

**DRAFT**

**Andhra Pradesh Urban Greening Policy - 2018**

**Submitted**

**By**



**Centre for Innovations in Public Systems**

**(An Autonomous Centre of ASCI Established by the Government of India)**

**To**



**Government of Andhra Pradesh**

**Andhra Pradesh Urban Greening and Beautification Corporation**

**“My vision is to develop Andhra Pradesh into a knowledge society of a global repute, with focus on enhancing the quality of life of its citizens”**

**Sri Nara Chandrababu Naidu, Hon’ble Chief Minister, Andhra Pradesh**

## PREFACE

It is difficult to imagine life without plants. Raising and tending of plants is a satisfying and health-enhancing experience that brings one close to elements of nature. Lifestyles of urban dwellers and their habitats have undergone tremendous changes over the years and human population and pollution levels have shown an abnormal spike. Automobile exhausts and industries spew toxins into the atmosphere and the ground water gets contaminated by industrial effluents. These factors, inevitably, affect the biodiversity and quality of human life. We are currently faced with the task of growing plants in conditions that are harsher as compared to the past.

The fact of the matter is that plants which are needed to sustain our well-being by virtue of their ability to ameliorate the environment by absorbing toxic residues from the atmosphere thereby improving the air quality, combating global warming and act as carbon sequesters, are finding it difficult to thrive.

There has been a significant change in climate and coupled with the above changes has altered the intensity and distribution patterns of temperature and rainfall, all over the country resulting in frequent droughts and floods. Plants that grew well thirty years ago may not do so now.

Time has come to plant previously untried varieties of indigenous plants and trees on a large scale. There is an urgent need for carrying out systematic evaluation and assessment of exotic species before introducing them in urban areas. There are reports that certain exotic and even a few local species cause respiratory problems, allergies, headache through their pollen grains, pungent smell, etc. In view of the experience gained, this policy is drafted with a holistic approach to address various issues and to improve the ecology and ambience of urban habitations.

We hope that this comprehensive policy on urban greening in the State of Andhra Pradesh is the first of its kind in the country and holds potential to usher in a greening movement in all urban areas. Such a policy can encourage a positive interest in trees, shrubs, herbs especially indigenous fruit and flowering trees which are animal, bird and insect-friendly amongst all stake holders.

Further, the policy is expected to trigger various activities that would lead to creation of an increased awareness of the important role that trees play in the urban landscapes and in bringing about an improvement in quality of life of urban dwellers and in maintaining a healthy eco-system.

## ACRONYMS

AP	Andhra Pradesh
APTDC	Andhra Pradesh Tourism Development Corporation
APUG&BC	Andhra Pradesh Urban Greening and Beautification Corporation
CBD	Convention on Biological Diversity
CIPS	Centre for Innovations in Public Systems
CNG	Compressed Natural Gas
CPCB	Central Pollution Control Board
CRDA	Capital Region Development Authority
CSR	Corporate Social Responsibility
DCF	Deputy Conservator of Forests
DFO	Divisional Forest Officer
DTCP	Directorate of Town and Country Planning
GDP	Gross Domestic Product
GIS	Geographic Information System
GPS	Global Positioning System
GVMC	Greater Visakhapatnam Municipal Corporation
HUDA	Hyderabad Urban Development Authority
IDAs	Industrial Development Authorities
IFS	Indian Forest Service
IGBC	Indian Green Building Council
LEEDs	Leadership in Energy and Environmental Designs
LPG	Liquefied Petroleum Gas
MA&UD	Municipal Administration and Urban Development
NGO	Non-Governmental Organisation
NHAI	National Highway Authority of India
PPP	Public Private Partnership
RWA	Resident Welfare Association
SDG	Sustainable Development Goal
SEZ	Special Economic Zone
SHG	Self Help Group
TTD	Tirumala Tirupati Devasthanams
UDA	Urban Development Authority
UHI	Urban Heat Island
ULB	Urban Local Body
APWALTA	Andhra Pradesh Water Land and Trees Act

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## **EXECUTIVE SUMMARY**

Recognising the role of urban greenery in ameliorating the environment, countering the adverse effects of climate change, reducing pollution, providing healthy lung spaces and recreational spots in urban areas, the Government of Andhra Pradesh envisions “Andhra Pradesh Urban Greening Policy - 2018”.

This has assumed paramount importance in recent years in order to address the main issue of improving the quality of life of citizens living in urban areas. Such an objective can be realized in a meaningful way only through coordinated efforts of state government, urban local bodies and active participation of the residents, besides other stakeholders including professional and technical agencies like Andhra Pradesh Urban Greening and Beautification Corporation, Forest Department and Horticulture Department. The policy further recognizes that the citizens can contribute substantially by planting and by protecting existing trees.

The Greening policy has all ingredients that inter alia envisages people-friendly approach and is oriented towards enlisting their massive participation and cooperation in making greening a people’s movement in urban areas. It also recognizes the concerns of people for intangible benefits like improved quality of life in terms of health and well-being, reduction of pollution, soil and moisture conservation besides taking care of aesthetics and recreational needs in urban areas. In short, the policy has all features ranging from requirement of human resources to viable financial options to undertake massive urban greening programme on people-centric approach. It is, therefore, expected to create a conducive atmosphere leading to a win-win situation for all stakeholders in effective implementation of greening programmes in urban areas.

## **POLICY HIGHLIGHTS**

- Provides health and environmental security to the present and future generations
- Recommends fine tuning of extant regulatory framework governing urban areas
- Facilitates compilation of comprehensive knowledge relevant to urban greening
- Directs for documentation and protection of land banks earmarked for greenery
- Promotes relevant technologies in the management of urban greenery
- Strengthens networking amongst all stakeholders for the active public participation
- Provides scope for research in urban greening practices
- Encourages various good governance measures for effective management
- Provides inputs for better financial planning and implementation of action plans
- Identifies resources for augmenting the required finances
- Serves as a monitoring-cum-evaluation framework for further evolution of policies, acts, rules and guidelines
- Improves the biodiversity of urban areas



# Draft Andhra Pradesh Urban Greening Policy - 2018

## 1. INTRODUCTION

*Nature is the source of all material things: the maker, the means of making, and the things made. All actions take place in time by the intervening of the forces of nature: but the man, lost in selfish delusion thinks that he himself is the actor.*

*Isha Upanishad*

Two thousand years ago, Emperor Ashoka passed an edict to plant trees along roads to provide shade, shelter and fruits to animals and human beings. The action reflects the environmental, ecological and futuristic thinking of ‘Ashoka the Great’. The citizens shall be inspired by the example set by the Emperor to plant trees especially in urban areas to mitigate the adverse effects of pollution and ameliorate the urban environment.

