation and allow controlled urban regeneration to maintain the overall urban character of iconic old city of Bhopal. So, you can remember various heritage buildings which you had seen while we were going through the development plan proposal.

For the purpose of conservation of heritage presents and structure within this zone, the appropriate authority has recommended to undertake preparation of heritage conservation and management plan for old cities zone where they would identify and categorize all structures and precincts based on their heritage value. Those heritage conservation and management plan would also be prepared by the urban local body or any appropriate authority.

Along with the local communities and relevant heritage committees to identify heritage structure and heritage presents as listed by the state archaeological department in the old cities zone. So based on this management plan, prepared by the authority, the plot owners within the zone will be incentivized to undertake preservation and conservation of their heritage properties through receipt of heritage TDR transferable development rights.

Once the heritage conservation and management plan for the zone is prepared and approved by the appropriate authority, the regulations identified and that plan shall prevail over these regulations. So once that heritage plan is there, so probably there will be the newer regulations would come, you can see the FBR and TDR for the zone and the table given here. **(Refer Slide Time: 17:24)**

Floor Area Ratio (FAR)

Permissible Floor Area Ratio

Base FAR	Premium FAR	TDR	Total Permissible FAR
2.00**	-	as per regulation 9.3.2	$2.00 + \text{TDR}^*$

* The TDR in OLD CITY Zone (OZ) shall be as per the Table under section 9.3.2. The Total permissible FAR shall therefore vary based on the permissible TDR as applicable.

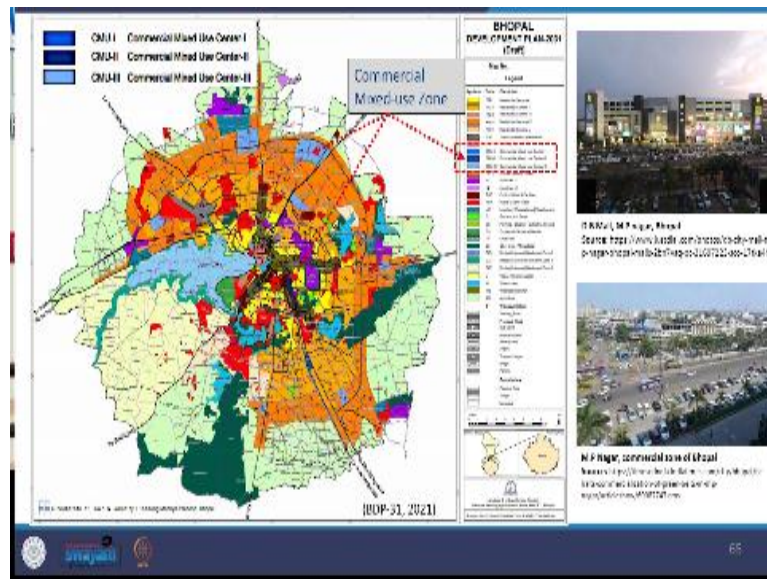
** for Plots Situated along road less than 15.0 meter width, F.A.R. shall be reduced by 0.25

The land affected by widening of road, shall generate FAR which may be used in receiving area

(DDP-11, 2021)

So, which is the; total permissible FAR plus the TDR for encouraging the management of the heritage structures and precincts here. So, you see how culture or heritage aspect is addressed in a city through zoning. Moving on, we see next use is commercial mixed use zone.

(Refer Slide Time: 17:45)



You can see how it has been distributed across the city to cater to the entire population. So, in the plan you can see you see that authority has divided three commercial mixed use zone as zone 1, 2, and 3. The first zone has been delineated and by staging the; upgradation of current commercial centre of MP Nagar to commercial mixed use centre. So, from commercial to a commercially mixed use centre and in this the target is to provide higher FARs.

So, it can accommodate larger population. The idea is to transform this place from commercial to the mixed use and with higher FAR means increasing the density of the zone. Likewise commercial mixed use centre 2 has been identified and by staging the upgradation of existing commercial subsidy. Centres of new market and so on, this will be converted to commercial mixed zoned.

Commercial mixed use centre with higher FAR are similarly commercial mixed use centre 3 has been identified as a new proposed commercial area under the Bhopal development plan 2031. You see you are by changing the use zone from commercial to commercial mix centres they are changing the nature of the place to counter the identified problem as well as further by altering the FAR.

They are going for higher density and you can see the use of density zoning tool. Density zoning the density of population in any area is controlled by means of suitable rules and regulation.

(Refer Slide Time: 19:48)

Sr. No.	Use Zone	Code	Floor FAR	Frontal FAR*	TDR**		Total permissible FAR	7	Old City Zone	OC	2.0	0	As per the UDC regulation specified for Old City Zone	2.0	
					Generating (A)	Receiving (B)									
1.	Residential general 1	RG-I	1.25	0.75	-	-	2.00								
2.	Residential general 2	RG-II	1.25	0.75	-	-	2.00								
3.	Residential General 3 (Area: Indraprastha, Chhattram, Mayapuri)	RG-III	0.75	0.50	-	-	1.25								
4.	Residential general-4	RG-IV	1.25	0.75	-	-	2.00								
5.	Residential General 5	RG-V	0.75	0	-	-	0.75								
6.	Transit Oriented Development Zone	TOD	1.25	1.25	-	0.5	3.00***								
8.	Commercial Mixed Use Center 1 (Old City Zone)	CMU-1	0.5	1.5	-	-	1.00								
9.	Commercial mixed use center 2 (New Market/Connaught Place)	CMU-2	2.0	1.0	-	-	1.00								
10.	Commercial mixed use center 3 (New commercial zone)	CMU-3	1.5	1.5	-	-	3.00								

(UDP-31, 2021)

So you can see the FAR in Bhopal development plan in case of residential you can see 2, in case of TOD area you can see 3, in case of all cities on you can see 2 plus TDR and so on. Can in commercial mixed use you can see the range from 3 to 5 FAR. Further Municipal Corporation would be charging betterment Levy, onetime payment on mixed land use activities. So, you see how the resources are mobilized when search services are provided.

(Refer Slide Time: 20:23)

9.3.3.1. Residential Density⁴²³

Residential density surveys are undertaken with the objective to understand the accommodation density, built up area density (built up area per land area) and the resulting population density. Based on the analysis from this survey, the decisions on the control and promotional measures can be taken.

There are two separate aspects of this objective, first is to see competition within dwelling unit, and second is low-high density in a neighbourhood or the study area. Another reason for such surveys is to control number of people residing in an area so as to provide appropriate/adequate or disintegrated services and utilities for the area.

