
Report of the Expert Committee appointed by the
Ministry of Home Affairs, Union of India
to Study the Alternatives for a New Capital for the
State of Andhra Pradesh

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INTRODUCTION

1. This Report, prepared by the Expert Committee appointed by the Government of India, Ministry of Home Affairs under section 6 of the AP Reorganisation Act, 2014, is a study of the various alternatives regarding new capital for the Successor State of Andhra Pradesh. Though the two states of Telangana and Andhra came into existence on the appointed day i.e. 2nd June 2014 the Committee itself was constituted only on 28th March 2014 for a period of six months. This report is being submitted within the final date specified in the Terms of Reference for the Committee, i.e. 31 August 2014.
2. A copy of the notification containing the Terms of Reference for the Expert Committee is given in **Annexure I**. Particular attention may be drawn to the second part of the Terms of Reference where the Committee has been asked to consider issues like the least possible dislocation to existing agriculture systems, preservation of local ecology, promoting environmentally sustainable growth, vulnerability assessment from natural disasters, minimizing the cost of construction and acquisition of land etc. The Committee would like to emphasise that it has adhered to these terms of reference as best as possible. The Terms of Reference of the Committee make specific mention that degraded forest land may be used for the purposes of locating the new capital. While the Committee has taken this into account, it has also endeavoured to ensure that forest land, as far as possible, is not disturbed, and that degraded forest land is left for possible rehabilitation rather than conversion to urban areas
3. The Committee also recognizes decisions regarding the capital city or location of various capital functions is a prerogative of the A P Government in consultation with the Central government and such others as considered appropriate. The Committee has regarded its tasks essentially in compiling and analysing as much relevant data as available and as could be obtained from the A P Government and position its recommendations on that basis.
4. The Committee would like to highlight that while the AP Reorganization Act was published in the official Gazette on 1 March 2014, the appointed day of the new states was 2 June 2014. The Committee came into being only on the 28th March 2014 with a report

deadline of 31st August. This effectively reduced the time for this committee to less than five months. Additionally, visits to Andhra Pradesh could not be made due to national and state elections on the 7th April and 30th April 2014. Election results were declared on 16th May 2014 and an elected government took oath only on June 8th 2014 because the state administration was heavily preoccupied with the elections and also the possible repercussions of the Expert Committee visiting the state during this period, the Committee could schedule visits only after the 8th of June 2014. A window of only about twelve weeks was available to the Committee to travel to Andhra Pradesh and the Committee was able to visit eleven of thirteen districts.

5. The Committee within this reduced timetable spanning only twelve weeks, has had the opportunity to meet and hold discussions with Chief Minister of Andhra Pradesh, the Minister for Municipal and Urban Development as well as various officials of the AP Government. The Committee could also meet a spectrum of political representatives, non-governmental organisations, business representatives and other stakeholders. The Committee is thankful to the Government of Andhra Pradesh for the hospitality it received during its field visits to various districts of Andhra and its stay in Hyderabad, and the various arrangements made during its visit. The Committee also had fruitful discussions with the Union Minister for Urban Development and Parliamentary Affairs, Union Minister for Commerce and Industry, Union Minister for Railways, and the Union Minister for Oil and Natural Gas. A complete list of meetings held by the Committee is enclosed as **Annexure II**.

6. As professionals in their own standing, all members of the Committee have been working in an honorary capacity. The Committee has been privileged to have these members work together, taking time from their otherwise competing demands and produce this report. The Committee has also been fortunate with assistance it has received from a research team provided by the NIPFP, the CPR, the NIUA, the IHS and Dr. Ravindran in their individual capacities. The Committee acknowledges their valuable assistance.

PART I: BACKGROUND

1.1. The bifurcation of the erstwhile composite state into Telangana and Andhra has thrown up several problems but it also provides a valuable opportunity for the balanced development of the State of AP comprising 13 districts from Srikakulam in the north to Chittoor in the South. When the Andhra Pradesh state was formed by separation from the erstwhile state of Madras, there appears to have been general support for the move. However, in recent years the demand for a separate state for Telangana has led to some discontent within Andhra Pradesh. The Committee is conscious that during the last few years there has been a significant increase in regional and sub-regional aspirations within Andhra Pradesh often expressed through frequent agitations.

1.2. The Expert Committee has had the opportunity to visit as many as 11 Districts in different parts of Andhra and have discussions with various stakeholders. In the locations visited by the Committee, described briefly in **Annexure II**, the Committee held public consultations that were widely attended and reported in the press. In these consultations the Committee received a number of written and verbal representations. The Committee has considered these representations in the preparation of this Report.

1.3. In addition, the Committee had issued a notice seeking feedback on the location of new capital by May 7th 2014. The Committee received 4728 suggestions through an email id created through the Ministry of Home Affairs for the purpose. These responses indicated the preference of persons for various locations as the proposed capital. An analysis of these messages is contained in **Annexure III**.

1.4. The Committee's dominant objective in this Report has been the overall development of Andhra Pradesh, and how the location of various capital functions can help this. When the Committee visited locations in Rayalaseema, a number of statements were made in public consultations before the Committee. Some of these statements expressed the desire for a capital in Rayalaseema, and threatened agitations to further this purpose. The apprehension still prevails in Rayalaseema that even in the residuary State of Andhra Pradesh one or two parts only will be the favoured locations for governmental activities attracting numerous

investments. The location of the capital functions in the context of overall development of the state has consequently been the main objective of the Committee.

PART II: CHALLENGES FOR THE STATE OF ANDHRA PRADESH: ECONOMIC DEVELOPMENT

2.1. Taking the spirit and substance of the A P Reorganization Act which is to facilitate the overall development of A P and the development of the backward areas, the Committee from its inception of its work has given much attention to the issues of economic development. It is seen that out of the state economic output a little over 20% comes from agriculture and allied sectors, about 14% comes from finance and real estate and another 14% from trade, hotels and restaurants. Manufacturing itself has a limited contribution. In terms of work force 52% is in agriculture and allied activities and only a little over 10% in manufacturing. According to the 2011 Census, the population of Andhra is 49.38 million and is expected to be 67 million by 2051. The addition to the work force is estimated to be 51 million. Finding of jobs for this increasing work force is probably the most important challenge facing Andhra. The Committee has considered its assignment from this angle and has endeavoured to suggest an enabling strategy whereby various towns and sub-regional areas can be developed, which in turn can lead to further development. This has been taking into account in the Committee's analysis of the possible location of capital administrative functions.

2.2. The Committee is strongly of the view that given the fact that economic growth, employment, income generation and equitable distribution of growth possibilities are essential for the all-round development of AP. The challenge of a high dependency ratio (approximately 55%), relatively low literacy (65%), low urbanisation (29%) and a young and growing workforce, coupled with a slow expansion of manufacturing and services employment will have to be met. Andhra Pradesh needs to accelerate from two lakh jobs a year to more than three lakh jobs a year at a significantly higher productivity.

2.3. The Committee undertook a detailed district-wise analysis of socio-economic data to understand better the economy of the state and the challenges expected. This report will help understand the background and rationale of the Committee's discussions. This report is being sent separately.

PART III: CAPITAL FUNCTIONS

3.1. The planning, design and functioning of a city is a long process. The Committee during its short existence of less than five months has looked at three possible approaches :

- a) One approach is a Greenfield location in which a single city/super city is created.
- b) The second approach is expanding existing cities.
- c) The third approach is distributed development.

3.2. Creating A Greenfield Capital City

3.2.1. The AP government and the Chief Minister from time to time have indicated their desire to have a "world class city"¹. They have also appointed a Committee under the chairmanship of the Minister of Urban Development, Government of Andhra Pradesh, to examine possible locations for a capital and subsequently decide on design aspects.

3.2.2. In the contemporary state where the nature of governmental functions are both highly varied and innovative, there is no particular merit in seeking to locate all government offices in one single place. It should also be noted that compared to the situation which existed in the country soon after independence when entirely new cities like Chandigarh with about 115 sq. kms. Gandhi Nagar with 177 sq. kms. and Bhubaneswar with 419 sq. kms. (including the existing city) could be conceived and built, such large scale acquisition of land and development is much more difficult now. Chhattisgarh given its sparse development could manage to assemble 226 sq. kms. It appears most unlikely that in Andhra Pradesh vast areas of government land on this scale will be available. On the other hand the existing and proposed rail and road connectivity between the different cities of AP which can be significantly improved and expanded, renders the search for a single super city location unnecessary. Furthermore composite Andhra has been a leader in the country in developing

¹ See, for instance, statements of the Chief Minister reported in the Economic Times, 10 June 2014
http://articles.economictimes.indiatimes.com/2014-06-10/news/50478705_1_new-capital-andhra-pradesh-developed-land

electronic communication system, especially between government institutions, Andhra has set the example in overcoming geographical distance by modern communication. Therefore at this point of time distances need not be a deterrent in the location of government offices.

3.2.3. The Committee does not consider a single large capital city as a feasible option available to Andhra Pradesh as of now. The existing concentration in Hyderabad of the legislature, the courts and the executive comprising numerous ministries, departments, commissionerates and directorates has happened over several years. This concentration has itself been a major bone of contention in the process of bifurcation.

3.2.4. Early in July 2014, the committee received some information from the Department of Town & Country Planning indicating in a map (**Annexure IV**) eight possible locations for a capital. All these eight locations are in the general region which we have referred to as middle Andhra, not far from Vijayawada and Guntur. Out of these Musunuru adjoins Eluru and is beyond the VGTM boundary. The other site suggested is Pulichintala about 40 kms from the Vijayawada station beyond Amravati and located upstream of Krishna. Presently there are limited road connections for this area. As for Macherla this is further west of Pulichintala and is close to Nagarjunasagar Dam. It is nearly 100 kms away from Vijayawada. At present there is a railway line from Tenali to Rentachintala passing through Nadikudi. Macherla and Pulichintala are both on the border of Telangana and *prima facie* it is to be considered whether these are attractive locations for capital functions. The four other sites suggested by the Dept. of Planning are Bollapalli, Vinukonda, Martur and Donakonda (see attached map). Out of these, Martur is on NH 5 on the Guntur-Ongole road. Vinukonda adjoins Martur and is connected by a state highway from Guntur via Narasaraopet proceeding towards Kurnool. It is proposed to upgrade this as a national highway. Donakonda is further south of Vinukonda presently accessible by a connecting road. Bollapalli adjoins Nallamala reserved forest and hills. Further examination may indicate some environmental issues and from that point of view may be an inappropriate site. For all these locations the Department of Town and Country Planning has furnished information about the extent of cultivated land, degraded forest land, land under agriculture etc. However the Urban Development Department of the AP government informed us that these proposals are informal and have not been endorsed by the State government. Our Committee therefore

did not examine these sites in any detail though the extent of government land stated to be available, because of the AP government's indication that these are merely "informal proposals".

3.2.5. The Committee also suggested to the AP Government to indicate some more locations in Rayalaseema and Uttarandhra and whether sizable parcels are available for a large cluster of government offices. Unfortunately the A P Government has not sent this information to the Committee. However, the A P Government has provided information on parcels of usually of about 10 acres to 25 acres of land available within 10 kms of various district town – generalised map of Andhra Pradesh has also been sent on 18 August, 2014, indicating Visakhapatnam and Anantapur as possible locations.

3.2.6. *Prima facie* these parcels of land available near the District headquarters should be suitable for various government offices to be located here on a distributed basis. However, we were also informed that distribution of land to landless poor has taken place and that it will not be possible to take the land back by paying nominal compensation. A detailed assessment of the situation is necessary. Taking back the ownership will enable the AP Government to take preliminary steps towards protection and acquisition of these areas. It is possible that private lands adjoining these sites may also come under speculative pressure. The Andhra Pradesh Reorganisation Act, 2014 contains a provision that degraded forest land can be made available, if necessary. If this land is not to be used for urban development, this forestation should at least be revived.

3.3. Expanding existing cities

3.3.1. Notwithstanding the Committee's views in regard to a single city in a new location, the A P Government itself does not appear to favour the setting up of a green field city. The Chief Minister has repeatedly mentioned that 2 or 3 of the existing cities like Vizag-Tirupathi and Vijayawada-Guntur may expand mega city sizes while 13 to 14 other cities in Andhra will grow to be million plus cities or more. But expansion of existing town does not take place only by executive fiat, and requires assessment of feasibility of expansion, especially from the point of view of infrastructure and on environmental assessments.

3.3.2. At this stage, it is appropriate for the Committee to share its concerns about locating and eventually concentrating government functions within the Vijayawada-Guntur-Tenali-Mangalgiri urban area, which is part of the generally known VGTM area and is covered by the VGTM Urban development authority. There has been much publicity in recent weeks that a capital city may come up between Guntur and Vijaywada. This is mainly due to the common perception that this area is geographically central as between the Uttarandhra coast and Rayalaseema and is already well connected. This geographical connectivity, centrality and proximity are attractive concepts but need not be the only one for guiding development. In other states like Tamil Nadu, Kerala, Maharashtra or West Bengal this geographical centrality does not exist. Any attempt towards concentration of the Government offices within the urban area of Vijayawada - Guntur will have to consider other consequences such as the strain on infrastructure and possible unplanned expansion of urban areas. Importantly, it will also adversely affect the development prospects of other areas in Andhra by sucking much private and speculative capital into the area. Besides, the Districts of Krishna, Guntur and West Godavari comprises some of the best agricultural lands in the country, contributing more than one percent to the country's rice production and is often referred as the rice bowl of the country.

3.3.3. Our Committee would like to make a distinction between the VGTM area as defined by the Town Planning Department and the urban/municipal areas of Vijaywada, Mangalgiri, Guntur and Tenali consisting of about 4000-5000 square km. The size of the VGTM area is 7,060 square kilometres and almost twice the size of the state of Goa. While the foresight in delineating such a large area is understood, there is no evidence to show that an infrastructure or environment impact assessment has been made to permit urbanisation of this large area. The present development plan for the VGTM area with its ring road seeks to bring more land under urbanisation without considering other aspects. The Committee strongly suggests that this plan should be revisited.

3.3.4. According to such information as has been made available by the AP government there are significant tracts of land within the urban areas of VGTM which are uncultivated or may be said to comprise degraded forest lands. It appears that these degraded forest lands were being used for unauthorised agricultural or other activities.

3.3.5. In the overall development plan prepared for the Vijayawada, Guntur, Tenali, and Mangalagiri by the Development Authority known as VGTM, the total population of this area is 17.22 lakhs. The VGTM UDA's plan proposes an outer ring road whose main purpose is to open up and provide access to agricultural lands. This particular ring road approach, which is very similar to the ring road approach taken in Hyderabad, will have serious economic consequences. Given the skyrocketing prices fuelled by speculation, these proposals will further intensify the same. Unlike Hyderabad where irrigated agricultural land was not an issue, it is very much a serious consideration as far as the VGTM area is concerned.

3.3.6. The Committee recognises that Vijaywada-Guntur has a long history and has a strong economic and social connotation in the minds of the people. The VGTM is a vibrant region and already has positive internal dynamics of development and urbanisation. However to intervene in this urban dynamic through the concentration of large volumes of capital construction, investment and population infusion would not be desirable. The Committee is strongly of the view that locating several governmental offices within the VGTM urban /area is both unfeasible for financial reasons and undesirable for decentralised development. It will significantly add to the "honey pot" character similar to Hyderabad which in turn will detract from the potential and growth prospects of other centers in Andhra. It is questionable whether the existing government offices in particular commissionerates, directorates etc. however numerous they are, will be able to facilitate or generate economic development or employment by themselves. On the contrary some new offices such as marine export promotion or environment related sectors as well as education and other institutions preferably located, will be able to facilitate more employment by private and other parties.

3.3.7. Given the attention the VGTM area has received, the Committee feels the environmental considerations in densifying the existing urban area should be seriously considered by the A P Government. To briefly sum up key considerations;

- (1) The Committee's Terms of Reference specifically mentions "**least possible dislocation to existing agriculture systems**". The Districts of Krishna, Guntur and West Godavari comprise some of the best agricultural lands in the country. Guntur and Krishna have the second highest population in the State of nearly 49 lakhs and

45 lakhs as well as a work force of nearly 23.8 lakhs and 20.48 lakhs respectively. Of this work force 65% in Guntur and 56% in Krishna are cultivators and agricultural labourers. Any attempt to convert agricultural land much of which is located along the proposed ring road, into non-agricultural use will seriously displace this work force rendering them unemployed, loss of valuable agricultural land, disappearance of small holdings and farmers and benefit only land speculation and serve profit for the real estate operators.

- (2) The water table in this area is generally high. The Geological Survey of India has carried out a seismic micro-zonation in this area and has highlighted the problem of high water table and vulnerable soil types, which together may lead to severe problems of foundations and soil bearing capacities.² This itself is one of the reasons why there are not many high rise buildings in this area.
- (3) Any invitation to government offices and institutions to locate within Vijayawada-Guntur urban area may lead to a construction boom and haphazard development which may however seriously strain the existing infrastructure and aggravate the vulnerability of the area.
- (4) The existing infrastructure such as for water supply, sewerage and roads is not adequate and is already showing some stress. Though some attempts for improvements have been made under JNNURM, as is proposed to have a metro rail facility, communications within the VGTM area may continue to raise problems.

3.3.8. The Committee's attention has been drawn to some locations where some small parcels of contiguous land in scattered locations may be available within the VGTM area. One is in the area known as Mangalagiri located on the NH 5 service road. This area is mostly a reserved forest. There are already two major institutions i.e. the T B Sanatorium and the AP Special Battalion Housing. Additionally, it is also learned that about 200 acres of land in this area are already committed to be made available to the proposed medical institute on the pattern of AIIMS. There is no information about the area, nature of use, ownership or other particulars of the remaining lands in the Mangalagiri area.

² First Level Seismic Hazard Micro zonation Studies Of Vijayawada Urban Agglomeration, Krishna District, Andhra Pradesh R. Balaji, V. Ramamurty, P. Abdul Gaffar, A. Om Kumar, D.K. Saha, Pankaj Jaiswal, G.S.R. Uma Shankar and M.S. Kumar

3.3.9 Another location indicated "informally" by the AP Govt is the Gannavaram Airport which is within the VGTM area. The area of this airport may be barely adequate in the event it is proposed to develop this into an international airport. About 10 kms away from this airport there are two pockets of land; one is called Kondapavuluru of about 225 acres and another Vudurupavuluru of about 150 acres. Both are reported to be degraded forests which have also been quarried extensively and may require rehabilitation. Any attempt to make use of the parcels of this land will have to seriously limit the number of people and offices to be located here. However, the AP government may consider whether some of the areas in the VGTM such as Nuzvidu, Musunuru, Amravati or Pulichintala may be in a better position to accommodate a limited number of governmental offices and at the same time satisfy the criteria of centrality and access. The same approach can be applied to some areas south of Guntur such as Martur and Vinukonda.

3.4. Distributed development

3.4.1. Different parts of AP are endowed with different types of natural resources whose development is essential. For instance, the State contains some of the most fertile agricultural land in the country comprising well irrigated multi crop areas. There is also a wide variety of crops such as oilseeds, tobacco, fruits etc. as well as significant pisciculture. Rayalaseema is endowed with significant quantities of mineral resources. Coastal Andhra contributes more than 40% of the marine exports of the country. In keeping with the dominant objective of decentralised development of the Andhra State, the Committee has identified three regions or sub-regions where capital functions and other institutions can be distributed.

These sub-regions are the

1. Vizag region in Uttarandhra,
2. Rayalaseema Arc comprising Kurnool, Anantapur, Tirupathi, Kadapa and Chittoor
3. 'Kalahasti – Nadikudi spine', which refers to land along the proposed Kalahasti-Nadikudi railway line, which may emerge as a development region

A map indicating these three regions is enclosed as **Annexure V.**

3.4.2. For the purpose of this report, districts in the state are broadly grouped as Uttarandhra or the northern coast comprising the districts of Srikakulam, Vizianagaram, East

Godavari and Vishakhapatnam. The Districts of West Godavari, Krishna and Guntur may be grouped as middle Andhra. The Districts of Kadapa, Anantapur, Chittoor and Kurnool comprise Rayalaseema and the Districts of Prakasam and Nellore have been regarded as Coastal Andhra. The Committee is aware that these regions are variously described by different people at different times and the grouping identified by us may be different. However for the purpose of this Report, this is the description we have followed.

3.4.3. The Vizag Region: To facilitate the development of this area, the Committee recommends that the various governmental offices in particular those dealing with industry, manufacture, ports, shipping, petrochemical etc. may be located in this particular zone. It is appropriate that offices relating to industry, fisheries and employment whether they are called directorates or otherwise which are presently located in Hyderabad should also be located in the Vizag zone which will put them in closer contact and interaction with the people and institutions in the area. Additionally there are also a number of technical institutions including specialised institutions of high technology. It has already been proposed that the Vizag area should really emerge as a high-tech zone which the Committee fully endorses. The Visakhapatnam region comprises the Vizag Development Authority which is about 5573 sq. kms as well as Srikakulam to the north and Kakinada to the south. This particular zone has been long regarded as a centre of heavy industry, manufacturing, ports and technical institutions of various kinds. The K G Basin Natural Gas with a possible terminal in Kakinada has the potential to transform this particular zone. Furthermore the designation of the Vizag-Chennai corridor as a part of the longer Kolkata-Chennai corridor provides yet another major opportunity for developing this area. Here again the Committee would like to state that an infrastructure and environment impact assessment should be undertaken if not done already, before significant expansion and densification of the Vizag area takes place.

3.4.4. The Rayalaseema Arc: The next zone which the Committee would like to propose for the location of various capital functions and institutions is the Rayalaseema Arc stretching from Kurnool to Chittoor via Anantapur and Tirupathi and including Kadapa, which is a major transport hub for railways as well. The principal towns in the arc such as Kurnool and Anantapur have been in existence for a long time. In fact Kurnool was the capital of Andhra when the state was initially formed by separating it from Tamil Nadu. Eventually the capital

was shifted to Hyderabad. There is a strong feeling in Kurnool-Anantapur that its claims to be the seat for capital were surrendered in favour of Hyderabad. The Rayalaseema people feel this has been a serious historical mistake which should be addressed. Though the area has had problems of water scarcity and power supply, there is a strong feeling in both Kurnool and Anantapur that these problems have been allowed to get worse and are used as an argument to discourage development. As mentioned before, if Chennai, Hyderabad, Bangalore and Delhi can access water from distant sources there is no insurmountable reason for Kurnool and Anantapur not to do so.

3.4.5. The Committee would like to draw attention to the prominent reality of the Hyderabad-Kurnool-Anantapur-Bangalore highway which is part of the golden quadrilateral system. In the development plans for south India, the Kurnool-Bangalore, Anantapur-Chennai via Chittoor link and Chennai-Bangalore highway constitute an extremely important frame for future development. In the near future it can be expected that there will be a Mumbai-Bangalore corridor which can also be connected to Anantapur via Lepakshi or other possible routes. The Rayalaseema Arc can be expected to emerge as a major component of this network of high capacity transport corridor in the south.

3.4.6. Notwithstanding the general impression that the Rayalaseema Arc is in a rain shadow area and will always remain short of water, the fact remains there are numerous irrigation projects in the Anantapur-Kurnool and Kadapa districts ongoing and completed. The Tungabhadra River itself flows through Kurnool and there are several canal and reservoir projects which are in existence as well as under construction. Allocation of Krishna water has to be revisited. The proposals for allocation of a given amount of water from the Krishna basin and making the same available for both irrigation as well as drinking water needs have been under consideration for some time. Some of the schemes have also been taken up for construction. It is not possible for the Committee to go into the details of these schemes. It is clear that A P Government has to urgently undertake a serious assessment of the water needs in the Kurnool-Anantapur area. Water Management appear to be a more critical unaddressed issue which can go a long way in alleviating the problem and open up the area for development. It is encouraging to note that the Chief Minister, with commendable statesmanship and vision chose Kurnool for observing Independence Day and indicated

various plans for development of the Rayalaseema area. The Committee strongly encourages the AP Government to follow up on these promises.

