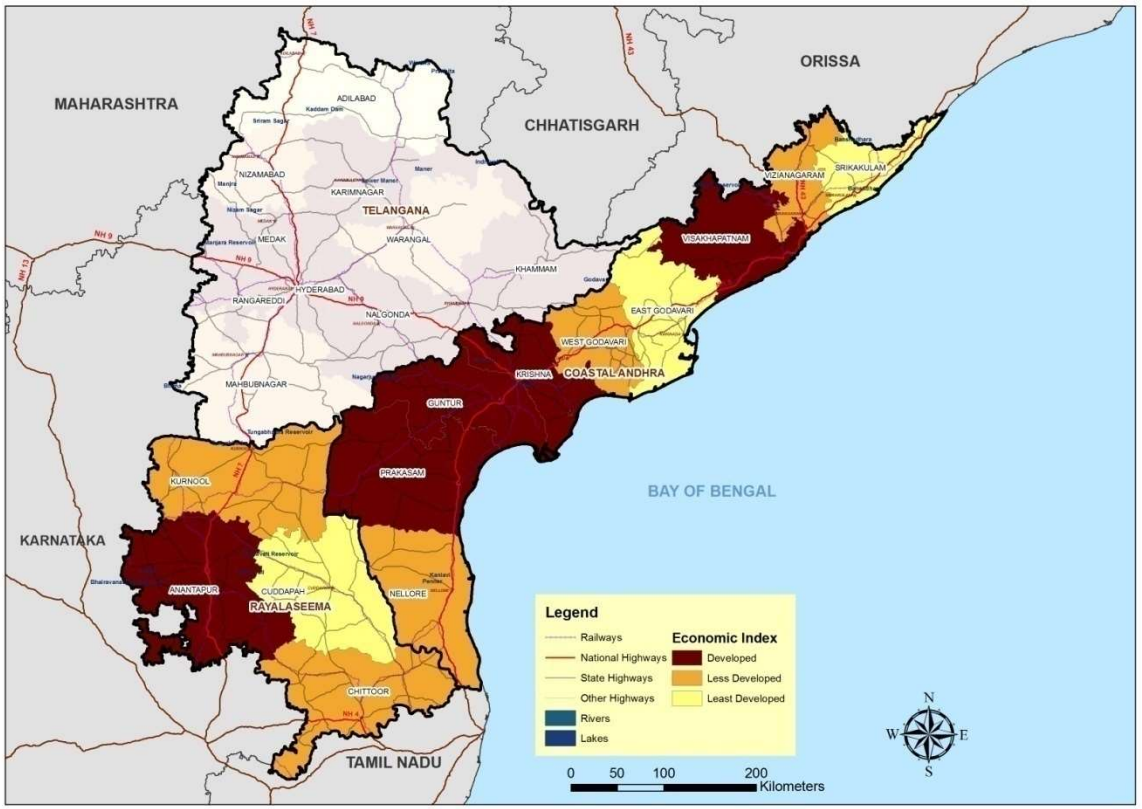
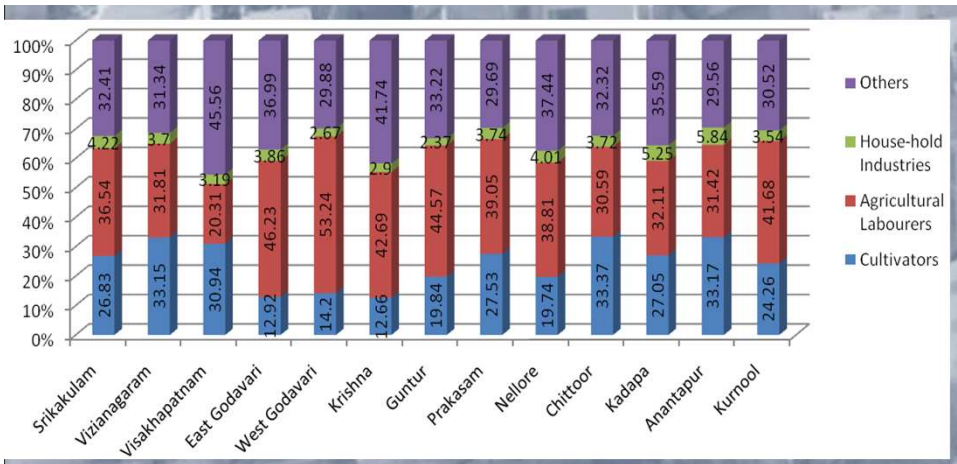
DEVELOPMENT CONTROL REGULATIONS BLUE GREEN CONSIDERATIONS FOR SMART CITIES

DEVELOPMENT CONTROL :

"The mechanism through which entire process of urban development is regulated to achieve the objective of promoting overall benefit of the society. "