As per the 2011 census, 31.16 per cent of the country’s population reside in urban areas which accounts to 37 Crore population and is expected to rise to 40 per cent by 2026. Population growth and high density of urban population can adversely impact natural and environmental resources. Preservation of vegetative areas and green spaces improves the quality of life by providing residents with natural settings for leisure and recreation and by safeguarding the quality of basic resources such as air and water.

### 1.1. Constitutional Provisions

#### 1.1.1. Article 48A

A global adaption consciousness for the protection of the environment in the seventies prompted the Indian Government to enact the 42<sup>nd</sup> Amendment (1976) to the Constitution. The said amendment added Art. 48A to the Directive Principles of State Policy. It declares - “the State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country”.

#### 1.1.2. Article 51(A) (g)

A similar responsibility imposed upon on every citizen in the form of Fundamental Duty under the aforesaid amendment, which states - “to protect and improve the natural environment including forest, lakes, rivers and wildlife, and to have compassion for living creatures”.

### 1.1.3. National Forest Policy

National Forest Policy - 1988, lays emphasis on tree cover, massive people's movement, environmental stability, maintenance of ecological balance including atmospheric equilibrium and importance of microclimate for sustenance of all life forms. The 12<sup>th</sup> Schedule of 74<sup>th</sup> constitutional amendment of India (Article 243-W), defines 18 new tasks in the functional domain of the urban local bodies which includes urban forestry, protection of environment and promotion of ecological aspects. The urban greening policy aims at achieving the above concepts and structure the policy specially suited for urban lands.

The draft National Forest Policy – 2018 integrates urban forestry element to enhance citizens' well-being in urban and peri-urban areas.

### 1.1.4. Urban Greening Provisions

The Ministry of Urban Development, Govt. of India has issued Urban Greening Guidelines, 2014 with the objectives of highlighting impact of urbanization on urban greening, suggesting practices and methods for protecting and enhancing urban greenery in a sustainable manner, identifying key stages in planning and development to enhance urban greening.

As per the Urban Development Plans Formulation and Implementation (UDPFI) guidelines 1996 of Ministry of Urban Development, the proportion of recreational areas (green areas are normally classified as recreational use in the Master Plan) to the total developed area should be between 12 to 14 per cent in small towns, 18 to 20 per cent in medium towns and large cities and 20 to 25 per cent in metropolitan (million plus) cities.

## 1.2. Convention on Biological Diversity (CBD)

The adoption of CBD by Global Community at Earth Summit held in Rio de Janeiro in 1992, as a first global agreement has addressed all aspects related to biodiversity which includes flora and fauna. A great impetus has been given at global level for conservation of plants, and animals. This has led to the development of concept called Urban Biodiversity which in turn advocated massive urban greening.

### 1.3. Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) are a bold, universal agreement to end poverty in all dimensions and craft an equal, just and secure world – for people, planet and prosperity by 2030.

The 17 SDGs and 169 targets are a part of Transforming our world: the 2030 Agenda for Sustainable Development, which was adopted by 193 Member States at the historic UN General Assembly Summit in September 2015 and came into effect on January 1, 2016.

The Sustainable Development Goal 11 – “Sustainable Cities and Communities” lays emphasis on making cities and human settlements inclusive, safe, resilient and sustainable. And, further states that by 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.

Biodiversity and healthy ecosystems can provide reliable and cost-effective natural infrastructure. Urban green belts and vegetation can absorb run-off of surface water and support resilience against storms and erosion. Such natural infrastructure, also called green infrastructure, offers multiple benefits compared to single purpose grey infrastructure, and are often more effective compared to the latter in terms of cost, longevity and effectiveness.

The global urban population is expected to reach 5 billion by 2030, and over 60% of the land projected to become urban by 2030 is yet to be built. Ecosystems and biodiversity underpin the day-to-day functioning of cities and human settlements by delivering the basic services and conditions that enable, support and protect human production, consumption and habitation. Healthy ecosystems can provide protection and resilience from extreme weather events and disasters.

Urban planning that integrates the consideration of greening can contribute to more sustainable human settlements. For example, strategic placement of trees in urban areas can cool the air between 2°C to 5°C. Furthermore, trees properly placed around buildings can reduce air conditioning needs by 30% and save energy used for heating by 20% to 50%. Nature-based solutions to the challenges of urban well-being, such as ecosystem-based approaches to climate change adaptation and disaster risk reduction, enable safe human settlements.

A salubrious environment in a city with optimal green cover and water regime will exert a positive influence on the residents and enhance their productivity indirectly. Green cover is an effective carbon sink having potential to absorb gases as well as gather suspended particulate matter. It is estimated that a full-grown tree renders intangible environmental services of high value and therefore growing trees should be taken up on a mission mode.

#### 1.4. Andhra Pradesh

As per the population census 2011, reorganized State of Andhra Pradesh has a total population of 4,93,86,799, of which urban population constitutes 1,46,10,410 (29.6%) while rural population stands at 3,47,76,389 (70.4%). The geographical area of the state is 1,60,205 sq km., out of which the area under ULBs is 2.1%. The State has 13 districts and a total of 110 Urban Local Bodies (ULBs) and (9) nine Urban Development Authorities(UDA's). The ULBs include 14 Municipal Corporations, 72 Municipalities and 24 Nagar Panchayats.