3.4.7. The Kalahasti spine will emerge as an important zone of development. In the list of important works considered as part of the 2014-15 budget presented by the Railway Minister recently, the Nadikudi-Kalahasti railway line has been mentioned. Starting from Srikalahasti and proceeding for a distance of more than 300 kms this particular line will intersect Vinukonda on the Bangalore-Guntur rail line and eventually terminate at Nadikudi near Andhra-Telangana border. From this north-south spine, east-west connections have been proposed such as to Krishnapatnam, Duggirajapatnam etc. which are important proposed port facilities. Vinukonda in Guntur District will be an important railway junction and a potential growth point. The use of the Kalahasti spine as a substitute for the Vizag-Chennai Industrial corridor is particularly critical. This is because of the significant environmental problems encountered in the Vizag-Chennai highway hugging the coast which passes through an area with numerous environmental hazards such as cyclone, tidal surges, wet lands etc. and is also susceptible to various frequent cyclones. The coast is unlikely to support a high capacity transport or industrial corridor as envisaged from Vizag to Chennai. The Committee's discussions with the Department of Industrial Promotion in the Government of India indicates that the Asian Development Bank which is preparing the feasibility report for the Vizag-Chennai corridor is taking note of these environmental concerns within this corridor. It will serve as a significant boost to the development of Chittoor, Nellore, Kadapa and Prakasam joining many of the existing small towns along the proposed Kalahasti spine fall within the industrial corridor. The Kalahasti spine will serve both its own alignment as well as the southern coastal area of Andhra Pradesh. It is clarified that along this spine there lies potential for greenfield development of nodal cities. This potential, however, must be explored (as in the case of the VGTM area) without disturbing the existing rich agricultural lands.

3.4.8. We would therefore suggest that the A P Government should decide as soon as possible the locations of the different directorates, and other offices so that they can make a beginning to shift to these locations in these growth zones as well as districts as appropriate. It can be argued that having secretariat, the commissionerates and directorate all in the

same location will be convenient but as already explained communication between different government offices is no longer an issue of physical proximity. We recognise that our approach of distributed development is not convention and may be regarded as inconvenient and impractical by many officials. But if distribution of development and governmental functions is desired in Andhra, we feel this approach should be followed. It is therefore up to the A P government to carefully review the existing arrangements for more than the 200 different government offices and undertakings which are presently located in Hyderabad about their future location. Importantly distribution of these offices will significantly enhance the presence, influence and interaction of the Government in the different parts of the State.

3.4.9. We reiterate that it is the A P Government's responsibility to decide which office will be located where. However to enable the government to apply its mind, we have made some broad suggestion on how some groups of departments and offices can be located conveniently in some locations. For instance, departments related to Animal Husbandry, Fisheries, Agriculture and Industry, Mines and Minerals and Accounts might not be located with the Chief Ministers office and should be located close to the areas which they intend to service. The Committee recommends all IT and industry related departments in Vizag, Agriculture related departments in Prakasam, Animal Husbandry in Ongole, Education in Anantapur, Health in Nellore, Irrigation in Nellore and Welfare in Kadapa. In addition, all institutions as mentioned in the Schedule IX should also be distributed across the State to enable further distributed capital functions.

3.4.10. In addition to government departments and directorates, there are a number of undertakings listed in Schedule IX of the Act and some of them perform important functions. For example, the Andhra Pradesh State Agro-Industrial Development Corporation performs important functions with respect to agriculture and should be located with the agriculture departments. All of this will require analysis and study. The Committee urges that pending such assessment there should not be any general instruction to move all these offices to the capital location without consideration of appropriate location near their scope of activity.

3.4.11. Given the emphasis in our Committee's approach of decentralised development and distribution of government offices in different parts of Andhra, the suggested allocation is only to stimulate some discussion to enable the A P Government to arrive at a decision. It is also appreciated that the A P Government may wish to take this opportunity to study more carefully the existing pattern and number of government offices presently functioning in Hyderabad, which ones are to be repeated in Andhra and what could be the appropriate location. Such an exercise will of course be valuable if it is carried out timely. Otherwise replicating all the offices presently functioning in Hyderabad, to some same place in Andhra will only be an action of hurried expediency and convenience rather than careful choice.

Part IV – Iconic and Constitutional Institutions in the Capital

4.1. Institutions

While departments and directorates dealing with specific subjects can be rationally distributed in the different districts and capital areas identified, it may be considered that three institutions are of high symbolic and iconic value for a political capital. One is the Raj Bhawan, the second is the State Assembly and the third is the High Court. Each of these is discussed individually below, and a brief discussion on location of departments and directorates follows thereafter. **As a general point it can be noted that the AP Reorganisation Act, 2014 permits the AP Govt to utilise Hyderabad as a common capital and use certain facilities in Hyderabad as well, such as the Legislature. As a consequence, the AP Government may use this time to ensure that the choices of new institutional structures in the new state are strategically located to not only promote development but also to maximise the symbolic value of these structures.**

4.2. Raj Bhawan

It is seen that Raj Bhawan Complex may need 15 acres of space. Although the AP Act says that Central assistance will be given for the creation of the Raj Bhavan, the Committee is of the view that the completion of the construction of the Raj Bhavan needs to be done strategically, recognising the symbolic value of the same. The financing for the same should be provided accordingly. A common Raj Bhavan is available under the Act for ten years and appears to have helped the situation at the moment. The Chief Minister, A P Government and the Governor will need some more time to decide when it will be appropriate to set up a separate Raj Bhavan for Andhra Pradesh.

4.3. Legislature

The State Legislature will require about 80 to 100 acres of land. As part of the bifurcation arrangements Hyderabad is to function as a common capital for both states till alternatives arrangements are made. As of now, the functioning of the Legislature has not presented any serious problems under this arrangement apart from sentimental issues as well as some irritation in the day to day work which of course are important. As regards the Legislature separate provisions are already available in Hyderabad. Recently at a meeting of the Chief

Ministers of Telangana and Andhra Pradesh some day to day problems appear to have been sorted out. Here again, apart from the political and emotional reservation about continuing with the arrangement, there is no immediate compulsion for the legislature to move. So some time may be taken to decide on the location. Our Committee's mandate does not include consideration of the interim arrangements. However, we can only say that if temporary arrangements are made it should not become a "fait accompli" for the permanent location. We can cite the example of Uttarakhand where it was expected Gairsain would be the capital and Dehradun would only be a temporary capital. It is nearly 10 years since the State was created but Dehradun has continued to be the capital with all the attendant problems of inadequate accommodation, inadequate infrastructure and congestion.

4.4. High Court

4.4.1. The High Court complex including the related judicial offices will require about 100 to 140 acres of land. In regard to the High Court assuming one can continue with the composite HC in Hyderabad as a common facility at least for 4 to 5 years, as the AP Reorganisation Act, 2014 permits, the future location has to be considered. One option is to locate the High Court in Visakhapatnam. It should be mentioned that Vizag already has the Damodaram Sanjivayya National Law School in the same pattern as other National Law School Universities in India which will be an important legal resource. If the High Court is located in Vizag, a bench in Rayalaseema may be considered. It is however up to the President of India to decide on the location of the new High Court of Andhra. This will no doubt be done after appropriate consultations with the Chief Justice of India and the Chief Justice of the Andhra Pradesh and Telangana High Court, Government of Andhra Pradesh and the Union Ministry of Law and Justice. The decision regarding creation of an additional bench will also be taken by the Chief Justice of the Andhra Pradesh, depending on the necessity of such a bench from the perspective of the court. The AP Government, therefore, at this stage should accord due consideration to identifying potential locations and recommending the same to the Chief Justice of the Andhra Pradesh and Telangana High Court, and the President of India.

4.4.2. It should also be noted that the High Court is not the only judicial entity now existing in Hyderabad. There are as many as 10 other tribunals and commissions which should be

regarded as a part of the judicial governance system for the State. These are the Income Tax, Sales Tax, State Transport Appellate, Consumer Disputes, Cooperative and Administrative Tribunals., The Judicial Academy, the Human Rights Commission, the Lokayukta, Advance Income Tax Ruling and State Legal Services should also be regarded as part of this group of judicial entities. These are all judicial bodies. The legal fraternity practices in all these bodies and frequently appears in the High Court as well as these bodies. There is therefore logic in having these different judicial bodies located in the same place. The matter requires extensive consultation with the CJ of Andhra and CJI of India.

4.4.3. It is also not essential that the High Court should be located in the same place as the Assembly or the State Secretariat. In Kerala, Rajasthan, Uttarakhand, MP, and Chhattisgarh and UP, the High Court have a separate location as well as benches in other locations. The convenience of government officials having to appear frequently in the Court cannot be only reason for keeping the High Court and the State Secretariat together. In addition, there are 24,711 members of the Bar registered in Hyderabad alone, and a total of 74,967 lawyers registered in both Andhra Pradesh and Telangana. Under Section 34 AP Act, these lawyers will declare themselves to either belong to the new Andhra Pradesh Bar Council or the Telangana Bar Council. In either case, for the purposes of situating the judicial bodies in Andhra Pradesh, the AP Government will have to take into account the fact that not only the institutions but facilities to enable lawyers and litigants to access these institutions are present. As mentioned before the distances between Visakhapatnam and the state secretariat, assuming it is located somewhere in middle Andhra is not much and can be countered with effective public transport options.

4.4.4. In regard to the High Court, in the earlier note which the Committee sent to the A P Government, the Home Ministry as well as others, the views expressed by the Chief Justice of the existing High Court that the construction of the New High Court will take a few more years are reiterated. The Chief Justice has rightly emphasised that no piecemeal change of location should be attempted until a full structure and all the facilities needed for a new High Court are in place shifting should not be considered. This will require an adequate financial provision and at least 3 to 5 years' time. The Chief Justice has also expressed the view that at

least for the next few years disputes between Telangana and Andhra will be many more. A composite HC presided over by a neutral Chief Justice may be able to resolve these matters amicably. The current situation justifies this apprehension. Consequently, there are important reasons for a combined High Court to continue *in situ* in the medium term.

4.5. The Chief Minister, Ministers and Secretariat

4.5.1. The requirement of the Chief Minister's office, the Ministers of Andhra Pradesh and Secretariat will come to another 15 to 20 acres. This excludes the housing needed for secretarial staff which is critically important. In regard to the Chief Minister's office and the Secretariat, given the critical urgency of the matter, it may be considered whether they can be located in one of the sites if feasible at all such as Nuzvidu, Gannavaram or Musunuru. It is reported that an IT park building is lying unoccupied at Gannavaram. As a temporary measure it is to be considered whether the CMs office and the Secretariat could be located in the building. It is reported other state government offices will also want to locate in the building temporarily. The Committee suggests that only those departments which are crucial to carry on the urgent tasks of AP Government in the interim should be located here.

4.5.2. **The Committee is concerned that any *ad hoc* invitation to all other government departments to locate themselves within Guntur and Vijaywada will lead to unplanned and haphazard development and a *fait accompli* of a permanent capital as has happened in the case of Uttarakhand.** For the present the efforts should be limited to locating offices of the CM, the Ministers and Secretaries in as compact a manner as possible, in the area beyond the existing urban parts of Guntur, Vijaywada, Mangalgiri and Tenali. This will also enable the government to consider carefully the options for expansion around already urbanised areas of VGTM. Most important, the funding needs have to be considered. Any approach based on acquisition of private land will lead to a huge cost escalation. Land pooling may not be an entirely viable option, as the IIHS's analytical study points out, as discussed in **Annexure VI** (Note titled "The Experience of Land Acquisition and Land Pooling for Urban Development in India and Abroad (with a case based on Vijaywada-Guntur").

Part V: Infrastructure

5.1. The Committee's Terms of Reference specifically refer to development of backward areas and the relevance of new capital locations to this objective. As part of the A P Reorganisation Act, a list of infrastructure items has been mentioned in the 13th Schedule under section 93. A port at Duggirajapatnam, the Vizag-Chennai industrial corridor and expansion of Vizag, Vijayawada and Tirupathi airports are some of the items mentioned in the same schedule. Some institutions like a Central University, a Petroleum University, an Agricultural University and a National Institute of Disaster Management have also been mentioned as institutions for which the Government of India shall take steps to help establish the same in the 12th and 13th plan periods. One important item not covered in the schedule is the reference to 29 projects in the railway budget presented by the Railway Minister on 8th July 2014. The address specifically refers to 29 projects running in Andhra and Telangana at an estimated cost of Rs.20, 680 crores. The Railway Minister has mentioned in his address that coordination meetings with the State officials will be held to pursue these projects so as to give necessary economic boost. The Kalahasti-Nadikudi railway line as well as some of the east-west lines intersecting and connecting to the same is very critical for the development of this area. To cite one example one of the railway lines proposed is from Krishnapatnam to Bellary.

5.2. The relevance of the Kalahasti spine and its role in developing the Vizag-Chennai corridor has been mentioned already. It is reported that for the Kalahasti-Nadikudi railway line a provision is already available in the detailed budget estimates of the Railway Minister and an expenditure of Rs. 1.72 crores has been incurred until now. However, for the year 2014-15, there is only a token provision of Rs. 5 crores as against the total estimated cost of Rs.291 cores. The Committee is of the view that Kalahasti-Nadikudi is probably one of the most important projects which can be a major change agent for much of southern Andhra. It is up to the A P Government to pursue these different projects in close consultation with the Ministry of Railways as well as other departments concerned. Given the competing demands for funds, these critical important infrastructure and institutional projects though mentioned

in the A P Reorganisation Act will not fructify unless pursued by the A P Government in a determined manner.

5.3. These infrastructure projects if properly pursued will themselves throw of a number of new growth points. They will also be a boost to the existing District towns and nearby. The A P Government's desire to expand existing district towns depending on their potential will thus be realised. A balance will distribute urbanization in keeping with Andhra's existing urban geography can be a reality.

PART VI – Summary and Conclusion

Summary and Conclusions

In summary the Committee recommends the following actions to be taken by the A P Government:

6.1 Regarding a green field capital city, the Committee itself is not in favour of creating one for Andhra at this stage. However, if the A P Government wants to pursue this option, it has to carry out a careful search for locations where suitably large parcels of government land may be available.

6.1.2 In regard to expanding existing cities, the Committee supports general approach of the A P Government. However, before taking up the expansion of the existing cities, it is important that a proper assessment of infrastructure needs and possible environmental impact should be carried out. Ad hoc and hurried locations of government offices may prove to be inappropriate and wasteful.

6.1.3 In regard to distributed development, a proper inventory has to be made of various government offices presently located in Hyderabad including department, commissionerates, directorates etc. along with their staff component. There should also be an inventory in regard to the companies and corporations listed in the 9th Schedule of the A P Reorganisation Act which comprises 89 items. The A P Government has to decide which among these 89 entities are required to be set up in AP and where.

6.1.4 The locations proposed for the education facilities mentioned in the 13th Schedule of the A P Act should also be similarly firmed up.

6.1.5 Whether it is for expansion of existing cities or distributed development, it is obvious that the A P will require land in multiple locations across the state. The Committee has been informed that in all districts government land up to 25 hectares may be available within 5 to 10 kms of district headquarters. However, the assignment of these lands to landless people in recent years may pose a problem. The Committee urges the A P Government to undertake an urgent review of the situation to see whether in some of these locations it is possible to

resume such lands by paying compensation to the landless people which may be less expensive than fresh land acquisition.

6.1.6 In regard to some institutions of iconic and constitutional importance such as the Raj Bhawan, the Legislature and the High Court, the A P Government should use the window of time available to it under the A P Reorganisation Act whereby Hyderabad will be available as a common capital for ten years. The Committee is not suggesting that A P Government should wait for this time but consultation with the various constitutional entities and agreement about the location and extent of land as necessary should be secured. While the Committee has made some suggestions in this regard, it is urged that the suggestions made by the Town Planning department should be pursued more locations in the State identified so that a suitable choice can be made.

6.1.7 In regard to the Chief Minister's office, offices of the Ministers and the Secretariat, the Committee has already suggested that because of the urgency of the same, the AP Government can look into the possibilities of suitable locations for a limited number of offices in the peripheries and beyond the VGTM.

6.2. The various infrastructure schemes already identified in the A P Act and other schemes of importance as mentioned in this report should be pursued.

6.3. Governance Architecture

6.3.1. Presently Andhra has 13 city corporations 72 municipalities and 111 nagar panchayats. In recent years the A P Government has implemented a number of municipal development schemes with external assistance as well as other sources. The City Corporations and Municipalities have had some role in the implementation of these activities. However, there are 4 development authorities as well which have been taking prominent role in planning and executing these schemes. Additionally, Andhra also has a number of industrial area and infrastructure promotion bodies which also undertake schemes of this nature. There have been some conflicts in the past about the development and taxation domain of urban local bodies on the one hand and these industrial parastatal organisations on the other. Along with the elections to the State Assembly elections to municipal bodies also have been held in the State around the same time. It can be expected that in the proposed distribution of capital functions and development of the relevant towns,

the urban local bodies would like to have an appropriate role. There are also new initiatives such as the Smart Cities and Rural-Urban Schemes. The Committee believes that an opportunity is available for the Andhra Government to put in place an appropriate governance architecture for these purposes with due regard to the provisions of the 74th Constitutional Amendment.

6.4 Land acquisition and building costs

6.4.1. The Committee has made an assessment of some institutions like Raj Bhawan, the Legislature, the High Court etc. on the basis of some comparators used in other states as well as units costs. A note containing the cost parameters has been prepared which is being sent separately.

6.4.2. Whatever the costs, it is important to emphasise that such assistance as will be available to A P Government will have to be fitted into the pattern of assistance as available to different states and in keeping with the five year allocation cycles of the Government of India. A note explaining the present financial position in A P and what can be reasonably proposed is being sent separately.

Shri KC Sivaramakrishnan, IAS (Retd), Former Secretary, Urban Development and Chairman of the Centre for Policy Research, New Delhi (**Chairman**)

Dr. Rathin Roy, Director, National Institute of Public Finance and Policy (**Member**)

Shri Aromar Revi, Director, Indian Institute of Human Settlements (**Member**)

Shri Jagan Shah, Director, National Institute of Urban Affairs (**Member**)

Prof. KT Ravindran, Former Dean, School of Planning and Architecture, New Delhi (**Member**)

Signed for and on behalf of the Committee by Shri K C Sivaramakrishnan

August 27, 2014

Annexure - I

Anil Goswami



गृह सचिव
HOME SECRETARY
भारत सरकार
GOVERNMENT OF INDIA

North Block
New Delhi.

Deendayal
2/17

D.O. No. 12012/03/2014-SR

28 March 2014

Dear Shri Sivaramakrishnan ji,

The Andhra Pradesh Reorganisation Act, 2014 envisages that a Committee should be constituted under section 6 of the Act to study various alternatives regarding the new capital for the successor state of Andhra Pradesh and make appropriate recommendations. The Committee would need to complete its study, as per the Terms of Reference enclosed, and give its recommendations to the Government of India expeditiously and not later than August 31st, 2014. The constitution of the Committee would be as follows:

1. Shri K Sivaramakrishnan, IAS (Retd.), Former Secretary Urban Development, GoI - Chairman.
 2. Dr. Rathin Roy, Director, National Institute of Public Finance & Policy, New Delhi.
 3. Shri Aromar Revi, Director, Indian Institute for Human Settlements, Bengaluru.
 4. Shri. Jagan Shah, Director, National Institute of Urban Affairs.
 5. Prof. K T Ravindran, Former Dean, School of Planning and Architecture, New Delhi.
2. The terms of reference of the Committee are at Annexure-A.
3. I am thankful that you have consented to serve on this Committee. The terms and conditions of engagement will be intimated separately.

With regards,

Yours sincerely,

Encl: As above



(Anil Goswami)

Shri K. Sivaramakrishnan, IAS(Retd.)
Chairman,
Centre for Policy Research,
New Delhi

**Terms of Reference for the Committee to Study the
Alternatives for a New Capital for State of Andhra
Pradesh after Bifurcation**

1. To study various alternatives for locating the new capital of the successor State of Andhra Pradesh and evaluate their comparative suitability based on available data, site visits and consultations with the stakeholders, central government and the existing government of Andhra Pradesh and the successor State of Andhra Pradesh and submit its report within 31st August, 2014.
2. To evaluate the possible alternatives and make appropriate recommendations based on the following considerations:
 - a) Availability of sufficient land, water and other essential natural resources with due regard to the possibility of de-reservation of degraded forest land.
 - b) Conduct an assessment of the potential for planned growth for the estimated population with appropriate zoning regulations as well as the feasibility of accommodating large structures to house the Raj-Bhawan, State Legislature (Assembly and Council), Secretariat, High Court, office buildings, guest houses, residential quarters and physical infrastructure including stadia, conference halls, convention centres, hotels, hospitals, schools, colleges, educational and training institutions, libraries, museums, theatres, places of recreation and tourism, parks and markets etc.
 - c) Potential for connectivity by rail, road and air with various districts of the successor State of Andhra Pradesh and the present common capital of Hyderabad and other major cities of the region as well as the possibility to develop rapid mass transit systems within the city.
 - d) Assess the potential for developing a vibrant economic, social and cultural infrastructure for a symbiotic growth with the other important cities in the region

The Committee while making its recommendations will inter-alia consider allied issues such as:

- a) The least possible dislocation to existing agriculture systems as well as ensure minimum resettlement of people and their habitations.
- b) Preservation of local ecology and natural features including water bodies.
- c) Promoting environmentally sustainable growth coupled with measures for pollution mitigation including solid and liquid waste management.
- d) Vulnerability assessment from natural disasters like floods, cyclones and earthquakes.
- e) Assess the scope for minimizing the cost of construction and acquisition of land
- f) Ascertain the availability of raw materials, skilled and unskilled labour etc required for the construction of a new capital.