Economic Index



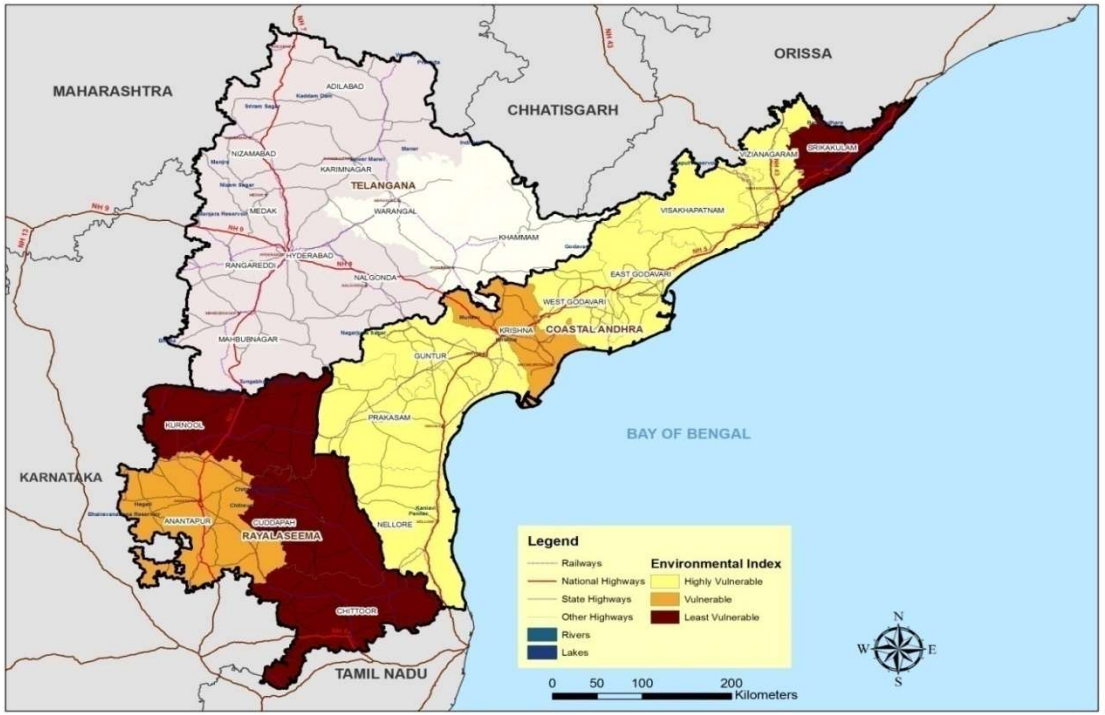


Indicators

- Per capita Income
- Percentage of Main workers

- **Per capita Income – 2016 (at constant Prices 2011-2012)**
- Vizag – 140628, Krishna -140593, Nellore - 100000, Guntur-100000, Anantapur - 89084, Kurnool - 88308
- **GDP, Industries – 24%, Services – 46% and Agriculture –30% (State)**
- **Costal regions in Andhra are primitively agriculture and highly dependent on the natural resources (Water)**
- **Vizag, West Godavari & Nellore have Manufacturing & Industrial development**

Environmental Index



Indicators

- Cyclones
- Floods
- Drought

Cyclone

- Seven Coastal Districts of Andhra Pradesh come under high risk to wind and cyclone
- Cyclone originates from Bay of Bengal, its impact reaches almost 100 km inlands.
- Visakhapatnam, Vizianagaram, East & West Godavari, Guntur, Prakasam, Nellore

Floods

- Floods occur every year, the most . The most affected population is the tribal, non- tribals, agricultural labours, small and marginal farmers, fishermen and village artisans.
- Visakhapatnam, Vizianagaram, East & West Godavari, Guntur, Prakasm, Nellore, Krishna
- Inlands floods mainly occur due to heavy rainfall and subsequent release of water from various dams in Andhra Pradesh

Fire

- The dry grass in the months of summer catches fire as a result of high temperature. Such fires are becoming very common.
- Visakhapatnam, Vizianagaram, East & West Godavari, Guntur, Prakasam, Nellore, Krishna

10% People depend on Forest

Drought

- **West Godavari, Anantapur**
- 95% land couldn't be cultivated and 15000 cattle's had to sold (2005)
- 50000 people suffer from malnutrition.

Source: Emergency Contingency Plan

REGULATIONS:

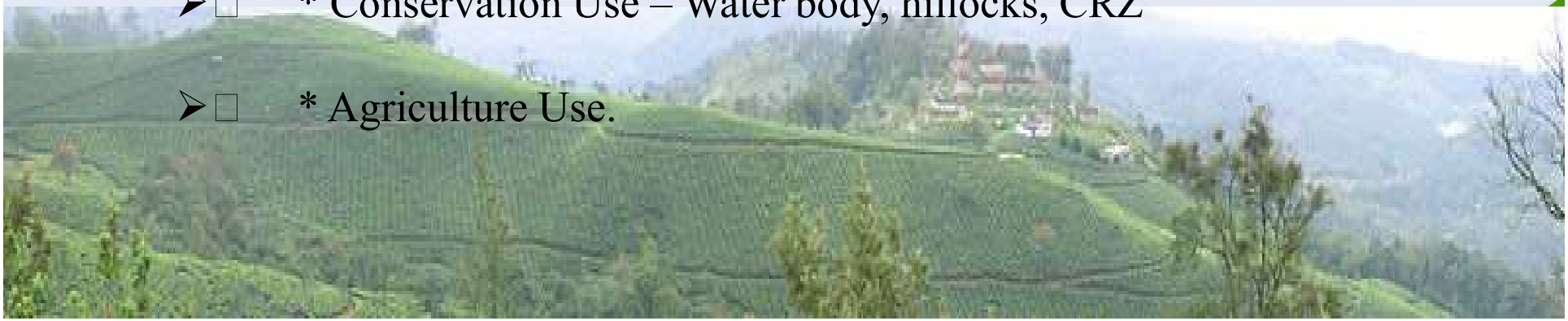
- Zoning Regulations / Land use Controls
- Building rules
- Layout (land sub division) rules

Contents of the Master Plan:

- Proposals for future requirements and growth direction of the Town.
- Proposals for improvement of existing roads and future road network.
- Grouping of various Land Uses.
- Proposals for availability and access to basic services to all Citizens.
- Proposals for protection of environmentally sensitive areas.
- Conservation of Heritage Buildings & Precincts.
- Zoning Regulations & Building Requirements