<b>Statistical information of ULBs &amp; UDAs</b>				
<b>Sl. No.</b>	<b>Details of the ULBs</b>	<b>Nos.</b>	<b>Area (Sq. KM)</b>	<b>Population (in Nos.)</b>
1	Municipal Corporations	14	973.00	7558460
2	Special grade Municipalities	7	144.87	1260829
3	Selection Grade Municipalities	4	114.70	651266
4	Grade I Municipalities	12	174.33	1237393
5	Grade II Municipalities	26	609.73	1758639
6	Grade III Municipalities	23	672.44	1222195
7	Nagar Panchayats	24	687.63	921628
	<b>Total:</b>	<b>110</b>	<b>3376.70</b>	<b>14610410</b>
<b>Urban Development Authorities (UDAs)</b>				
<b>Sl. No.</b>	<b>Name of the UDA</b>		<b>Area (in Sq. Kms)</b>	<b>Population (in Nos.)</b>
1	Capital Regional Development Authority (CRDA)		8603.00	58,73,588
2	Visakhapatnam Urban Development Authority (VUDA)		5573.00	53,40,000
3	Tirupati Urban Development Authority (TUDA)		1211.51	8,87,462
4	Puttaparthi Urban Development Authority (PUDA)		86.56	35,549
5	Machilipatnam Area Development Authority (MADA)		426.16	2,41,207
6	Nellore Urban Development Authority (NUDA)		1644.17	13,01,602
7	Godavari Urban Development Authority (GUDA)		2215.50	25,80,282
8	Kurnool Urban Development Authority (KUDA)		2414.69	11,44,980
9	Anantapuramu Hindupur Urban Development Authority (AHUDA)		3098.46	13,89,970
	<b>Total:</b>		<b>25273.05</b>	<b>1,87,94,640</b>

In view of rapid urbanization in the State of Andhra Pradesh, to have a focussed management of urban greenery for the benefit of the urban dwellers, the government has initiated to formulate a comprehensive urban greening policy. This policy provides overall guidance and sensitizes all ULBs and other stakeholders to build livable urban environment.

This policy may be called as “Andhra Pradesh Urban Greening Policy - 2018”

## **2. PREAMBLE**

Recognizing the necessity of greening the areas under Urban Local Bodies (ULBs), Urban Development Authorities (UDAs), Urban Agglomerations, Industrial Local Authorities/Zones and Special Economic Zones; and for protecting, planning, upgradation and effective management of all urban vacant lands, municipal lands, parks, institutional, industrial and residential spaces, roads, water bodies and urban river fronts, the Govt. of Andhra Pradesh has ventured upon formulating a comprehensive urban greening policy. This document provides policy directives to urban local bodies and other stakeholders to attain the goal of improving the quality of life of urban dwellers by conserving and enhancing greenery.

### **Taking Note**

Subsequent to the bifurcation of the State, major thrust is being laid on the development of urban clusters that are going to play a key role in economic growth in the State of Andhra Pradesh.

This would result in large scale upgradation of urban infrastructure and a huge up-swell in the urban population thus affecting the urban environment in terms of adverse impact on natural resources, in particular the quality of air, water, soil, biodiversity, ecology and environment that may lead to Urban Heat Island (UHI) effect. To springboard the sustainable development in the State, a need is felt to conserve and enhance the greenery in urban areas of Andhra Pradesh.

## **3. VISION**

To create ecologically sustainable urban lung spaces and to improve the quality of life through involvement and empowerment of all stakeholders including urban communities by incorporating a mechanism in the urban development regulations wherever required for sustaining the greenery in consonance with developmental plans of urban habitats.

## **4. MISSION**

To promote an ecologically sustainable urban greening model to meet the present and future sustainable development needs, improve the quality of life of the urban inhabitants and achieve higher health and happiness index.

## **5. AIM**

Improve the green cover in the urban areas by conserving the existing greenery and to scale up further in the urban landscapes, viz., Neighbourhood parks, colony parks, city parks, play grounds, wood lots, institutional lung spaces, residential colonies, road margins/medians, traffic islands, barren hills, wastelands, canal banks, river and lake fronts, foreshore areas, coastal areas including mangroves, notified forest lands, industrial open spaces, garbage dump yards and effluent treatment/recycling plants with appropriate species and revitalise them for the environmental, aesthetic, recreational and health needs of the urban population.

## **6. OBJECTIVES**

- 6.1. Improve the density of vegetation wherever possible by way of planting judicious mix of different species of shrubs and trees.
- 6.2. Safeguard the areas meant for parks and recreation needs by ensuring their protection for development of green cover and no diversion of public lands earmarked for greenery shall be allowed.
- 6.3. Protect the urban water bodies like ponds, lakes, canals, streams, rivers, wet lands, backwaters and coastal areas so as to conserve the green cover by ensuring zoning regulations for water bodies.
- 6.4. Ensure tree planting along large network of canals and other water bodies, through appropriate mixture of species.
- 6.5. Ensure optimum green cover in the industrial establishments as specified by the licensing authorities and relevant Acts and Rules (Pollution Control Board, Building Bye-laws, Master Plans).
- 6.6. Expand greening along roads and rail network on either side and in the median of the road with greening component incorporated separately in the project

finances/estimates as stipulated in the Green Highways Policy 2015 of the National Highways Authority of India (NHAI).

- 6.7. Undertake tree census-cum-green cover mapping with appropriate use of latest technology including drones and satellite imagery with the objective of creating a GIS based unique Tree Directory/Inventory.
- 6.8. Enforce implementation of the existing legal framework viz., WALTA 2002 of AP.
- 6.9. Enforce the implementation of notified land use zoning regulations and development regulations and other legal provisions as per A.P. Municipal Act 1965.
- 6.10. Adopt green building code/guidelines for all new government/public buildings that are constructed by using public funds. This is to be made applicable for corporate buildings that come up on lands allotted by the government as per the guidelines.
- 6.11. Incentivize greening efforts for sustainability in community managed urban lung spaces, public and privately-owned properties, residential colonies, institutions, industries, commercial complexes and corporate offices by way of instituting Green Awards.
- 6.12. Ensure effective translation of this policy into an action plan by providing adequate financial support and administrative-cum-legal framework to protect green spaces along with required machinery, manpower and logistics.
- 6.13. Ensure implementation framework by including credible mechanism of measuring, monitoring and evaluation in time-bound manner.
- 6.14. Provide institutional framework like creation of urban forestry wing within urban local bodies, urban development authorities and other urban infrastructure institutions for implementation of greening efforts.
- 6.15. Develop an effective mass campaign strategy to create awareness towards the need for promoting urban greening activities.

