State Level Environment Impact Assessment Authority (SEIAA)
Andhra Pradesh
Government of India
Ministry of Environment Forests & Climate Change
A-3, Industrial Estate, Sanathnagar, Hyderabad- 500 018.

REGD.POST WITH ACK.DUE

Order No. SEIAA/AP/GTN-151/2015 **Dt:09.10.2015**

To
The Commissioner,
APCRDA & CA,
Lenin Center, Governor Pet,
Vijayawada – 520002,
Andhra Pradesh, India.
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Sir,

DESPATCHED ON 12.10.15

Sub : Establishment of Greenfield Capital City Amaravati in an area of 217.23 Sq. Km. in Thulluru, Tadepalli and Mangalagiri Mandals of Guntur District by APCRDA & CA – Environmental Clearance – Reg.

Ref: Your application dated 05.09.2015 & 25.09.2015.

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This has reference to your application dated 05.09.2015 & 25.09.2015 along with project documents including Form- I, Form - IA, Conceptual plan and EIA / EMP report, seeking Environmental Clearance for Establishment of Greenfield Capital City Amaravati in an area of 217.23 Sq. Km. in Thulluru, Tadepalli and Mangalagiri Mandals of Guntur District.

State Environmental Impact Assessment Authority, Andhra Pradesh has examined your proposal. It is noted that the Govt. of Andhra Pradesh has contemplated to establish a new capital city by the name of **AMARAVATI** and proposes to develop it as a Greenfield Capital City with an extent of 217.23 km^2, covering 25 villages in the Mandals of Thulluru, Tadepalli and Mangalagiri, of Guntur district. The entire development is envisaged in three phases (Phase I: up to 10 years; Phase II: 10 – 20 years; Phase III: 20 – 35 years) envisaging development of 39% of the land for a population of 0.85 million by the end of the Phase I; 18.4% additional land for a population of 0.9 million by the end of the Phase II; and 42.6% additional land for a total population of 2.4 millions by the end of the Phase III). The scope of the **Amaravati** capital area development project consists of: Built up spaces for Capital, IT & ITES, Corporate, complexes; Financial, Start-up/Innovation and Educational hubs; Civic; Health; Transportation; Sports and Recreational; Commercial facilities, Industrial, Residential and other community infrastructure facilities, including Express ways and Roads. The city is consisting

of - Civic Node, University Node and Recreation hub; down town which is heart of the city housing City's Central Business District (CBD); Four Development Zones with Regional Centers and Industrial Hub. The latitude and longitude of the proposed city are as follows:

North East	16°30'30"N	80°37'E
South West	16°29'N	80°25'E
North West	16°31'N	80°22'30" E
South East	16°24'30"N	80°34' E

The city covers the following Revenue villages of Guntur District as detailed below:

S.	Mandal	Village	Area in Sq.
1	Thulluru	Lingayapalem including Hamlet Villages of Modugulankapalem	14.49
2		Uddandarayunipalem	
3		Malkapuram	
4		Velagapudi	8.09
5		Nelapadu	5.74
6		Sakamuru	6.58
7		Ainavolu	4.85
8		Mandadam including Hamlet Villages of Tallapalem	20.19
9		Venkatapalem	11.09
10		Ananthavaram	10.30
11		Nekkallu	5.71
12		Thulluru	14.92
13		Dondapadu	4.97
14		Pichukala Palem	
15		Abbarajupalem	5.86
16		Borupalem	
17		Rayapudi	24.34
18		Kondaraju Palem	3.43
19	Tadepalli	Undavalli	13.05
20		Penumaka	8.85
21		Part of Tadepalli Municipality (Nulakapet, Nagar etc.,)	1.88

22	Mangalagi		Krishnayapalem	6.34
23			Nidamarru	11.30
24			Kuragallu including Hamlet Villages of Nerukonda	14.33
25			Nowluru including Hamlet Villages of Yerrabalem & Bethapudi	20.92
			TOTAL	**217.23**

The existing land use of proposed site is as follows:

S. No.	Land Use	Area (Sq. Km)	%
1.	Barren Rocky area	2.13	0.98
2.	Cropland	121.17	55.78
3.	Fallow Land	14.51	6.68
4.	Mining	0.09	0.04
5.	Plantation	31.19	14.36
6.	Reservoir/ lakes/ Ponds	2.78	1.28
7.	Rivers/ Streams/ canals	29.65	13.65
8.	Rural	9.71	4.47
9.	Scrub Forest	1.28	0.59
10.	Scrub land	3.26	1.5
11.	Urban	1.46	0.67
	Total :	**217.23**	**100**

Amaravati city is proposed to be developed in three phases over a period of 35 years with the following land use pattern.