ANNEXURE II

Meetings Held by the Expert Committee

- I. The Committee had the following meetings with government officials and political representatives:

| Meeting With | Date and Location |
|--|--|
| UNION GOVERNMENT | |
| Minister for Commerce and Industry, Ms Nirmala Seethamaran | 02 July 2014 at Shastri Bhavan, New Delhi |
| Minister for Urban Development, Mr Venkaiah Naidu | 17 June 2014 at Shastri Bhavan, New Delhi |
| Minister for Railways, Mr DV Sadanand Gowda | 18 June 2014 at Rail Bhavan, New Delhi |
| Minister for Oil and Natural Gas, Mr Dharmendra Pradhan | 23 June 2014 at Shastri Bhavan, New Delhi |
| GOVERNMENT OF ANDHRA PRADESH | |
| The Governor of Andhra Pradesh, Mr ESL Narasimhan | 14 June 2014 in Hyderabad |
| Hon. Chief Justice, Andhra Pradesh and Telangana High Court, Mr Justice KJ Sengupta. | 14 June 2014 in Hyderabad |
| Chief Minister, Mr Chandrababu Naidu, Andhra Pradesh | 14 June 2014 in Hyderabad 26 July 2014 in Hyderabad |
| Chief Secretary, Secretary for Revenue, Secretary for Industries, Principal Secretary to the Chief Minister, Secretary, Municipal Administration and Urban Development | 26 July 2014 in Hyderabad |
| Resident Commissioner, Andhra Pradesh | 20 August 2014, at Centre for Policy Research, New Delhi |
| Special Representative to the Centre, Andhra Pradesh, Mr. Kambhampati Rammohan Rao | 20 August 2014, at Centre for Policy Research, New Delhi |
| Minister for Urban Development, Mr. Narayana | 20 August 2014 at Centre for Policy Research, New Delhi 31 July 2014 at Centre for Policy Research, New Delhi |
| Director, Town and Country Planning, Mr. Thimma Reddy | Frequent meetings in Hyderabad and Delhi during the Committee's tenure |

| | |
|------------------------------------|---|
| Vijayawada MP Mr Kesineni Srinivas | 25 June 2014 at Centre for Policy Research, New Delhi |
|------------------------------------|---|

II. The Committee also held the following internal meetings, in addition to numerous phone calls and exchanges by emails.

| Date | Location |
|----------------|--|
| 09 April 2014 | MHA |
| 24 April 2014 | MHA – NDCC Bulding |
| 02 May 2014 | MHA – Andhra Bhawan |
| 08 May 2014 | MHA – Vigyan Bhawan Annexe |
| 16 May 2014 | MHA - NIUA |
| 23 May 2014 | National Institute of Urban Affairs, New Delhi |
| 06 June 2014 | Centre for Policy Research, New Delhi |
| 10 June 2014 | Centre for Policy Research, New Delhi |
| 14 June 2014 | Centre for Policy Research, New Delhi |
| 21 June 2014 | Centre for Policy Research, New Delhi |
| 11 July 2014 | Centre for Policy Research, New Delhi |
| 22 July 2014 | Centre for Policy Research, New Delhi |
| 31 July 2014 | Centre for Policy Research, New Delhi |
| 23 August 2014 | Centre for Policy Research, New Delhi |

III. Visits undertaken by the Committee

| Dates | Areas Visited |
|---|---|
| 9 th to 12 th May 2014 | Krishna, Guntur, East & West Godavari, Vishakhapatnam [Public consultations held] |
| 13 th June to 14 th June 2014 | Hyderabad |
| 14 th June 2014 | Hyderabad |
| 6th July to 9 th July 2014 | Tirupati, Chittoor, Anantapur, Kurnool districts [Public consultations held] |
| 25 th July 2014 | Hyderabad |
| 25 th to 26 th July 2014 | Hyderabad |
| 9 th to 11 th August 2014 | Prakasam district and Nellore district [Public consultations held] |

Annex – III

Suggestions from public regarding location of capital for the successor State of Andhra Pradesh

Mails from 22.04.2014 to 07.05.2014

| LOCATION | | | | | | | | | | | |
|---------------------|-------------------------|-------------|---------|-----------------|---------|--------|-------------|----------|-------------------------------|----------|--|
| | Vijayawada-Guntur Area* | Vijayawada@ | Guntur# | Visakhapatnam\$ | Kurnool | Ongole | Rajahmundry | Tirupati | Donakonda (Prakasam District) | Others** | |
| No. of Votes | 1096 | 632 | 363 | 475 | 334 | 255 | 135 | 107 | 97 | 864 | |

Mails from 08.05.2014 to 20.08.2014

| LOCATION | | | | | | | | | | | |
|---------------------|-------------------------|-------------|---------|-----------------|---------|--------|-------------|----------|-------------------------------|----------|--|
| | Vijayawada-Guntur Area* | Vijayawada@ | Guntur# | Visakhapatnam\$ | Kurnool | Ongole | Rajahmundry | Tirupati | Donakonda (Prakasam District) | Others** | |
| No. of Votes | 45 | 25 | 4 | 24 | 18 | 9 | 3 | 3 | 16 | 159 | |

Responses received through letters (hard copies)

| LOCATION | | | | | | | | | | | |
|---------------------|-------------------------|-------------|---------|-----------------|---------|--------|-------------|----------|-------------------------------|----------|--|
| | Vijayawada-Guntur Area* | Vijayawada@ | Guntur# | Visakhapatnam\$ | Kurnool | Ongole | Rajahmundry | Tirupati | Donakonda (Prakasam District) | Others** | |
| No. of Votes | 15 | 6 | 5 | 8 | 8 | 1 | 1 | 3 | 3 | 14 | |

TOTAL VOTES - 4728

| LOCATION | | | | | | | | | | | |
|--------------------|-------------------------|-------------|------------|-----------------|------------|------------|-------------|------------|-------------------------------|-------------|--|
| | Vijayawada-Guntur Area* | Vijayawada@ | Guntur# | Visakhapatnam\$ | Kurnool | Ongole | Rajahmundry | Tirupati | Donakonda (Prakasam District) | Others** | |
| Total Votes | 1156 | 663 | 372 | 507 | 360 | 265 | 139 | 113 | 116 | 1037 | |

Note

- **Total Responses: 5380** - Till 7th May, 2014, 4999 mails containing feedback were received. After the prescribed last date, 317 mails have been received till 20th August, 2014. Till 20th August, 2014, 64 letters (in hard copies) have also been received. **All the 5380 responses have been seen.** The position regarding the choice/suggestion of the public in respect of the location for the new capital is indicated in the above table.
- **A large number of mails have been sent by the same individuals and as far as possible only 1 response has been counted.**
- A number of mails contain suggestions as to how to select the location for the new capital. **All the suggestions are variants of the parameters indicated in the TOR of this Committee.** In these mails, the responses do not indicate any preferential location and hence, these mails are not included in the vote count.
- Further, around 30 mails/letters are in Telugu language and hence, the options therein could not be counted.
- For a number of locations in "Others" category, there are multiple choices for the same areas/Districts. **Locations highlighted in bold letters, for all categories, indicate multiple votes for those locations.**
- Therefore, the number of votes (**4728**), as indicated in the table, is less than the total number of **5380** responses.

Continued

* **Vijayawada-Guntur Area**

- (i) **Vijayawada – Guntur – Tenali Triangle**
- (ii) **Vijayawada – Guntur – Tenali –Mangalagiri (VGTM) area (Near Mangalagiri town/Nagarjuna University)**
- (iii) Guntur – Tenali –Mangalagiri –Vijayawada –Nuzvid – Eluru– Hanuman Junction Ring
- (iv) Vijayawada – Guntur –Amaravathi
- (v) Greater Vijayawada – Guntur –Vijayawada-Eluru
- (vii) Around Acharya Nagarjuna University (between Guntur and Vijayawada)
- (viii) Hanuman Junction (between Guntur and Vijayawada)
- (ix) Near Venigandola and Nambur villages
- (x) **Twin cities of Vijayawada and Guntur**
- (xi) Vijayawada – Eluru – Gudiwada Triangle

@ **Vijayawada**

- (i) Vijayawada City
- (ii) **Vijayawada-Gannvaram-Eluru-Nuzvid strip**
- (iii) **Area between Vijayawada and Eluru**
- (iv) Area between Vijayawada and Nuzvid
- (v) **Area between Vijayawada and Mangalagiri**
- (vi) Vijayawada-Hanuman junction-Nuzvid stretch
- (vii) Vijayawada-Hanuman junction-Eluru-Nuzvid stretch
- (viii) **Between Eluru and Hanuman Junction**

Guntur:

- (i) Guntur City
- (ii) **Mangalagiri**
- (iii) **Macherla**
- (iv) **Amaravathi**
- (v) **Mangalagiri to Amaravathi**
- (vi) Tenali
- (vii) Nizamapatnam
- (viii) Between Nagarjuna Sagar and Macherla
- (ix) Vinukonda
- (x) Around Acharya Nagarjuna University
- (xi) Narsaropeta
- (xii) Guntur-Narsaropeta-Chilakaluripet area
- (xiii) Pulichintala

\$ **Visakhapatnam:** The preference is also for Visakhapatnam and its adjoining areas, viz., Anakapalli and Vizianagram.

: 3:

****Others:** This includes a number of preferences for locations indicated below:

| S. No. | Location | S. No. | Location |
|--------|---|--------|--|
| 1. | Multi-City or Cities with decentralised functions -- Vijayawada/Guntur/Cuddapah/Eluru/Visakhapatnam/Kurnool/Ongole/Tirupati /Rajahmundry etc. with separate administration, judiciary, business, IT sector etc. | 18. | 2 capitals (to take care of possible future bifurcation of Rayalseema and Seemandhra) – Vijayawada-Guntur and Kurnool |
| 2. | Prakasam District - Markapuram/ Tallur Mandal/between Ongole & Ulavapadu/ Between Cumbum & Markapuram/ Kandukur/ Ongole/ Donakonda/Kanigiri/ Addanki –between Ongole and Piduguralla | 19. | 2 Capitals – one in Rayalseema (between Ongole & Anantapur) and the other in Andhra (between Vijayawada & Machilipatnam) |
| 3. | Krishna District – Mulapedu/ Between Ganavaram, Nuzvid and Hanuman Junction/ Machilipatnam/ Gannavaram/ Nuzvid/Ibrahimpatnam/Kanchikacharla | 20. | 2 Capitals – Visakhapatnam and Ongole |
| 4. | West Godavari District – Eluru/Between Tadepalligudem and Nallajerla Districts/between Kovvuru & Jangareddy region and between Rajahmundry & Rampachodavaram/Narsapur/ Bhimabharanam/ Nidadavole | 21. | 2 Capitals – Guntur or Vijayawada (Summer) and Kurnool (Winter) |
| 5. | From Rayalseema region | 22. | 2 Capitals – Ongole (Summer) and Kurnool (Winter) |
| 6. | Any underdeveloped area like Anantapur, Srikakulam and Vizianagram | 23. | 2 capitals - Visakhapatnam and Kurnool |
| 7. | YSR District (Kadapa) (Votes-28) | 24. | 2 Capitals -Visakhapatnam and Tirupati |
| 8. | Between Nellore and Tirupati (Between Yerpedu-Venkatagiri-Srikalahasti) | 25. | 2 Capitals – Tirupati/Kurnool and Kadapa |
| 9. | New City other than existing cities | 26. | 2 Capitals -Polavaram dam Project and Somasila Project |
| 10. | Between Eluru to Mangalagiri | 27. | Kakinada |
| 11. | Between Eluru and Hanuman Junction | 28. | Nellore |
| 12. | Between Guntur and Rajahmundry | 29. | Between Eluru (West Godavari) to Chilakkaluripet (Guntur) |
| 13. | Between Vijayawada and Rajahmundry | 30. | Srikakulam |
| 14. | Between Hanuman Junction and Rajahmundry | 31. | Between Krishna and Guntur Districts |
| 15. | Centre of Seemandhra | 32. | Between Krishna and West Godavari Districts |
| 16. | Twin city - Kakinada-Rajahmundry and Visakhapatnam | 33. | Between Guntur, Macherla and Ongole |
| 17. | Twin city - Rajahmundry and Kakinada | 34. | Between Ongole (Prakasam) and Kavalli (Nellore) |

Others (Continued)

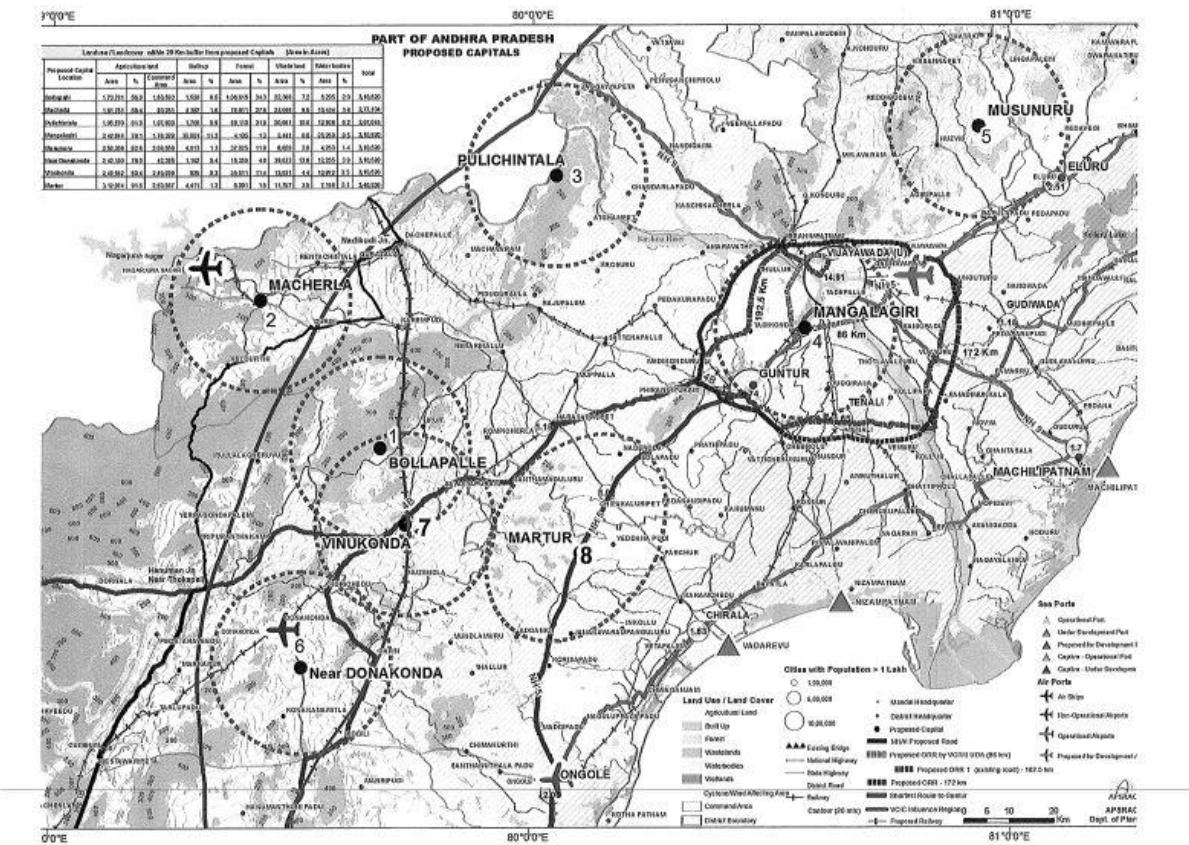
| S. No. | Location | S. No. | Location |
|--------|---|--------|--|
| 35. | Anantapur | 68. | Foot of Sri Sailam hills |
| 36. | Between Vinukonda –Donakonda-Markapuram | 69. | Bhuvanavijayam |
| 37. | Donakonda-Vinukonda-Narasaropeta corridor | 70. | Venkatagiri (Nellore District) |
| 38. | Centre of Vijayawada, Guntur and Ongole | 71. | Nandyal |
| 39. | Between Hanuman Junction and Ongole | 72. | Chintalapudi |
| 40. | Guntur-Ongole corridor | 73. | Between Visakhapatnam and Vizianagram |
| 41. | Guntur to Narosaropet | 74. | Kothapalli, Bapulapadu, Krishna |
| 42. | Nandigram and Vijayawada | 75. | Vijayapuri South (Nagarjuna Sagar) |
| 43. | Kalavapudi Satram Gudiwada (Krishna District) to Mudenipalli route | 76. | Between Tirupati and Srikalahasti |
| 44. | Kadapa-Chittoor belt | 77. | Between Kakinada and Samalakota |
| 45. | Between Ongole and Kurnool | 78. | Rajanagaram (East Godavari District) |
| 46. | Nandyal-Allagadda-Kadapa | 79. | Between Renigunta and Nellore |
| 47. | Between Kakinada and Rajahmundry | 80. | Near Bhimavaram (West Godavari District) |
| 48. | Ongole-Guntur-Vijayawada | 81. | Kalahasti-Tirupati-Chandragiri area |
| 49. | Between Vijayawada and Nellore | 82. | Around Nagarjuna Sagar |
| 50. | Between Ongole and Tirupati | 83. | Srikalahasti-Renigunta region |
| 51. | Madhurwada, Bhogapuram, Kothavalasa and Pendurthi | 84. | Between Vinukonda (Guntur) and Markapuram (Prakasam) |
| 52. | Chirala VANPIC (Guntur and Prakasam Districts) | 85. | Between Veludurthy (Guntur) and Yerragondapalem (Prakasam) |
| 53. | Between Kakinada and Rajahmundry (Rajanagaram surroundings) | 86. | Narketpalli to Hyderabad |
| 54. | Centre of Prakasam and Kurnool Districts | 87. | Between Rajahmundry and Tuni region |
| 55. | Chittoor | 88. | Borders of Rayalseema and coastal Andhra |
| 56. | Between/near Nellore and Ongole | 89. | Rapur-Renigunta-Krishnapatnam-Sri City SEZ |
| 57. | Between Guntur and Prakasam Districts | 90. | Yarragonapalem-Markapuram-Cumbum-Giddalur |
| 58. | <u>Not</u> in Guntur and Krishna Districts | 91. | Combination of Prakasam and Guntur Districts |
| 59. | Dronachalam (Kurnool District) | 92. | Between Eluru and Visakhapatnam |
| 60. | Tirupati-Renigunta and surrounding areas | 93. | Between hanuman Junction and Gannavaram |
| 61. | Combination of 4 districts of Guntur, Kurnool, Kadapa and Prakasam | 94. | <u>Not</u> in Vijayawada |
| 62. | Middle of Palakonda (Srikakulam District) and Tada (Nellore District) | 95. | Greater Ongole (Tangaturu, Ongole and Chirala) |
| 63. | Between Vijayawada and Ongole | 96. | Between Samalakota and Rajahmundry |
| 64. | Between Srikakulam, Bheemili and Visakhapatnam | 97. | Between Nagarjuna Sagar South and Macherla |
| 65. | Circumferential area of Mangalagiri, Guntur and Prakasam Districts | 98. | Close to Giddalur and Cumbum of Prakasam District |
| 66. | Between Visakhapatnam and Bheemili | 99. | West of Ongole and adjacent to Kadapa and Kurnool |
| 67. | Between Ongole to Chirala (Prakasam)and Bapatla (Guntur) | 100. | Between Kurnool and Visakhapatnam |

Others (Continued)

| S. No. | Location | S. No. | Location |
|--------|---|--------|---|
| 101. | Between Kakinada to Visakhapatnam | 114. | North Coastal Andhra Districts (Votes-88 |
| 102. | Ongole and Donakonda | 115. | 3 Capitals – Vijayawada-Guntur/Kurnool or Tirupathi/Visakhapatnam |
| 103. | Ongole-Medarametla-Addanki | 116. | 2 Capitals – Proddatur (or Kamala Nagar) in Rayalaseema Or Visakhapatnam-Kakinada/Rajahmundry central point say, Yellamanchli - Pithapuram area |
| 104. | Between Nellore and Kurnool | 117. | Change the Capital City after every 3 years. |
| 105. | From Chittoor to Khammam and Kurnool to Visakhapatnam | 118. | Nallamalla forest zone or Kadapa. |
| 106. | Between Bapatla and Kavalli | | |
| 107. | Between Yerpedu (Chittoor District) and Venkatagiri (Nellore District) | | |
| 108. | Hyderabad to continue as capital; should be given UT status | | |
| 109. | Gudiva (Krishna district) to Markapuram (Prakasam district) | | |
| 110. | Not in agricultural Districts like Krishna, Ongole, East/west Godavari and Guntur | | |
| 111. | Between Rajahmundry and Korukonda | | |
| 112. | Between Medarametla, Cheemakurti and Cumbum or Giddalur | | |
| 113. | New Tirupati (Partly Chittoor District and partly Nellore District) | | |

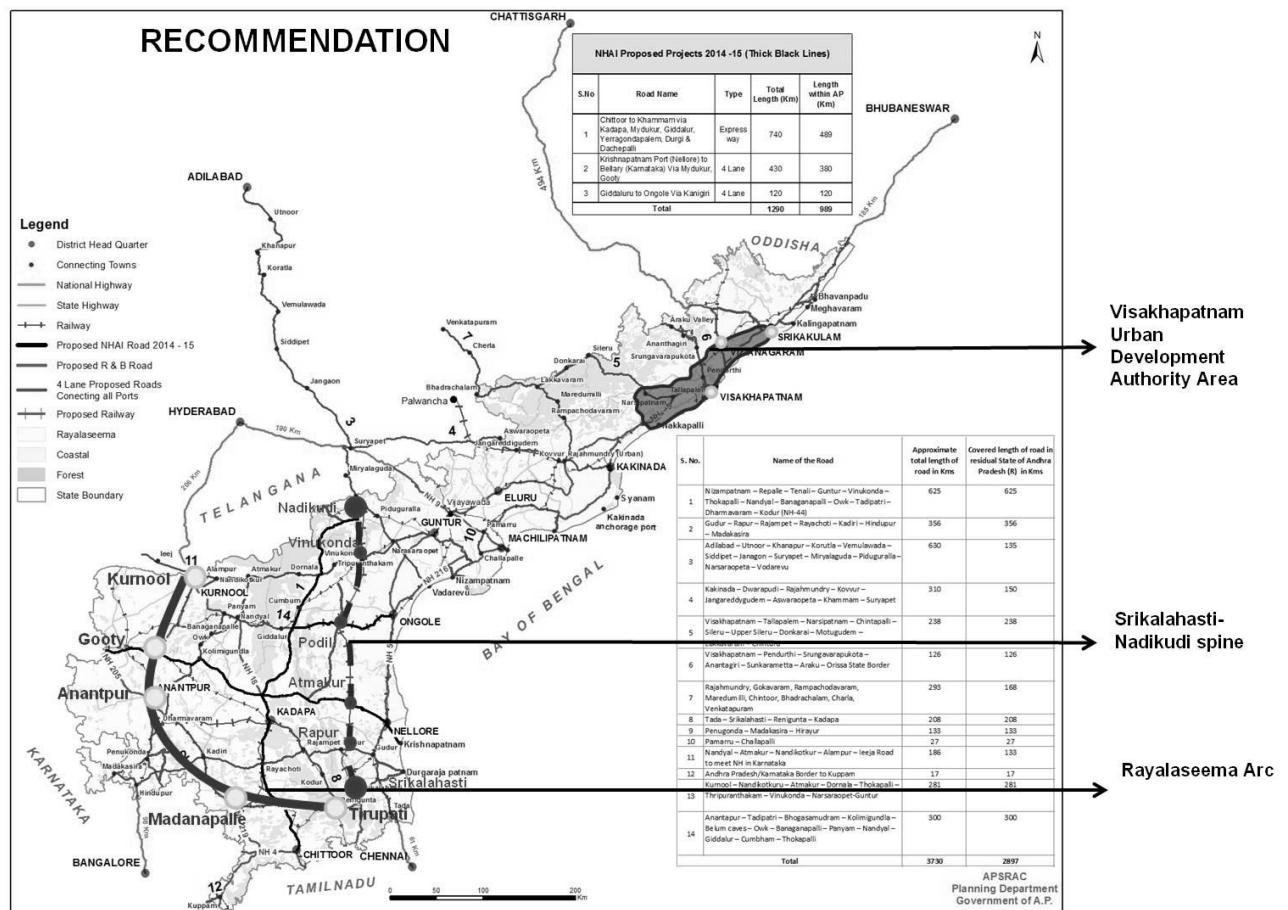
ANNEXURE – IV

Possible Capital Zones as identified by the APSRAC (Dept. Of Planning)



Annexure – V

Map showing Vishakhapatnam Zone, Rayalaseema Arc and Kalahasti-Nadikudi Spine



Technical Annex VI

The Experience of Land Acquisition and Land Pooling for Urban Development in India and Abroad

(with a case based on Vijayawada-Guntur)

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EXECUTIVE SUMMARY

GoAP is assessing suitability of land assembly options to consolidate 1,458 acres of land (to be potentially scaled up to 5,000- 10,000 acres) for a new state capital in the Vijayawada- Guntur-Tenali- Mangalagiri (VGTM) region. Land assembly options being considered include (1) Outright Acquisition; (2) PPP based Land Acquisition, and (3) Land Pooling. The DTCP, GoAP recommends a PPP based land acquisition approach based on a comparative cost- benefit analyses of the three approaches.

However, over and above the costs considered in the DTCP note, suitability of different land assembly options needs to take into account:

- 1) Time required for different assembly options
- 2) Effective cost per acre for Net Developed land accruing to the GoAP, which would be different across land assembly options
- 3) Financial effects of the time factor of money, rate of inflation, any interest that may need to be paid on borrowed capital etc.
- 4) Cost effects of speculative rise in the base market price of land across different land assembly options
- 5) Suitability of different land assembly options taking into account the scale of land aggregation required to develop a new city

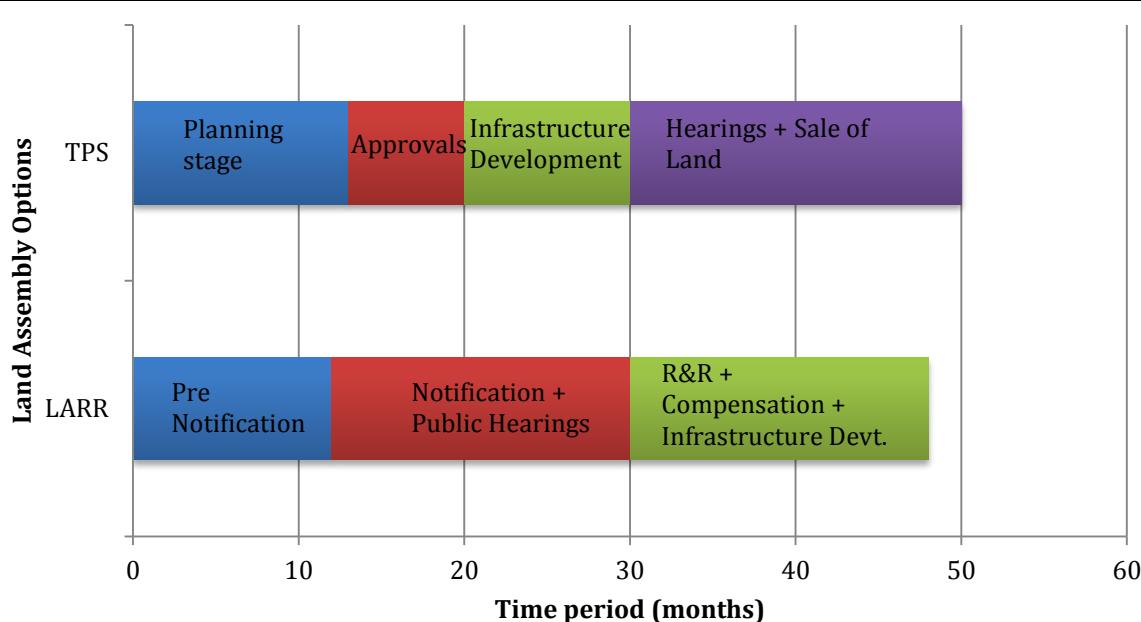
Results of the analyses incorporating the above and based on the costs used by DTCP, are summarized below.