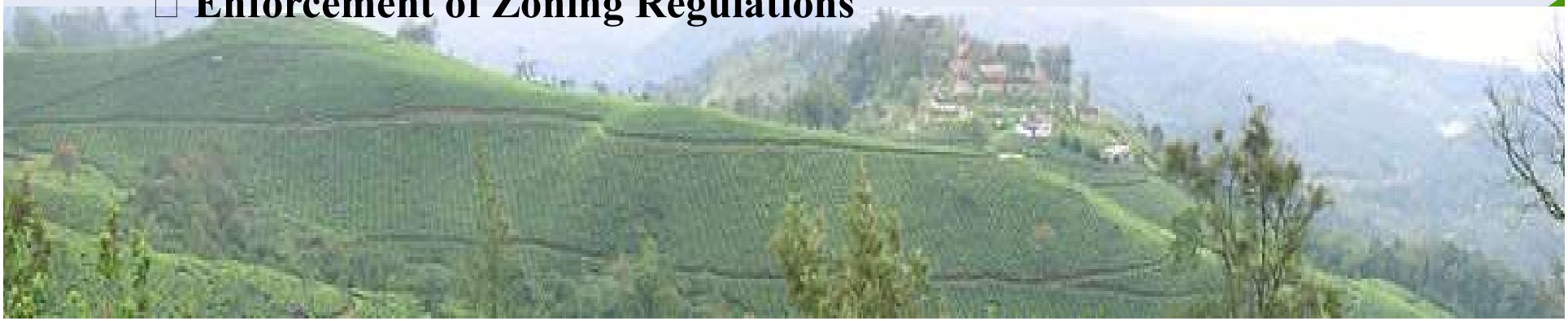
Broad Land Use Categories of a Master Plan:

- * Residential Use.
- * Commercial Use.
- * Public – Semi Public Use – Govt offices, Institutions, Schools, Hospitals.
- * Recreational Use – Parks, Play Grounds.
- * Traffic & Transportation Use.
- * Industrial Use.
- * Conservation Use – Water body, hillocks, CRZ
- * Agriculture Use.



Implementation of Master Plan

- Formation of Master plan roads & Road Widening.
- Junction improvements.
- Special schemes – housing, recreational development etc.
- Land Acquisition - Private Negotiations.
- Public Private Partnerships.
- Development Control - Layout & Building Permissions.
- Enforcement of Zoning Regulations



Road Widening

- To improve traffic circulation and quality of environment.
- Good traffic circulation helps in less fuel consumption.
- Wider roads boosts city's image and land values.
- The public cause is compensated through additional Built up Area.
- Cash compensation for loss of structures.
- Funding for compensation & roads development to be met from own sources.

Development Control - Layouts

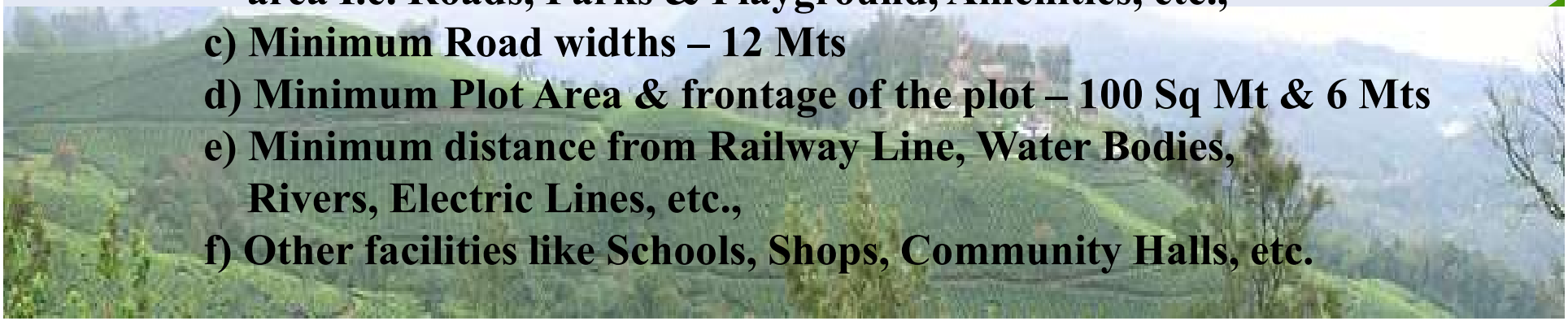
- Layout is an important tool for implementation of Master Plan
- Approved layouts have regular pattern with public open spaces
- Unauthorised layouts

– narrow and irregular paatern
– no or less public open spaces
– No facilities such as paved raods, drains
– burden on the local bodies
– Results in unplanned development

➢Development Control

Layout Stipulations: Related to Land Development

a) Land Use.
b) Land distribution ratio between plotted area and open area I.e. Roads, Parks & Playground, Amenities, etc.,
c) Minimum Road widths – 12 Mts
d) Minimum Plot Area & frontage of the plot – 100 Sq Mt & 6 Mts
e) Minimum distance from Railway Line, Water Bodies, Rivers, Electric Lines, etc.,
f) Other facilities like Schools, Shops, Community Halls, etc.



Development Control - Layouts

Building Construction stipulations: Related to minimum & maximum requirements to be followed around and within the building.

a) Maximum Coverage.

b) Maximum Permissible Built up area (FAR).

c) Maximum Building Height permissible.