S. No.	Land Use	Area (Sq. Km)	%
1	Residential	60.77	27.98
2	Commercial	20.29	9.34
3	Public and Semi Public	11.49	5.29
4	Industrial	12.26	5.64
5	Open Spaces and Recreation	52.78	24.29
6	Traffic and Transportation	23.04	10.61
7	Water Bodies	25.78	11.87
8	Heritage	0.15	0.07
9	Seed Capital	10.67	4.91
	Total :	**217.23**	**100**

Land area distribution of 1st phase (2015-2025) is as follows:

S. No.	Distribution	Area (Ha)	%
1.	Commercial	650.41	4%
2.	Primary Green	3924.57	25.68%
3.	Secondary green	510.04	3.34%
4.	Hotel/Resort	16.36	0.11%
5.	Industries	1060.29	6.94%
6.	Infrastructure	85.59	0.56%
7.	Mixed Use	44.52	0.29%
8.	Reserved Sites	30.58	0.20%
9.	High Density Residential	386.58	2.53%
10.	Medium Density Residential	1292.25	8%
11.	Low density residential	25.93	0.17%
12.	River	3159.14	20.68%
13.	Research and Development	103.47	0.68%
14.	Roads	1342.63	8.79%
15.	Junior College	12.45	0.08%
16.	Primary School	45.41	0.30%
17.	Secondary School	42.32	0.28%
18.	SEED	469.83	3.07%
19.	Sports and Recreation	49.21	0.32%
20.	Theme Park	117.46	0.77%
21.	University	159.55	1.04%
22.	Village settlements	1371.13	8.97%
23.	Warehouse	27.73	0.18%
24.	Water	349.20	2.29%
25.	White Sites	2.99	0.02%

By the year 2050, Total water requirement is 1067 MLD of which 203 MLD is for industrial applications. The proponent plans to meet water requirements from Krishna River and Kondaveeti Vagu. The proponent proposes to treat the surface water by constructing Four Water Treatment Plants. Waste water generation is 877 MLD of which 175 MLD is from industries. The proponent proposes to construct Five Sewage Treatment Plants and One Dedicated Industrial Waste Water Treatment Plant. The proponent propose to recycle and reuse the entire treated wastewater for non potable applications like flushing, HVAC requirement, construction purposes, industrial applications, green belt, road and vehicle washing, fire protection and horticulture purposes by treating wastewater to international recyclable standards having BOD, COD and TSS of less than 10 mg/l. Total projected generation of municipal solid waste by 2050 is 3662 TPD and industrial waste is 796 TPD. Solid waste is proposed to be managed through Integrated Waste Management Facility having separate facilities for Municipal Solid Waste, Biomedical Waste, Hazardous Waste, E- waste and Industrial Waste. The proponent proposes to protect all existing rivers and water bodies and integrate them into the blue and green network. The proponent proposes to create nine detention ponds and two reservoirs in addition to two external detention ponds to mitigate impacts of flood due to Kondaveeti vagu and its tributaries which are passing though the proposed capital city. The proponent proposes to maintain 30 mtrs. green belt buffer all along the natural drains, canal and water bodies. The proponent proposes to meet the 10% energy requirement from renewable sources like solar, wind and bio mass. The proponent proposes to develop 4936 Ha of primary green spaces including large city parks, lake parks, town parks, neighborhood parks and water body parks. The proponent proposes to develop roads by giving priority for pedestrian paths, cycle tracks, public mass transit systems like Bus Rapid Transit (BRT) with fully dedicated Right of Way (bus way), Light Rail Transit (LRT) and Mass Rapid Transit (MRT) .

The proposal was considered by the State Environment Appraisal Committee in its meeting held on 11.09.2015. Representatives of the project proponents and EIA consultant viz., Tata Consulting Engineers Ltd., Mumbai have presented EIA / EMP report. Members of SEAC have pointed certain short comings in the EIA report. After detailed discussion, the committee requested the project proponent and consultant to re-present the proposal after rectifying the defects in EIA report. The representatives of the project proponent and consultant made second round of presentation of the proposal in the SEAC meeting held on 26.09.2015. After detailed discussions the committee recommended the proposal for Environmental Clearance.

State Level Environment Impact Assessment Authority, AP has examined project proposal and recommendations of the SEAC in its meeting held on 09.10.2015 and decided to issue Environmental Clearance to the project as recommended by the SEAC.

Based on the information submitted by the project proponent, the State Level Environment Impact Assessment Authority, AP hereby accords Environmental Clearance to the above project under the provision of EIA notification dated 14.09.2006 subject to compliance of the following specific and general conditions.