Time Analysis

The basic Land Acquisition process (using LARR) would take between 3 to 4 years (35 months to 50 months) to implement, without any administrative delays. The first year (8-12 months) would be spent on the pre- notification stage. This time before notification, before any statutory development freeze is applied on the identified area, would be crucial in terms of real estate price hikes and would contribute to issues such as hold-outs.

In practice, with administrative delays, the Land Acquisition process could extend between 5 to 6 years, especially if litigation is involved. The overall time frame, as well any additional cases of holdouts would impact both the realistic chances of consolidating land, as well as the effective cost to the GoAP with real estate price rise and the factor of inflation.

The basic process for Town Planning Schemes would take about 4 years (49 months) without administrative delays. The first year (13 months) would be for preparation of a draft plan to be presented to the landowners for negotiations and approval. This time would be crucial in terms of potential real estate price hikes. However, unlike the Land Acquisition approach, rise in real estate prices may not directly affect the GoAP's project costs. However, real estate price hikes may lead to hold-outs, project delays and litigation.

Figure E1: Time Required for Different Land Assembly Options

Source: IIHS Analysis, 2014, based on ICRA and IDFC data.

Financial Analysis

The effective cost/ acre for net developed area accruing to the GoAP would differ across land assembly options, where there is land sharing and the GoAP has to return a proportion of the land back to the farmers. Land sharing options would give the GoAP access to non-contiguous rather than consolidated land, which may not be suitable for city level facilities.

Table E1: Effective cost/ acre across different land assembly options

| | Land Assembly Approach | Key Assumptions | Options | Effective cost/ acre for Net Developed Area accruing to GoAP |
|----|---|---|--|--|
| 1a | Outright Land Acquisition using LARR | 40% of gross area for Parks and Open Spaces. EDC @ 25 lakhs per acre | | 339.91 lakhs/ acre |
| 2a | PPP model for Land Acquisition using LARR. | 40% of gross area for Parks and Open Spaces. | Option 1: Farmers pay EDC for share of gross area | 339.91 lakhs/ acre |
| 2b | 60: 40 share with 40% share for GoAP | EDC @ 25 lakhs per acre | Option 2: Government absorbs EDC | 849.78 lakhs/ acre |

Table E1: Effective cost/ acre across different land assembly options

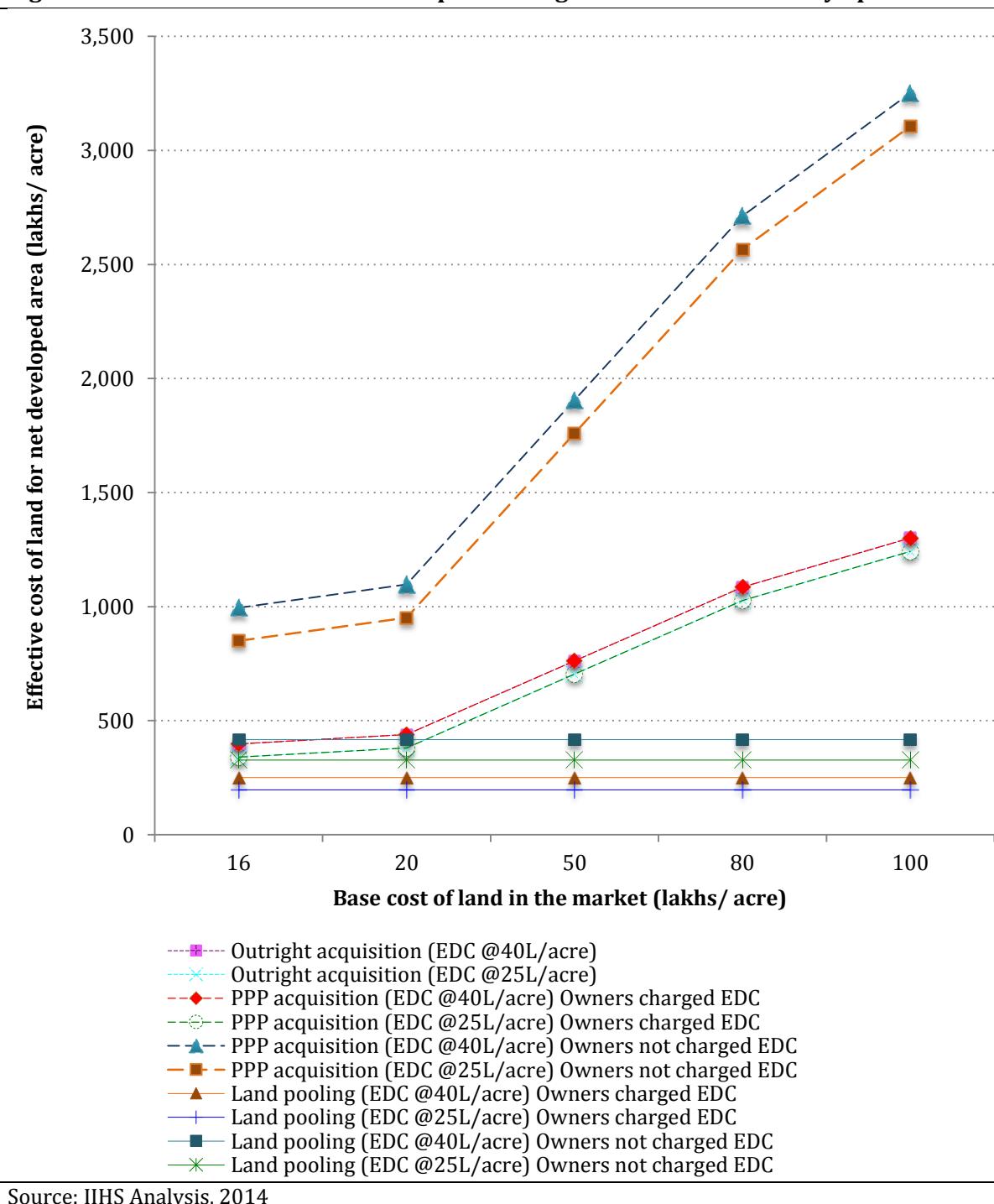
| | Land Assembly Approach | Key Assumptions | Options | Effective cost/ acre for Net Developed Area accruing to GoAP |
|----|---|--|--|---|
| 3a | Land Pooling 40: 60 share with 60% share for GoAP | 40% of gross area for Parks and Open Spaces. EDC @ 25 lakhs per acre | Option 1: Farmers pay EDC for share of gross area | 196.63 lakhs/ acre |
| 3b | | | Option 2: Government absorbs EDC | 327.71 lakhs/ acre |

Source: IIHS Analysis, 2014.

The range of effective costs of land accruing to government range from ` 1.96 crores to ` 8.49 crores per acre (net developed area) indicating the need for a careful analysis before the choice of a greenfield site or areas where land prices are expected to be very high.

A time- based financial analysis has been undertaken to compare how the net cost of developed land for the GoAP would change as the base price of land changes. The analysis incorporates rate of inflation (significant in case of project delays), interest rate (particularly for compensation payments), cost of capital for the GoAP, and detailed costing for land acquisition based on cost schedules in the LARR legislation, taking into account prevailing ground conditions, including a review of the CDP prepared for Vijayawada.

Figure E2: Effects of base market land price changes across land assembly options



Source: IIHS Analysis, 2014

Both outright land acquisition and PPP based land acquisition methods of land assembly are affected by changes in base market price of land. Existing real estate listings in the areas are already exhibiting a sharp spike in prices, which exceed land cost assumptions considered in the DTCP note. Land acquisition will quickly become financially unfeasible along with associated difficulties in gathering consent and completing the acquisition process.

The Land Pooling assembly options do not directly transfer a hike in land prices to the cost that the government needs to incur, although it may raise some issues with regard to negotiations with owners regarding development that would be permissible on developed land returned to them and the share of land returned to them. However, these offer higher potential for negotiated compromises than the land acquisition consent process.

Conclusions and Policy Questions

Land Acquisition (including a land sharing PPP model of acquisition)

- 1) Time is the chief constraint. Land acquisition, using Land Acquisition, Resettlement and Rehabilitation would require a minimum 3 to 4 years to implement, without project delays.
- 2) As the financial analysis highlights increase in the base market price of land would quickly make the project unfeasible from the cost perspective. ***Land acquisition may quickly become a very expensive option given that the base cost of land in the Vijayawada-Guntur area is already experiencing a hike.***
- 3) Land consolidation at this scale has not been attempted successfully via LARR in the country yet. Delays and disputes that come up will have to be settled to satisfy the courts, which may mean project delays.
- 4) Along with considering the financial aspects, it would be necessary to consider the political feasibility of different levels of land sharing with the farmers/ owners. The present estimate of giving landowners 36% of net developed area back may be lower than the expectations of landowners (based on a 60: 40, landowner: GoAP share- which has been assumed in the DTCP note).

Land Pooling

- 1) Land Pooling would require 4 years to implement, without project delays. However, unlike the Land Acquisition approach, land price increase will not directly increase costs for the GoAP
- 2) Land consolidation at this scale has not been attempted via land pooling yet.
- 3) Land pooling may provide GoAP with non-contiguous land, which may not be suitable for developing city level facilities.
- 4) It would be necessary to consider the feasibility of different levels of land sharing with the farmers/ owners. The present estimate of giving landowners 24% of net developed area back may be lower than the expectations of landowners (based on a 40: 60, landowner: GoAP share- which has been assumed in the DTCP note). However, land pooling potentially offers a more politically feasible alternative and may be preferable for developing the facilities where aggregate land is of lower priority.

COMPARATIVE FINANCIAL ANALYSIS OF DIFFERENT LAND ASSEMBLY OPTIONS

The DTCP, GoAP has prepared a note '*Salient Features for Proposed Land Development Scheme*'. The note gives a background to Land Pooling schemes as a land assembly option to 'propagate planned expansion of urban areas', and highlights:

- (a) Land Pooling is becoming popular and UDPFI guidelines include land pooling as a land assembly approach.
- (b) The HMDA Act and amendment to the UDA Act , make statutory provisions, which allow Land Pooling Schemes
- (c) Land Pooling approach provides various benefits, including:
 - Owners are not fully dispossessed and they gain in terms of better infrastructure and increase in land value
 - Government gets access to land without compulsory acquisition and with very low financial expenditure

This section includes a cost -benefit analysis of three land assembly options, based on the case of three villages in the Vijayawada - Guntur region:

- (a) Land Pooling with a land share 60: 40, with the GoAP share being 60%,
- (b) Outright Land Acquisition, and
- (c) Land Acquisition using a PPP model with owners on a 40: 60 land share basis, with the GoAP share being 40%

Of the three approaches, the DTCP note identifies that ***(c) Land Acquisition using a PPP model with land owners on a 40: 60 share basis, is the most cost- effective option***. The note calculates that using a PPP land acquisition approach, rather than outright acquisition, would save the government ***INR 45.23 crores*** across the three villages.

Using the DTCP note as the base, a brief financial analysis of the Land Pooling vs. Land Acquisition options has been undertaken, to calculate the effective cost to GoAP, taking into account time value of money, inflation rates and any interest that may need to be paid on borrowed capital etc. The financial analysis provides different scenarios to highlight the sensitivity of project cost to different variables, particularly changes in the time-line of land consolidation and development.

I. Scale and relevance of land requirement highlighted in DTCP note

Total area= 1,458 acres

Government share= 500 acres

To place this in context,

Chandigarh= 10,000 acres. (approx.)

Each Chandigarh sector (800m by 1200 m) = 237 acres

So, proposed acquisition area= 6 Chandigarh sectors

Government land= 2 sectors in Chandigarh.

Before alternate centers were developed in Panchkula and Mohali, Sector 17 in Chandigarh fulfilled the commercial/ office demand and accommodated the mini- Secretariat (fulfilling administrative demands of two states and one UT- Punjab, Haryana and Chandigarh). In addition, there is the Secretariat area.

II. Comparison of costs in note: Land Pooling vs. Land Acquisition

The development cost estimates considered on pages 8 and 9 in the note are different (see Table 1):

| Table 1: Comparison of site development costs provided in the DTCP note | | |
|--|-------------------------------------|--|
| Description | Land Pooling (Pg.8) INR per acre | Land Acquisition (Pg. 9) INR per acre |
| For quarry rubbish/ gravel roads | 6.5 lakhs | 4.5 lakhs |
| For BT roads and CC drains | 8.5 lakhs | 6.5 lakhs |
| Water supply facilities | 6.0 lakhs | 3.5 lakhs |
| For UGD network | 6.0 lakhs | 3.5 lakhs |
| For electrical work | 4.0 lakhs | 2.5 lakhs |
| For leveling | 5.0 lakhs | 3.0 lakhs |
| For parks and greenery | 4.0 lakhs | 1.5 lakhs |
| TOTAL | 40.0 lakhs | 25.0 lakhs |
| Source: DTCP, GoAP note | | |

It is unclear if the differences in costs reflect the quality of External Development Charges (EDC) or if they represent the difference between gross and net area calculations for these sites.

III. Review of gross vs. net area assumptions in the DTCP note

Net area available to the government in the land pooling scheme and the land acquisition schemes would be different.

- a. Page 9 (first table)- Land Pooling Scheme
 - 40% of land to be used to develop roads and open spaces
 - Of the remaining 60% of developed land, 40% to be returned to farmers and 60% to be taken by the government
 - ***Effectively, 0.24 acres net area of developed land would revert to farmers and 0.36 acres net area of land would accrue to the government, out of every 1 acre developed***
- b. Page 9 (area statement for Land Acquisition under PPP structure)
 - Farmers are allocated 60% of land, while 40% of land accrues to the government

- Effectively, assuming that 40% of the gross area would still be required for roads and open spaces per acre, and that this area would be proportionately allocated amongst areas reverting to the farmers and the government, the effective net area available to farmers would be 0.36 acres and net area available to the government would be 0.24 acres per acre acquired and developed.

Net area that available to the GoAP under different options would change the effective cost/ acre, across options. See Table 2 below for a quick example of the change in the costs associated with land pooling (this example does not include the time value of money and is only meant as an example).

Table 2: Net area costing in land pooling with 60: 40 share between the GoAP: Owners

| Land allocation type | Land area share (per acre) | Effective cost per acre |
|--|----------------------------|-----------------------------------|
| 40% land allotted to roads & open space | 0.4 | |
| 60% developed land to be shared: | 0.6 | |
| – 40% developed land to farmers | 0.24 | |
| – 60% developed land to government (@EDC of 40 lakhs/ acre) | 0.36 | 40/ 0.36 = 111 lakhs/ acre |

Source: IIHS Analysis, 2014, based on information from the DTCP, GoAP note

The effective cost of INR 111 lakhs/ acre is significantly higher than the INR 48 lakhs/ acre highlighted in the DTCP note. In the financial analysis undertaken by IIHS, the effective net area accruing to the government from different options has been compared to provide a clearer 1: 1 comparison.

Deciding on land shares between the government and the farmers has significant political implications, difficult to capture via financial analysis. As such, financial analysis results needs to be vetted in light of broader political conditions. It is important, for example to consider that elsewhere in the country, net area returned to farmers after implementing Town Planning Schemes and land pooling schemes range from 40% to 60%. Farmers in the Vijayawada Guntur region may have serious issues with receiving 24% of land back as developed area in the above example.

IV. Land rate assumptions in the cost benefit analysis

Land rate assumptions in the cost benefit analysis are lower than those being listed for sale in the area. Land rates assumed for land acquisition in the cost benefit analysis note for both Ramavarappadu and Nunna seem to be far below prevailing asking rates that are showing up on real estate listings.

Table 3: Sample real estate listings from Ramavarapaddu and Nunna

| | Sample listings | Cost per acre |
|---|--|---|
| Ramavarappadu (most listings are for residential land) | 1.68 crores for 1200 sq.yds 60 lakhs for 400 sq. yds 16 lakhs for 200 sq.yds | 6.78 crores 7.26 crores 3.87 crores |
| Nunna (listings for agricultural land) | 1.05 crores for 2 acres 10 crores for 19360 sq.yds. 4.5 crores for 4 acres | 50 lakhs 4 crores 1.12 crores |
| Source: http://www.indiaproPERTY.com/vijayawada-properties-for-sale-in-ramavarappadu/ Retrieved on Aug 12, 2014. | | |

Scaling up the base land rates in the cost- benefit analysis would reduce the cost-effectiveness of outright land acquisition and improve the relative cost- effectiveness of the land pooling option.

V. Land aggregation through different land assembly techniques

Land aggregation possible through different land assembly techniques is different. There are no comparable instances in the country where land assembly at the scale necessary for the development of a new city has been attempted using either the LARR or the Land Pooling Technique. Town Planning Schemes, a version of the Land Pooling approach, is typically implemented over 500 – 1000 acres.

LARR is a relatively new legislation and the requirement of creating an 80 percent rate of consent amongst those that will be affected will introduce a significant delay in implementation schedule.

The time- effect has been analyzed in two ways:

- 1) **Comparative Time Analysis:** Analysis across the different assembly options has been undertaken, taking into account both statutory requirements in the associated legislations and a realistic assessment of times that may be required.
- 2) **Financial Analysis:** In this the time value of money has been incorporated to understand the cost implications per net developed area that would accrue to the GoAP across the different land assembly options.

Moreover, land assembly done through land pooling or through a PPP based land acquisition model, in which a share of the original holdings are returned to the owners, may result in the government accruing *non-contiguous* land parcels, not suitable for developing a central administrative core and to provide city level facilities. As such, a diversified land assembly strategy may be necessary, to get access different levels of land aggregation as per the requirements of different land uses to be developed.

The level of land aggregation may be prioritized as follows:

- a) Core administrative zone- *Consolidated land parcel required*
- b) City level facilities (particularly public and semi- public use zones, city level parks and open spaces, city level commercial use zone, city level transportation facilities etc.)- *High level of land consolidation required but land may be consolidated into a few larger land parcels*
- c) Neighbourhood level facilities and other use zones such as (residential use zones, more local commercial use zones, more local transportation facilities/ roads, more local parks and open spaces, civic amenity sites etc.)- *Medium to low levels of land consolidation required*

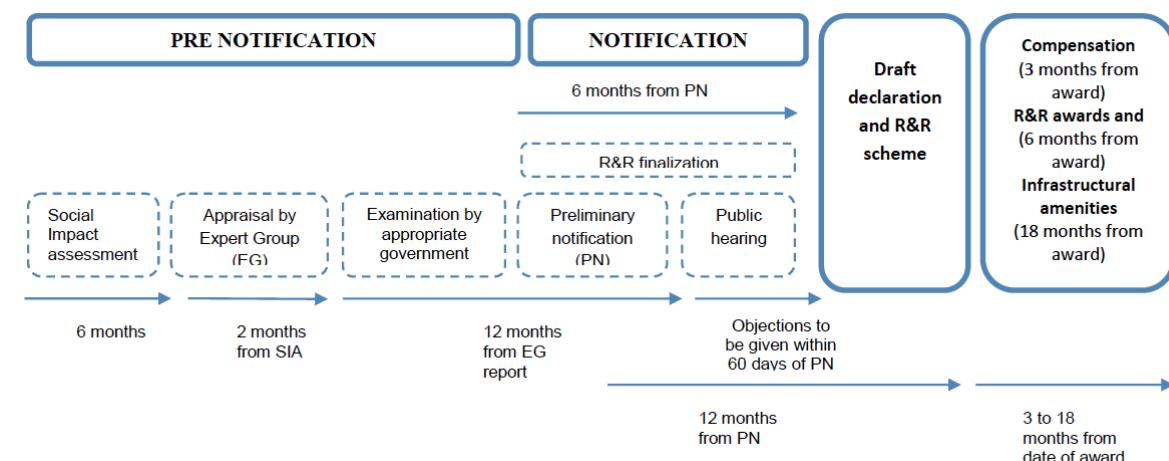
A second level financial analysis needs be undertaken after a more detailed area requirement and associated land assembly techniques are decided.

VI. Time Analysis

One the most crucial questions with regard to assessing the relative merits of different land assembly options is to compare the (realistic) time- frames that would be involved to consolidate the land required by the GoAP.

Land Acquisition, Resettlement and Rehabilitation

Figure 1: Land Acquisition, Resettlement and Rehabilitation Process and Time Requirement



Source: ICRA Rating Services (2013). Available at:
<http://www.icra.in/Files/ticker/new%20land%20acquisition%20bill.pdf>. Retrieved on Aug, 18, 2014.

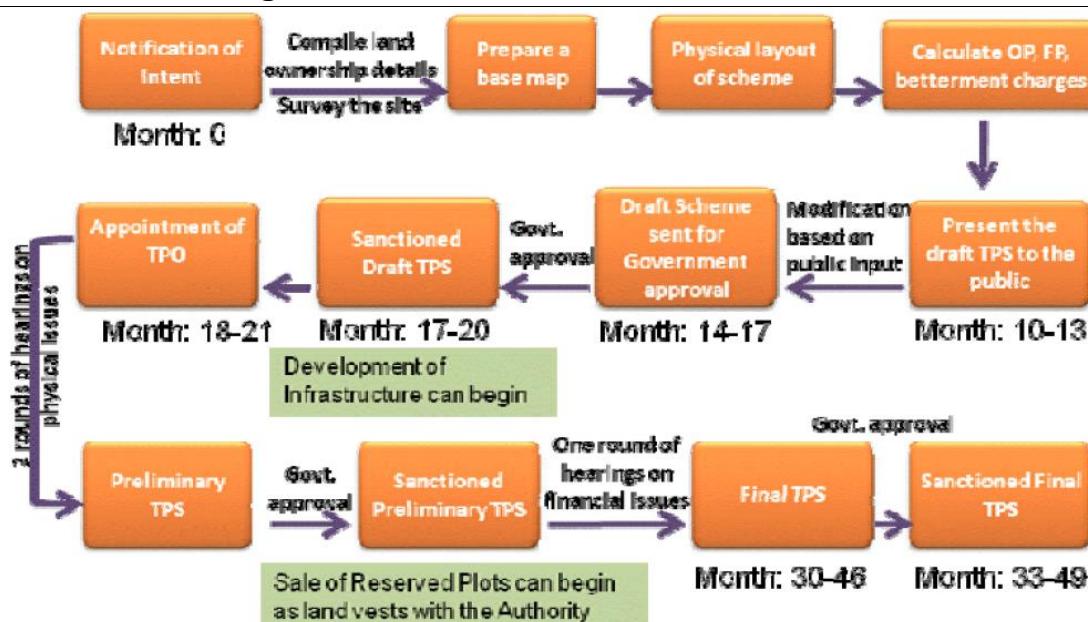
- 1) **The basic LARR process would take between 3 to 4 years (35 months to 50 months) to implement, without any administrative delays.**
- 2) The first year (8- 12 months) would be spent on the pre- notification stage. This time before notification, before any statutory development freeze is applied on the identified

area, would be crucial in terms of real estate price hikes and would contribute to issues such as hold-outs.

- 3) Actual infrastructure development on site can only begin in year 3 from the start of the LARR process.
- 4) The overall time frame, as well any additional cases of holdouts would impact both the realistic chances of consolidating land, as well as the effective cost to the GoAP with real estate price rise and the factor of inflation.