Residential density is normally expressed in terms of:

- House per unit land (Plotting ratio, Density)
- Habitable room per unit land (Room/Room) (Accommodation density) and
- Person per unit land (Person/Room) (Population density).

For comparison at later stages and analysis of the residential areas, the study area can be further divided into zones/sub-systems of similar housing types/conditions and between observation of density or based on similar pattern for survey within the study area.

As accommodation density and population density are calculated for some unit of area, these can be compared to ratio or number of persons (occupancy ratio) per habitable room. This is used to determine whether particular area is under-utilized or over-utilized. This information can be used in future planning to decide which areas are to be decongested and in which areas density can be increased. The following formulae are used for the calculation:

Accommodation density = $\frac{\text{Number of habitable rooms in the study area/sub-system}}{\text{Net area of the study area/sub-system}}$

Population density = $\frac{\text{Total population of the study area}}{\text{Total area of the study area}}$

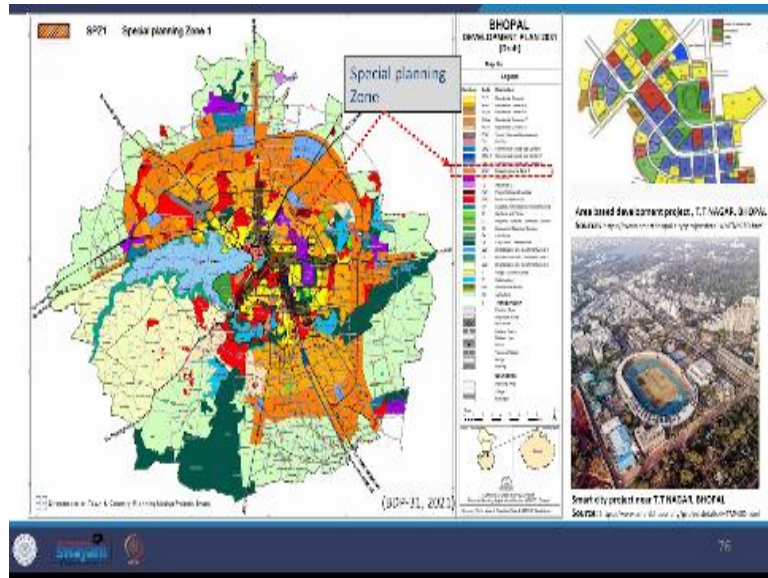
Occupancy ratio = $\frac{\text{Population density}}{\text{Accommodation density}}$

(URDPPI, 2021, page 226)

The density of population per unit area may either be expressed as gross density or net density. The gross density is defined as the average density of population per unit area of the whole residential zone. The net density is defined as average density of population per unit of the housing area including local roads only and excluding open spaces public institutions, shopping centres and so on.

We may further find detail formula in your URDPFI guidelines in point 7.3.3 page 236 provided it for your reference here. So, you can see it for both, residential as well as non-residential area. So, you have seen partly how density zoning control is used. Moving on we see special planning zone and Bhopal development plan.

(Refer Slide Time: 21:18)



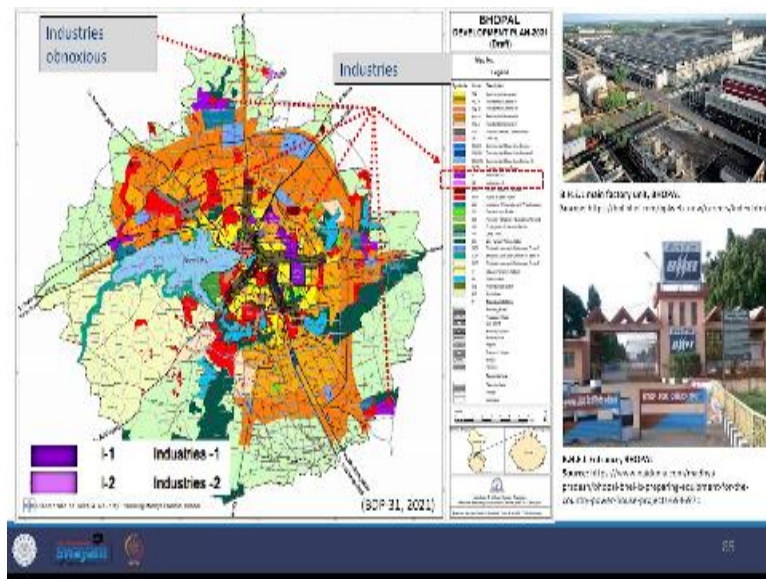
The special planning area comprise of the area identified for area based development under Smart Cities mission. You may connect initial lectures of special purpose plan and smart cities here.

(Refer Slide Time: 21:31)

Floor Area Ratio		
Permissible Floor Area Ratio		
Base FAR	Premium FAR	Total Permissible FAR
1.25	0.75	2.00

The permissible FAR to regulate density is FAR 2 here, as you can see in the table.

(Refer Slide Time: 21:44)

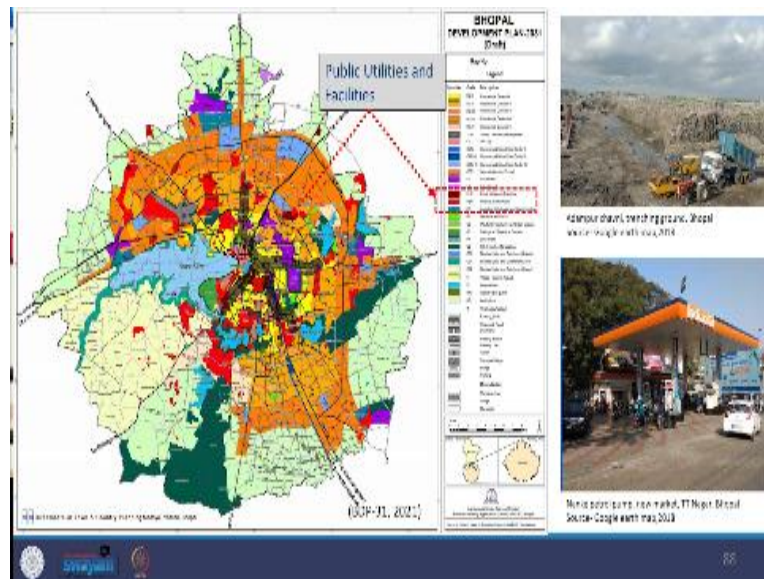


Moving further we see another kind of use zone which is industrial. The industrial zone has been designated to identify areas where large medium and small scale industries activities are either currently located or are proposed to be developed in future for the purpose of promoting secondary sector economy in the region. You further see that industrial zone two is there you see industrial zone I 2 which is there.