A. <u>Specific conditions :</u>

WATER ENVIRONMENT

1) The Krishna River be protected from ALL TYPES of harmful discharges from all developmental activities before, during and after Capital Region Development.
2) The proponent shall utilize only surface water from Krishna River and Kondaveeti Vagu to the tune of 1067 MLD, after obtaining the approvals from the concerned statutory bodies and after proper treatment in the proposed Water Treatment Plants. Proponent shall ensure supply of water round the clock i.e, 24 x 7, meeting the drinking water quality standards as per IS 10500.
3) The proponent shall construct nine internal detention ponds and two reservoirs within the Capital City in addition to two external detention ponds of adequate capacity to overcome the flood menace posed by the Kondaveeti Vagu and its tributaries. The proponent shall carry detailed hydrological study of the Kondaveeti Vagu and its tributaries and plan location of detention ponds and reservoirs to achieve twin objectives - combat of inundation and utilization of water. The proponent shall consider factor of increase in intensity of the flow and volume due to pavement of the City and area inundated for 1 hour or more and having water depth more than 6 inches may be considered as affected by water logging for designing of Storm Water Drainage System. The proponent shall take into account climate change considerations and design storm water drains for 20% more capacity than the calculated discharge. The proponent shall protect and improve the existing natural drains and construct modern storm water drainage system to avoid flooding and water logging problems. Proponent shall ensure that sewage shall not enter into storm water drainage system under any circumstances. Proponent shall construct adequate detention ponds and reservoirs at appropriate locations to collect

entire storm water. Proponent shall also take measures to strengthen the Krishna River Bund to minimize flood related issues.

4) Detailed studies on the flood management of the Storm water drains, mainly *Kondaveeti Vagu* and its branches and a detailed plan to avoid inundation of the areas be developed taking in to account of the impact of the increased built up area in different development zones of the project.
5) The proponent shall ensure cleaning of storm water drains at least three times a year. (i) First, the process must start by 31 March each year and be completed one month before the normal arrival of monsoon each year. (ii) The drains should also be thoroughly cleaned after first heavy shower (iii) subsequently, after retreating of rain i.e, in the post monsoon.
6) Proponent shall ensure construction of rain water harvesting structures and also promote rain water storage and use system by considering heavy rains in the area. Proponent shall make these as mandatory by incorporating in the Bye-laws of APCRDA & CA.
7) Water pumping system and sewage conveyance and treatment systems are energy intensive and as such the proponent shall follow Bureau of Energy Efficiency Norms.
8) Proponent shall encourage low flow plumbing efficient fixtures, sensors, auto valves, pressure reducing devices including for toilets, faucet aerators and shower heads to conserve the water. Proponent shall incorporate these guidelines in the Bye-laws.
9) The proponent shall ensure 100% collection of sewage by covering entire area of the city with modern under ground sewerage network. The proponent shall treat entire (100%) waste water of 877 MLD (year 2050) in the proposed Five Sewage Treatment Plants and one dedicated Industrial Waste Water Treatment Plant to the International Municipal Sewage reuse standards of BOD $\leq$ 10 mg/l, COD $\leq$ 10 mg/l, Total Suspended Solids (TSS) $\leq$ 10 mg/l, Residual Chlorine $\leq$ 1 mg/l and Faecal Coli / 100 ML – No detectable levels as committed in EIA report. The proponent shall recycle 100% of treated sewage for non potable applications like flushing, gardening, road and vehicle cleaning, HVAC, fire protection, construction activities, industrial applications by lying dedicated pipeline for supply of treated grey water as committed in the EIA report. The proponent shall construct treated sewage storage ponds of adequate capacity with HDPE liner to store treated sewage during rainy season as committed. The proponent shall lay dual piping at street level to facilitate supply of treated grey water. Dual piping at street level shall be laid out in service ducts with

24 x 7 water supply provision by ensuring pressure in the main water supply network is always maintained at least twice of the pressure in dual pipe carrying treated waste water to avoid contamination of the fresh water.

10) The proponent shall construct Sewage Treatment Plant of capacity 216 MLD in the 1st phase and reuse 114 MLD for green belt development and Horticulture and 102 MLD for flushing, construction activities, HVAC requirements, road washings, emergency fire fighting, industrial applications etc., as committed. The proponent shall also construct 3500 MLD treated sewage storage pond for storage of treated sewage in the rainy season as committed. The proponent shall undertake construction of Sewage Treatment Plant simultaneously with the construction of the city.

11) The proponent shall provide continuous online water quality monitoring facilities for WTPs, STPs and upstream of drinking water source at Krishna River. Results of monitoring shall be linked to SPCB / CPCB website.

12) All roads should have rain water drains connected separately (from the sewage network) to the treatment facility of the zone.

13) Appropriate sites be identified and selected for establishing the STPs for different zones, and the proponent shall reserve the area within 200 m from the STPs, as no habitation vegetation zone and may use for establishing waste recycling or processing or handling facilities for the respective zone.