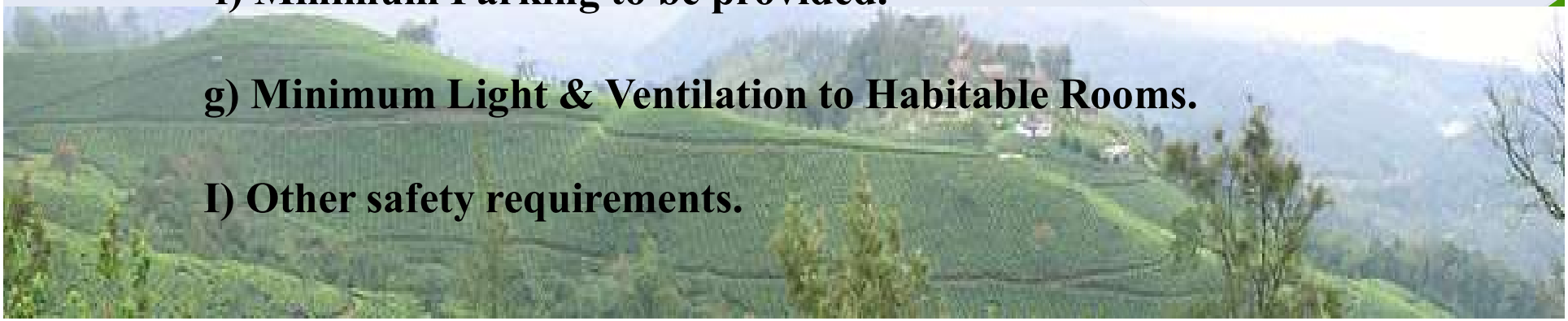
d) Minimum Access Road to the Plot.

e) Minimum All Round Setbacks.

f) Minimum Parking to be provided.

g) Minimum Light & Ventilation to Habitable Rooms.

I) Other safety requirements.



Permissions & Sanctions:

As per the provisions of the Act every development of land or construction of a building require „prior permission‟ from the respective Local Body.

Variation & Modifications:

Any variation or modification arises during the construction or development the same has to be intimated to the Local Body and obtain revised approval.

Validity of building permission:

a. **Within one year, the construction shall be commenced.**

b. **Within 3 years, the construction shall be completed**

Deviations to the Sanction Plan:

Any deviations to the sanction plan or violation of Rules & Regulations in force they attract punishments under various penal provisions of respective Acts.

Unauthorized Developments:

Also attracts punishments under respective provisions.

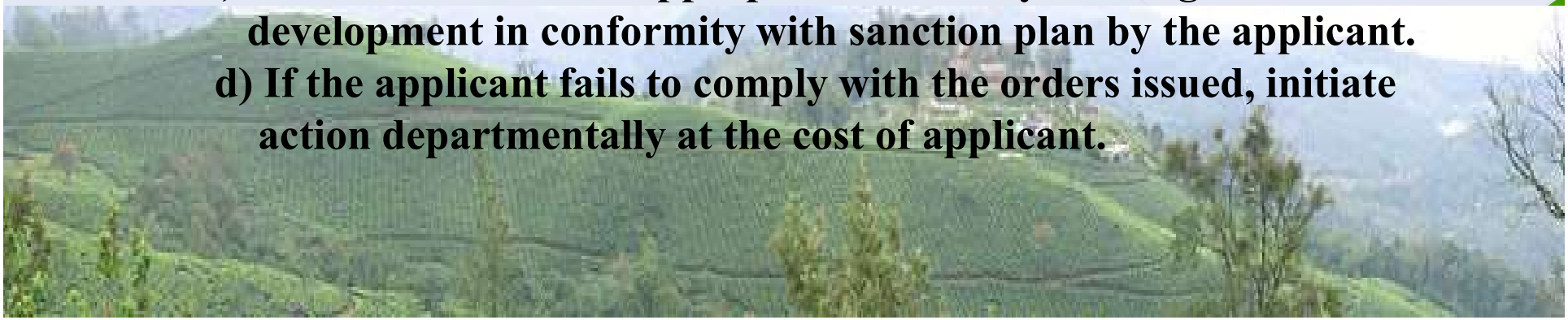
Penal Actions

a) Issue of Show cause notice.

b) Confirming the proposed action, if the reply to show cause is not satisfied or no reply given.

c) Obtain orders of the appropriate authority to bring the development in conformity with sanction plan by the applicant.

d) If the applicant fails to comply with the orders issued, initiate action departmentally at the cost of applicant.



Purpose of Building Rules

- Basic instrument for regulating all building activities
- For facilitating Planned Development
- For maintaining public health, Public safety and public convenience

Parameters of Building Rules

- External aspects (setbacks, height, etc.)

Building volume (Floor area, Coverage, etc.)

- Standards and specifications of construction
- Building standards and specifications are given as per the National Building Code

PARAMETERS OF BUILDING RULES

It regulates

1. Plot size
2. Road Width
3. Setbacks
4. Plot coverage
5. Floor Area
6. Height
7. Parking Area
8. Enforcement
9. Restriction of buildings in certain areas.

WATER BODIES

(a) No building / development activity shall be allowed in the bed of water bodies like river or nala and in the Full Tank Level (FTL) of any lake, pond, cheruvu or kunta / shikam lands.

Unless and otherwise stated, the area and the Full Tank Level (FTL) of a Lake / Kunta shall be reckoned as measured and as certified by the Irrigation Department and Revenue Department.

(b) The above water bodies and courses shall be maintained as Recreational/Green Buffer Zone and no building activity shall be carried out within:

(i) 100m from the boundary of the River outside the limits of Local Authorities and 50m within the limits of the Local Authorities.

The boundary of the river shall be as fixed and certified by the Irrigation Department and Revenue Department.

(ii) 30m from the FTL boundary of Lakes / Tanks / Kuntas of area 10Ha and above

(iii) 9m from the FTL boundary of Lakes / Tanks / Kuntas of area less than 10Ha /shikam lands;

(iv) 9m from the defined boundary of Canal, Vagu, Nala, Storm Water Drain of width more than 10m.