This zone has been designated to identify all industrial areas where the current permissible activities are unfit for human habitation. The purpose of this zone is to ensure that non compatible activities to the zone such as residential areas are not allowed to be made permissible in close proximity. So, they have been placed further ahead. So, you see here how use zoning is done for economic purpose as well as for the environmental safety.

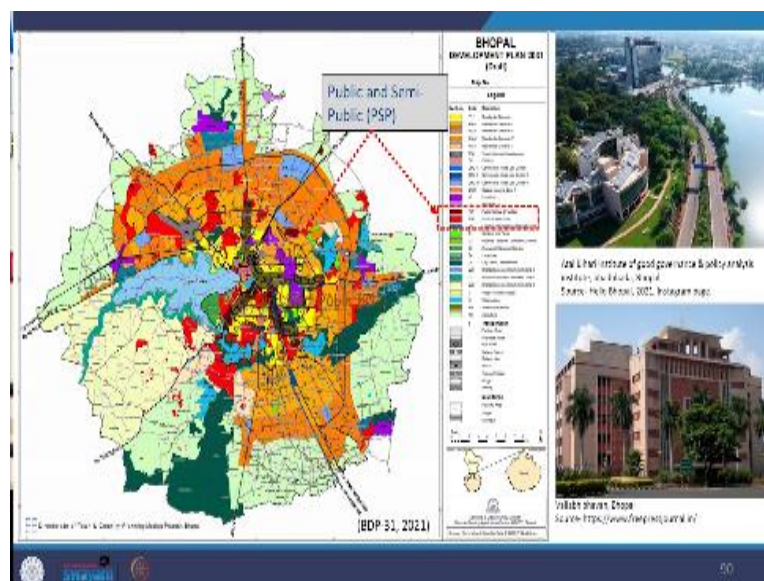
You can see how obnoxious industries are located in the extreme end of the city taking care of wind direction and away from the residential area and located in the agricultural zone with the buffer area. You may also recollect the gas tragedy in 1984 experienced by the city the loss of life, one reason being the location and the wind direction.

(Refer Slide Time: 23:07)



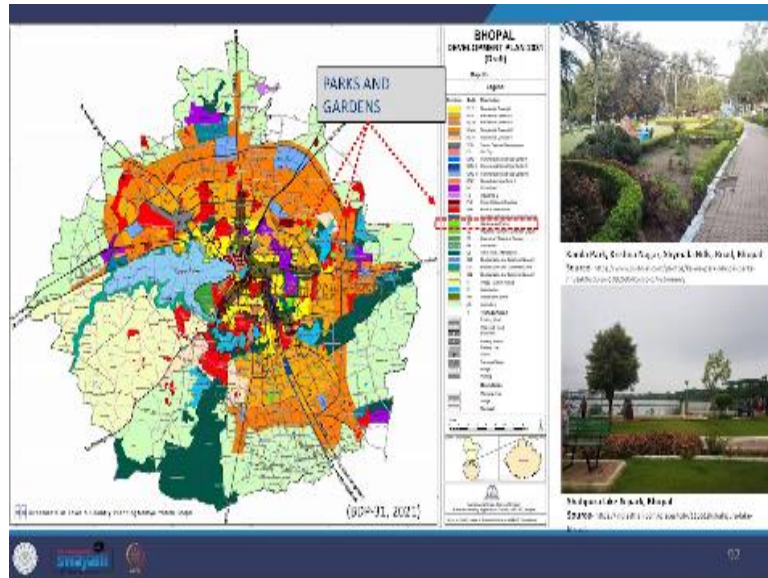
Moving on we see the another kind of zone which is public utility and facilities zone this zone has been identified for provision of key infrastructure in Bhopal planning area. You can see how it has been uniformly distributed to cater to the entire city population.

(Refer Slide Time: 23:24)



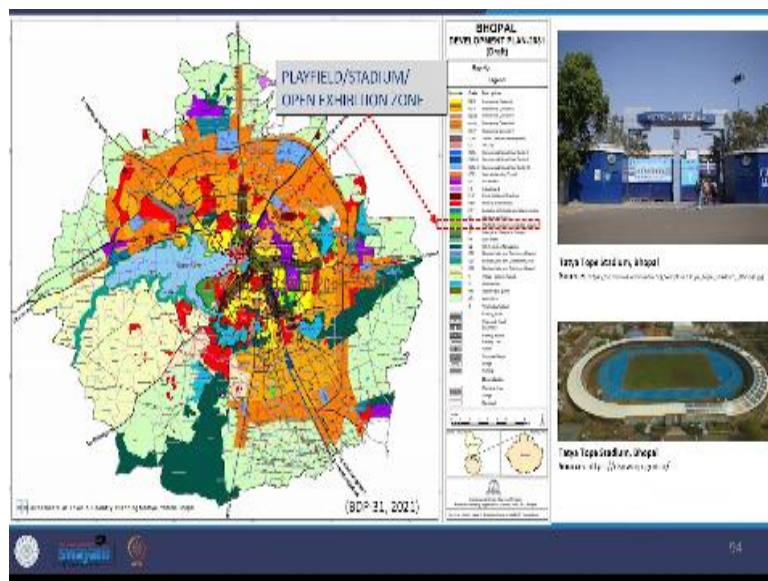
We also see public and semi- public zone. The zone is marked in red has been identified for large scale institutional, administrative educational, health and social cultural activities within Bhopal planning area.

(Refer Slide Time: 23:39)



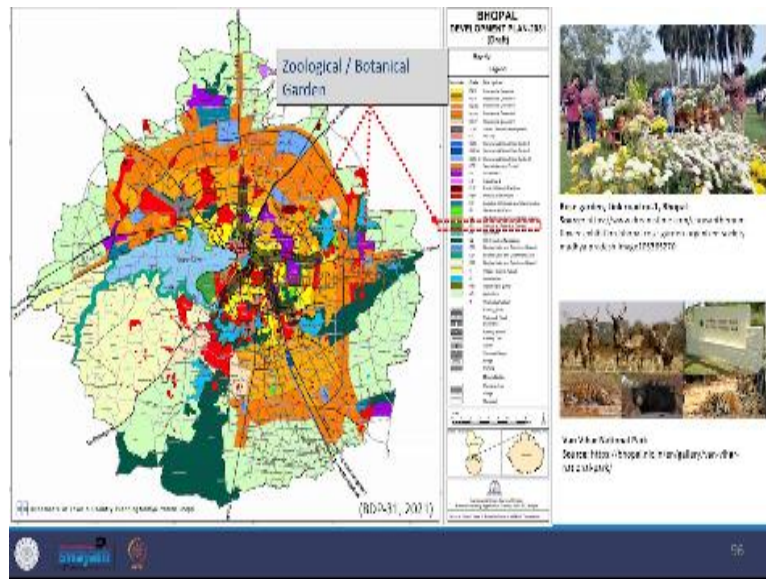
Further we see parks and gardens zone has been also created G1, the zone is delineated to incorporate various levels of existing land and propose major green areas including park at the city level, regional level and district level in the planning area of the city.