## **7. EXISTING LEGAL PROVISIONS FOR GREENING**

### **7.1. WALT Act**

The government of AP promulgated the Andhra Pradesh Water, Land and Trees Act-2002 with an aim to promote water conservation, tree cover and regulate the exploitation and use of ground and surface water for protection and conservation of water sources, land and environment in the State.

### **7.2. Biodiversity Act and rules**

In exercise of the powers conferred by sub section (1) of Section 63 of the Biological Diversity Act, 2002 (Central Act No. 18 of 2003), read with the Biological Diversity Rules, 2004 issued in GSR 261 (E), Ministry of Environment and Forests, New Delhi, dated 15 April 2004, the Government of Andhra Pradesh has notified the rules called “Andhra Pradesh Biological Diversity Rules”, 2009.

## **8. POLICY DIRECTIVES**

### **8.1. Greening of Urban Habitations**

Rapid urbanization is altering the natural urban environment with adverse impact on the health of urban dwellers. Some of the conspicuous deleterious effects are loss of urban biodiversity, shrinking of water bodies and increasing pollution resulting in deterioration of quality of life of urban inhabitants. There is an urgent need to mitigate and reverse this trend by adopting suitable strategies and approaches.

#### **8.1.1. Enhancing Greening Efforts**

Many of our urban areas have been significantly altered due to land conversion, high density of population, pollution and loss of urban biodiversity. This trend should be reversed by taking up large-scale tree plantation to ensure clean air, water and better living conditions. Appropriate mitigation interventions need to be adopted to reduce pollution through sustained greening efforts and also enforcing regulations to safeguard greenery.

#### **8.1.2. Ensure Adequate Green Areas**

To mitigate the adverse effects of climate change and ameliorate the urban environment, it is required to increase greenery in urban setting, take up systematic identification, geo-mapping and protection of areas for undertaking massive tree plantation;



involve local communities, Residents' Welfare Associations (RWAs), Self-Help Groups, Institutions, Industries, Corporates and other stakeholders for the above cause.

#### 8.1.3. Planning for Future to Ensure Mandatory Green Spaces

Damage to urban environment due to increased urban sprawl and burgeoning population and their transportation needs is to be compensated by adopting suitable mitigation strategies. Location-specific solutions may be adopted without pitting development against greening. There is a need to think green right from the initial stage. Projects like new roads, metros and widening of existing roads and converting public greens into educational and health institutions are potential threats to greenery. Therefore, tree planting in adequate numbers should be taken up to compensate such loss. Further, exploring feasibility for selective tree transplantation to compensate the losses wherever required is also paramount. Urban housing, industrial clusters, institutions and layout development plans should ensure earmarking of mandatory areas for development of parks, green lung spaces and adequate tree planting. Further, the funds required for development and maintenance of the aforesaid green areas should be provided in the project plans and estimates of the public projects.

#### 8.1.4. Incentivize Sustainability of urban greenery

In urban governance, the sustainability of the greenery should be ensured through developing parks, planting of trees around water bodies, in residential colonies, along the sides of the roads, on the lands of institutions and industries. Communities have to be taken on-board for a more responsible participation by providing rewards, awards and certificates of appreciation.

### 8.2. Enforcement of Regulations & Inventory of Urban Public Lands

The existing urban lands earmarked as parks, water bodies, open spaces, road margins, canal banks, river banks, etc. should be inventorised using geo-referenced spatial and textual records. The land bank data should also be available real-time. These lands should be adequately protected from encroachment and dumping of solid waste. ULBs should ensure proper mapping, documenting and plan for developing greenery in and around these areas duly protected with appropriate measures like protection wall or fencing. Diversion of the said lands for any other purpose shall not be permitted. Periodic monitoring and assessment of the said areas and the greenery shall be undertaken by using appropriate technologies including drones.

### 8.2.1. Enforcement of land use zoning regulations by ULBs

The compliance of all classes of land use as per extant laws and regulations has to be monitored and defaulters be brought to book. The violation of open space regulations is to be viewed seriously by undertaking deterrent action like stoppage of water and power supply and imposing heavy penalty.

### 8.2.2. Maintenance of inventory of areas for taking up planting

Lands along the road shoulder, canal banks, river banks and foreshores of water bodies to be protected by the respective departments and trees to be planted in a scientific and systematic manner. An inventory of areas along roads, canals, rivers and around water bodies falling under the jurisdiction of the ULBs shall be maintained by the departments concerned and ULBs along with well-defined co-ordinates so that any encroachment is detectable immediately. As and when road widening, or any new project of roads or canals is undertaken, the cost of greening and maintenance for a minimum period of five (5) years shall be incorporated within the project

### 8.2.3. Key Strategy for development of parks and city forests

Colony parks, neighbourhood parks and city forests are to be developed by the ULBs and their maintenance can be taken up by involving residential welfare associations by developing a model of incentivizing and subsidizing maintenance. This process of involving RWAs would ensure sustainability and ownership by the community. Depending upon the size of the park, the area under tree cover may be planned limiting the lawn areas. The technical inputs may be provided by the horticulture and /or urban forestry wings of ULBs.

For the development and maintenance of large-sized parks above 5 acres, a two-pronged strategy may be followed as mentioned hereunder:

1. Wherever the government agency develops the park, the maintenance of entire park and development of the entertainment infrastructure in an area not exceeding 15% of the total area of the park may be given on PPP mode to a professionally qualified private agency selected through a competitive bidding process.
2. Wherever the private agency solely takes the responsibility of the development of entire park including infrastructure on government lands allotted on PPP mode, the area for development of entertainment infrastructure shall be limited to 20% of the total area of the park. The development and maintenance of entire infrastructure of the park shall be taken care by the agency selected through a competitive bidding process.

3. The revenue earned on such parks can be used for maintenance of other parks and greenery.

In the case of traffic islands and road medians, the ULBs may introduce ‘Adopt a Traffic Island / median’ scheme open for corporates and commercial establishments.