(v) 2m from the defined boundary of Canal, Vagu, Nala, Storm Water Drain of width up to 10m.

(c) Unless and otherwise specified in the Master Plan/Zonal Development Plan.

(i) In case of (b) (i) & (ii) above, the buffer zone may be utilised for road of minimum 12m width, wherever feasible.

(ii) In case of (b) (ii) above, in addition to development of recreational / green belt along the foreshores, a ring road or promenade of minimum 12m may be developed, wherever feasible 3.6m walking / cycle track within the 30m buffer strip may be provided.

(iii) The above buffer zone to be left may be reckoned as part of tot lot or organized open space and not for setback requirements.

(d) In case of areas along the sea coast, the Coastal Regulation Zone Regulations shall be followed.

DEVELOPMENT CODES
(Provisions for Non-High Rise Development)

A strip of at least 1m greenery/lawn along the frontage of the site within the front setback shall be developed and maintained with greenery.

For Plots above 300sq.m in addition to above, a minimum 1m wide continuous green planting strip in the periphery on remaining sides are required to be developed and maintained within the setback.

For all residential/institutional/industrial plots above 750sq.m, in addition to above, 5% of the site area to be developed as organized open space and be utilized as greenery, tot lot or soft landscaping etc., and shall be provided over and above the mandatory setbacks. Such organized open space could be in more than one location and shall be of a minimum width of 3m with a minimum area of 15sq.m at each location.

If the strip of greenery/lawn and the organized open space (tot lot) are not maintained, 10% of additional Property Tax every year shall be imposed as penalty by the Sanctioning Authority till the condition is fulfilled.

61. Group Development Schemes

Minimum of 10% of site area shall be earmarked for organized open space and be utilized as greenery and shall be provided over and above the mandatory setbacks at suitable location accessible to entire community to the satisfaction of the competent authority. Such open space shall be open to sky and shall not be over cellar floors.

PROVISIONS FOR HIGH RISE DEVELOPMENT

In every high rise building site, an organized open space shall be utilized as greenery, tot lot or soft landscaping, etc. and this shall be provided over and above the mandatory setbacks to be left in and around the building.

This space shall be at least 10% of total site area at ground level open to sky and shall be a minimum width of 4.5m. This may be provided in one or more pockets with minimum area of 50sq.m at each location.

A minimum of 2m wide green planting strip in the periphery on all sides within the setbacks (All round open spaces) are required to be developed and maintained.

Landscaping and greenery for Multiplex Complex:

(1) A minimum 2 m wide green planting strip in the periphery on all sides within the setbacks are required to be developed and maintained

(2) In addition to (a) above, an organized open space of at least 10 % of total site area shall be
maintained and utilized as greenery over and above the mandatory alround setbacks. This could be part of the interior open space or be in one or more pockets.

(3) The landscaping and greenery shall be undertaken as per the guidelines given in the National Building Code and subject to provision of hard and motorable leveled ground to facilitate operation of Hydraulic Platform.

(4) Trees shall be planted within the periphery of the site at the rate of 1 tree per 100 sq m of site area.

Below 300 Sqmts: No Provisions for Residential and Non Residential

300 -500 Sqmts Plot Area

Residential and Non Residential Provisions:

(1). Water Conservation and Management

(a) Rain Water Harvesting (by Recharge)

(2). Solar Energy Utilization

(b) Installation of Solar Assisted Water Heating Systems (Optional)

(3). Waste Management

(Segregation of Waste for Non residential)

500 - 1000 Sqmts Plot Area

Residential Provisions:

(1). Water Conservation and Management

(a) Rain Water Harvesting (by Recharge),

(b) Reduction of Hardscape

(2). Solar Energy Utilization

(b) Installation of Solar Assisted Water Heating Systems

(3). Energy Efficiency

(c) Lighting of common areas by Solar Energy/LED devices

(4). Waste Management

(a) Segregation of Waste

Non Residential Provisions:

1). Water Conservation and Management

(a) Rain Water Harvesting (by Recharge)

(b) Reduction of Hardscape

(2). Solar Energy Utilization

(a) Installation of Solar Photovoltaic Panels

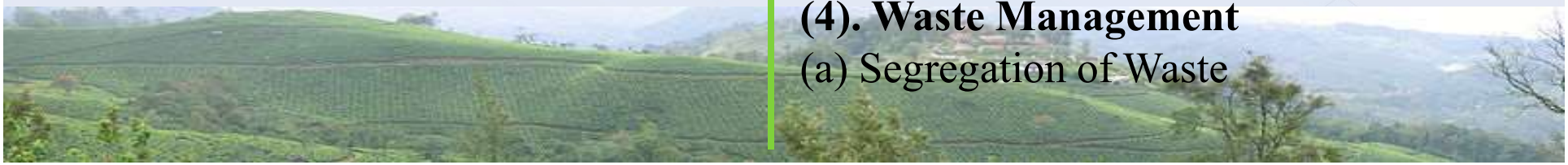
(b) Installation of Solar Assisted Water Heating Systems

(3). Energy Efficiency

(c) Lighting of common areas by Solar Energy/LED devices

(4). Waste Management

(a) Segregation of Waste



1000 - 3000 Sqmts Plot Area

Residential Provisions:

(1). Water Conservation and Management

(a) Rain Water Harvesting (by Recharge),
(b) Reduction of Hardscape
(c) Waste Water Recycle and Reuse

(2). Solar Energy Utilization

(a) Installation of SolarPhotovoltaic Panels
(b) Installation of Solar Assisted Water Heating Systems

(3). Energy Efficiency

(b) Energy Efficiency in HVAC systems
(c) Lighting of common areas by Solar Energy/LED devices

Non Residential Provisions:

1). Water Conservation and Management

(a) Rain Water Harvesting (by Recharge)
(b) Reduction of Hardscape
(c) Waste Water Recycle and Reuse

(2). Solar Energy Utilization

(a) Installation of Solar Photovoltaic Panels
(b) Installation of Solar Assisted Water Heating Systems

(3). Energy Efficiency

(b) Energy Efficiency in HVAC systems
(c) Lighting of common areas by Solar Energy/LED devices

Above 3000 Sqmts Plot Area

Residential Provisions:

(1). Water Conservation and Management

(a) Rain Water Harvesting (by Recharge),
(b) Reduction of Hardscape
(c) Low Water Consumption Plumbing Fixtures
(d) Waste Water Recycle and Reuse

(2). Solar Energy Utilization

(a) Installation of SolarPhotovoltaic Panels **and** Solar Assisted Water Heating Systems

(3). Energy Efficiency

(a) Low Energy Consumption Lighting Fixtures (Electrical Appliances – BEE Star and Energy Efficient Appliances)
(b) Energy Efficiency in HVAC systems
(c) Lighting of common areas by Solar Energy/LED devices

(4). Waste Management

Segregation of Waste and Organic Waste Management

Above 3000 Sqmts Plot Area

Non - Residential Provisions:

(1). Water Conservation and Management

(a) Rain Water Harvesting (by Recharge),
(b) Reduction of Hardscape
(c) Low Water Consumption Plumbing Fixtures
(d) Waste Water Recycle and Reuse

(2). Solar Energy Utilization

(a) Installation of SolarPhotovoltaic Panels **and** Solar Assisted Water Heating Systems

(3). Energy Efficiency

(a) Low Energy Consumption Lighting Fixtures (Electrical Appliances – BEE Star and Energy Efficient Appliances)
(b) Energy Efficiency in HVAC systems
(c) Lighting of common areas by Solar Energy/LED devices

(4). Waste Management

Segregation of Waste and Organic Waste Management

141. PROVISIONS FOR SANCTION OF BUILDING APPLICATION

(1) Water Conservation and Management

(a) Rain Water Harvesting (by Recharge)
(b) Low Water Consumption Plumbing Fixtures
(c) Waste Water Recycle and Reuse
(d) Reduction of Hardscape

(2) Solar Energy Utilization

(a) Installation of Solar Photovoltaic Panels and Solar Assisted Water Heating Systems

(3) Energy Efficiency

(a) Low Energy Consumption Lighting Fixtures (Electrical Appliances – BEE Star and Energy Efficient Appliances)
(b) Energy Efficiency in HVAC systems
(c) Lighting of common areas by Solar Energy/LED devices

(4) Waste Management

(a) Segregation of Waste and Organic Waste Management

145. Incentives for the Green Buildings:

The following incentives may be given by the Local Body to those buildings which follow the guidelines issued in the "Andhra Pradesh Energy Conservation Building Code (APECBC)" [Amended Andhra Pradesh Building Rules, 2012] issued in G. O. Ms. No. 30 Dated: 28.01.2014 and obtaining the ratings from the LEED or LEED India or TERI or GRIHA as stated above in these Rules.

(1) 20% Reduction on Permit Fees.

(2) If the property is sold within three years, one-time reduction of 20% on Duty on Transfer of Property (Surcharge on Stamp Duty) on the submission of Occupancy Certificate issued by the Local Authority.

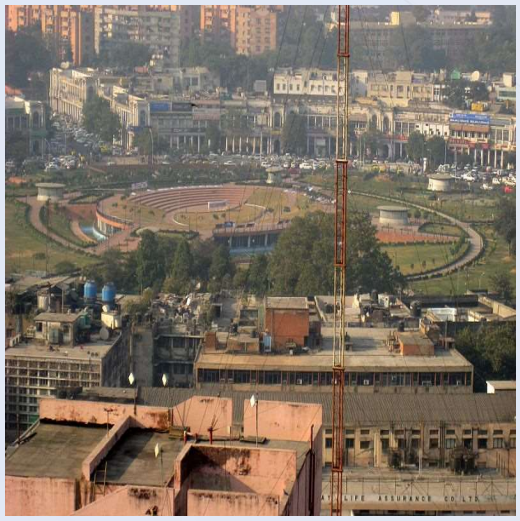
PUBLIC SAPACE FOR ALL

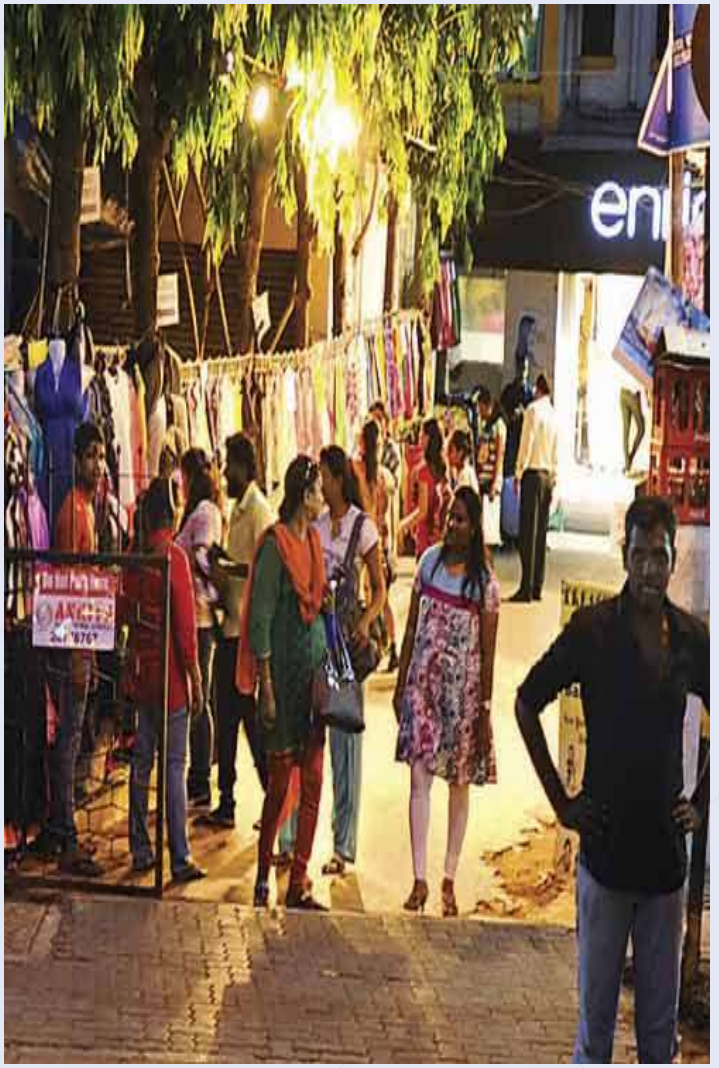
A public space may be a gathering spot or part of a neighborhood, downtown, special district, waterfront or other area within the public realm that helps promote social interaction and a sense of community.