(Refer Slide Time: 23:58)



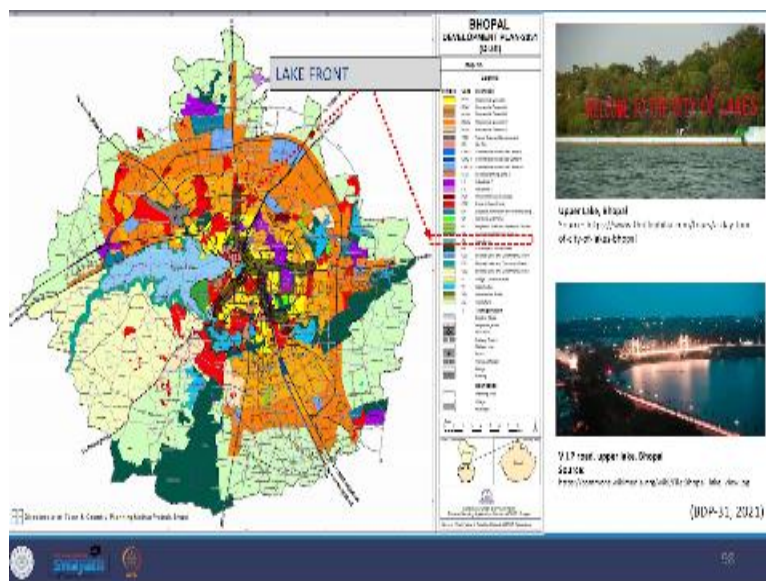
Moreover, you also see play field stadium open exhibition zones.

(Refer Slide Time: 24:03)



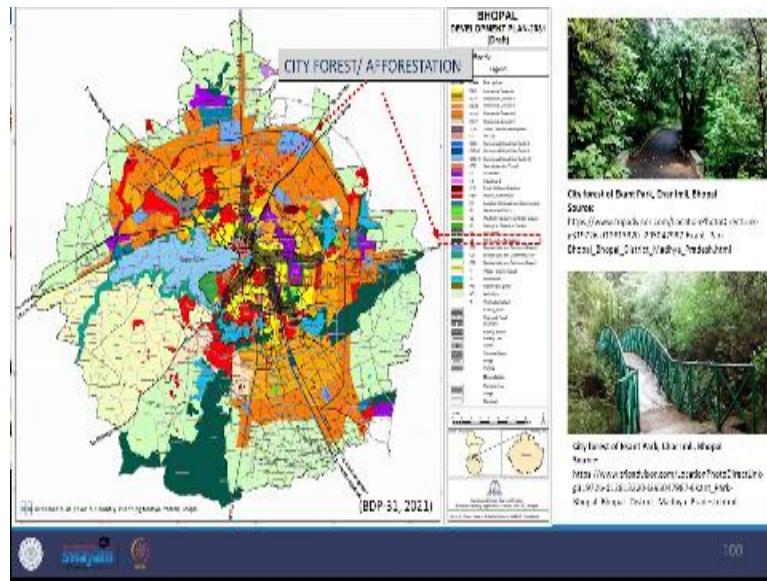
You also see Geological, Botanical Gardens as G3 zone. This has been delineated to incorporate all existing Geological, Botanical Garden premises in the Bhopal planning area. Activities as per the guidelines of the environmental Ministry of government of India shall be permissible in these zones.

(Refer Slide Time: 24:24)



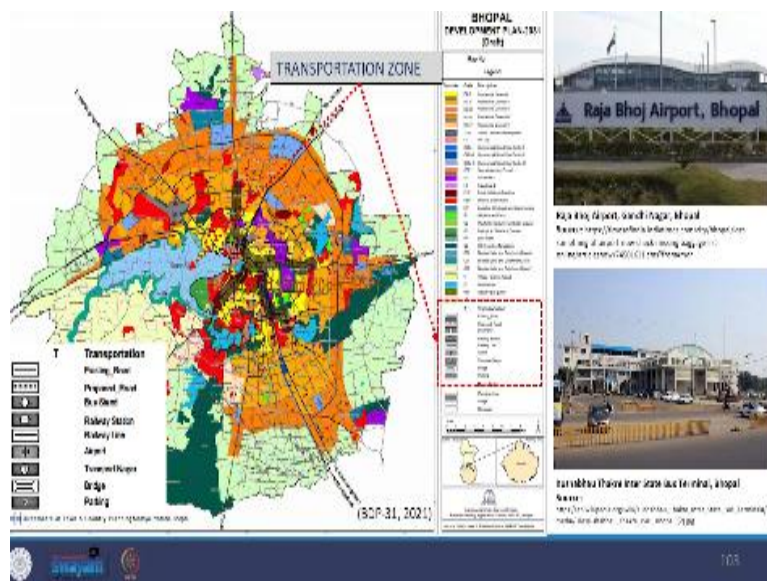
We also see Lake front, this zone has been identified to delineate all existing areas where lakefront development was undertaken within mobile planning area.

(Refer Slide Time: 24:34)



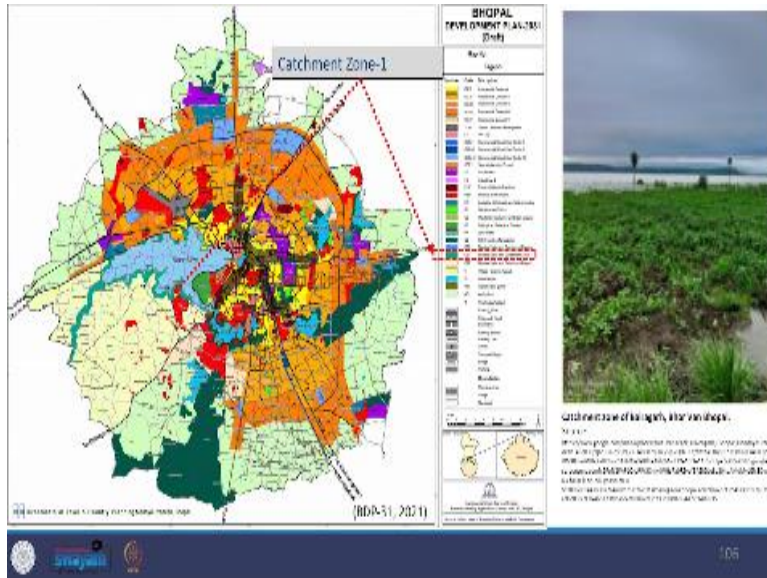
We also see the city forest which has been delineated to secure high intensity vegetation across the city. You also see how the topography aspect and environmental considerations are addressed through the use of zoning here.