Land Pooling Schemes

Figure 2: Town Planning Schemes Process and Timeframes

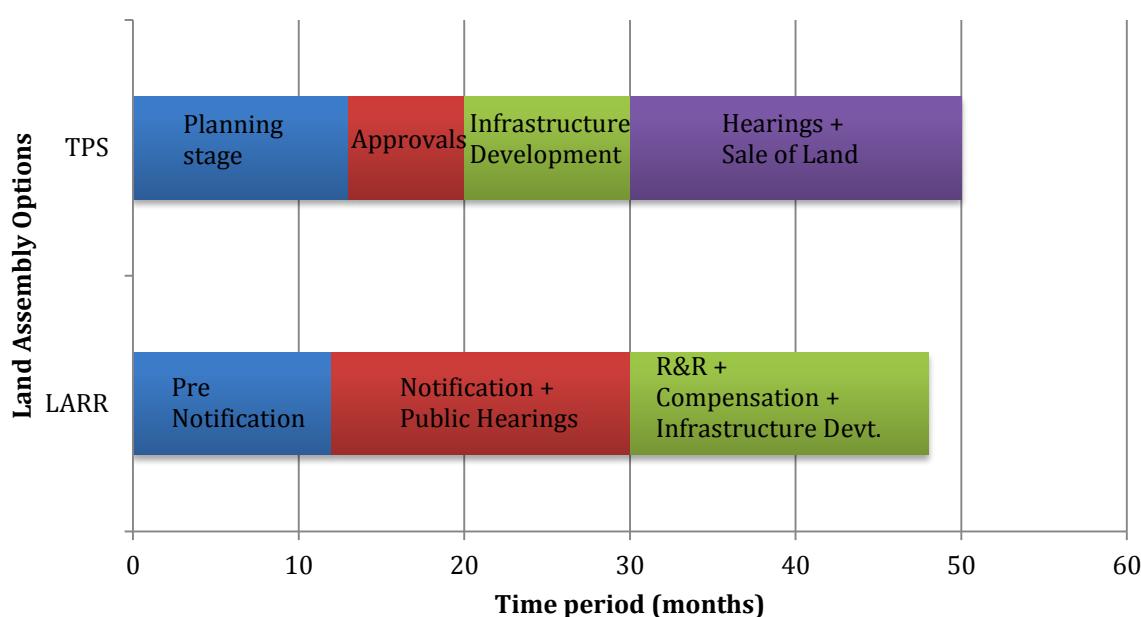


Source: IDFC (2010), Available at:

http://www.idfc.com/pdf/publications/policy_group_quarterly_7.pdf. Retrieved on Aug., 18, 2014¹

- 1) The basic process for Town Planning Schemes would take more than 4 years (49 months) without any administrative delays.
- 2) The first year (13 months) would be spent on preparing the draft plan to be presented to the landowners for negotiations and approval. This time period would be crucial in terms of real estate price hikes and would contribute to issues such as hold-outs.
- 3) As with the LARR, in the Land Pooling Schemes also the overall time frame, as well any additional cases of holdouts would impact both the realistic chances of consolidating land, as well as the effective cost to the GoAP with real estate price rise and the factor of inflation.

¹ Since there are no comparable examples of Land Pooling Schemes that have been implemented the timeline assumptions for Land Pooling Schemes is based on the experience of Town Planning Schemes. The above is a schematic drawn up by IDFC, based on GTPUDA, 1976, S. Ballaney and B.Patel. 2009, Using the Development Plan-Town Planning Scheme Mechanism to Appropriate Land and Building Urban Infrastructure. India Infrastructure Report: OUP, N. Delhi.

Figure 3: Time Frames for LARR and Land Pooling

Source: IIHS Analysis, 2014, based on ICRA and IDFC data.

In short, the process of land acquisition and assembly would take a minimum of 4 years to execute under all circumstances. In practice, with administrative delays, this could extend between 5 to 6 years, especially if litigation is involved.

VII. Protests and Legal Contests

Since the land contest in Singur, West Bengal in 2006, a large number of land acquisition related protests have erupted across the country, which led to the legislation of the LARR Bill. A brief synopsis of large projects that have been impacted over the last few years is presented in Table 4.

Table 4: List of large- scale projects that have experienced protests

| Acquiring authority | Year of protest | Location, State | Affected Land area (acres) | Project | Issue | Status |
|----------------------------------|-----------------|------------------------------------|----------------------------|--|---|---|
| Delhi Mumbai Industrial Corridor | 2012 | Haryana & Rajasthan | 3000 | Delhi Mumbai Industrial Corridor | Inadequate compensation | Government in process of taking consent from landowners, Protest ongoing |
| State government | 2012 | Jharkhand | 227 | Educational institutions (IIM Ranchi, IIT Ranchi & Central Law University) | Land acquired by erstwhile Bihar government unutilised by government Villagers farming on the said land | State government has formed committee for dialogue with villagers, Probable change in location |
| Greater Noida Authority | 2011 | Greater Noida, Noida Extension, UP | NA | Real estate development; Formula one track Yamuna Expressway | Use of urgency clause, Government role in acquiring land for private purposes Below par compensation | Settlement of additional compensation and land. Acquisition cancelled in some cases by HC. Acquisition cancelled in some cases by SC in August 2013 |
| Noida Authority | 2011 | Noida, UP | NA | Real estate development | Below par compensation | Settlement with farmers |
| Jaipur Development Authority | 2011 | Rajasthan | | Jaipur ring road | Below par compensation Acquisition of excess land than required | Protest ongoing |
| Various | 2011 | Chhattisgarh | NA | Thermal power plants | Sale of tribal , multi crop irrigated land | Protests ongoing, allotment of some lands cancelled by HC |
| Bellary airport | 2010 | Karnataka | | Airport | Fertile land | Acquisition cancelled by HC |
| Tata Motors | 2006 | West Bengal | 997 | Automobile manufacturing plant | Farmers not agreeable to acquisition | Plant had to be shifted to Gujarat. Farmers in West Bengal demanding return of unutilised land |
| Posco Steel | 2005 | Orissa | 4004 | Integrated steel plant | Fertile land displacement of large population | Company reduced land requirements to 2700 acres |

Source: ICRA Rating Services (2013). Compiled from media reports. Available at <http://www.icra.in/Files/ticker/new%20land%20acquisition%20bill.pdf>. Retrieved on Aug, 18, 2014.

VIII. Financial Analysis

The year-on- year financial analysis undertaken by IIHS has added the following details to the base numbers provided in the DTCP note:

1. Rate of inflation: If the project gets delayed then the factor of inflation becomes a substantial financial consideration.

2. Interest rate: In case compensation payments for land acquisition are delayed, a factor of interest may need to be added to the base numbers.
3. Cost of Capital for the GoAP: In case the government needs to borrow money for land assembly, an interest will need to be paid on the borrowed capital. The cost of capital has been calculated by taking into account a basic project phasing.
4. A detailed costing has been undertaken for land acquisition based on the detailed cost schedules provided in the LARR legislation and taking into account the prevailing ground conditions of the area, assessed through secondary research, including a review of the CDP prepared for Vijayawada.

Table 5: Effective cost for GoAP per acre of net developed land through various land assembly options

| | Option | Key assumptions | EDC cost scenarios | Effective cost/ acre per <i>net acre of developed land</i> accruing to the government |
|----|--|--|-------------------------------------|---|
| 1a | Outright Land Acquisition using LARR | 40% of gross area for Parks and Open Spaces | Scenario 1: EDC @ 40 lakhs per acre | 398.26 lakhs/ acre |
| 1b | | | Scenario 2: EDC @ 25 lakhs per acre | 339.91 lakhs/ acre |
| 2a | PPP model for Land Acquisition using LARR (60: 40 share with 40% share for government) | 40% of gross area for Parks and Open Spaces | Scenario 1: EDC @ 40 lakhs per acre | 398.26 lakhs/ acre |
| 2b | | | Scenario 2: EDC @ 25 lakhs per acre | 339.91 lakhs/ acre |
| 2c | | Option 1: Farmers pay EDC for share of gross area | Scenario 1: EDC @ 40 lakhs per acre | 995.66 lakhs/ acre |
| 2d | | | Scenario 2: EDC @ 25 lakhs per acre | 849.78 lakhs/ acre |
| 3a | Land Pooling (40: 60 share with 60% share for government) | 40% of gross area for Parks and Open Spaces | Scenario 1: EDC @ 40 lakhs per acre | 250.41 lakhs/ acre |
| 3b | | | Scenario 2: EDC @ 25 lakhs per acre | 196.63 lakhs/ acre |
| 3c | | Option 1: Farmers pay EDC for share of gross area | Scenario 1: EDC @ 40 lakhs per acre | 417.35 lakhs/ acre |
| 3d | | | Scenario 2: EDC @ 25 lakhs per acre | 327.71 lakhs/ acre |

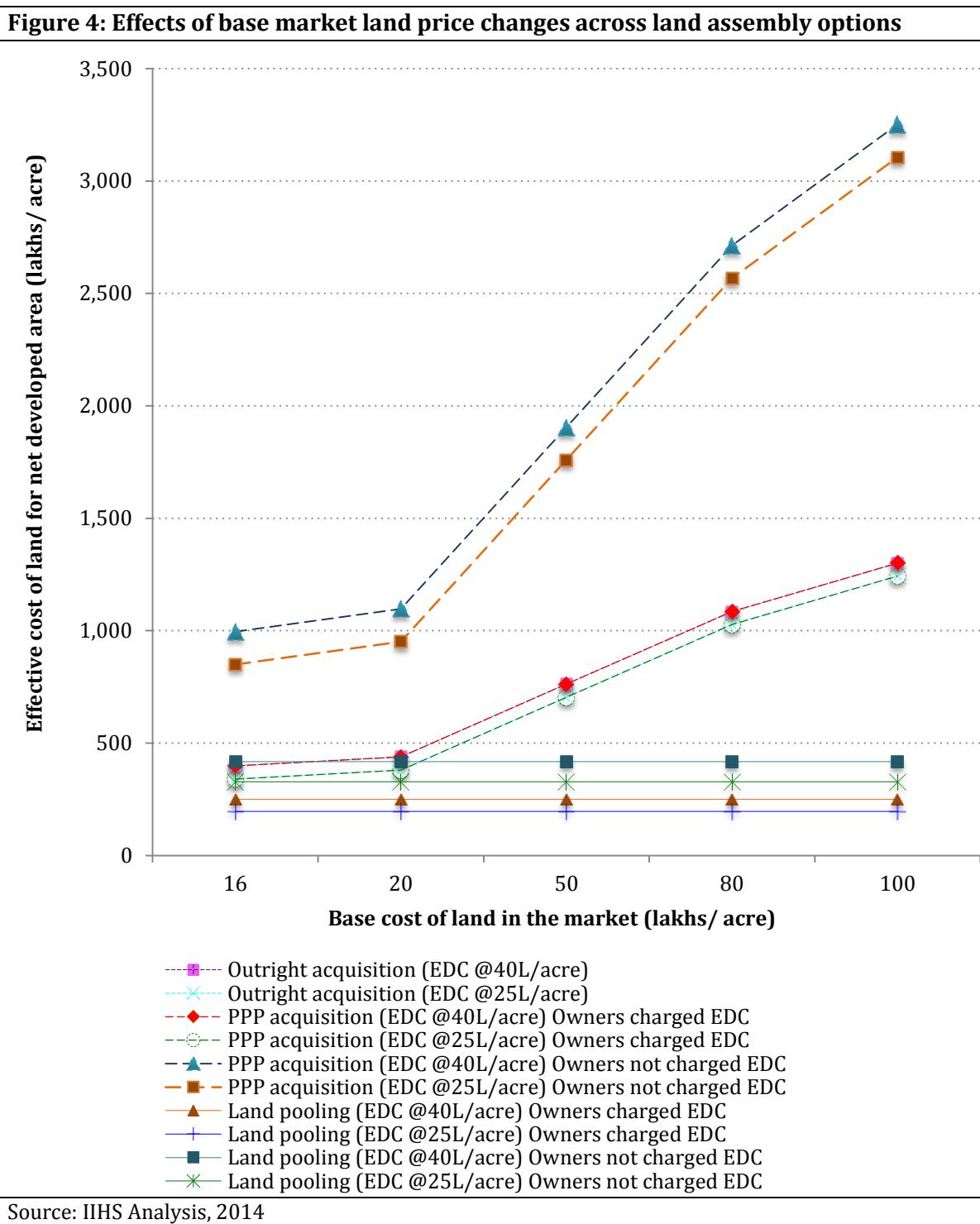
Source: IIHS Analysis, 2014.

The range of effective costs of land accruing to government range from ` 1.96 crores to ` 9.95 crores per acre indicating the need for a careful analysis before the choice of a greenfield site or areas where land prices are expected to be very high.

Scenario Analysis

In addition, different scenarios have been analysed to highlight how changes in the following would affect the financial costs to the GoAP:

1. Base cost of land in the land acquisition method of land assembly
2. Changes in land share in the land pooling and the PPP model of land acquisition approaches

Figure 4: Effects of base market land price changes across land assembly options

Source: IIHS Analysis, 2014

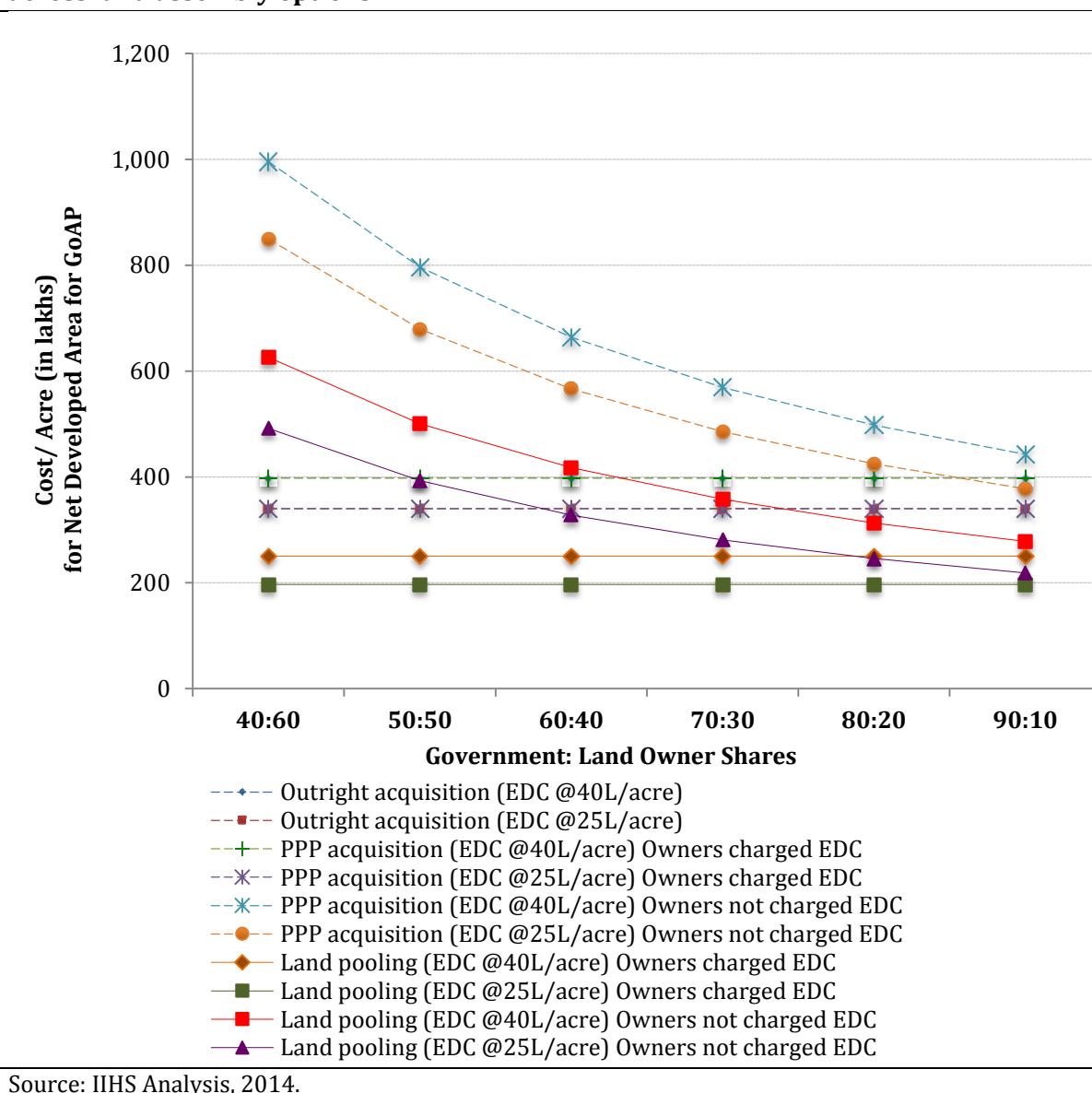
Figure 4 shows the sensitivity of net cost/ acre of developed land for various options of land assembly with respect to changing base market price of land, which is a strong possibility given the speculation associated with land markets.

1. Both outright land acquisition and PPP based land acquisition methods of land assembly are affected by changes in base price of land. As mentioned earlier in this note, the existing real estate listings in the areas are already exhibiting a sharp spike in prices, which exceed the land cost assumptions considered in the DTCP note. The land

acquisition method could quickly become financially unfeasible (with associated difficulties in gathering consent and completing the acquisition process) and therefore may need to be used judiciously in cases where aggregated land is a priority.

2. The Land Pooling assembly options do not directly transfer a hike in land prices to the net cost that the government needs to incur, although it may raise some issues with regard to negotiations with owners regarding development that would be permissible on developed land returned to them. However, these are likely to be more manageable than the land acquisition consent process.

Figure 5: Cost effects of changes in land share between the GoAP and landowners across land assembly options



Source: IIHS Analysis, 2014.

Figure 5 shows the sensitivity of net cost/ acre of developed land for various options of land assembly with respect to different land shares between the government and landowners.

1. In both PPP based land acquisition and land pooling options, the cost per acre changes significantly with changes in land shares when the government absorbs the EDC costs and does not charge the farmers/ landowners this cost.

2. In a descending order of net cost/ acre accruing to the GoAP:
 - a. PPP based land acquisition land assembly options where owners are not charged EDC (most expensive)
 - b. Land pooling options where owners are not charged EDC (however these become the cheapest options as the land share increases in favour of the government). These options offer a significant degree of political leverage for negotiation with land owners.
 - c. Both outright acquisition and PPP based acquisitions, where owners are charged EDC, work out to the same net cost/ acre to the government
 - d. The least expensive option is land pooling where owners are charged EDC. This land assembly option is also not affected by changes in the land share between the government and the landowners, since costs are proportionately shared. This may be one of the options, which offers a significant degree of political leverage for negotiation with land owners.

IX. Conclusion & Policy Questions

Outright Land Acquisition

1. Time is the chief constraint. Land acquisition, using Land Acquisition, Resettlement and Rehabilitation would require a minimum 3 to 4 years to implement, without project delays.
2. The first year in the land acquisition approach would be the pre- notification stage, where the land to be acquired would be identified but no statutory development freeze may be enforced. This first year would be crucial in terms of price hikes and holdouts.
3. As the financial analysis highlights increase in the base market price of land would quickly make the project unfeasible from the cost perspective. ***Land acquisition may quickly become a very expensive option given that the base cost of land in the Vijayawada Guntur area is already experiencing a hike.***
4. Land consolidation at this scale has not been attempted successfully via LARR in the country yet. Delays and disputes that come up will have to be settled to satisfy the courts, which may mean project delays.
5. The potential advantage of land acquisition is that in case the acquisition goes through without delays, the approach will deliver consolidated land, which may be required for a limited number of city- level facilities.
6. Total area requirements need to be worked out in more detail and level of land aggregation required to accommodate different uses needs to be determined. Consolidating land via land acquisition may not be necessary in all cases.

PPP based Land Acquisition

1. Similar to outright acquisition, in the PPP based land acquisition approach also, time is the chief constraint and similar to outright acquisition, PPP based acquisition, using LARR, would also require 3 to 4 years to implement, without project delays.

2. Again similar to outright acquisition, the first year would be the pre- notification stage, which would be crucial in terms of price hikes and holdouts.
3. Along with considering the financial aspects, it would be necessary to consider the political feasibility of different levels of land sharing with the farmers/ owners. The present estimate of giving landowners 36% of net developed area back may be lower than the expectations of landowners (based on a 60: 40, landowner: GoAP share- which has been assumed in the DTCP note).
4. The likelihood of holdouts is also likely to increase unless the GoAP makes additional institutional arrangements to prevent speculators from buying up land from landowners, to negotiate with the GoAP. In this approach there is also potential for speculative land loss with landowners selling out to developers and lead to additional delays and bottlenecks.
5. Land consolidation at this scale has not been attempted successfully via PPP based LARR yet. Delays and disputes that come up will have to be settled to satisfy the courts, which may mean project delays.

Land Pooling

1. Time is the main constraint in case of the Land Pooling approach also. Land Pooling would require 4 years to implement, without project delays.
2. The first year in the land pooling approach would be the planning stage, where the land pooling scheme would be finalized for presentation to the landowners. In this year the area to be developed would be identified. This first year would be crucial in terms of price hikes and holdouts.
3. Land consolidation at this scale has not been attempted via land pooling yet.
4. Land pooling may provide GoAP with non- contiguous land, which may not be suitable for developing city level facilities.
5. It would be necessary to consider the feasibility of different levels of land sharing with the farmers/ owners. The present estimate of giving landowners 24% of net developed area back may be lower than the expectations of landowners (based on a 40: 60, landowner: GoAP share- which has been assumed in the DTCP note).
6. Land pooling potentially offers a more politically feasible alternative and may be preferable for developing the facilities where aggregate land is of lower priority.
7. The advantage of the land pooling approach is that it is less vulnerable to hikes in the base price of land than the acquisition approach.

BROAD STRATEGIC-LEGAL ASPECTS: LAND POOLING/LAND ACQUISITION FOR NEW ANDHRA PRADESH CAPITAL

I. Background Facts

1. The GoAP has suggested that the new state capital to be in the Vijaywada-Guntur-Tenali-Mangalagiri (VGTM) region.
2. The GoAP estimates eventual land required maybe between 5,000-10,000 acres, while initially around 1,500 acres will be immediately required.
3. The VGTM Urban Development Authority (VGTM-UDA) has jurisdiction for urban development in VGTM region.
4. VGTM-UDA is established under the Andhra Pradesh Urban Areas (Development) Act, 1975² (APUD Act).
5. In the absence of a separate standalone legislation to create a new authority (say, an “AP Capital Development Authority” for urban development and infrastructural needs of the new capital region), the VGTM UDA would have jurisdiction to carry out development works in the VGTM Region, including for capital development. Whether it has the capacity to undertake capital city urban development is another question, and one that needs to be explored, along with capacity building requirements.

II. Immediate Steps

1. It may be necessary to amend the APUD Act to include a new chapter on land pooling specifically for the purpose of the capital city project, in order to give legal basis to the land pooling proposal. Alternatively, land pooling regulations may be enacted under the APUD Act.

Lessons may be learnt from the earlier attempt initiated by Visakhapatnam Urban Development Authority (VUDA) in December 2013³ (necessitated by land pooling problems in Pardesipalem and Cherlopalkandham without any supporting legislation).

A land pooling policy is also being finalised by Hyderabad Metropolitan Development Authority (HMDA) which has also issued guidelines under the HMDA Act, in relation to Land Pooling Schemes.

However: a) in the absence of a specific VGTM UDA Act, and b) in the absence of specific Land Pooling Scheme in APUD Act, and c) in view of the fact that HMDA jurisdiction would not apply to VGTM Region, it may be necessary to amend the APUD Act, in order to carry out land pooling in VGTM Region or alternatively enact relevant regulations under APUD Act.

² The VGTM Urban Authority was constituted under Section 3(1) of Urban Development Act with respect to the development area as declared under Section 13(1) of the Urban Development Act; vide G.O.Ms. No. 695, dated 09-11 -1977, and the authority was constituted by G.O.Ms. No. 1007, dated 07-12-1978 (Kanigalla Venkata Subba Rao and Ors. Vs. Vice-Chairman, VGTM Urban Development Authority and Ors, 2006(5) ALD442)

³ The proposal suggested a new Chapter IV A on Land Pooling Schemes (LPS) by inserting Sections 13(10)A to 13(10) M after Section 13(9) of the APUD Act.

The Government of Andhra Pradesh has the legislative competence to amend the APUD Act as per the Andhra Pradesh (Reorganisation) Act, 2014 (“APR Act”).