Show Casing Rich Traditional Art in a Public Open Space

PUBLIC SPACE FOR ALL

Public spaces such as plazas, town squares, parks, marketplaces, public commons and malls, public greens, piers, special areas within convention centers or grounds, sites within public buildings, lobbies, concourses, or public spaces within private buildings.

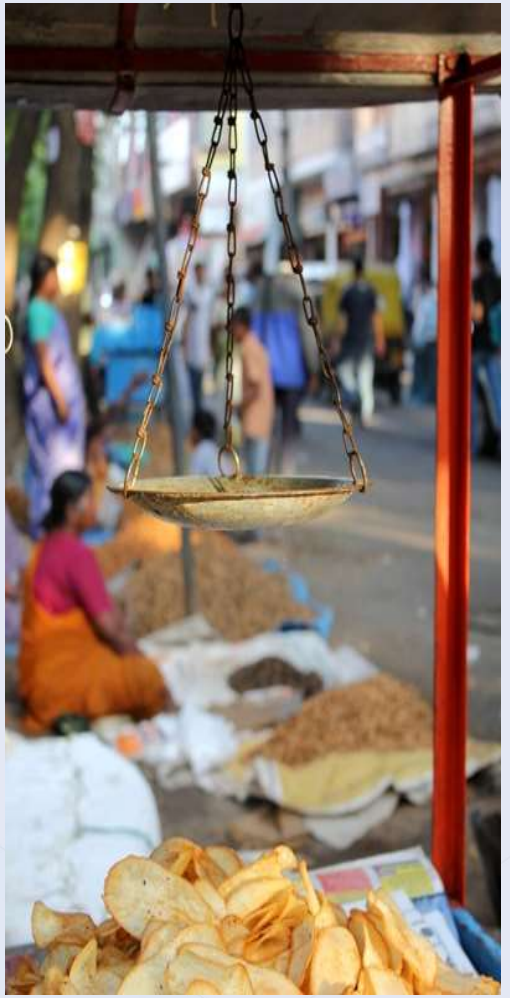




PUBLIC SPACE FOR ALL

Characteristics of a **Great Public Space** include:

- Promotes human contact and social activities.
- Is safe , welcoming , and accommodating for all users.
- Has design and architectural features that are visually interesting.
- Promotes community involvement.
- Reflects the local culture or history.
- Relates well to bordering uses.
- Is well maintained.
- Has a unique or special character.