(Refer Slide Time: 24:52)



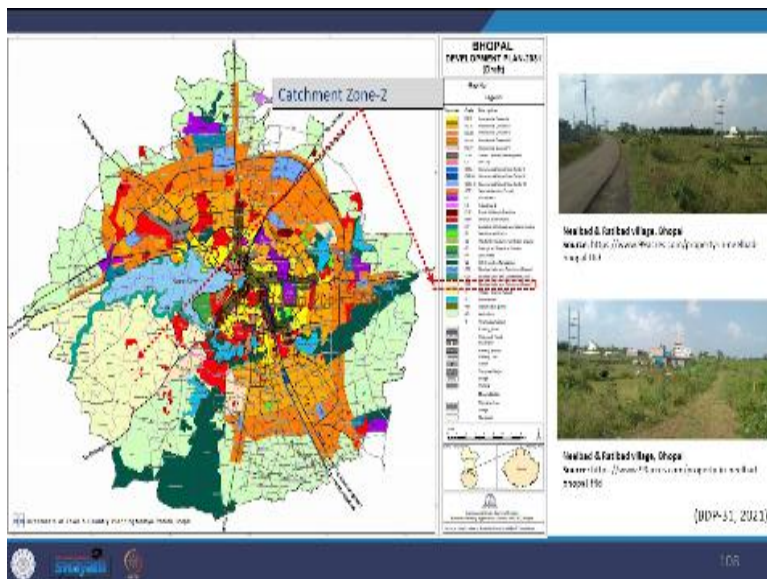
Now moving forward we also see transportation zone, the major transportation elements of the city have been identified under this zone including airport, railways, cargo, bus terminal and stand, bus stop, transport Nagar, Metro roads, deport and multi-level parking and so on. You can see here. So, you see how city and regional level infrastructures are taken care through use zoning in this case.

(Refer Slide Time: 25:19)



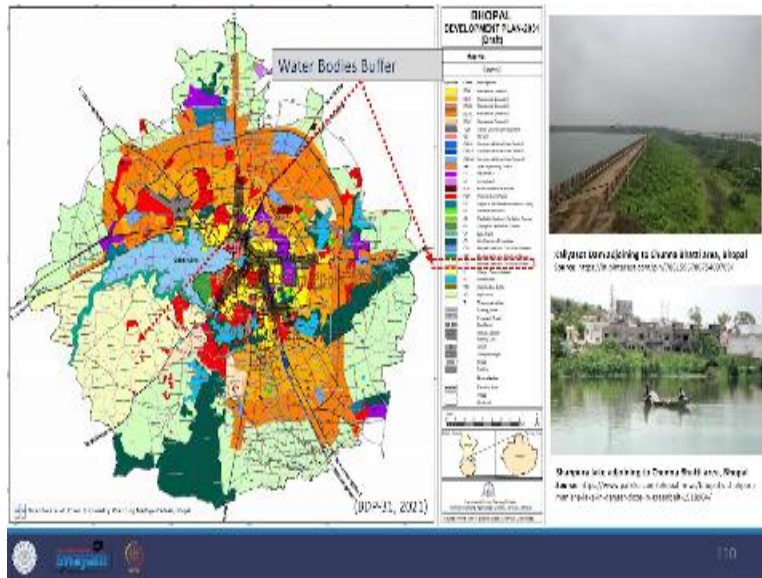
Moreover, you also see that the lake and catchment zone has also been identified at CZ-1. The zone has been delineated as more sensitive areas with stringent regulations surrounded. So you see, both style this zone has been delineated incorporating areas within like they have created buffers of 50 meters to 50 meters and above and so on and what kind of activities would be allowed in there.

(Refer Slide Time: 25:54)



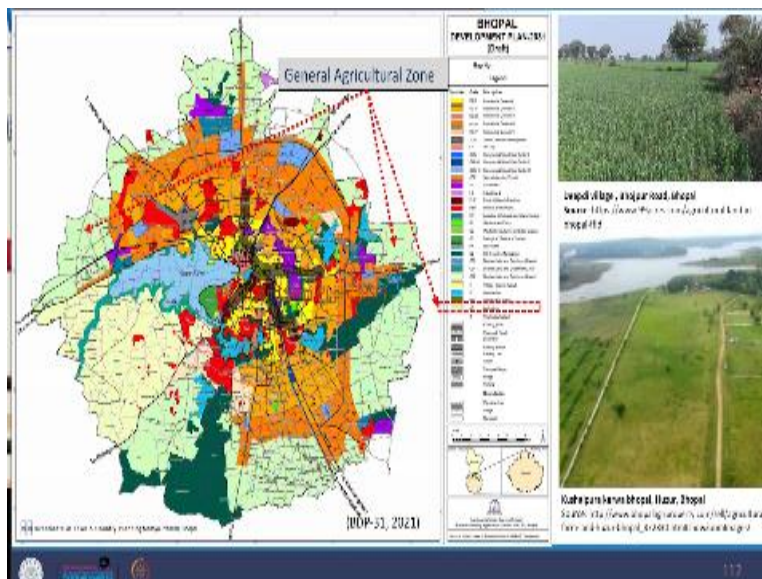
Most of lake and catchment zone 2 CZ-2 the zone constitute all catchment areas beyond the catchment zone one buffer except the villages and their extension areas in the bush tar lake. The Zone has been delegated to regulate eco sensitive development for promotion of tourism and allied activities in the Bush Tar Lake catchment.