#### 8.2.4. Mandatory maintenance of inventory of green spaces

The inventory and copies of the Revenue and Land Records, Statistics and Maps of the Land Resources earmarked for greenery under Directorate of Town and Country Planning (DTCP), Urban Development Authorities (UDAs), ULBs, Industrial Development Authorities (IDAs), Industrial Local Authorities (ILAs), Industrial Infrastructure Corporation (IIC) and other institutions/special authorities shall be maintained mandatorily and will be kept in public domain.

### 8.3. Greening of Residential Colonies, Homesteads

#### 8.3.1. Residential colonies

ULBs should take up tree planting along sides of internal roads within the residential colonies. An inventory of colonies with GPS readings shall be maintained by the concerned ULB and updated from time to time for undertaking greening activities.

#### 8.3.2. Homestead Planting

Planting within the individually owned houses and apartments may be encouraged by supplying seedlings of required species by the ULB as per the preference of citizens. Participation of local resident welfare associations and public representatives, especially women and children shall be ensured to achieve sustainability in greening efforts.

The individual house-hold owners of residential housing colonies should be encouraged and trained to go in for roof-top gardening by covering the open terraces by creating lawns, planter walls and potted plants of ornamental, flowering and vegetable species.

### 8.4. Greening of Institutional Lands

Institutional planting in the urban areas may be categorized into public and private institutions. The open spaces of public institutions are to be planted by the institutions concerned with due care for maintenance and the private institutions should ensure tree planting in their premises and take care of the maintenance. Wherever the institutions (private

or public) are allotted land by the government for development, one-third of the total area shall be mandatorily earmarked for greening. The responsibility of raising and successful maintenance of the plantation shall lie with the institutions concerned.

### 8.5. Greening by Industries

“Polluter Pays” principle makes it obligatory on the part of industry to plant and maintain greenery on a sustainable basis as per the specified norms. In the light of the climate change scenario and extreme weather conditions, there is an urgent need to ensure that all the industries in the state take up tree planting in a very systematic and sustained manner as per the guidelines and rules issued by the Government. All concerned agencies and departments shall closely monitor the progress in tree planting and ensure proper compliance on an annual basis.

Local industries should be required to contribute a certain percentage of CSR fund for greening purpose. The District Administration and Pollution Control Board should take up proactive steps in this regard and monitor the contribution of CSR funding, development and maintenance of greening activity on an annual basis.

Major industries like power, ports, steel, cement, petro-chemical, fertilizers, SEZs, etc. which contribute to heavy pollution load in the surroundings of the plant should be made to contribute to greening efforts by financing the greening projects in the nearby urban areas.

### 8.6. Greening along the Road Sides

Tree planting along the roads improves aesthetics, moderate air and noise pollution and act as a protection against possible encroachment. Different roads which are maintained by departments like Panchayati Raj, Roads and Buildings, National Highways Authority, ULBs, UDAs and other local authorities etc., have substantial land for taking up tree planting. Therefore, the available lands specially on the road margins are to be planted by ULBs, UDAs, Forest Department and other agencies and the funds required are to be built into the road project and transferred to the executing agencies. In the road projects involving widening and upgradation, the concerned authorities are to factor in for tree translocation wherever feasible and the same may be done with technical guidance of Forest Department / Forest Development Corporation / APUG&BC.

While planting trees along the footpaths adjacent to roads, it is often found that tree trunks are closely surrounded with concreted surface / pavers / tiles. In such cases, the growth of trees is restricted due to lack of growing space and impermeability of surface to air and

water. The trees get injured owing to close concretization and may result in premature falling. Therefore, the development departments are required to leave enough space not less than two feet from the outer base of the tree trunk while laying the footpaths / pavements.

The tree crowns in the urban areas may get malformed due to various factors like obstructions, vandalism, storms and damage by heavy vehicle like trucks. To balance the crown and also to shape the trees for aesthetic purpose, scientific pruning of crown and branches is required periodically. For taking up pruning of the trees the urban forestry wings shall be equipped with trained staff and adequate machinery. In thickly populated urban areas regular pruning of trees helps in bringing down possible damage to property and human lives due to accidental falling of trees and branches.

## 8.7. Greening of Canal Banks, River fronts, etc.

### 8.7.1. Canal Banks and areas around major reservoirs

The State of Andhra Pradesh has an extensive canal network where there is huge potential for tree planting. A strategy is to be prepared for planting with suitable tree species. Effective planting on canal banks will prevent possible encroachments and stabilize the banks.

Irrigation Department shall also undertake greening of the areas around major reservoirs and ensure flow of funds by incorporating the cost of greenery in their project estimates and transfer the funds to the executing agencies.

### 8.7.2. Riverfront and Lakefront Development

Andhra Pradesh is endowed with long stretches of rivers and number of lakes, their banks and foreshores are prone to encroachment, erosion and abuse. The ecological consequences of improper management of waterfronts needs to be understood in proper perspective. Therefore, a comprehensive plan is required to conserve and stabilize the banks in the larger interest of society by undertaking multiple row and high-density block plantations. An appropriate riverfront development programme shall be developed for cities such as Amaravati, Vijayawada, Rajahmundry, Nellore, Srikalahasti, Srikakulam, Anakapalli, Kurnool, Tadipatri and Proddatur by the Municipality / Municipal Corporation/Urban Development Authority concerned under the technical guidance of APUG&BC / Forest Department / Forest Development Corporation. In the State large number of lakes, tanks and other water bodies are existing in almost all urban areas. Therefore, proper development plans for greening are needed to conserve these areas. Waterfronts would improve the

ecology, aesthetics, add to the lung spaces and can meet community aspirations for leisure, recreation and entertainment. Wherever there is scope, site specific theme parks and biodiversity parks can be developed. Funding through local bodies, Urban Development Authorities and / or on PPP mode can be explored.

Selective bio-protection of river banks and lake fronts with vegetation at vulnerable points would be more beneficial during floods, storm surges, cyclones and other extreme weather conditions. Hence scientific greening of river banks along with appropriate civil structures has to be undertaken by the ULBs, other urban authorities and technical agencies concerned.

#### 8.7.3. Planting on coastal and seashore areas

Planting with appropriate technology on coastal and seashore areas with the help of APUG&BC / Forest Department / Forest Development Corporation may be taken up in consultation with Fishermen Societies to improve the coastal ecology. Such sites could be transformed over a period of time into centres of sustainable coastal tourism.