14) Water quality of all the surface water bodies, including the storm water drains be monitored during pre-monsoon and post-monsoon seasons, for their management purposes and the report is submitted as compliance.

15) The proponent shall prepare water footprint and carry auditing every year.

AIR ENVIRONMENT

1) The proponent shall give priority for walking, cycling and integrated public transport system for laying of the roads and usage of cleaner fuels and plying of fuel efficient vehicles on the road.

2) Proponent shall construct a continuous unobstructed foot path on each side of all streets with ROW wider than 12 mtrs. Minimum width of footpath shall be 2 mtrs. in addition to space for trees/greenery/ vending spaces and surface utilities. Width of footpath shall be determined based on pedestrian volume and have to be wider than 2m wherever required. Intermittent buffers, bollards and other physical elements should be used to protect foot paths from encroachment by motor vehicle parking. At least 125 trees per kilometer length of footpath on the streets shall be ensured.

Spacing of trees at no place should be grater than 12 m except at intersections. On streets with ROW of 18 m or less, if pedestrian traffic is greater than 8000 per hour in both directions together, the entire ROW should be notified for pedestrianization. Footpath Elevation over the carriage way at all times should be less than 150 mm. All pedestrian facilities should be barrier free for universal access by all persons with reduced mobility including those with hearing and visual impairments. At least 5 safe street-level crossing opportunities per kilometer of street with 250m being maximum spacing between two crossings shall be ensured. Depending on context, these crossings may be signalized and / or traffic calmed (through raising crosswalk over street level by 150 mm) to reduce vehicular speed. Limiting speed on urban arterial roads and sub-arterial streets to 50 kmph and on collector and local streets to 30 kmph shall be ensured. Traffic calming of all streets with ROW of 12m or less through narrowing of driveway and meandering path with use of trees, islands and street furniture should be done and speed should be limited to 20 km/hr by design. Highways within urban areas should be avoided since they disrupt pedestrian activity and disconnect neighborhoods. Vending spaces should be marked in addition and adjacent to the walking path, especially along high pedestrian volume areas to activate the street and make it safe. Space to be planned for utilities including drinking water kiosks and toilets so that the walking space is enhanced but not compromised.

3) Proponent shall
   - construct dedicated and physically segregated bicycle tracks with width of 2m or more, one in each direction on all streets with total motor vehicle carriageway larger than 10 m (not ROW) after providing adequately sized footpaths in each direction based on pedestrian traffic.
   - Develop atleast 5 safe street crossings per km for bicycles with spacing between two crossings not more than 250m.
   - Provide secure parking for cycles at transit stations, all public places and commercial and institutional buildings.
   - Promote and implement public sharing schemes.
4) Proponent shall design streets with emphasis on Pedestrian and cyclist safety, comfort and convenience. Proponent shall establish a dedicated unit for planning and auditing of Non Motorized Transport (NMT) facility. Area of blocks surrounded by public access pedestrian / cyclist streets or pathways shall not exceed 2 Ha. No development shall be permitted until

local street grid is put in the place which subdivides land into blocks of no more than 2 Ha.

5) Proponent shall develop high quality and high frequency rapid public transport system with dedicated lines for bus rapid transit system. All public facilities (institutional / educational / cultural etc) should be accessible by public transport within 400m walking distance.
6) The proponent shall encourage battery operated vehicles by providing separate lane with a provision for recharging.
7) On making available of cleaner fuels like LPG/ CNG, the proponent shall ensure plying of only CNG/ LPG fueled public transport vehicles like buses, taxis, autos on the road. Proponent shall also ensure that vehicle beyond 15 years of age shall not ply in the city. Proponent shall also encourage usage of low sulphur diesel and unleaded petrol by vehicles. Proponent shall ensure plying of latest emission compliant vehicles only on road.
8) The proponent shall encourage environmental friendly modes of transport like public transport and non motorized transport and discourage usage of personal cars by devising disincentives for private car use, in the form of both spatial (like parking control) and physical (like levies on car, fuels, congestion charges).
9) The Proponent shall provide adequate parking facilities by giving priority to public vehicles and non motorized transport vehicles.
10) The proponent shall ensure that all utility lines (Electricity, Telephone, Cable, water supply, sewerage, drainage etc.) shall be laid below the ground. Duct shall be provided along and across the roads to lay the utility lines. Major truck (water / sewerage) lines are to be laid along the utility corridor.
11) The Proponent shall ensure that DG sets shall comply with noise and emission norms prescribed by MoEF & CC in Environment (Protection) Rules.
12) The proponent shall ensure development and meeting of not less than 10% of energy needs from the renewable energy sources like Solar, Wind, WTE, Bio mass etc. To meet the demands of the Capital City, atleast 120 MW of solar power with investment to the tune of Rs. 500 Crores and wind power with investment of Rs.100 Crores in the 1st phase shall be taken up as committed.
13) The proponent shall ensure installation of solar panels by all buildings by allocating at least 1/3 of roof top for this purpose. This is in addition to installation of solar heaters. Proponent shall incorporate these guidelines in Bye-laws.