(Refer Slide Time: 26:22)



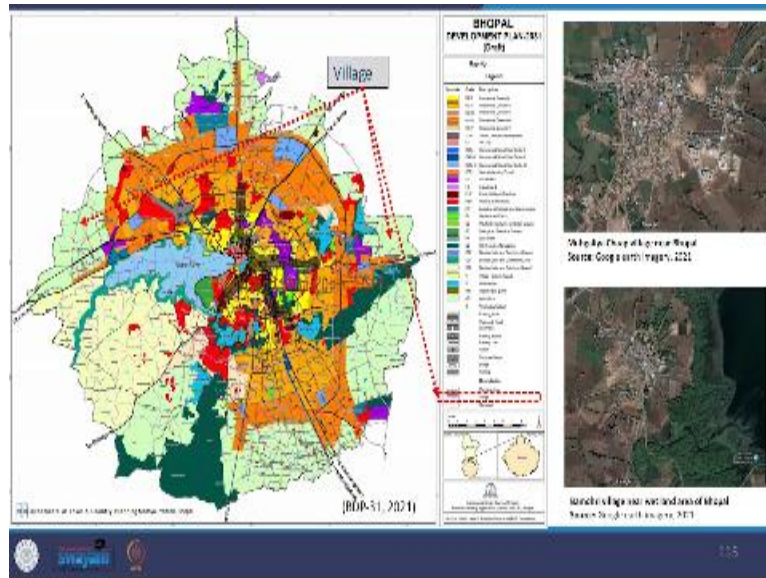
Further we see water bodies buffer.

(Refer Slide Time: 26:25)



Further we also see that there is general agricultural zone, this zone identifies the primary agricultural areas with supporting activities in the PERI urban areas of Bhopal planning area. So, you can see it all around the periphery. We further see how entire ecology has been addressed through the use zoning here again so we see how the water, the green everything has been addressed here through zoning.

(Refer Slide Time: 26:51)



Before the Civil ledge areas have also been identified here. So that to enable village to exist without losing their organic and traditional form and character. So, we see the village extensions zones 1 and 2. Also you see how distinct character of the villages are retained in the city, you may also revisit the city vision, what their vision was and how do they translate here. So, we saw here, so we have covered all the different use zones.

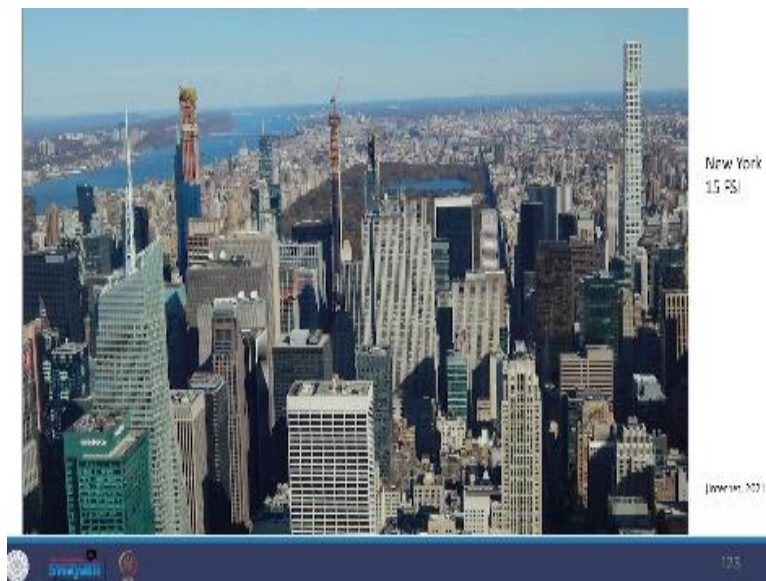
So you saw here different use zones as well as density zoning to certain extent, which restrict what use will come in which areas to provide functional distribution of works centres and living areas, optimize the travel distance and then make efficient use of resources and allow efficient functioning of the activities through use of TOD. Then, it has also looked into how to promote economic development of all sectors of economy by providing more economic space you saw the industrial space commercial space coming in here.

Then you also looked into how they did zoning to preserve sensitive areas like all the forest water bodies, park and other green areas you saw here. Further you saw that how they have made provision for rehabilitation and improvement of the quality of life for the residents. Likewise, you also saw that how it is taking care of the health and safety of the people by segregating hazardous industrial uses, then also keeping all the problematic areas away from the residential zones.

So this was about the use zoning. Now let us see how they are regulating development through Hyde zoning. So as we had seen Hyde zoning aims at controlling the height of the

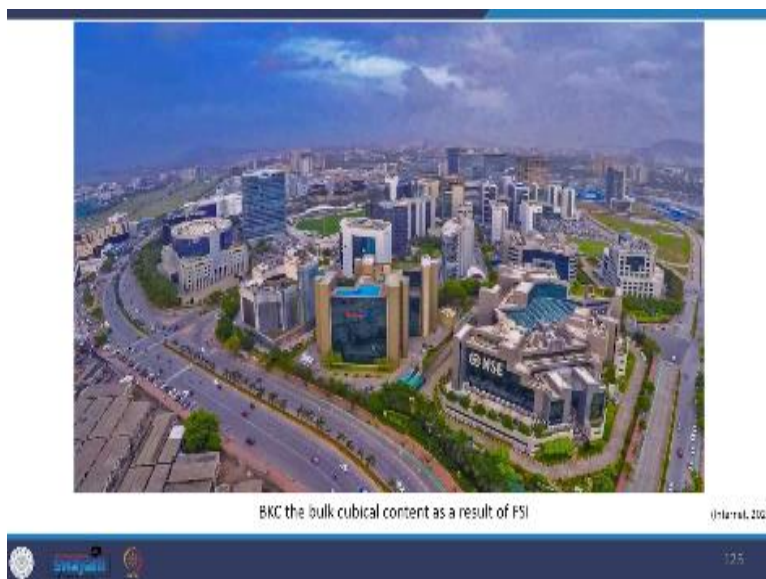
building with due consideration of the factors such as the bulk or the cubicle contents of the buildings, floor space indexed FSAI, which you had also seen previously.

(Refer Slide Time: 29:02)



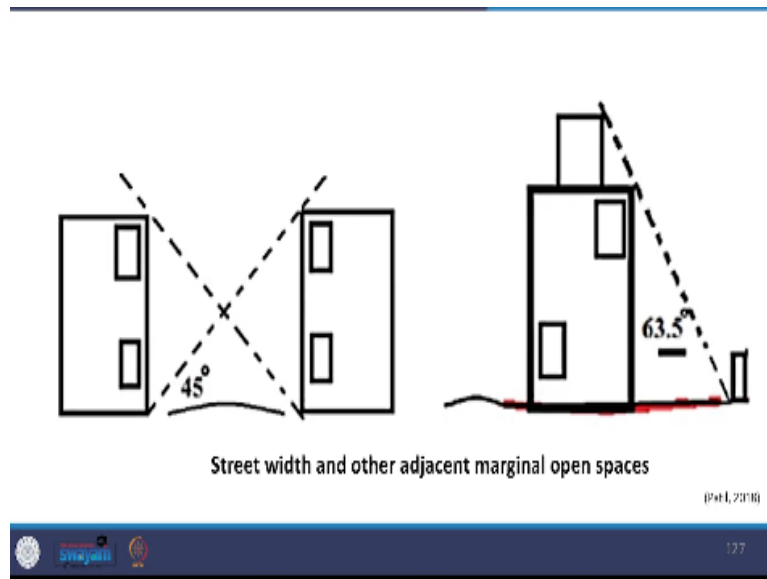
In the image you can see New York City with the FSAI 15.