#### 8.8. Afforestation of hilly areas located in and around urban areas

Degraded hills in and around the urban areas in the state can be developed by adopting extensive soil & moisture conservation measures through catchment area treatment and eco-restoration process thereby converting them into good lung spaces and hill forests. This in turn would facilitate steady water percolation to downhill areas along hill slopes and ensure increased availability of sub-soil moisture for extended duration to aid luxuriant growth of vegetation. Depending on the land status this can be taken up by ULBs, UDAs, Forest Department and Forest Development Corporation in respective areas with the help of domain experts.

#### 8.9. Development of Biodiversity Parks, Theme Gardens and Botanical Gardens

Since emphasis was laid on developing green and blue capital of Andhra Pradesh at Amaravati it would be appropriate to plan for establishing botanical gardens and water-based theme parks to attract people both for education and entertainment. Such an approach would promote tourism as a spin-off effect.

In order to conserve the natural heritage, development of biodiversity parks have to be taken up in and around urban areas of Andhra Pradesh. Biodiversity Parks, in other words are

landscapes of wilderness within the urban areas where ecological assemblages of native species in the form of biological communities are recreated and maintained over degraded and marginal lands. This would go a long way in enhancing the quality of urban environment in the state as biodiversity parks have conservation, educational and cultural values.

The other famous cities like Tirupathi, Vijayawada, Guntur, Kurnool, Rajahmundry, Kakinada, Nellore and Visakhapatnam in Andhra Pradesh also have potential for the Development of Biodiversity-based Blue and Green Theme Parks. Tirumala Tirupati Devasthanams (TTDs), Urban Development Authorities, Greater Visakhapatnam Municipal Corporation (GVMC), and AP Tourism Development Corporation (APTDC) may fund these Projects. Certain projects may be allocated to private parties through PPP mode following appropriate and transparent competitive bidding process.

#### 8.10. Development of greenery in and around temple premises/towns and endowment lands

Temples having substantial land shall take up massive tree planting and improve aesthetics with appropriate landscaping. Systematic planting in temple towns and endowment lands shall be taken up as per master plans with areas earmarked for gardens, sacred groves and biodiversity parks. The hills and areas around water bodies located in the temple surroundings shall be planted with indigenous sacred shrubs and trees associated with local customs, traditions and festivals. The temple authorities can take up creation of sacred theme gardens such as 'Nakshatra vanams', 'Raasi Vanams' wherever possible in temple towns besides other theme-based green spaces like 'Aushadi vanam', 'Patri vanam', 'Pushpa vanam', and 'Phala vanam'. They can also distribute seedlings to the pilgrims as 'Vriksha prasadam'.

#### 8.11. Protection of notified forests, national parks, sanctuaries and other natural areas

Wherever there are notified forests, national parks, sanctuaries and other natural areas falling within the jurisdiction of the urban local bodies, the areas are to be protected and conserved by construction of walls and adopting appropriate ecological restoration techniques by the concerned agencies.

#### 8.12. Designation of old trees in cities as heritage trees for preservation

Fortunately, due to hoary and spiritual traditions and inherent respect for trees in the society, many old trees are still standing in various cities rendering ecological services.

Therefore, a scientific census may be conducted to locate rare and old trees and designate them as “Heritage trees”.

### 8.13. Establish credible measuring, monitoring and evaluation framework

- 8.13.1. Establish baselines and controls to enable effective monitoring and evaluation of policy implementation.
- 8.13.2. Develop a reporting and monitoring system in every ULB/UDA and other implementing agencies on a quarterly basis.
- 8.13.3. Develop a system of quality assessment and evaluation of greening works by independent agencies or experts so that greening assessment is not limited to mere tree planting.
- 8.13.4. Develop a management information system for urban greening using latest and appropriate technologies including drones.
- 8.13.5. Take up satellite / Drone imagery once in a year for comparison and to monitor change in extent of greenery.
- 8.13.6. Develop a mechanism to rate the ULBs based on the green cover of the city and extend incentives to the ULBs with higher percentage of green cover.

## 9. GOOD GOVERNANCE

Good governance has many components in which appropriate institutional structure, capacity building, certainty of fund flows, transparency, promptitude, accountability, adoption of information technology and decentralization are among the most important, inter-related and essential to produce time bound results. Public service delivery should be strengthened by optimizing human resource availability at all levels.

### 9.1. Human Resource Requirement

Human resources required for implementation of the programmes are to be realistically assessed and a mechanism is to be put in place to strengthen the professional competency to implement the programmes by ULBs/UDAs and other urban bodies. There is need to have a full-fledged Urban Forestry / Horticulture wings in all Municipal Corporations and Urban Development Authorities. In all special grade/selection grade/grade-I municipalities, major temple towns like TTD, Simhachalam, Annavam, Dwaraka Tirumala, Kanakadurga, Mangalagiri, Srisailam, Srikalahasthi and Kanipakam, an Assistant Conservator of Forests / a Forest Range Officer / Horticulture Officer shall be engaged either on deputation or retired officers on contract basis.



## 9.2. Knowledge and Skills

Capacity Building efforts should be made to impart knowledge and skills at various levels to the personnel implementing the programmes in the ULBs / UDAs and other agencies.

Enhancement of knowledge and skills of people employed in nursery raising, plantation, landscape development, tree translocation and other allied activities has to be done on a regular basis by developing suitable training modules. A select group of serving and retired officers / scientists / academicians and professionals having experience and expertise in urban forestry / biodiversity / horticulture / plantations / landscaping may be constituted to develop the training modules. An independent system / agency may be engaged for carrying out concurrent evaluation and monitoring to ensure transparency and accountability to improve the success rate of greening programmes.

## 9.3. Procurements

To improve accountability and transparency, appropriate measures in procurement of materials, execution of works is to be put in place through e-procurement and e-tendering process. While proposing projects under PPP mode, transparency and competitive bidding process is to be followed as per the guidelines in vogue. A common schedule of rates for all the greening operations in urban areas shall be prepared and notified once in a year.