14) The proponent shall incorporate energy efficiency guidelines (Energy Conservation Building Code) and Green Building Concepts (GRIHA/ IGBC/ LEED) in the Bye-laws. Buildings shall utilize natural lighting and ventilation to the maximum extent. All point light sources shall be CFL or LEDs or equivalent. All linear light sources shall be T-5 or at least 4* BEE rated TFLs or equivalent. The distributed cooling system shall be at least BEE 3* rated products. All the major buildings having connected load of more than 100 KW shall maintain power factor of above 0.95. All multi story residential apartments/ complexes shall meet at least 15% of total external lighting load through renewable energy sources and all commercial, institutional, industrial and mixed use buildings shall meet at least 5% of the total lighting loads through the renewable energy sources. All residential buildings having plot area of more than 500 Sq. mtrs., multi story residential apartments/ complexes, hotels and banquette halls, hospitals, all government buildings, residential schools, educational institutes, hostels and industries requiring hot water shall install solar water heating systems to meet at least 20% of hot water requirement. 24 hours use buildings like hospitals, hotels, call centers, shall ensure that thermal performance of external walls and roof shall conform to ECBC 2007 requirements i.e., maximum U-factor (W/m^2K) of 0.44 and 0.261 respectively and for day time use buildings U-factor of 0.44 and 0.409 respectively. U-factor for windows shall not be more than 3.30. All major buildings and complexes shall meet Energy Performance Index of less than 150 kWh/Sq.m per year. All commercial buildings with connected load of 100 kW and above shall invariably comply with energy conservation building code. All the Capital complexes, Commercial, institutional and major residential complexes should be constructed following ***Green Building*** concepts and ensure - energy efficiency, low carbon foot-print, resources conservation etc. The Proponent shall ensure that all the bulk consumers of the energy, shall meet a greater part of their demand through renewable energies and avoid use of fossil fuels; The proponent shall incorporate these in Bye-laws.

15) The proponent shall establish minimum 3 online continuous Ambient Air Quality Stations in three zones i.e, residential, commercial and business zones and connect the results to CPCB / SPCB website in the 1st phase. Permanent Online Air Monitoring Stations for Air Quality be established, one for every 25 km^2 of area, located strategically considering the wind rose of the area and terrain conditions.

16) The project proponent should develop mechanism for monitoring Carbon sequestration from the plantations made and should achieve a Mean Annual Increment of the Carbon stock of at least 5 tons/Ha/annum. The proponent should monitor the carbon stock of each area, at least once in two years and submit reports.

17) The proponent shall prepare carbon footprint for the city and strive for carbon neutrality.

SOLID WASTE MANAGEMENT

1) The proponent shall ensure that occupiers of all premises to keep two receptacles, one for the storage of food / organic / biodegradable waste and another for non biodegradable / recyclable and other types of solid waste generated. Hazardous waste generated by households shall be kept separately in suitable container as and when such a waste is generated.
2) The project proponent shall ensure that all the ***newly developed areas*** shall not have any open waste disposal sites on the roadsides and develop efficient waste collection mechanism that ensures segregation at the origin level only.
3) Proponent shall arrange for door to door collection and / or community bin collection of domestic waste; trade and institutional waste stored by the waste generators in segregated manner.
4) Proponent shall identify and allocate suitable pieces of land in the jurisdiction of the city to facilitate sorting of various components of recyclable material collected by waste collectors and prevent such activities being carried out on the foot paths / road side etc.
5) The proponent shall identify and allocate adequate land for Multiple Transfer Stations with mechanical Material Recovery Facility for secondary segregation and storage of dry waste as committed. Transfer Stations shall be properly covered and hygienically maintained to minimize Environmental and Health Hazards.
6) Proponent shall ensure daily sweeping of all public streets and periodical cleaning of all public places.
7) Proponent shall make arrangements for separate collection of construction and demolition waste and shall be transferred to Construction and Demolition Waste Recycling Facility. Proponent shall allocate adequate and suitable land for establishment of Construction and Demolition Waste Recycling Facilities.

8) The proponent shall ensure that a separate adequate space for segregation / storage and decentralized processing of solid waste is demarcated in the plan for group housing or commercial / institutional or any non residential complex exceeding 200 dwellings or having a plot area of more than 10000 Sq. mtrs.