(Refer Slide Time: 29:07)



And this image again see Bandra Kurla complex and Mumbai with the bulk cubicle content as the results of the FSA permissible here. Another way is by controlling the street width and the other edges and marginal open space from the point of view of providing light and ventilation to individual property.

(Refer Slide Time: 29:28)



In this case the height of the building is limited by drawing a light plane at an angle of 45 degree or 63.5 degree to the horizontal 63.5 is very commonly adopted as it gives the ratio of 2 is to 1 height to the road width. So as you can see in the image here. The Hyde zoning restriction depends on nature of building type of zone and climatic conditions.

(Refer Slide Time: 29:59)

Advantage of Height Zoning

- It controls the development of central business area of the cities.
- It thereby assists in solving the problems associated with heavy concentration of traffic.
- Provides aesthetics.
- Prevents monopoly of light and ventilation.
- Regulates land values.
- Two key important aspect – health and traffic movement are regulated by height zoning.

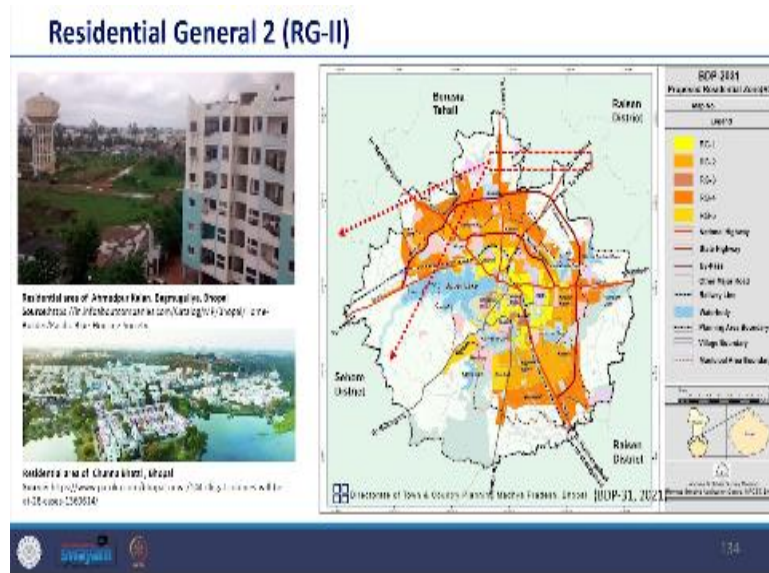
(BDVA, 2018)

131

Advantage of Hyde zoning is that it controls the development of the central business area of the cities and it is thereby assist in solving the problems associated with heavy concentration of traffic and so on. It provides aesthetics we are already seen this it provides it prevents monopoly of light and ventilation it regulates land values, and the most important aspect is that of health and traffic movement are regulated by height zoning.

We will further see through the example how density zoning is achieved through regulating marginal open space we will look at the residential general category use from Bhopal development plan.

(Refer Slide Time: 30:46)



Residential general to his advices primarily as a residential zone with mixed use permissible based on specific conditions. This zone is primarily made of existing old structure as yours already seen before. The purpose of this zone is to allow urban regeneration while maintaining the overall urban character of the area.

(Refer Slide Time: 31:06)

Permissible Activities

The following activities are permissible on a plot falling within this zone as per the draft.

- 1) Residential Use Activities
- 2) Commercial Activities
- 3) Institutional Activities
- 4) Recreational Activities
- 5) Industrial & Logistics Activities
- 6) Transportation Activity




So, you see that the permissible activities have been defined. So, the activities which are permissible in this zone are residential activities, commercial activities, institutional activities, recreational industrial and logistic activities as well as transport activities.

(Refer Slide Time: 31:29)

Sr. No:	Road Width	Permissible Activities
1.	Less than 12 meters	Row Houses, Semi-Detached Houses, Detached Houses, Crèche and day care center, Household industry, Watch and ward residence, Slum Rehabilitation & Resettlement Houses (under various govt. Schemes)
2.	12 meters and above	In addition to all Activities permissible in the above categories: Apartment Houses, Coaching Centers (less than 20 student batch), Hostels, Guest House, boarding house, lodging house, rest house, hotel, Serviced Apartments

(DDP-31, 2021)




You may see here in the table permissible use along the roads which are 12 meter and above width.

(Refer Slide Time: 31:37)

Permissible Floor Area Ratio		
Base FAR	Premium FAR	Total Permissible FAR
1.25	0.75	2.00

(DDP-31, 2021)



So, you can see here in the table, you can also see the FBR in this particular zone.

(Refer Slide Time: 31:42)

Norms for Development of Individual Plots

Sr. No.	Development type	Minimum Plot Size (sq.mts)	Minimum Frontage (Width of plot on road side)(in mts.)
1.	Row Housing	41	7.5
2.	Semi Detached	125	9
3.	Detached	225	12
4.	Mid Rise buildings (with height up to 18 mts)	1000	18
5.	Mid Rise buildings (with height up to 24 mts)	1500	21

(DDP-11, 2021)

Further you can see the norms for development of individual plots such as minimum, plot size for different development type.

(Refer Slide Time: 31:50)

Norms for Development of Individual Plots

i. MOA for plots with residential Activities: shall be as per table below:

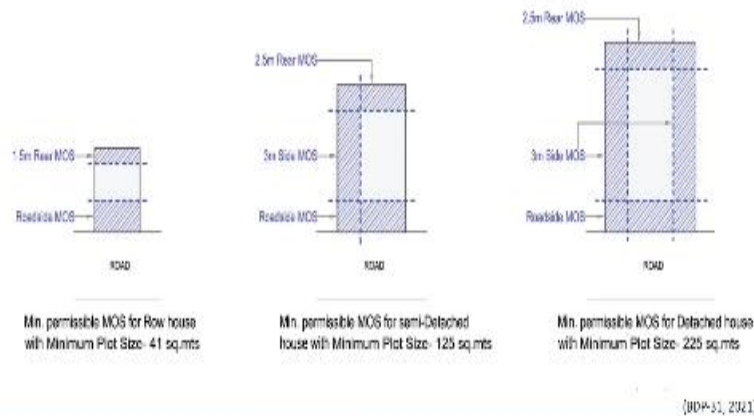
Sr. No.	Width of means of access (mts.) (Z)	Length of means of access (mts.) (X+Y)
1	7.5	less than 150 mts
2.	9.0	150 mts and less than 400 mts
3.	12.0	400mts and above

(DDP-11, 2021)

Further you can see details of means of access.