Section 100 of the “APR Act” states *inter alia* that “territorial references in any law, to the State of Andhra Pradesh shall, until otherwise provided by a competent Legislature or other competent authority be construed as meaning the territories within the existing State of Andhra Pradesh before the appointed day” [of the coming into force of the APR Act]. This means that the APUD Act can also be construed to include the territory of Andhra Pradesh, even if the APUD Act was enacted before the APR Act came into force.

Section 101 of the APR Act *inter alia* permits the appropriate government (central or state) to make adaptations and modifications (by way of repeal or amendment) in existing legislations within two years of the date (from the appointed day i.e June 2nd 2014⁴.) It is worth exploring if after June 2, 2016, Andhra Pradesh may require an independent APUD Act, as applicable to Andhra Pradesh, and specifically pertaining to the requirements of the new state.

2. If the APUD Act is so amended (for land pooling scheme, including in VGTM region for capital city) or relevant regulations are enacted, it is necessary to ensure that the relevant amendment proposed/regulations enacted are consistent with powers of VGTM generally, and specifically in relation to land acquisition (and pooling if already mentioned earlier in VGTM documents). This requires an analysis of VGTM UDA's powers, as per all relevant G.O.)

A separate Land Pooling Department may need to be constituted in VGTM UDA, along with a High powered Committee to expedite the process.

III. Key Questions

1. It is necessary to ask if the total land requirements for the new capital are only about 1500 acres or if more land is envisaged, in a stage-wise acquisition/ pooling/ development process.

Land pooling or Town Planning Schemes have been attempted for land sizes around 250-500 acres.

If bulk area is more, and the land acquisition mode is also imagined, or a hybrid of pooling/assembly/acquisition, the new central Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (LARR Act), would also apply.

There are current discussions to amend the LARR Act, including, among others, adding to the list of exceptions in the said Act. A separate Andhra Pradesh Capital Development legislation (if enacted) could be among the (proposed) list of exceptions, but may not

⁴ Gazette of India Notification dated March 4th 2014

pass judicial scrutiny. In its absence, it may be worth exploring if land pooling schemes or hybrids are in any way, among the amendments proposed in the LARR Act at the Centre.

2. Consent remains a contentious issue. It is unclear where the two-thirds consent proposed is coming from, in the absence of specific legislation (or provision in a proposed APUD (Amendment) Act). Eminent Domain powers (even if not invoked) remain a significant background factor to induce (indirect voluntary) acquisition.

If two-third consent requirements remain, the remaining land may be acquired through compulsory acquisition under LARR Act.

A minimum area per entity (collective/individual) and a choice of upfront/ end part payment/ amount could also be suggested to deal with the consent issue, and to make the land pooling scheme applicable.

The role of the private sector here (as land pooling entities/ agents or aggregators) remains to be explored generally, as well as specifically on consent.

In Gurgaon for example, the real estate sector manages the processes of consent through financial incentives [such as high market values for all urbanisable lands as upfront payments, to joint development agreements/ models where land owners get 30-35% of built-up stock for market sale (sometimes along with part payments) in exchange for permitting private sector real estate development on their lands]. This however, leads to the question of an initio valuation, which is very tricky and often leads to false results/ manipulation.

It will be useful to learn from the experience of Visakhapatnam (where there have been problems relating to possession and inadequate legal basis) as well as from the HMDA policy.

On specific problems pertaining to possession, consent, land records, title claims, public participation, valuation, stage-wise development, regularization, etc., it is necessary to learn from the experience of other states such as Gujarat, Haryana, Chhattisgarh, NCT Delhi, Maharashtra, etc. Secondary literature is not adequate, and it is necessary to discuss learnings from officials (and other stakeholders) in these respective states on particular legal challenges and resolutions. A study of existing legal documentation in these states, on each of the specific legal issues mentioned, if made available, may be attempted. It may necessary to chalk out in advance, a litigation strategy that is in consonance with the law of the land, to pre-empt and deal with the legal issues that arise.

EXPERIENCE OF LAND ASSEMBLY FOR URBAN DEVELOPMENT IN INDIA

Land assembly has been a critical factor in urban planning and development in India and across the world where cities and settlements have grown very rapidly. Since Independence, urban development in India has relied heavily on the compulsory acquisition of land under the Land Acquisition Act (1894). State governments have experimented with different land assembly models to accommodate the growing demand for urban space. Some have encouraged private sector PPP and initiatives for land assembly and land development, e.g., Gurgaon in Haryana, NOIDA and Greater NOIDA in Uttar Pradesh, and Hyderabad in Andhra Pradesh. Pioneer in this space, the Delhi Development Authority (DDA), until the late 2010s, has followed a model of government monopoly in land acquisition. Private sector participation in land assembly is now being adopted in Delhi.

Land acquisition (public or private), however, is not the only tool for land assembly. Plot reconstitution through land pooling is an alternative that engages with owners and encourage them to participate in planning instead of just providing monetary compensation for their land. This was first used in Maharashtra (erstwhile Bombay Presidency) with the Bombay Town Planning Act 1915. Other institutional innovations in land pooling include: the Town Planning Schemes (TPS) of Gujarat based on the Bombay Town Planning Act, the Vijayawada model of land-sharing in Andhra Pradesh, and the Magarpatta model of township development in Pune, Maharashtra.

Land readjustment (LPR) is another option. Widely used in the South-East and East Asia, LPR has provided more than 50 per cent of the total built-up area for cities like Seoul.

The following note presents a series of cases of various mechanisms of land assembly in India and explains their features, strengths and weaknesses.

I. *Delhi*

Context

“There are two standard methods of development-land assembly – voluntary cooperation between landowners, or compulsory purchase by a public authority (or a mixture of the two). With private rights to property generally protected under the law (including human rights law), any state expropriation has to be justified as in the public interest and subject to due process, with compensation paid in accordance with an accepted valuation code” (Home, 2007).

Even though this was stated in the context of the United Kingdom, due to India’s colonial legacy, the same is quite true in the Indian context. Even the Policy on ‘Public-Private-Partnership in Land Assembly and Development in Delhi’, introduced by the Delhi Development Authority (DDA), a Central government organization responsible for planning and urban development in the city-state of Delhi, is a mixture of these two standard methods. The policy was formulated by DDA under the guidance of Ministry of Urban Development (MoUD), GoI and in consultation with experts from National Council of Applied Research (NCAER) and inputs from multiple stakeholders representing the real estate sector.

It was based on the Land Pooling (LP) technique which permits owners of the land to participate in the ensuing urban development in the urban extension of Delhi based on the provisions of the Master Plan for Delhi 2021 (MPD-2021) and formulated as an alternative to the existing large scale Land Acquisition, Development and Disposal Policy of 1961, under which DDA derived its powers of acquisition from the now-repealed Land Acquisition Act, 1894, DDA compulsorily acquired (or expropriated) the land required for urbanization in Delhi from land owners at minimum fixed compensation rates. The existing Delhi Urban Area which is approx. 700 sq.km (including both the walled city of Shahjahanabad and these planned areas) were developed by DDA using this method over the past four decades. Due to this, the entire monetary benefits of converting rural lands to high value urban uses were captured by DDA, without delivering on other fronts as expected from such a socialist endeavor (Acharya, 1987; Morris & Pandey, 2007).

The need for an alternate policy emerged because land acquisition and planned development had not kept pace with the increasing demands of urbanization during the last five decades. Vast tracts of land compulsorily acquired by DDA during that period were never developed and eventually encroached upon or utilized for unauthorized developments in Delhi (Srirangan, 1997). Moreover, the acquisition of land had become a difficult and tedious process fraught with litigation, agitations by land owners and delays as the compensation paid by the Government to land owners was not comparable to the market value of the land and owners were more aware of the benefits associated with participating in urban development processes (MPD-2021, 2007).

In the context of public private partnership for land pooling, the MPD-2021 which is a statutory document provides for alternative options for development and involvement of the private sector in the assembly and development of land/infrastructure while stipulating that the land policy would be based on the optimum utilization of available resources, both public and private in land assembly, development, redevelopment and housing (MPD-2021, 2007). Based on this provision, a new chapter on Land Policy in MPD- 2021 was added by the DDA and notified in 2013.

However, apart from this amendment to the MPD-2021, DDA based on internal legal advice decided not to amend both the Delhi Development Act, 1957 or the Delhi Land Reforms Act, 1961 along with the respective Municipal Acts and therefore did not comprehensively empower this policy with a robust legal sanction.

Process

As per MPD-2021 (2007), the NCT of Delhi is divided into 17 zones for spatial planning & development purposes. Out of these, the Delhi Urban Area (DUA) or the existing urban development is limited to eight zones viz., A to H and the three zones of Dwarka (K-I), Rohini (M) and Narela (P-I). Zone O encompasses the floodplain of the River Yamuna and the river itself. The remaining five zones i.e., J, K-II, L, N and P-II together form the Urban Extension of Delhi where the expansion of Delhi was envisioned. As per MPD-2021, 29 lakh is the existing population in the villages, census towns, unauthorized colonies, Jhuggi Jhopri clusters and an additional 48 lakh population is to be accommodated in the Urban Extensions as part of the projections of this Plan.

The Land Pooling Policy is applicable in the proposed urbanisable areas of the Urban Extensions for which Zonal Plans have been approved. The Zonal Development Plans of all the Zones in the Urban Extension have demarcated their Green Belt where this policy is not applicable and the undeveloped land remaining under proposed urbanisable area except the Low Density Residential Area (LDRA declared under DDA's regularization policy) is permissible for land pooling under this policy.

The Land Pooling Model proposed for land assembly under the new Chapter 19.0 of MPD-2021 is as follows:

| Category of Land Assembly (Ha) | Land Returned to DE | Land Retained by DDA | Land Returned to Developer Entity | | | | | | | | Total BUA | Max Population | | |
|--------------------------------|---------------------|----------------------|-----------------------------------|--------------|---------------------|----------------|-----------------------|------|----------------|-----|-----------|----------------|-------|---------|
| | | | Gross Residential | | | | City Level Commercial | | City Level PSP | | | | | |
| | | | Land (Net Land) | | Built Up Area* (Ha) | | Land | BUA | Land | BUA | | | | |
| | | | % | Ha | Resi. BUA | Facilities BUA | % | Ha | Ha | % | Ha | Ha | | |
| 20 Ha & above~ | 12Ha (60%) | 8Ha (40%) | 53 | 10.6 (5.83) | 26.8 | 4.65*** | 5 | 1.0 | 2.5 | 2 | 0.4 | 1.0 | 34.95 | 15518** |
| 2 - under 20 Ha~ | 0.96Ha (48%) | 1.02 Ha (52%) | 43 | 0.86 (0.473) | 2.17 | 0.37*** | 3 | 0.06 | 0.15 | 2 | 0.04 | 0.1 | 2.79 | 1256** |

~ Land Pooled for the illustrative example is assumed at 20 Ha for Category I and 2 Ha for Category II.

*Residential BUA includes 15% of BUA for EWS Housing.

**Calculated at maximum density of 1000 persons per hectare of gross residential land and density for 15% FAR reserved for EWS calculated at unit size of 32 sqm.

***Calculated as per MPD-2021 norms of 3 sqm per person for facilities.

The above table is explained as follows (MPD-2021, 2007):

The Policy has two categories of land pooling viz. Category I for pooling of land amounting to 20 Ha (approx. 50 acres) and above and Category II for pooling of land amounting between 2 Ha (approx. 5 acres) to less than 20 Ha. The share of land returned to Developer Entity (DE) in Category I (20 Ha and above) will be 60% and land retained by DDA 40% whereas the Land returned to Developer Entity (DE) in Category II (2 Ha to less than 20 Ha) will be 48% and land retained by DDA 52%. The distribution of development rights on the land returned to DE (60%) in terms of land use in Category I will be 53% Gross residential, 2% City Level Public/Semi-Public and 5% City Level Commercial. The distribution of development rights on the land returned to DE (48%) in terms of land use in Category II will be 43% as Gross residential, 2% City Level Public/Semi-Public and 3% City Level Commercial. There is a further condition stipulating that the DE shall be returned land within 5 km radius of pooled land subject to other planning requirements.

The land surrendered to DDA i.e. 40% in the case of land pooled equal to or more than 20 Ha (approx. 50 acres) or 52% in the case of land pooled between 2 Ha (approx. 5 acres) to under 20 Ha (less than 50 acres) shall be utilized for transportation uses like Roads, Mass Rapid Transit

System (MRTS), Bus Rapid Transit (BRT) or bus corridors and non-motorised vehicle networks etc; Utilities like Water Supply and treatment plants, Power generation and distribution units, Sewerage treatment plants (STPs) and Solid waste management sites; City Level Greens and recreational uses like Zoos, City Parks, District parks, Botanical gardens, Bio-diversity parks etc.; Development of Commercial and Public & Semi-Public uses at the City level if required and all Industrial development in the urban extensions for remunerative purpose as per the new industrial policy focused on Hi-tech and IT/ITES industries.

All of this development shall be governed by the Land Use distribution at the city level for the urbanisable areas in the urban extension to be adopted for this policy as under:

- Gross Residential: 53% (For every 1000 ha of Land pooled, the gross residential distribution provides approximately 50,000 DU's for EWS housing.)
- Commercial : 5%
- Industrial : 4%
- Recreational : 16%
- Public & Semi-Public Facilities : 10%
- Roads & Circulation : 12%

The Recreational Land Use does not include green areas within the various gross land use categories. The share of city level remunerative land to be retained by DDA shall depend on the categories/size of land pooled under this policy. DDA's share in Residential land shall vary between 0-10 percent, Commercial Land shall vary between 0-2% and entire Industrial land of 4% shall be retained by DDA for development or auction under present policies.

Outcomes

DDA has published draft regulations (guidelines detailing steps and processes for implementation) based on recommendations of a Committee set up for operationalisation of the Land Pooling Policy by the Lieutenant Governor, including process and timeframe for participation. In order to make the Policy people friendly and transparent, the detailed regulations were put up in Public domain for inviting views of the stakeholders giving 30 days' time in the newspapers and website since it involves development through participation. Creation of a dedicated Unit in DDA for dealing with approvals of Land Pooling applications has also been undertaken. The option of outsourcing of the scrutiny for legality of applications and online submission of building plans to experts was also considered. The concept of Single Window Clearance has also been proposed by the Committee set up to operationalise this policy and if adopted it could help in streamlining the process of approvals for development and speed up the entire process.

However, the entire process of finalizing the regulations and implementing this policy has been in a stalemate since 2014 due to national elections and change of government; legal questions regarding the legal basis of enabling land pooling through the MPD-2021 without amending the Delhi Development Act, 1957 and various hindrances through certain provisions of other relevant Acts.

Pros & Cons

DDA's Land pooling (or readjustment) policy is unique in many terms:

- The concept of 'Developer Entity' (DE): The DE can be a single owner (individual or company) of the pooled land (all land parcels) or a consortium/legal partnership/association which has many owners of different land parcels coming together as a group of owners (with some legal agreement or memorandum of understanding between them) who wish to pool their various parcels of land together for converting the same to urban land as per this policy. This term is not to be confused with a real estate developers who are also permitted to pool land under this policy alone (under the category of single owner - company) or in a group with other owners (which could be individual land owners or other companies/groups/associations etc.). The group method is similar to the collaboration system used by builders, only in this case, all parties involved shall contribute in terms of land and investments required to develop that land and then distribute their profits in equal proportion to the amount of land pooled by each owner. The policy is not clear on the aspect of again dividing the returned land into proportionate shares for distribution to all the owners (to be developed separately) after pooling it and it is assumed that this shall be clarified in the final Regulations.
- Larger pools of land (above 20 hectares) are given higher benefit in the policy as the larger levels of return of developed land will result in integrated planning and better design with more population hence more facilities eventually translating into higher value.
- The concept of fixed and equitable share of land: Land to be returned and surrendered as per the Policy which is fixed in terms of percentages & categories irrespective of land use or location and which does not require the share of land return to be calculated on individual basis for each pooling exercise taking into consideration their cost of development, land valuation before & after development etc. This ensures faster implementation of the policy by eliminating a complicated step used in land readjustment processes. The disadvantage is the fact that all land owners (irrespective of their prime locations or other site-specific advantages) are treated equally which may not be acceptable.
- Provision for fragmented land holdings coming forward for Land Pooling in the same Planning Zone where land shall be returned in the vicinity of the largest land holding within the same zone is basically a condition where different land parcels which are not contiguous (do not share any common boundary or are not adjacent parcels) but are located in the same zone can be eligible for pooling under this policy.
- The saleable area assured by the Policy shall be available to DE irrespective of DDA's abilities to provide promised land return after pooling due to unforeseen issues.
- The concept of land returned as Gross Residential land in both the categories under Residential land use: The land returned to DE has distributed development rights. The residential portion has rights of development as applicable to Gross residential land which means land under residential land use which includes not only the housing but also the internal roads for circulation, the land for all facilities to be used by the residents and the land for all parks, playgrounds, greens etc. to be used by the neighbourhood.

- The concept of External Development Charges (EDC): Apart from the share of land to be surrendered by the DE to DDA which can be assumed as in lieu of charges (instead of money) taken by DDA for converting their rural or urbanisable land into urban land, the DE also will have to pay External Development Charges per hectare (or per Acre) of the land returned to them as per actual cost incurred by DDA to develop the external infrastructure which includes all the roads, city level greens, services (water, power, waste management) etc. These charges shall be determined and retrieved from the Developer Entities as detailed out in Regulations.
- The Policy also has a provision where the Developer Entity (DE) can participate in the creation of external infrastructure at city level subject to the approval of the Competent Authority (in this case presumably DDA as the decision making body). In this case it can be assumed (though there is no mention in the policy) that no EDC shall be charged since the DE is developing the same.

II. Gurgaon, Haryana

In Gurgaon, a joint development model with extensive private sector participation has been followed. The cost of land development is met through private developers' equity, installment payments by purchasers of plots/ houses, and commercial financing. Internal infrastructure provision is the responsibility of the private developer, while external infrastructure is provided by the Haryana Urban Development Authority (HUDA), financed by levying external development charges.

Context

The Haryana Development and Regulations of Urban Areas Act, 1975, is a legal mechanism to enable greater private participation in the supply of serviced urban land by designating certain planned areas for private land assembly. The Act provides for the licensing of private developers to purchase land directly from land owners through negotiated land purchase and develop these lands for residential purposes.

Process

According to the Haryana Development and Regulations of Urban Areas Act, 1975, any owner desiring to convert his land into a colony can apply for a license to the Director, Town and Country Planning Department, Haryana. Licenses are issued to private developers under Section 3 of the Act for a period of 2 years, which can be renewed from time to time for a period of one year. The private developer thereafter becomes a coloniser and is responsible for site development including provision of internal infrastructure. In practice, developers such as DLF, Unitech, etc. assemble land prior to applying for a license. The DTCP has approved minimum area parameters for grant of license in areas with different development potentials; high, medium and low development potential zones are identified which require different levels of land aggregation (DTCP, Haryana, n.d.)⁵.

⁵ Available at: tcpharyana.gov.in/CIM/Policy.htm. Retrieved on 27th August 2014.

Outcomes

The joint development approach has been extensively applied in Gurgaon. Initially, the model started with plotted development, but over time it has shifted to apartments. Of the total township area in Gurgaon, half is being developed by private developers and the other half by HUDA itself, with HUDA responsible for overall planning and off-site infrastructure. The 1,430 hectares of land reserved for private development have been acquired by five main real estate companies: DLF Ltd., Ansal Group, Unitech, Utility Builders and ITC Group (Gill, 2002; cited in: IDFC, 2009). The first licenses were issued in 1980 and the licensing/ acquisition process continued through 1984 (*ibid*).

Pros

- Cost sharing between the government and private agencies
- Negotiated prices are about three to six times higher than the government value, which facilitated land assembly (Mitra, 2002).

Cons

- Private sector involvement in land assembly can lead to large scale speculation in land.
- Significantly higher negotiated prices between private developers and farmers led to friction between the public bodies and developers (IDFC, 2009).
- Norms related to the EWS/ LIG housing provisions were not fully applied (*ibid*).
- Development of trunk infrastructure by HUDA focused on roads; water supply, drainage and sewerage were constantly ignored (*ibid*).

III. Navi Mumbai, Maharashtra

The City and Industrial Development Corporation (CIDCO) was established to plan and implement the development of Navi Mumbai by converting 344 sq.km marshy land in Thane and Raigad districts in the early 1970s. The area covered under the project had about 170 sq.km of private land and an equal area of forest and government land. CIDCO went for bulk land acquisition for development to have better control of the environment and to use land as the main resource for development. Instead of a conventional land acquisition approach of offering cash compensation for the agricultural land under terms which have traditionally evoked strong opposition, CIDCO offered a combination of cash payments at existing use rates, and the provision of developed plots, according to the size and value of land acquired. This method of compensation evolved over a period of time.

Context

The Maharashtra Regional and Town Planning Act (MRTP Act), 1966 gives powers to the Special Planning Authority to acquire land necessary for the purpose of development either by agreement or under the Land Acquisition Act, 1894. The Act was amended in 1971 to give powers to the state government to acquire land for a Corporation or a Company (e.g. CIDCO) declared to be New Town Development Authority (Section 113A, MRTP Act).

Process

As per CIDCO (CIDCO, n.d.)⁶, "The first step was to identify all the land that needed to be acquired for Navi Mumbai. The entire private land was to be acquired by the government and placed at the disposal of CIDCO. Land holdings were small and of irregular shapes, therefore, land assembly was a difficult task. Government lands and salt pan lands were, however, bigger in size. By February 1970, the government notified for acquisition of privately owned land covering 86 villages and measuring 160 sq.km within the present limits of Navi Mumbai under the MRTP Act. Land belonging to nine other villages, measuring 29 sq.km, was additionally designated in August 1973 for inclusion in the project area. In spite of some challenges, CIDCO acquired all the land after settling disputes about compensation. In March 1971, CIDCO was named the New Town Development Authority for the project. In October, the same year, CIDCO prepared and published a Development Plan as required by the MR & TP Act, 1966".

In order to have greater public participation, CIDCO experimented with a number of land-for-land compensation schemes for the project affected persons (PAPs) in addition to the conventional cash-for-land compensation. The PAPs were also provided with benefits of alternative employment, contract jobs, allotment of shops, stalls, trade loan, quarry permission, free vocational training, stipend for education and training program (CIDCO, n.d.)⁷.

Gaothan Expansion Scheme

The Gaothan Expansion Scheme (GES) was initiated in 1986. As per CIDCO (CIDCO, n.d.)⁸, "10% of the land acquired from a village was to be reserved for development and returned back to the villagers. In this 10% reserved land; 50% of land was given to the villagers and rest 50% was used to develop roads, social facilities and open spaces. Developed plots allotted to PAPs ranged from 100 sq.m to. 500 sq.m. Landless labourers, salt-pan workers and village artisans whose livelihood depended on the rural activities that existed before CIDCO acquired the lands, were entitled to a minimum of 40 sq.m plot under this scheme. The lands reserved for GES were around existing gaothans. The GES benefited small number of beneficiaries, only 27 Ha land was allotted covering 7 villages over 4 years. The GES was subsequently closed in 1990."

12.5% Scheme

12.5% schemes was announced in 1990 and extended to all the PAPs. In this scheme, "The PAP is given back developed land which is 12.5% of the land acquired from him. Out of the 12.5% entitlement, 30% is reserved for social facilities and public utilities. Thus, net allotment would be

Navi Mumbai Airport R&R Policy: The new Government Resolution has incorporated the airport land compensation model. The CIDCO land compensation model of 22.5% with 2 FSI also includes relief and rehabilitation package of houses three times the size, for project affected persons (PAPs) from the core aeronautical area.

Source:
<http://timesofindia.indiatimes.com/city/mumbai/Cidco-upbeat-about-land-acquisition-from-project-affected-persons-for-Navi-Mumbai-international/>

⁶ Available at: http://www.cidco.maharashtra.gov.in/NM_Developmentplan.aspx. Retrieved on 19th August 2014.

⁷ Available at: http://www.cidco.maharashtra.gov.in/RM_Rehabilitation_Strategy.aspx. Retrieved on 19th August 2014.

⁸ Available at: http://www.cidco.maharashtra.gov.in/RM_GaothanExpansionSchemet.aspx. Retrieved on 19th August 2014.

8.75% of the land acquired from him. The plot allotted to the individual has 1.5 FSI and 15% commercial component permissible on the plot. The PAP can develop the plot individually or enter into an agreement with the developer for development. The 12.5% Scheme became fully functional in 1994" (CIDCO, n.d.)⁹.