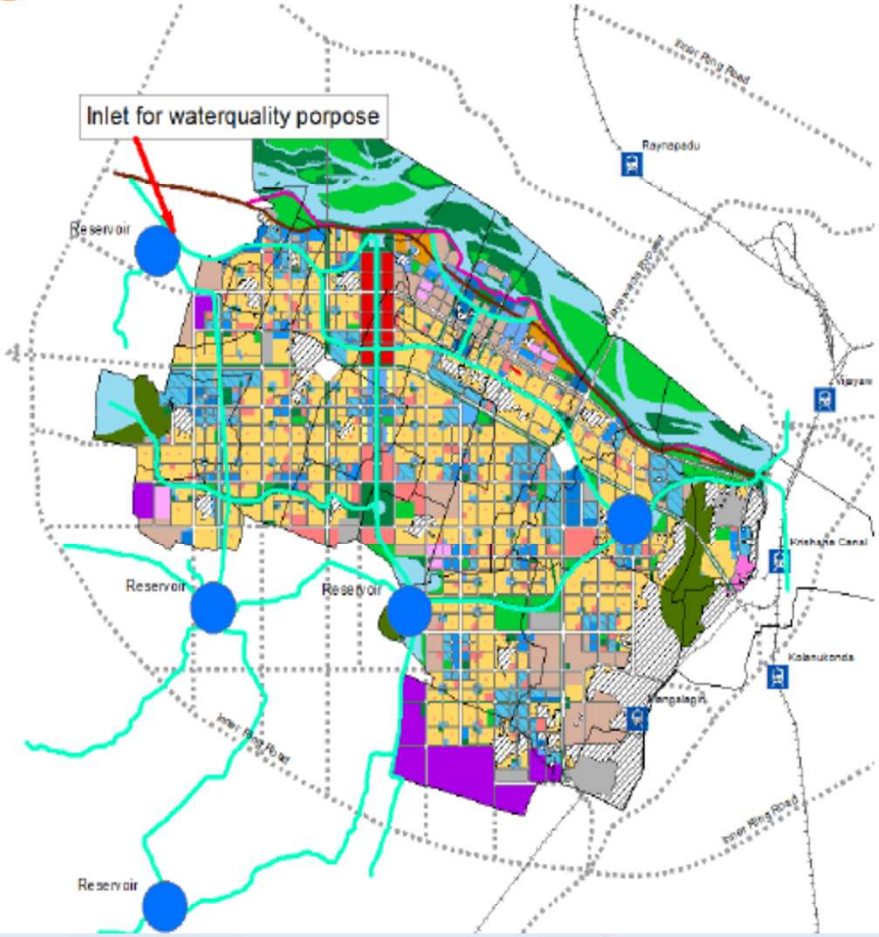


BLUE PROPOSAL

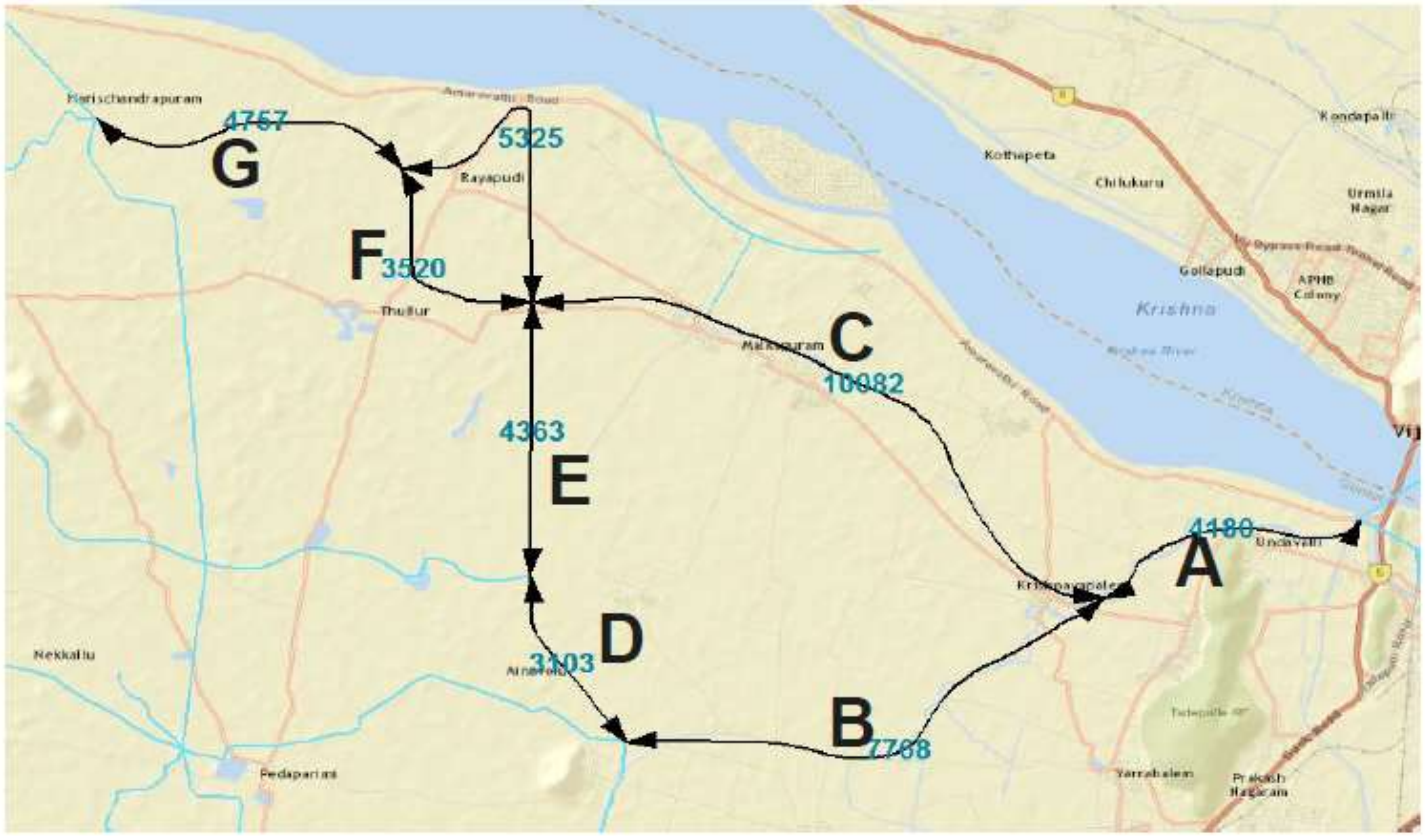
- 1. FLOOD MANAGEMENT;
- 2. URBAN WATERWAYS NAVIGATION; AND
- 3. STRENGTHENING OF RIGHT BANK AND ISLANDS OF RIVER KRISHNA
- Proposed capital city boundary area - 217 km2
- ¬ Area bounded with high contours/ridges
- ¬ HFL of Krishna river (RL 21.5 m) higher than KV (RL 17.5m) level
- ¬ Presently entire KV flood discharges through Undavalli outlet, u/s of Prakasam Barrage
- ¬ Gravity drainage impossible in the above scenario!!!
- ¬ With topographical-hydraulic constraints pumping is required
- Catchmeny area 421 sqm

Model design, reservoirs

- Water quality requires flushing in dry season
- Reservoirs



Navigation only in A-B-C-D-E



Recreational / commuter navigation

Design allows for recreational / commuter navigation

Canal dimensions needed for flood protection are (much) larger & deeper than those needed for navigation

	Length (m)	Beam (m)	Draught (m)	Vertical clearance (m)
Open boat	5.5	2	0.5	2
Cabin cruiser	9.5	3	1	3


Thank you....