(Refer Slide Time: 31:54)

Marginal Open Space (MOS)



Likewise, you can see marginal open space such as the front road side margin, side and rear margins, minimum sight distance, minimum distance between two buildings on the same plot permissible activities in MOS to facilitate common open space, electrical infrastructure, pedestrian parking and so on.

(Refer Slide Time: 32:17)

Maximum Permissible Height

Sr No.	Road Width (mts.)	Max. Permissible Height (mts.)
1.	Less than 12 meters	12.5 mts.
2.	12 mts. and less than 18 mts.	18 mts.
3.	18 mts. and less than 24 mts.	24 mts.
4.	24 mts and less than 30 mts.	30 mts.
5.	30 mts. and less than 36 mts	45 mts.
6.	36 mts and less than 45 mts.	60 mts.
7.	45 mts and less than 60 mts.	75 mts.
8.	60 mts and less than 75 mts.	90 mts.
9.	75 mts and above	90 mts and above

(DDP-31, 2021)

Further for density zoning use regulation of maximum permissible height as you can see in the table shown here.

(Refer Slide Time: 32:25)

Community Open Space (COS): Minimum Area of COS

Sr. No.	Use	Area of Plot (sqm)	Minimum Area of COS
1.	Layout of plotted development with Detached House, Semi-detached House and Row House, Household industry, Pre-school, Apartments, Hostels, Dharamshalas, Shops, Restaurants,	Upto 1000	-
		1000	10% of the Area of plot
2.	All Industrial and Logistics related activities: Light and service industries, Heavy Industries, Hazardous industries, small factories, warehouses, Newspaper printing press, concrete batching plant, stone cutting and polishing, poultry farm, Dairy Farm Assembly	Upto 1000	5% of the area of the plot
		Above 1000 sqm	10% of the area of the plot

(BOP-33, 2013)



Likewise to control the quality of space, it specifies maximum area for community open space. So we saw that zoning is one of the important planning tool to manage growth, regulate density, and organize land uses within the urban area by regulating land uses. It helps to segregate incompatible uses, increased liveability and create desirable character for different areas for the city. Zoning combined with development regulations determines the supply of developable land and build space in various zones.

And then we see that zoning requires regulations and rules to avoid any developmental violation. So we saw all these things plus how we are looking at controlling as well as creating flexibility at the same time ensuring that it is not exclusionary.

(Refer Slide Time: 33:22)

Summary

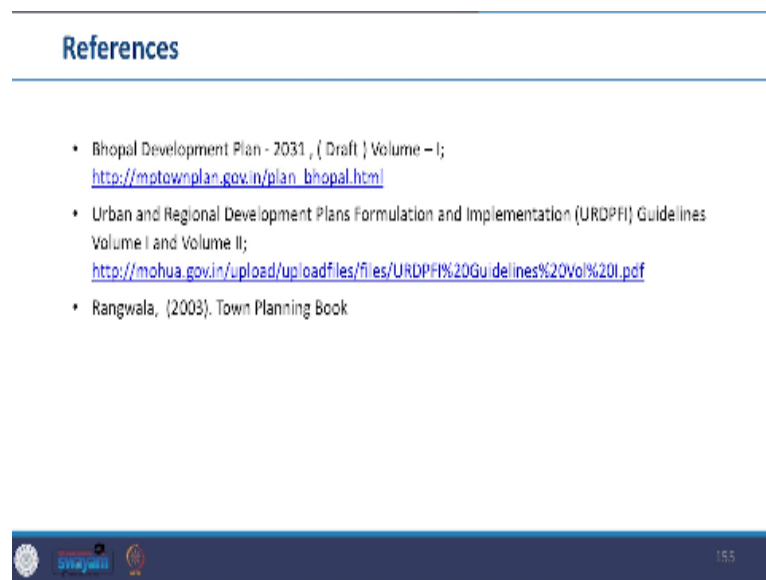
- 1 Looked into the meaning of the term Zoning
- 2 Review the purpose of Zoning
- 3 Differences between Zoning Regulation and Structural Regulations
- 4 Discuss and list out aspects of Zoning
- 5 List and identify Different Land Use Zones as per guidelines
- 6 Discuss the principles of Zoning
- 7 Review the Case study of draft Bhopal development plan



So summarizing, today what we have covered we looked into the meaning of the term zoning we reviewed the purpose of zoning, we also looked at the difference between zoning regulation and structure regulation. We discussed and list different aspects of zoning and then we looked into detail through the case study, we listed and identified land use zones through the help of the case study here as well. We discussed the principles of zoning was the core purpose behind it.

The entire session, we reviewed the case study of the draft Bhopal development plan and saw the overall relevance of the tool with its ground translation, so you could see how the entire vision the development plan and along with the local area plan and all these zoning tools, how entire vision is translated on crown.

(Refer Slide Time: 34:17)



So these were our references the key reference was Bhopal development plan, the new URDPFI guidelines and the text of Rangwala as well as we had previous lectures which were connected here.

(Refer Slide Time: 34:32)

Suggested Watch and Readings

(to contemplate the different types of Zonings)

- https://www.youtube.com/watch?v=9kVWDWMeLT4&ab_channel=CityBeautiful
- https://www.youtube.com/watch?v=ejDnqz1QZdY&ab_channel=JorgeFontan
- https://www.youtube.com/watch?v=Q0zbr5VZ7Xs&ab_channel=ChicagoMetropolitanAgencyforPlanning
- https://www.youtube.com/watch?v=JvyUTJuhy_E&ab_channel=PlanetizenCourses
- https://www.youtube.com/watch?v=1aU1UH_3R5k&ab_channel=CityBeautiful



Our coverage was limited with the scope to make you aware of the topic, there are enormous readings and movies available to explore. Few are suggested here. This is not an extensive list, you may feel free to suggest more from your experience.

(Refer Slide Time: 34:47)

 Please feel free to ask Questions.
Let us know about any Concerns you have . 

 Do share your Opinions, Experiences and Suggestions.

Looking forward to Interacting and Co-learning with you while exploring Cities and Urban Planning. 





Please feel free to ask questions. Let us know about your concerns. You have to share your opinion experiences and suggestions looking forward to interacting and co learning with you while explore cities and urban planning. That is all for today. Thank you.