# 10. RESEARCH

Urban greening is a multi-dimensional subject which requires backing by research studies to face the current and future challenges in developing technical skills and management framework. It is evident that due to rapid urbanization and changes in the climate patterns, the complexities in undertaking development of greenery has increased tremendously. Therefore, scientific research studies and field trials are required to be undertaken to set right the priorities in order to improve the quality of greening activities and innovative landscape development approaches, maintenance techniques and nursery management practices. Further the latest technology in landscape irrigation, drainage, nutrient supply and integrated pest management may be studied and adopted.

Also, suitability of various species for different agro-climatic zones shall also be studied, assessed and standardized. The species with high tolerant levels of air and water pollution shall be selected in a scientific approach so that they can be recommended in the

areas of high pollution levels. Mainstreaming various indigenous plant species of different eco-systems is required to improve the biodiversity of the urban landscapes. In this regard the academic institutions like agricultural / horticultural / forestry colleges / silviculture wings of forest department, botany departments of universities, Biodiversity board etc. may be actively involved to strengthen the scientific approach in undertaking successful urban greening operations. The research wing shall document success stories and bring out publications and study material on urban greening, landscaping and garden plants.

## **11. PUBLICITY, AWARENESS**

Willing support, involvement and co-operation of the people are key elements required in making the urban greening programmes successful. This is to be achieved through adopting a multi- pronged campaign strategy with a view to solicit active involvement and participation of local governments, public representatives, students of schools and colleges by promoting setting up of eco clubs, NGOs and community based organizations like Resident Welfare Associations (RWAs), Nature Clubs, Women Self-Help Groups (SHGs), Youth organizations like National Service Scheme, Nehru Yuva Kendra and National Cadet Corps, Business Houses, Industries, etc. Forest Department, Pollution Control Board, Municipal Administration Department and APUG&BC should make a coordinated effort to increase awareness among the people. In this mass campaign, every available media including the electronic, print and audio media should be used extensively to spread the message about importance of greenery for our survival and in turn ensure the participation of various stakeholders to make greening a people's movement. The curriculum in the secondary schools shall include the importance of Urban Greenery.

## **12. LEGAL FRAMEWORK**

The urban greening programme has to be supported by a robust legal framework to ensure growth and sustainability. The existing Acts in the state include A.P. Municipalities Act 1965, AP Forest Act 1967, A.P. Municipal Corporations Act, 1994, Water, Land & Trees Act (WALTA) 2002, etc. for conservation of greenery and expansion of greening activities.

There are certain inconsistencies and shortcomings when the WALT Act and Municipal Corporations Act, 1994, are read together. The policy recommends certain amendments in the above two Acts.

## Water, Land & Trees Act 2002

Sl. No	Extant Provision	Amendment/Change proposed
1	<p><b>Section-8: District Authority (1):</b></p> <p>(m). An official from Hyderabad Metropolitan Water Supply and Sewerage – Ex-Officio member</p> <p>(p). Director, Urban Forestry, HUDA in respect of Hyderabad and Rangareddy districts – Ex-Officio Member</p>	<p>Suitable changes may be taken up as relevant to AP state.</p>
2	<p>There is no provision for honorary tree wardens</p>	<p>Suitable provision may be made in the Act by appointing honorary tree wardens for major urban development authorities. The govt. shall nominate the honorary wardens for a period of three (3) years from among the persons of eminence having expertise in greenery.</p>
3	<p>No specific provision for according permission for felling/tree translocation</p>	<p>Provision to be made authorizing the local forest officer not below the rank of Divisional Forest Officer (DFO) for according permission for tree felling/translocation.</p> <p>A committee may be constituted as an appellate authority over the DFO with Conservator of Forests / Chief Conservator of Forests as its chairman and appoint members – Each- from a local NGO working in the field of environment / forestry, municipal body, urban development body, Public Works Department and one independent expert in the field of forestry / horticulture. (One Chairperson + Five members = Six Member Committee)</p>
4	<p>The existing provision of WALTA Rule nos. 24 of 2004– Tree Planting – Not being enforced by Municipal Authorities as this provision does not find place in the Municipal Act.</p>	<p>The existing provision of WALTA Rule nos. 24 of 2004 should find place in the relevant Municipal Acts and Rules.</p>

## **13. FINANCIAL FRAMEWORK**

### **13.1. Role of Government Institutions**

Before independence, the urban local bodies have been maintaining gardens and parks and also planting along the roads etc. to provide some ambience and relaxation to the urban dwellers. No appreciable efforts were made to scale it up substantially commensurate with spike in urbanization and to counter the increasing air, water and noise pollution after independence. The encroachment of urban open spaces resulted in water scarcity, poor drainage, decrease in groundwater table, high air and water pollution and urban heat island effect.

There has not been any specific funding for development of greenery in urban areas except for supply of seedlings under social forestry programmes. However, since 1986 the Govt of Andhra Pradesh has created urban forestry wings in the combined state for the management of greenery in Hyderabad, Vijayawada, Visakhapatnam urban development authorities with internal resource mobilization and to certain extent through externally aided projects over a limited period. After the bifurcation of the state and thrust on developing urban growth centers there is every need to ensure timely and adequate funding for urban greening on continuous basis. However, many cities have lagged behind mainly due to paucity of funds towards urban greening programmes and also due to lack of proper planning and dedicated human resources.

To take forward urban greening programmes on a sustained basis, availability of finances and human resources are critical. As far as financial resources for the programme pooling from dedicated schemes of various ministries of Central Government like “Smart Cities”, “AMRUT”, Railways, Road Transport Highways Ports and Shipping is required. Sourcing of funds under Corporate Social Responsibility scheme of Companies Act may also be explored for undertaking greening projects.

In the light of the above facts there is an imperative need to provide specific and assured flow of funds mandatorily in the planning process of urban local bodies and urban development authorities. There should be a provision in the budgetary processes of all the departments like Municipal Administration & Urban Development, Environment, Forest, Transport, Energy, Roads and Buildings, Industries, Education, Medical and Health, Water resources, Pollution Control Board, Urban Housing, Infrastructure Development Authorities /

Corporations to allocate not less than 2.5% (two and a half percent) of their total budget for the greening efforts.

Therefore, the following suggestions are made for sourcing and allocation of funds by the state government to manage urban greenery scientifically on a sustainable basis.