9) The proponent shall ensure collection of waste from vegetable, fruit, meat and fish markets on daily basis and promote setting up of de-centralized compost plant or bio methanisation plant at suitable location in the market.

10) The proponent shall ensure establishment of modern abattoirs (slaughter houses) with appropriate waste management facilities. The proponent shall also take measures for establishment of Rendering Plant for disposal of carcass or parts of any dead animal in scientific manner.

11) The proponent shall allocate suitable and adequate site for setting up of Common Bio Medical Waste Treatment and Disposal Facility within the city limits.

12) Proponent shall make arrangement for setting up of Waste Collection Centers for plastic waste in association with plastic manufacturers. The Proponent shall also ensure safe collection, storage, segregation and transportation, processing and disposal of plastic waste in environmentally sound manner. The proponent shall allocate suitable and adequate site for setting up of plastic recycling, processing and disposal facilities.

13) The proponent shall facilitate setting up of E-waste Collection Centers by the producers and channalize e-waste to recyclers or dismantlers. The proponent shall allocate suitable and adequate site for setting up of e-waste recycling / dismantling facilities.

14) The proponent shall identify and allocate suitable site for establishment of Common Hazardous Waste Treatment and Disposal Facility.

15) The proponent shall facilitate establishment of used battery Collection Centers by manufactures / importers / assemblers / reconditioners and chanallize the used batteries to register recyclers. Proponent shall allocate suitable site for setting up of used battery recycling facilities.

16) Proponent shall ensure proper collection and scientific disposal of sludge from the water treatment plants, sewage treatment plants, water seal latrines and septic tanks.

17) Proponent shall take measures for proper collection and scientific disposal of bulky waste like discarded tables, chairs, cots, cub boards, mattresses, gas cookers, microwave ovens, washing machines etc.

18) Proponent shall take measures for establishment of state of art modern Integrated Solid Waste Management Facility for the city as committed consisting of Sorting / Material Recovery Plant, Compost Plant / Anaerobic Digesters, Waste to Energy Plant, Construction and Demolition Waste Recycling Plant, Bio medical Waste Facility, Plastic Waste Processing and Recycling Facility and Engineered Landfill Facility. Proponent shall allocate suitable and adequate space for ISWMF in the city limits and ensure establishment of ISWMF simultaneously with the construction of the city in the first phase itself.

19) The proponent shall maintain adequate green buffer around Integrated Solid Waste Management Facility and Common Hazardous Waste Treatment and Disposal Facility by carrying proper assessment, but not less than 100 mtrs width.

20) The proponent shall ensure usage of fly ash for leveling / reclamation of low lying areas, road embankments, for raising platforms in inundated areas, and usage of fly ash based products for construction purpose including fly ash bricks, PPC cement, Concrete etc., in compliance with Fly Ash Notification issued by the MoEF under Environment (Protection) Act. The proponent shall incorporate usage of fly ash by construction agencies in the Bye-Laws.

ECOLOGY

1) A list of all existing water bodies (including ponds, tanks, drains, irrigating channels) falling in the proposed area, shall be prepared village wise with survey no., extent, use and other details duly certified by a competent authority and a certified map of these water bodies as on project commencement date should be kept as base map with the AP CRDA & CA, and should be displayed on its web site;

2) All construction activities by the proponent should ensure that the activities do not alter or do not adversely affect the water bodies and their ecology;

3) Improvement or rehabilitation of existing natural streams, channels / nallas shall be carried out without disturbing the ecological habitat.

4) No untreated or treated wastewater shall be discharged in any of the water bodies including Krishna River under any circumstances.

5) The proponent shall create primary green spaces of 7200 Ha. consisting of city parks, lake parks, town parks, neighborhood parks as committed. The

proponent shall create primary green space of 3924.57 Ha in the 1st phase as committed.

6) The proponent shall create and maintain secondary green space of 1910 ha. weave through the townships connecting the various town and neighborhood parks acting as a passive recreation places, interactive jogging trails and Non Motorized Transport corridors across the city. The proponent shall create secondary green space of 510.04 Ha in the 1st phase as committed.

7) The proponent shall protect and conserve the existing water bodies of 4815 Ha. in addition to creating new water bodies integrated with green spaces as committed.

8) A buffer of 30m on either side of canals and streams; 50m around water bodies and 100m along the Krishna River Front shall be reserved as greenbelt without allowing any development. Plantation along the side of the roads and in the open spaces shall be developed to act as sinks of air pollutants.

9) The proponent shall encourage urban agriculture to meet the city food requirements and reserve high value agriculture land wherever possible for this purpose as committed. A belt of 2 to 3 Km. of broad running parallel to Krishna river rich in bio diversity shall be used for blue green infrastructure development only as committed

10) The proponent shall utilize natural features such as forest and hills to create regional green network as committed.