Outcomes

CIDCO acquired 194 sq.km of land, of which 141 sq.km was private land, including 23 sq.km salt-pan land and 53 sq.km government land. By 2000, CIDCO had developed about 118 sq.km of land, of which 54 sq.km is saleable under various land uses and it has sold about 22 sq.km (IDFC, 2009). CIDCO earmarked approximately 11 sq.km net land for the 12.5% scheme and has so far disbursed more than 7.5 sq.km land. The disbursal of land was slow till 2005 (CIDCO, n.d.)¹⁰.

Pros

- Strong participatory and pro-poor mechanisms expedited land assembly (Mitra, 2002).
- Shaw, 2004 (cited in IDFC, 2009) notes that the CIDCO model has been largely successful because of the property market boom that followed the stock market boom during the 1990s and the pick-up of demand for land thereafter.

Cons

- Much of the developed residential plots handed over to the project affected persons are purchased by private developers/ promoters (Vedula, 2007).

IV. Ahmedabad, Gujarat

Context

The Town Planning Scheme (TPS) was first introduced in Bombay (presently Mumbai) under the Bombay Town Planning Act of 1915 for the development of 7 acres in Bandra. This technique was extended to the rest of the erstwhile Bombay Presidency which included parts of present day Gujarat and Maharashtra. More than 120 schemes were completed in Maharashtra covering more than 100 sq. km. including one of the larger TP schemes for Pune which covered 1500 acres (Deuskar, 2011). The first TPS for Ahmedabad was prepared in 1917 for Jamalpur (Gurumukhi, 2003). The earlier Act became the basis of the Gujarat Town Planning and Urban Development Act, 1976 under which TPS was enabled in Gujarat (IDFC, 2010).

⁹ Available at: http://www.cidco.maharashtra.gov.in/RM_125scheme_Intro.aspx. Retrieved on 19th August 2014.

¹⁰ Available at: http://www.cidco.maharashtra.gov.in/RM_125scheme_Intro.aspx. Retrieved on 19th August 2014.

Figure 6: Land Parcels before the road, with the road & after readjustments around the road



Source: Ballaney, Shirley (2008): The Town Planning Scheme Mechanism in Gujarat, India.

TPS is a hybrid form of land readjustment where agricultural landowners on the urban fringe give up part of their land in exchange for compensation (maximum of 40% of original plot) to the Government. The Government builds roads and other civic amenities on a portion of this land and retains a portion of it to sell¹¹ at auctions for raising revenue for infrastructure. The remaining land is reconstituted into new, serviced plots and returned to the original landowners who can sell these plots, usually at a high price to developers, or build on them. The landowners have to pay half the increase in value of their land to government as a betterment charge (Deuskar, 2011). The institutions involved in this process are the State government who approves the TPS and the local institutions viz. either the Ahmedabad Municipal Corporation (AMC) in their jurisdiction or the Ahmedabad Urban Development Authority (AUDA) for the surrounding region within their jurisdiction who propose, draft and carry out the processes of finalizing the TPS (Deuskar, 2011).

The TPS works within a Development Plan (DP) framework in Ahmedabad where the AUDA prepares the DP every 10 years or so which serves as a “comprehensive strategic document for the development of the city” (Ballaney and Patel 2009). This plan usually includes a land use Master Plan, identifying surrounding areas for expansion, based on estimated population growth. These areas are then rezoned for non-agricultural uses (residential, commercial, industrial, institutional, etc.) and then these newly urbanizable areas are divided into smaller segments of 250–500 acres (100–200 hectares) having approximately 100 to 250 landowners with detailed physical plans prepared which are known as the TPS (Deuskar, 2011).

¹¹ As per amendment to GTPUDA Act, 1976 in 1986, sale of plots (up to 15% of scheme area) was permitted to finance the scheme (IDFC, 2010).

Figure 7: Identification & Inventory of all parcels, planning roads and amenities, readjustments of parcels in proportion to original holdings



Source: Ballaney, Shirley (2008): The Town Planning Scheme Mechanism in Gujarat, India.

Process

The Town Planning Schemes (TPS) have been described by Deuskar (2011) as “a planning, infrastructure development, implementation, and financing tool that can be used to fill in the details of a development plan”.

Figure 8: Sequence of Town Planning Schemes in Ahmedabad


As Deuskar (2011) further describes the process, it is stated that the government body in charge of the area (AMC or AUDA as is the case) prepares a draft plan for the scheme based on necessary surveys and ownership details of the area. The plan shows the proposed road networks which take up 15-20% of the total area under consideration, location of social infrastructure including parks, schools, neighbourhood centers along with sites for low-income housing and land to be auctioned by government which constitutes another 15-20% of the area. The remaining 60-70% of the land is reconstituted into final plots for the original owners with the same proportion (in percentage) deducted from each plot as required for the earlier requirements and the location of these final plots are kept as near to the original plot as possible through plot reconstitution.

All TPS go through draft, preliminary and final schemes and each stage needs to be approved by the State government. Once the draft scheme has been prepared, only then the public consultation process begins with the landowners and the government can take possession of

the land required for construction of roads at this stage¹². After the draft scheme has been discussed with the landowners and modified as per their suggestions and the State government's discretion, the preliminary scheme is prepared and at this stage, the land for infrastructure and other amenities for public purpose are also transferred to the government while the negotiations with the landowners continues only in terms of financial matters¹³. The preliminary scheme is modified with only changes in financial matters permitted to prepare the final scheme and this entire process as per the Gujarat Town Planning and Urban Development Act, 1976 should be completed in four years.

Outcomes

The legal amendments made to the GTPUDA in 1986 & 1999 mentioned earlier have radically improved the timelines and financial viability of the TPS along with increased land values and demand for serviced urban land. As Mathur (2013) explains:

“First, a rapid increase in the value of developed urban land enables local governments to generate substantial revenue from the sale of reserved land. Second, the local governments retain the reserved land for a significant amount of time before selling it, thereby benefiting significantly from increases in land prices. Third, a revolving fund system, wherein the revenues from older LR projects fund infrastructure in new projects, helps to finance the up-front infrastructure costs and eliminates the need to sell the land early or to seek loans.”

TPS became the predominant urban expansion tool in all the major cities in Gujarat and in especially Ahmedabad, AUDA has prepared over 109 schemes while Ahmedabad Municipal Corporation (AMC) has prepared 61 in the last 4 decades (IDFC, 2010). However, Adhvaryu (2011) claims that the Ahmedabad Development Plan “lacks analytical rigour and transparency” along with “a lack of clarity on how the final plan was finally decided”. Similarly, a “mismatch between objectives and the means to achieve them” has also been cited and these concerns could also result out of the use of TPS which themselves have been accused of similar concerns.

Pros & Cons of TPS in Ahmedabad

As Chandan Deuskar (2011) points out:

“TPS in Gujarat has many similarities to land readjustment as it is practiced in countries such as Germany, Japan, and China. However, there are several key differences between TPS and land readjustment as it is commonly understood. In TPS the state government initiates the process, while in other countries municipalities and landowners initiate and manage land readjustment projects. TPS does not require the consent of landowners, whose participation is compulsory. In contrast, land readjustment projects require majority consent; they use compulsory land acquisition only in the case of minority

¹² As per 1999 amendments to GTPUDA Act, 1976 including tighter time limits in the process (IDFC, 2010)

holdouts. Whereas land readjustment treats landowners as stakeholders who help shape the design, finances, and management of the scheme, in TPS landowners only react to plans devised by authorities. Lastly, TPS involves monetary exchange in the form of betterment charges for increases in land value and compensation for land taken, which is not the case in land readjustment, where only land is exchanged."

The general advantages of the TPS are that both landowners and government benefit from this process which is generally seen as a democratic win-win proposition for all parties involved. However, these landowners on the urban fringe are not necessarily poor rural farmers and according to many officials, planners, and developers in Ahmedabad, a significant proportion of urban fringe land is owned by speculative land assemblers, developers, businesspeople, and even politicians and bureaucrats (Deuskar, 2011). The TPS is also seen as an example of a new market-friendly approach, a smart way of financing public infrastructure, earlier financed by cash-poor cities or unpredictable State allocations. However, given the murky nature of how land transactions are usually recorded in India, it is virtually impossible for the government to value land accurately which is anyways a challenge even in the most developed of nations (Chandan Deuskar, 2011).

TPS process is portrayed as being very different from conventional city planning, 'which has been discredited not only in India, but worldwide' (UN Human Settlements Programme, 2009). Since, conventional planning processes rely on static and inflexible master plans, while TPS are less ambitious, more flexible, seeking to "use the land market and not thwart it" (Ballaney & Patel, 2009). However, with the discretion of the State government in its approvals and the role of the appointed Town Planning Officer who oversees the scheme, the entire process often gets delayed and can take much longer than the stipulated 3-4 years (IDFC, 2010).

In terms of issues regarding land records and related disputes, as per IDFC (2010), the "TPS process does not settle land ownership disputes, it just transfers them to the newly reconstituted plot, thereby not holding up the TPS approval process".

In this context, the plot reconstitution exercise in Trichur, Kerala conducted by the Trichur Urban Development Authority (TUDA) is worth a mention. TUDA engaged with 7 land owners in the city who were required to pool their lands and TUDA reconstituted their plots with varying returns for each owner based on discussion with the landowners without any valuation and a time-bound programme to be finished in a total of six years. TUDA was required to provide all infrastructure within 3 years and if it failed to do so then all the land would revert to the landowners while the owners were required to build on these lands within the next 3 years, failing which all the land would transfer to TUDA. In this case, the exercise was successful and TUDA recovered the entire cost of providing infrastructure and made a profit by selling the developed land it had retained as its share in the process (Acharya, 1988).

Lastly in terms of equity concerns, the TPS in Ahmedabad requires up to 10 percent of the pooled, serviced land be allocated for housing the urban poor. However, in actual experience, 10 percent of TPS land that is to be used for low-income housing, in AUDAs schemes, is not reserved and as per studies of certain schemes, less than 3 percent had been allocated. Most of the reserved Land was either illegally used for residential or commercial uses, left unused or used for agriculture (Deuskar, 2011).

V. Hyderabad, Undivided Andhra Pradesh

Context

As per the Hyderabad Metropolitan Development Authority (HMDA) Act 2008, any land required, reserved or designated in the Metropolitan Development Plan or a Development Scheme or a Land Pooling Scheme was deemed to be land needed for a public purpose within the meaning of the Land Acquisition Act, 1894 and was acquired by the Government on request of the authority, under the following mechanisms.

- *Cash Compensation through Negotiation:* The authority may acquire land by agreement by paying such amount as may be arrived at through negotiated settlement.
- *TDR:* The authority can also acquire land by way of according transferable development right through issue of Development Right Certificate in lieu of payment towards cost of land, provided that the TDR may be arrived at on the basis of relative land value and equivalent amount or both export and import areas as per the Registration Department records. This TDR may be utilized to add additional built space by the owner or by transferring it to any other person in full or in part for use in a less developed area.
- *Accommodation Reservation:* The authority can also acquire land by permitting an equivalent built-up space in addition to built-up space for the amenity or facility, in lieu of the cost of the land and the built up space for the amenity transferred to the authority.

In addition to these mechanisms, section 24 of the HMDA Act empowers the Metropolitan Development Authority to develop a Land Pooling Scheme (LPS) in an area on its own or authorize any other body or licensed developer to do so.

Process

According to the HMDA Act and Land Pooling Guidelines, the selected area for land pooling scheme should be adjoining a developed/ developing area and shall have proper accessibility, preferably by a road not less than 12m in width. Two types of land pooling areas were developed: road development and township development. Type 1 LPS was for approximately 2 to 3 times of the road width as provided in the notified Master Plan/ ZDP. In case of Type 2 LPS, with a minimum area of 75 Ha, two-thirds of the private land owners need to be willing to take up the land pooling scheme (GoAP, 2008; GoAP, n.d.). Development to be as under:

- 5% housing for EWS and LIG
- 10% parks and playgrounds
- 2.5% for social infrastructure
- 5% to be surrendered to HMDA
- Balance for circulation and plots and development use
- Out of the area for development use, 20% area shall be set apart and developed for LIG and MIG equally

A private developer may be given license for land pooling scheme provided that –

- Lands covered by such schemes shall be contiguous and approachable by an existing road
- The total area of such land pooling scheme shall not be less than 50 hectares and for commercial development not less than 2 hectares
- All the above development conditions need to be fulfilled as well

Outcomes

In 2013, the HMDA declared its intention (Public Notice No: 011094 / Plg /HMDA/2013, available at: [http://www.hmda.gov.in/pressRelease/Public%20Notice%20\(PRO\).pdf](http://www.hmda.gov.in/pressRelease/Public%20Notice%20(PRO).pdf)) to undertake Pilot Land Pooling Schemes under Section 24 of the HMDA Act for two areas: 1) EdulaNagulapalle - Kollur and 2) Pratap Singaram – Gowrelli. The process is underway.

Vijayawada Municipal Corporation in Andhra Pradesh used land pooling under PPP to assemble 227 acres of land at Gollapundi and Jakkampudi villages in Vijayawada in 2007-08. The land owning farmers joined hands with the state government and provided 40 per cent of their land for provision of infrastructure and housing to the poor and low-income segments of the population. More than 9,000 houses have been sanctioned for the poor and low-income groups by 2013, and the related infrastructure is also in place. More than 5,000 houses have been finished and allotted.

Source: Ahluwalia and Mohanty, 2014.

VI. Magarpatta, Maharashtra

Context

Located in Hadapsar on the eastern periphery of Pune, Magarpatta City stands on 400 acres of erstwhile farmland that has been owned by the Magar farming community for over 300 years. Hadapsar, the part of Pune where Magarpatta City is located, also houses a large industrial estate as well as several Information Technology (IT), Information Technology Enabled Services (ITES) and biotechnology companies. Consequently there was and continues to be a great demand for housing space as well as commercial and retail establishments in the area. Moreover, the 1982 draft Development Plan for Pune identified this area of the city as being a potential location for increasing urban development (Dalal, 2008). Feeling the pressure of urbanization, the farmers in the region (small and medium landholders) were worried by the prospect of losing both their homes and livelihood if the area were to be developed as part of the city. Small farmers in the area had already begun to sell off their land (Dalal, 2008). Collectively, the community owned more than 400 acres of land. Taking advantage of the existing demand in the area, the farmers decided to pool their land together and develop it themselves instead of selling it to another developer.

Process

The Magarpatta Township Development and Construction Company (MTDCC) was formed as a private limited company to oversee development and management of the project. Before forming the company, a variety of models were considered, including a co-operative approach. The co-operative approach was rejected partly based on the experiences of the sugar co-operative movement in Maharashtra but also because landholding sizes within the community varied immensely. A co-operative structure would have stressed equality rather than equity and might have dampened some of the enthusiasm and initiative that the families had. In addition, since landholding sizes ranged from one acre to 150 acres, giving equal importance to all landholders would have taken away the incentive the farmers had for pooling their land (Deshmukh, 2008; Ganguli, 2008) Prakash Deshmukh, the architect (i.e. the physical designer) of Magarpatta City, explained that the driving idea behind the formation of a private limited company was to put a structure in place that functioned efficiently but was also democratic, thereby giving the landowners a say in the running of the business. He added that the forming of the company was made easier by the fact that all the farmers, including Satish Magar, owned

and farmed their own land. Each family got shares proportional to its landholding and has been made an equity shareholder. Each share is equal to one square metre of land. The shares of the company may be held and traded among member families only and not publicly traded. The company is run by the managing director and the technical director in consultation with the board of directors, eight of whom come from the landholding families (Deshmukh, 2008; Ganguli, 2008).

Another major obstacle to the development of Magarpatta City was the lack of financing. As farmers, the Magars did not have significant capital to invest in the development of the project. However, they did have one big advantage: since they as landowners were themselves developing the land, they did not have any land acquisition costs nor any displacement or resettlement issues. Given the regulatory structure for lending to real estate companies in India at that time, it was difficult to get bank loans for development projects.¹⁴ In addition, bankers and financiers did not consider the project to be feasible. During interviews with bankers at the Housing Development Finance Corporation (HDFC) as well as with employees at MTDCC, respondents explained the bank's reluctance in financing Magar's proposal: a group of farmers with no prior knowledge or experience in real estate development did not inspire confidence in lenders. However, Satish Magar approached the managing director of HDFC, Deepak Parekh and managed to obtain an initial loan of Rs. 2 crore (approximately USD 420,000) to help them start construction (Dalal, 2008).¹⁵ Moreover, HDFC also entered into a preferential lender agreement with MTDCC whereby it offered lower rates of interest for retail home loans to those interested in buying property in Magarpatta City (Interviews, Banking officials - HDFC, 2009) .

The actual planning and design process was essentially managed and controlled by the board of directors. The time that it took to get the necessary clearances from the government was used for capacity building. The company promoted and encouraged entrepreneurship among the farmers by providing special training to develop particular skill sets relating to construction, development and associated services. At least one working member from each of the 120 farmer families was trained based on aptitude tests so that he would be able to assist with the actual construction of the project. Some farmers were sent to various construction sites across India to study how other projects were being executed while others were sent to learn construction management or other specific skills at local technical institutes. Satish Magar provided the funds for this initial training personally. As a result, the company had its own team trained by the time it was ready to start construction. This had a dual purpose: not only did it cut down on the cost of construction since most of the work was being done in-house; it also helped erstwhile farmers to gradually transition into alternative occupations ensuring that they were not unemployed when their land was put to non-agricultural uses.

The farmers themselves did most of the actual construction work from laying bricks and shifting soil with their farming equipment to managing the construction project. The first phase of construction involved the simultaneous building of villas, a few apartment blocks, some commercial space as well as part of the IT Park. Magarpatta City targeted IT firms and their

¹⁴ Loans in India are typically granted for construction costs rather than land acquisition. Once the state or city government agency approves plans, the financial institution loans money on a phase-by-phase basis, requiring the simultaneous development of a revenue stream and the completion of one phase of construction prior to loaning more money.

¹⁵ USD 1 is approximately equal to Rs. 48 at the present exchange rate (2009).

potential employees. The money that was generated by selling or leasing these developments funded further construction. Also, the company assured itself a constant revenue stream by not selling any of the commercial space in the IT Park but only leasing it and also retaining control over the maintenance of the entire project.

Outcomes

Post-development, most of the families continue to stay on site and own either apartments or villas that they have bought with the money they made through the company. As shareholders in the Magarpatta Township Development and Construction Company (MTDCC), they continue to earn a proportion of the company's profits. Moreover, a number of them have succeeded in renting out some of their property, creating yet another source of income. The land also continues to be registered in their name, maintaining ownership and giving them a sense of security. Farmer families have also managed to move beyond agriculture and into other occupations. Several spin-off subsidiary businesses have emerged such as local companies providing cable TV and broadband Internet, catering and food supply, laundry, landscaping and a local transport system. About 70 per cent of the families are now under tax audits, earning a minimum of Rs. 40 lakh (approximately USD 85,000) a year and paying a total of about Rs. 10-12 crores in taxes as a community (Dalal, 2008).

Pros

There was no displacement of the erstwhile residents of the land that was developed into Magarpatta City. Also, given the focus on capacity development during the construction period, all the farmer families were able to successfully transition to other forms of employment despite not being able to farm the land any more.

Cons

The success of this project depended heavily on the social networks and trust within the Magar community, which will be difficult to replicate. The MTDCC itself has only just begun work on a second project in Nanded that draws on this model of land acquisition and development. There are also broader environmental and food security concerns of using fertile arable land for urban development.

VII. Japan

"A method whereby the ownership of scattered and irregular plots of agricultural land is pooled, roads and main infrastructure are built, and the land is then subdivided into urban plots. Each landowner must contribute a portion of their previous land holding (commonly about 30% of the total) to provide space for roads, parks and other public space, and for reserve land. The reserve land is sold at the end of the project to pay the costs of planning, administration and construction. The attractiveness of the method for landowners is based on the fact that substantial increases in the value of land may be achieved by the process, so that the value of the individual land holdings can be greatly increased, even though the remaining area is smaller. The attraction for planning authorities is that projects provide land for public facilities, and build much needed urban infrastructure" (Sorensen, 2000).

Context

Land Readjustment (LR) in Japan was practiced in Japan (even before it was legalized in 1919 under the City Planning Act) to develop public facilities and to improve development potential. It was initially used as a method to develop residential land in suburbs, in practice this process ended up being used to improve infrastructure in built-up areas. Later, on guidelines for use of Land Readjustment for both urban renewal and developing new towns were provided under the Land Readjustment Act, 1954 and subsequently, the City Planning Law of 1968 that recognises this method as one of several methods for urban development (Schnidman, 1988).

Institutionally, the vehement opposition of landowners to expropriation of their lands for urban development resulted in multiple actors who could initiate the land readjustment process for large development projects. These actors in Japan were private associations, local governments, the National Ministry of Construction and public and private corporations. Privately implemented projects focused on suburban residential developments and urban renewal in the city centers while public (or quasi-public) projects focused on public infrastructure improvement (Schnidman, 1988).

Process

As Schnidman (1988) explains, all private associations initiating Land Readjustment projects "must obtain the agreement of two thirds of the area's land owners and lease holders who must own more than two-thirds of the owned land and lease more than two-thirds of the leased land". In the case of private individual owner taking up such a project, all landowners must agree to participate in LR projects (Sorensen, 1999).

Public notice of the development plan of all projects is required before an opportunity for comment after which the final review is done by a designated public authority. As Schnidman (1988) explains, the "redistributed and original parcels must correspond closely in terms of location, environmental conditions, land use and size" and "any equity loss that results from" reconfiguration of the plots must be "compensated by the executing body". Cost of infrastructure and public facilities is met with a combination of sale of cost-equivalent land and subsidies or low-interest loans from the national, prefectoral or local governments. Private association projects and public corporation projects rely mostly on remuneration from land sales (where private associations sell 70-80% of remunerative share of land to public agencies for schools or public housing and publicly sponsored projects auction land to general public)

while projects undertaken by local governments rely mostly on national subsidies. These public auctions often lead to speculation and as there are no timelines for building on auctioned lands, the housing may get delayed.

The land share retained by executing body (public or private etc.) varies between 30% including 20% for public uses and 10% for remunerative purposes in developed areas or in government assisted projects while this share may be higher in undeveloped sites and non-subsidised projects.

Outcomes

Since LR projects had a historical existence in Japan pre-dating its 'legislation', it was highly evolved and was used for reconstruction after the catastrophic 1923 earthquake and World War II. LR continues to play a role in Japan's urban development with nearly half of the cities in Japan having used this method (Schnidman, 1988). By 2000, 30% of the urban areas in Japan were developed using LR as the method (Sorensen, 2000).

VIII. South Korea

Context

The Japanese introduced Land Readjustment (LR) during their occupation of Korea between 1905-1945 to modernize urban areas and accommodating rapid growth. As La Grange and Jung (2004) state "the legal basis for the LR projects can be traced to the Choson Urban Planning Act of 1937 which was incorporated into the Urban Planning Act of 1962" and later there was a separate Land Readjustment Act enacted in 1966, as in Japan.

Institutionally, municipalities, private individual owners and landowner associations could also undertake these projects but all projects require the approval from the Ministry of Construction. In the case of municipal projects, consent of landowners was not required whereas in the case of a private individual owner taking up such a project, all landowners should be willing participants and for the associations a similar clause as exercised in Japan's LR projects for two-thirds consent is required without any mention of leaseholders (Schnidman, 1988).

Process

After the Korean War during the early 1950's, LR projects were mainly used for reconstruction of existing urban areas which were destroyed. Millions of refugees from North Korea also settled in and around these existing urban areas during the post-war period (La Grange & Jung, 2004).

According to La Grange and Jung (2004), these LR schemes were very attractive for the Korean state which "did not have the financial capability to reconstruct and expand" these urban areas, also the "land for public facilities and infrastructure (around 30 per cent of the project areas) could be obtained for free" and the state was not "burdened with construction costs as these were recovered by selling land for cost-equivalence (around 20 per cent of the project areas)" and in some cases 10% was sold once these projects were completed (Schnidman, 1988).

Outcomes

The LR projects were significant in view of the state's economic development plans which were inaugurated in 1962. As La Grange and Jung (2004) point out:

"During the 1960s and 1970s, an era of rapid urbanisation, LR had a virtual monopoly in urban development. In fact, most existing big cities, including Seoul, were developed with the use of LR projects. LR projects were used to develop over 50 per cent of built-up areas in Seoul, over 30 per cent in Kwang-Ju, over 40 per cent in Pusan and similar proportion in other cities by 1975, and at virtually no cost to the government."