## 13.2. Levy and collection of Green Cess

13.2.1. To levy and collect green cess from the developers of individual building / layout while according sanction for buildings and layout permissions as detailed below:

- a) Plot area up to 100 Sq. Mts. - No green cess to be levied.
- b) Plot area above 100 Sq. Mts:
  - i. Rs.2/- per sft. on built up area for domestic permissions.
  - ii. Rs.3/- per sft. on built up area for commercial permissions.

13.2.2. Fifty percent (50%) of the total proceeds of green cess so levied and collected shall be retained by the concerned ULB for development of green cover within its jurisdiction and the balance 50% of proceeds shall be transferred to the APUG&BC to make use of the same for development of green cover in the ULBs having insufficient funds.

13.2.3. Five percent (5%) of the total amount collected under Building Penalization Scheme (BPS) by each ULB shall be earmarked for development of green cover in its jurisdiction. Fifty percent (50%) of this earmarked amount shall be transferred to APUG&BC for improvement of green cover in ULBs where there is shortage of funds.

13.2.4. Budgetary allocation of two and half percent (2.5 %) of the total approved budget of ULBs every year shall be earmarked for improvement and augmentation of green cover in the ULBs as budgetary support.

13.2.5. 0.50% of the cost of works shall be collected as green cess by the ULBs on all the developmental works being taken up by various Government Departments/Public sector organizations within the jurisdiction of all urban local bodies for the development of urban green spaces and parks.

13.2.6. The cess levied shall be collected from every individual, developer, private entity, government and public sector undertaking in an appropriate manner, whenever a building or other construction work permission is granted to aforesaid entities as per the prescribed procedure.

13.2.7. The green cess so levied and collected by ULBs shall be used exclusively for development of urban green spaces and parks within the jurisdiction of ULBs. A separate bank account (escrow) exclusively for this purpose shall be opened and maintained by all ULBs and all funds collected towards green cess shall be automatically transferred to such account through escrow mechanism and maintained purely for urban greening purpose.

13.2.8. If any person is carrying out construction of a building, developmental or miscellaneous civil works, he is liable to pay the cess under above clauses. If he fails to pay such prescribed cess, the officer or the authority shall issue a notice requiring such person to pay the cess as mentioned in the rules.

### 13.3. Levy and collection of green fee and green tax

13.3.1. The Government of A.P., vide G.O. Ms. No.112, I&C (Mines.II) Department, dated 30.08.2017 has prescribed levying a green fee @ Rs.3/- per sq. feet which is to be collected by local bodies at the time of issue of building permission in respect of constructions having built-up area of more than 5000 sq. feet., which includes the area meant for parking and other allied services such as pathways.

13.3.2. The Government of A.P., vide G.O. Ms. No.238, Transport, Roads & Buildings (TR.I) Department, dated 23.11.2006 is levying additional tax called green tax on certain categories of Motor vehicles suitable for use on roads or kept for use in a public place in the State as detailed below;

<b>Sl. No.</b>	<b>Class of Vehicles</b>	<b>Tax levied</b>
1	Transport vehicles that have completed 7 years of age from the date of their registration	Rs.200/- (per annum)
2	Non-Transport vehicle that have completed 15 years of age from the date of their registration	
	(a) Motor Cycle	Rs.250/- (for 5 years)
	(b) Other than Motor Cycle	Rs.500/- (for 5 years)

There shall not be any levy of Green Tax if the vehicle is operated by LPG, CNG, Battery or Solar Power.

13.3.3. The green fee and the green tax so levied and collected by the departments shall be used for development of green cover in the state through a nodal agency nominated by the government.

## **14. STRENGTHENING OF ADMINISTRATION, REGULATION AND FACILITATION OF FINANCIAL FLOWS**

- 14.1. An urban forestry cum environmental wing may be started in every major municipal corporation preferably headed by an Assistant Conservator of Forests (on deputation) and assisted by adequate technical staff viz., Forest Range Officer, Landscape Expert / Civil Engineer, Horticulture officer. For all the municipalities a Forest Range Officer / Horticulture Officer (in-service / retired) may be taken on deputation or contract / outsourcing basis.
- 14.2. Pooling of financial resources from various Government of India schemes.
- 14.3. Encourage corporates to earmark and effectively use CSR funds in urban sectors towards greening activities.
- 14.4. Heavy fines may be imposed for illegal felling of trees, destroying / damaging vegetation in accordance with provisions of State Laws or WALTA.

## **15. WAY FORWARD**

### **Increase in Green Cover**

- 15.1. Each ULB in the state should have a minimum of one-fourth of the total land area under tree cover.
- 15.2. Each industrial city, Special Economic Zone, Port, Airport, Religious Site, Institution having an area of more than 100 acres (both private / public) should have a minimum of one-third of the total land area under tree cover.
- 15.3. Each green field city having an area of more than 500 acres should have a minimum of 40% of the total land area under tree cover. Each green field project like Industrial city, Special Economic Zone, Port, Airport, Institution having an area of more than 100 acres (both private / public) should have a minimum of 40% of the total land area under tree cover. Each green field township having an area of more than 50 acres should have a minimum of 40% of the total land area under tree cover.
- 15.4. The tree cover in this context is defined as the area covered by tree canopy on ground as well as on any civil structure including roof-tops

## 16. EXPECTED POLICY OUTCOMES

### *The Policy would...*

- orient the mindset to visualize -“growing tree as an indicator of development”.
- improve the quality of life of urban dwellers.
- make ULBs protect urban vacant lands for greening.
- impart a sense of attachment to trees, among the students.
- improve the biodiversity index of urban dwellings.
- extend technical guidance to ULBs and other departments.
- sensitize ULBs/UDAs to establish permanent urban greening wings.
- strengthen the climate resilience of cities to face extreme weather patterns.
- facilitate reduction of air pollution thereby enhancing the air quality.
- provide required habitat for birds, insects and bees which aids in pollination.
- simplify regulatory framework by delineating the roles of various departments.
- improve the livability of cities.
- facilitate research into various aspects of urban greening.
- support urban greening agencies to use modern machinery and technology.
- provide financial provisions to fund sustained urban greening.
- trigger framing of new or amending extant laws to enhance urban greenery
- attract multinational companies to invest in State.