11) The proponent shall utilize reserve forest land of 251.814 Acres, after obtaining approval for diversion from competent authorities for development of green belt / eco friendly activities only .

12) The proponent shall utilize treated sewage water for irrigation of primary and secondary green areas by laying pipeline network.

13) All archaeological, cultural and ecologically-sensitive areas (i.e. estuaries, mangroves, rocky shores, caves etc.) in and around the Amaravati capital city be adequately protected and conserved. The proponent shall take appropriate measures for protection of Undavalli caves. The proponent has to declare no development activity Zone of 100 to 300 mtrs. around Undavalli caves as per ASI regulations.

14) A comprehensive PRIMARY BASELINE DATA on the productivity of the Krishna River in the CRDA area (primary, secondary and tertiary

productions), before and after Capital region development, shall essentially be collected and processed in a systematic and scientific way.

15) Development of the green belts, green corridors, avenue plantations etc., be made only with the native species with multiple uses, and the plantation should not affect the native species diversity and shall help enhance carbon stocks.

16) The proponent shall reserve most of the waterfront along the Krishna River for public use as committed.

17) The proponent shall create 780 Ha recreational landscapes including theme Parks, Golf Courts, Sports and Recreational Spaces.

18) Proponent shall create green and blue network interconnecting all reservoirs, water bodies and green spines as committed.

19) The proponent shall create network of water ways as committed to connect various eco tourism attractions on the cluster of islands in the river Krishna. These water ways have to inter connect Islands and mainland within the city.

20) A major part of the development of the water bodies and green areas be completed before the end of the construction phase;

21) All construction activities by the proponent should ensure that the activities do not adversely affect the water bodies and their ecology;

22) No natural water body shall be lined or no embankment shall be cemented except for protection and safety of the people in the surrounding area. The water bodies shall be kept in natural conditions without disturbing the ecological habitat.

23) Improvement or rehabilitation of existing natural streams, channels / nallas shall be carried out without disturbing the ecological habitat.

24) Mitigation measures like providing adequate drainage, embankment consolidation and slope stabilization shall be taken on the built up areas and along the city roads to avoid soil erosion. Top soils (30 cm) of the borrow pit sites shall be conserved and restored after completion of excavation. All the topsoil excavated during construction activities shall be stored for use in horticulture/ landscape development within the project site. Proper erosion control and sediment control measures shall be adopted.

25) Recognizing the fact that the Capital City project is being proposed on the ***Green & Blue Concepts,*** as such to protect the environment, the 24.29% of

the land allocation for greening and open spaces, be achieved at the Development zone wise as far as possible.

26)Deep rooted large foliage plantation along the side of the roads and in the open spaces shall be developed to act as sinks of air pollutants.

RESETTLEMENT AND REHABILITATION

1) The AP CRDA & CA shall submit the specific plans for the inclusion of the existing habitations in the capital area development and submit the details of the Project Affected Families and the RR Plans to address the PAFs. As far as possible, ***Least Dislocation Principle*** be adopted;
2) The proponent shall develop a peripheral area development plan and provide plans for the compensation of the loss of rural productivity like loss of grazing areas for the livestock dependent communities; vegetable growing farmers and sellers etc.

DISASTER MANAGEMENT

1) The proponent shall prepare and implement proper flood management plan to overcome threats posed by the Kondaveeti Vagu and its tributeries, Krishna River, heavy rains (more than 1000 mm) and cyclones.
2) The proponent shall prepare earth quake response management plan by considering the location of the city in the class III seismic zone. The proponent shall incorporate structural design requirements of buildings for Seismic Zone – III in the Bye-Laws.
3) The proponent shall create adequate infrastructure for emergency fire fighting.
4) Proponent shall prepare emergency Health Management Plan.

ENVIRONMENT MANAGEMENT DURING CONSTRUCTION PHASE

1) The Proponent shall ensure safe and secure accommodation, clean drinking water, hygienic sanitation facilities like mobile toilets, community level gas supply, rest areas for female workers, nutrition development programme for workers at all construction sites for the projected work force of 5000 - 10000 spread in about 40 labour camps as committed in EIA report.
2) The Proponent shall ensure following mitigation measures as committed, to minimize pollution problems during construction stage.

    - All the loose material either stacked or transported shall be provided with suitable covering such as tarpaulins etc.

- Water sprinkling shall be done at the location where dust generation is anticipated.
- Construction equipment be maintained and serviced regularly such that the gaseous emissions from these equipments are maintained within the design specifications.
- Provision for insulating caps and aids at the exit of noise source on the machinery.
- The use of dampening materials such as thin rubber / lead sheet for wrapping the work places like compressors, generator, etc.
- Inlet and outlet mufflers shall be provided.
- Earmuffs shall be provided to workers and enforced to be used by the workers.
- Noise prone activities shall be restricted to the extent possible during the night time, in order to have minimum environmental impact on the workers as well as on the neighbourhood.

3) Groundwater should not be used for any activities during the construction phase also; and a policy for the use of water by different users in the project area be developed for their sustainable use and submitted.

ENVIRONMENT MANAGEMENT MONITORING SYSTEM

1) The responsibility of implementation of environmental safeguards rests fully on the project proponent. Project proponent shall establish an **Environmental Management Regulatory Authority** to carryout functions relating to environmental management under the supervision of a senior executive, directly reporting to the Project Proponent. It should have separate wings for (a) Greenery and Ecological Management; (b) Sewage Management; (c) Solid Waste Management; (d) Fly Ash Utilisation and (e) Pollution Control, staffed by Scientists/ Engineers and supported by established laboratories and adequate supporting staff.

GENERAL CONDITIONS :

i. Any change(s) in the scope of the project, shall require a fresh appraisal by the SEIAA. As the details of the ***Inter Linked Projects*** for the Government Complexes, Housing Complexes, Cultural Centers, Industrial / IT Park, Commercial Complexes, Education Institutions etc. have not been submitted with respect to built-up area, excavation, water consumption, sewage generation, solid wastes generation, power requirement, pollution control arrangements, environmental safeguards,

construction material etc. for construction and operation phases, the respective project proponents shall obtain separate Environmental Clearances for all the projects which falls under the schedule of Environment Impact Assessment Notification, 2006 from State Level Environmental Impact Assessment Authority, as per provisions of Environment Impact Assessment Notification 2006.

ii. The proponent shall incorporate penal provision in the byelaws/regulations for any violation of environmental issues. The proponent shall also create proper intuitional mechanism to ensure continual environmental awareness among all stakeholders.

iii. The proponent shall obtain consent from Andhra Pradesh Pollution Control Board.

iv. The proponent shall strictly comply with Municipal solid waste (Management & Handling) Rules, the plastic manufacturer, sales & usage Rules, the Hazardous Waste (Management, Handling & Transboundary movement) Rules, Bio Medical Waste (Management and Handling) Rules, E-waste (Management & handling) Rules, the noise pollution (Regulation and Control) Rules, the Manufacture, Storage and Import of Hazardous Chemical Rules, Fly ash notification and standards notified by MoEF under Environment (Protection) Act, wherever applicable.

v. The project proponent shall inform the public that the project has been accorded Environmental Clearance by SEIAA, AP and copies of clearance letters are available with the APPCB and may also be seen at website of SEIAA, AP at www.seiaa.ap.nic.in and at website of Ministry of Environment and Forest at http://envfor.nic.in. This shall be advertised within 7 days form the date of issue of clearance letter, at least in 2 local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned and a copy of the same forwarded to SEIAA AP and Regional Office, MoEF & CC, Chennai.

vi. The proponent shall obtain all other mandatory clearances from respective departments.

vii. The project proponent shall submit / upload half yearly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the MoEF & CC, its Regional Office, Chennai, SEIAA, AP, Zonal Office of Central Pollution Control Board,

Bangalore and A.P. Pollution Control Board. The Regional Office of MoEF / APPCB / CPCB / SEIAA, AP shall monitor the stipulated conditions. The proponent shall upload the status of compliance of the environmental clearance conditions including results of monitored data on their websites and shall update the same periodically.

viii. The environmental statement for each financial year ending 31st march in Form-V as mandated is to be submitted by the project proponent to the A.P. Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the Proponent along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional office of the MoEF & CC, Chennai by e-mail.

ix. Concealing the factual data or submission of false / fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

x. The SEIAA may revoke or suspend the order, if implementation of any of the above conditions is not satisfactory. The SEIAA reserves the right to alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

xi. Any appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

xii. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

Sd/-	**Sd/-**	**Sd/-**
Member	**Member Secretary,**	**Chairman**
SEIAA,A.P.	**SEIAA,A.P.**	**SEIAA,A.P.**

Copy to:

1. The Chairman, SEAC, A.P. for kind information.
2. The Member Secretary, APPCB for kind information.
3. The EE, RO: Guntur, APPCB for information.
4. The Regional Officer, MOEF&CC, GOI, Chennai for kind information.
5. The Secretary, MOEF&CC, GOI New Delhi for kind information.
6. Monitoring cell, MoEF&CC, GOI, New Delhi for kind information.
7. The Special Chief Secretary, EFS&T Department, Govt. of AP, Hyderabad for information.

//T.C.F.B.O//

09/10/15

MEMBER SECRETARY
SEIAA, A.P.