Pros & Cons of Land Readjustment in Japan and South Korea

Both these nations had a few common elements:

- A legal basis to undertake land readjustment projects with adequate safeguards for various stakeholders, with varied consent conditions for LR projects for different types of initiators. Japan has five types of project executors (with three public and two private executors) with a difference in the formal legal procedures used for each.
- Both used LR as a method of land assembly in post-war or post-disaster conditions for rebuilding of location-wise high value land when the state finances were quite inadequate and land expropriation with appropriate compensation would have been quite expensive.
- Since 1981, South Korea was the only LR system to include a special land contribution for low income housing which could be sold only to low income families at reduced prices or sold with the proceeds earmarked for public housing subsidies.
- Another outcome of these LR projects in South Korea with almost 40% of the land being utilized for public uses including financing of infrastructure in order to keep the land reduction rates at an acceptable level to the landowners, community facilities were reduced to decrease land and cost requirements in the face of rising construction costs (Schnidman, 1988).
- In the South Korean case, LR was later prohibited in big cities such as Seoul (in 1984) due to administrative difficulties, large portions of land reduction. It was replaced with public management development (PMD) projects through which more affordable housing was developed.

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**Report of the Expert Committee appointed by the
Ministry of Home Affairs, Union of India to
Study the Alternatives for a New Capital for the
State of Andhra Pradesh**

SUPPORTING DOCUMENTS

SUPPORTING DOCUMENT I

A COMPREHENSIVE DEVELOPMENT PACKAGE FOR ANDHRA PRADESH, OPTIONS & INDICATIVE INVESTMENT PLAN FOR CAPITAL ZONE DEVELOPMENT

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Summary

The bifurcation of Undivided Andhra Pradesh (UAP) into Telengana and Andhra Pradesh in June 2014 has been the result of a deeply contested process. Questions of the location and form of the capital(s) for the residual state of Andhra Pradesh are closely tied to historical questions and settlements as well as to the popular and political perceptions of how they should be resolved in the current environment.

The process of bifurcation and the distribution of assets and liabilities, when combined with the need to build new infrastructure, implies that Andhra Pradesh will start at a fiscal and economic disadvantage compared to other states in its neighbourhood in South India.

Regional differentials

Within Andhra Pradesh, there are stark regional differences in resource endowments and development status as well as the potential for growth, employment and poverty reduction. Institutional capacities are also unequally distributed with Hyderabad hosting a lion's share of central institutions and high-quality education and social infrastructure in the region.

The endemic backwardness of Rayalseema, much of Uttar Andhra and the upland and forested areas of coastal Andhra, are important developmental and political challenges that will have to be addressed by concrete steps by the new AP government. As the political consciousness of the region has been heightened by the unified Andhra Pradesh and Telengana movements, it will be difficult to return to an earlier (1990s and 2000s) promise of incremental development.

Strategic Advantages

Andhra Pradesh's strengths, however, are also significant. It has some of the most productive agricultural land in the country; a long coastline with aquaculture potential; significant mining and offshore oil and gas reserves; moderate levels of human development; significant entrepreneurial groups; moderately well-developed road and rail infrastructure; growing concentration of industrial activity; considerable potential for renewable energy development, and a large and prosperous diaspora.

Livelihood challenges and Priorities

Yet, between 0.2 and 0.3 million new jobs will have to be created every year in Andhra Pradesh to absorb new entrants into the workforce, within which youth employment remains the highest priority. This is especially true in backward areas of Rayalseema, Uttara Andhra and some areas in coastal Andhra, which have experienced farmer suicides, destitution and increasing outmigration due to very difficult livelihood conditions and endemic drought.

Strategic infrastructure development

The development of strategic rail and expanded road connectivity, the development of new ports and their connection to this network, a state gas grid and universal access to high-speed Internet across the state will place it an important strategic position along India's eastern seaboard. The

coverage of all settlements in the state with 3G and 4G optical fibre linked connectivity would enable the rapid expansion of service industries to small towns. It is possible, given Andhra Pradesh's settlement structure, that industrialisation does not have to be accompanied by mass migration as in the case of China. The development of strategic infrastructure and the commitment of the GoAP to balanced regional development provides the state with the option to build Capital zones in more than one location, balancing economic development imperatives with regional political aspiration.

Educational institutions

The location of educational institutions, as defined in the AP Reorganisation Act (2014) should be distributed equitably across the 13 districts of the state based on need, functional priority and the availability of land and infrastructure. The opportunity to create educational clusters and hubs that leverage the positive externality of bringing multiple facilities together should be taken.

Healthcare institutions

Access to healthcare institutions is a serious concern across most of the backward areas of Andhra Pradesh, as in the case of educational institutions these should also be distributed equitably across the state. The establishment and expansion of quality tertiary healthcare in Rayalseema, could be enabled by the expansion of existing facilities. Similar attention will need to be paid to other backward areas, including Srikakulam and Vizianagaram districts.

Environment and Sustainable Development

Andhra Pradesh has a rich environmental and natural resource legacy with a large number of biodiversity hotspots and environmentally sensitive areas. The delivery of ecosystem services, especially critically surface and groundwater, across the state are dependent on the health and conservation of many of these natural areas. The future development, especially of Andhra Pradesh' capital zones should follow the core principles of sustainable development. In doing this, Andhra Pradesh, will not only be protecting own interests and that of its people but also setting an example of a new form of decentralised development that seeks to maintain a balance between the urban and rural, development and environmental conservation and poverty reduction, economic and infrastructure development.

Upgrading Urban Areas

The functioning of both urban centres and Capital zones in Andhra Pradesh will be dependent on the upgrading and establishment of basic, affordable and sustainable environmental services: water supply, sanitation sewerage, drainage and solid waste management. There is much to be improved in terms of universal access, quality of service and infrastructure in most cities and towns. To integrate land use, transportation and economic development, environmental, energy and information services - planning needs to be institutionalised across the state, especially for proposed Capital zones. The development of the state over next decade is opportunity to upgrade skills and institutional capacities, increase the productivity of construction and building related enterprises.

Balanced and decentralised Regional Development

Unlike many other states, the nature and distribution of settlements in urban centres and Andhra Pradesh matches well with a decentralised development strategy that attempts to balance resources and opportunities across districts and regions.

Key principles of balanced regional development that may be used in Andhra Pradesh include:

- First charge of critical development resources, infrastructure and institutions in the service of the most backward regions and populations
- Preference for connectivity to those regions and clusters which have large unserved and poorly connected populations, with the caveat of being economically viable in the long run
- Residual publicly funded infrastructure, institutions and investments in locations and clusters that will enable inclusive development and employment generation
- Appropriate regulation and incentives for private and PPP investment in other locations
- Devolution of administrative functions, to locations in which they best serve their purpose

Comprehensive Development Package for Andhra Pradesh

Based on this a Comprehensive Development Package for the state, has been outlined, based on the following strategic principles and detailed in Tables A to D:

- **Entitlements:** around equitable access to water based on historical agreements
- **Infrastructure:** rail, road, air, port and urban mass transit infrastructure; water, drainage and wastewater; power, gas and telecommunication networks
- **Institutions:** equitable distribution of education and healthcare institutions as part of the Central package and incentives and regulation to attract appropriate private investments
- **Investments:** domestic and international private investment in enterprises, housing and buildings that create the development impetus and incremental employment the state needs; catalysed by Central and State investments, policies and regulation
- **Capital functions:** the Legislature, the Secretariat, the High Court, and associated services, public areas and areas for housing and new development that could be clustered or unbundled into multiple locations.
- **Administrative functions:** the geographical distribution of 110 Departments and allied offices that are currently based in Hyderabad, as expeditiously as possible

An indicative Rs 4.5 lakh crore package based on the agreements contained in the Andhra Pradesh Reorganisation Act (2014) and various statements made by the Government of Andhra Pradesh are presented in Table A.

Table A: - INDICATIVE ANDHRA PRADESH ECONOMIC DEVELOPMENT PACKAGE (2014 prices)

| S.No. | Capital Element | Investment Potential (Rs. crore) | Financing Mode | Remarks |
|---|--|----------------------------------|--------------------------------|--|
| 1 | Central Educational Institutions | 7,000 | Central Govt. | AP Reorganisation Act, Section 93 read with Schedule 13 |
| 2 | Railways | 7,305 | Central Govt. | AP Reorganisation Act, Section 93 read with Schedule 13. (Details in Annexure X) |
| 3 | Major Port (potentially at Dugarajapatnam) | 10,000 | Central Govt. | AP Reorganisation Act, Section 93 read with Schedule 13 |
| Sub-total Central Government | | 24,305 | | |
| 4 | Roads | 22,000 | NHAI & PPP | AP Reorganisation Act, Section 93 read with Schedule 13 (Details in Annexure X) |
| 5 | Airports | 10,200 | AAI & PPP | AP Reorganisation Act, Section 93 read with Schedule 13, (Details in Annexure X) |
| 6 | Metro Rail Transport System | 30,000 | MoUD & PPP | AP Reorganisation Act, Section 93 read with Schedule 13, |
| 7 | Water ways (NW-4) | 1,500 | IWWAI, State Govt. and PPP | APCMO presentation on infrastructure |
| Sub-total Central Authorities PPP | | 63,700 | | |
| 8 | Integrated Steel Plant | 25,000 | Central PSU | AP Reorganisation Act, Section 93 read with Schedule 13, SAIL to examine feasibility. |
| 9 | Greenfield Crude Oil Refinery | 15,000 | Central PSU | AP Reorganisation Act, Section 93 read with Schedule 13, HPCL or IOC to examine feasibility. |
| Sub-total Central PSUs | | 40,000 | | |
| 10 | Gas Grid | 5,000 | Central and State Govt. PSU JV | Gas Grid does not figure in the AP Reorganisation Act. Availability of gas pipeline infrastructure will improve industrialization especially in backward areas. Gujarat has estimated a sum of Rs. 6230 Cr for completion of State Gas Grid. |
| Sub-total Central & State PSUs | | 5,000 | | |
| 11 | Gangavaram LNG terminal | 4,500 | PPP | APCMO presentation on infrastructure |
| 12 | Other Major and Minor Ports | 12,000 | PPP | APCMO presentation on infrastructure |
| 13 | Vizag -Chennai Industrial Corridor | 100,000 | PPP | Former Minister's Statement |
| 14 | IT Investment Region & Electronic Manufacturing Clusters | 200,000 | PPP | Hyderabad ITIR investment potential at Rs. 2.2 L Crore |
| Sub-total State PPP | | 316,500 | | |
| Grand Total Economic Package | | 449,505 | | |
| Note: The investment potential is indicative and would undergo revision upon completion of feasibility studies. | | | | |

Potential Capital Zones

The Andhra Pradesh Reorganisation Act (2014) provides for a period of 10 years during which Hyderabad will remain the joint Capital of the two states of Telengana and Andhra Pradesh. There is however a groundswell of opinion in Andhra Pradesh, both political and popular, that suggests that a movement to a new Capital in a much shorter period of time is necessary. The practical realities of governance of a state of 50 million people spread out over large geography, will require the expeditious establishment of core governance and policy making functions within the territory of the state.

The imagination that Andhra Pradesh could have multiple Capital zones for different core capital functions, i.e. industrial development, services and knowledge development, and administration and governance, speaks to a 21st-century networked framework of governance and development that does not over-concentrate political, economic power and investment in any single location.

A detailed analysis of the potential of the districts of Andhra Pradesh to locate appropriate Capital zones, based on multidimensional District Suitability Index presented in Table (1) of Annex III. Among others, four broad clusters of locations emerge from this analysis:

- Vijayawada-Guntur
- Greater Vishakhapatnam
- Nellore
- Tirupati-Kalahasti in Rayalseema

Each has its own unique character. Tirupati, given its history as a major spiritual centre, has a large concentration of educational institutions and service industries. Nellore is an important urban centre between coastal Andhra and Rayalseema. Visakhapatnam is a major industrial centre, port and education and services hub. Vijayawada and Guntur are trading towns with a mix of institutional and service sector development located in agriculturally prosperous region with high levels of connectivity. The choices here clearly lie with the Govt of Andhra Pradesh, in consultation with the Centre and its progressive, wide and open dialogue on developmental priorities with citizens.

Each of these locations will need an upgradation of basic urban and social infrastructure; addressing ongoing expanding challenges of urban informality; improved land-use and transportation planning and significantly improved urban service delivery and governance. Given the current economic situation of the state, it may be wise to focus on upgradation of infrastructure and services, using planning and development control instruments along with appropriate transportation infrastructure to help densify existing cities. Only having exhausted that option would it be sense to extend or invest in significant new development on greenfield sites.

There has been a strong tendency in undivided Andhra Pradesh to benchmark the imagination of particular development trajectories to international examples such as South Korea or Singapore. These are positive aspirations but the economic, social and political reality of Andhra Pradesh is so different from these middle/high-income countries that drawing a direct relationship from their experience and current status should be handled with serious caution. This is especially true of the

development of the Capital zone as it has to be economically and fiscally viable in a low-and middle-income transition economy.

One of the most serious risks to the development of Andhra Pradesh's new Capital zones is the limited institutional capacity within the government, public planning and development agencies, to take on such a large process of planned economic infrastructural and social development. There is, however, moderate to high capacity within the private sector to build both buildings and infrastructure, which will be necessary in a largely PPP-driven financing plan. This will need to be harnessed to deliver tangible outcomes, implying that even-handed and balanced urban sector regulation by the state will be necessary.

Overloading both the fiscal capability and the investment potential of the household and private sector as well as the state to build an overambitious Capital may be a serious strategic miscalculation. A cautious approach which matches economic development, employment creation and sustainable investment and funding streams to the requirements for infrastructure and urban development is critical. Pre-emptive and even-handed regulation of factor markets, especially in land and labour, are an important precondition for the success of these initiatives as land is expected to be a significant part of the investment required by the GoAP.

Additional institutional capacities are required to develop Andhra Pradesh's Capital zone(s). Initially the most significant capacity is that of strategic planning to enable the integration of economic development, infrastructure, land use and sustainability planning and social development into the choice of sites and structuring of financial and physical planning and establishing a strategic framework which are situated within a long-term perspective planning frame. Following this the state may need to establish a multidisciplinary spear head team, headed by a senior IAS officer and reporting directly to the concerned minister and the CMO.

An indicative Capital zone investment package for Rs. 27,097 crores is shown in Table B. It has been developed based on three components that detailed in Tables 3 to 5. The first provides indicative cost estimates for buildings in the Capital zone. The second provides broad brush estimates of common infrastructure for this zone. The third makes three estimates for the host city/cities: investments to upgrade to universal provision of basic services as per JNNURM standards; investments required to cater to population growth over a 10 -20 year growth horizon.

**Table B: INDICATIVE COST ESTIMATE FOR AP CAPITAL ZONE BUILDINGS,
INFRASTRUCTURE & HOST CITY/CITIES UPGRADATION & EXTENSION (2014 prices)**

| Capital Zone element | Estimated Investment (Rs. crore) |
|--|----------------------------------|
| Capital Zone(s) Buildings and facilities | 10,519 |
| Capital Zone(s) Infrastructure | 1,536 |
| City Infrastructure upgradation | 5,861 |
| City Infrastructure growth extension | 9,181 |
| Grand Total | 27,097 |

The Search for Andhra Pradesh's New Capital(s)

The search for appropriate Capital(s) for the new state of Andhra Pradesh is not a new process. It is guided by a long history that traces the identity and aspiration of various Telugu-speaking people living across the current states of Andhra Pradesh, Telengana and Tamilnadu. Twice before even in recent history – in 1953 and 1956 – the search for a Capital has taken place in similar situations of social and political transition.

This note is divided into three parts. The first lays out key contexts that frame the challenge of locating and developing new Capital zones for Andhra Pradesh. The second locates these challenges in a frame of regional development. The third and final part then breaks down the process and components of choosing new Capital zones. Annexures present detailed analysis, and an executive summary opens the paper collating key points.

One note on terminology is essential. Throughout this paper, we refer to Undivided Andhra Pradesh (UAP) to refer to the state before bifurcation and to Telengana and Andhra Pradesh (AP) to the states created through bifurcation.

Part One: Contexts

Political and historical context

The bifurcation of undivided Andhra Pradesh (UAP) into Telengana and Andhra Pradesh in June 2014 has been the result of a deeply contested and increasingly bitter process. For over 75 years, the region has been intermittently marked by protest and multiple political accommodations; contests over access to resources, identity and culture; perceived differentiations in entitlements and particular regional trajectories of economic and social development.

Questions of the location and form of the Capital zones for the residual state of Andhra Pradesh are closely tied to these historical questions and settlements as well as to the popular and political perceptions of how they should be resolved in the current environment. These perceptions need to be substantively engaged within and through both political engagement and public discourse. Else, the risk of repeating a mass movement for a separate state of Rayalseema remains which would deepen the political, economic and social turmoil that the erstwhile state of AP has witnessed over the last two years.

In this section, we lay out two key historical contexts necessary to understand contemporary political contestations. These lay out the creation of UAP in the 1950s and 60s from Madras and Hyderabad states, as well as the emergence of the first regional claims in Telengana and Rayalseema.

Linguistic States

The creation of linguistic states has been an important element of Indian Constitutionalism and the overall political stability of the Indian Union^{1,2}. The potential unravelling of this process therefore needs to be viewed with some degree of caution as it may set an inappropriate precedence that could challenge in the integrity of the Union. Indeed, post the announcement of the bifurcation of UAP, similar demands have echoed from various contested regions of the country.

UAP has an important place in the federal history of post-Independence India as the first linguistic state to be created by the bifurcation of the erstwhile Madras Presidency in 1953.³ Later, following the State' Reorganisation Commission in 1956, it would be merged with Telugu-speaking regions of the Hyderabad state in the face of a recommendation to create a separate state of Telengana⁴. However, this history hides layers of complexity and turmoil.

The current bifurcation of undivided Andhra Pradesh can be traced to a series of contests, starting with the popular sentiment against the findings of the Gol's Dar Commission (1948) that recommended that linguistic states should not be created. The unofficial JVP Committee⁵ (1948) countered this by suggesting the creation of a separate linguistic state of Andhra Pradesh on the condition that the Telugu people (who were an important presence in Madras) give up their claim to Madras as part of the bifurcation of Madras Presidency.

This lead to a violent agitation and the creation of the K. Raja-chaired Partition Committee (1951) which in turn could not reach a consensus due to the dissent of T. Prakasam. The Telugu-speaking people of Madras Presidency expressed their displeasure with the Indian National Congress by voting out all their members in the 1952 General Election. T. Prakasam then led a UDF front in the Madras legislature, but it was C. Rajagopalachari (the former Governor-General) from the Congress who was invited to become the first Chief Minister.

The Rajagopalachari government initiated the development of Krishna-Pennar project to bring water to Madras and the Tamil-speaking regions of the state, causing resentment in Rayalseema. The AN Khosla Committee (1952) overturned the decision and recommended the diversion of Krishna water in order to bring water to Rayalseema. This further acerbated local sentiments in favour of bifurcation. The contest was the city of Madras. Claims to make Madras part of "Visalandhra" was seen as unacceptable to both Tamil and central leadership. Eminent Gandhian Potti Sriramulu was martyred on 16th December 1952, while fasting unto death in Madras for the creation of a separate state.

Searing violence ensued. In a hurried response, the new state of "Andhra Pradesh" was announced by Prime Minister Nehru in the Lok Sabha on 19th December 1953. This was made of eleven Telugu districts of Madras Presidency, and three Taluks of the Bellary district, but excluded Madras city.

¹ Granville Austin (2011) Working a Democratic Constitution : The Indian Experience, Oxford University Press

² Francine Frankel (2005) India's Political Economy 1947-2004: The Gradual Revolution, Oxford University Press

³ Andhra State Act (No. 53 of 1053)

⁴ Fazal Ali or State Reorganisation Commission (1953-

⁵ Congress Committee made up of Jawaharlal Nehru, Vallabhbhai Patel and Pattabhi Sitaramaiah

Telangana and Rayalseema

The location of the capital of the first state of Andhra Pradesh (1953-56) was pre-determined by the pre-Independence Sri Bagh agreement (1937) between the leaders of the three regions of Andhra Pradesh keeping in mind the need to balance political power and development across the three regions. This balance would take the form of a state capital in Kurnool, a High Court in Guntur and the creation of Andhra University in Visakhapatnam⁶.

The Fazal Ali or States Reorganisation Commission (SRC; 1953), meanwhile, was examining the grounds for establishing linguistic states on similar principles as that of Andhra Pradesh. One of the most important questions was the trifurcation of the large Nizam's State of Hyderabad into Marathi, Kannada and Telugu-speaking regions to be distributed among the states of Maharashtra, Mysore and Andhra Pradesh. There was some contention about the establishment of a separate Telugu speaking state of Telengana but that was rejected in favour of a composite state of Andhra Pradesh (UAP) with its state capital in the already well-developed city of Hyderabad. A special set of safeguards for the Telengana region was established to protect the interests of its people in relationship to education and government employment in order to assuage regional fears that these would be taken away by better educated migrants from coastal Andhra and adjoining states. This was institutionalised into a 16 point Gentleman's agreement.

Nevertheless, contests and tensions still continued and Telengana region especially around access to education facilities and government employment. This erupted in the form of the Telengana agitation (1968–69) and the subsequent Jai Andhra counter movement (1973) with the aim of re-forming a separate state also called Andhra Pradesh. On 21 September 1973, a political settlement was reached with the Government of India with a Six-Point Formula that was given constitutional sanctity. Key features included: backward area development, educational preference to local candidates, and establishment of the Central University of Hyderabad.

While there were occasional outbursts of tensions in the Telengana region, a long period of economic growth in UAP and the rapid development of Hyderabad with growing number of service and informal sector jobs diverted attention from these issues. Following a political contest within the then ruling party, the demand for separation, however, however re-emerged after 2009 and found its voice in a large mass movement for a separate state of Telengana. As this picked up momentum, a counter movement to maintain undivided Andhra Pradesh also developed with its centre of gravity in coastal Andhra and Rayalseema. Within this, some voices also called for the creation of a separate state of Rayalseema.

A large number of residents of Rayalseema feel strongly that injustice has been done to them in terms of lack of access to Krishna water that has resulted in many years of extreme drought, consequent migration and widespread farmer suicides; lack of social infrastructure including both tertiary medical and higher education facilities; and lack of transmission infrastructure and

⁶ "It is agreed that the location of the University, the Headquarters and the High Court may advantageously be in different places so as not to concentrate all civil importance at the same Centre. Accordingly, it is agreed that while the University may continue to be where it is, the High Court and the *metropolis* be located in suitable places in the coastal districts and Rayalseema, the choice being given to Rayalseema. It shall, however, be open to vary these terms by common consent" Sri Bagh Pact (15th November 1937)

industrial investment, among others. Taken together, the region claims an overall depressed economy with limited livelihood prospects.

Here, the historical counterfactual that Rayalseema could have remained with Tamil Nadu then gains historical currency with some believing that it would have been a better economic choice, even though there may have been some political, linguistic and cultural tensions associated with it. Today, the political call for the establishment of the capital in Rayalseema has found voice in Committee hearings and public gatherings across Rayalseema and in some parts of coastal and northern Andhra.

Economic and Developmental Context

The per capita income and recent economic growth rates of Andhra Pradesh are lower than that of Telengana, placing it among the less developed states of the country. The process of bifurcation and the distribution of assets and liabilities, when combined with the need to build new infrastructure, implies that Andhra Pradesh will start at a fiscal and economic disadvantage compared to other states in its neighbourhood in South India (see Annex II).

Within Andhra Pradesh, there are stark regional differences in resource endowment and development status as well as the potential for growth, employment and poverty reduction. Institutional capacities are also unequally distributed with Hyderabad hosting a lion's share of central institutions and high-quality education and social infrastructure in the region. In addition, some of the more backward districts in Andhra Pradesh have little quality tertiary health care and educational infrastructure to respond to the needs and aspirations of its people.

Andhra Pradesh's strengths, however, are also significant. It has some of the most productive agricultural land in the country; a long coastline with aquaculture potential; significant mining and offshore oil and gas reserves; moderate levels of human development; significant entrepreneurial groups; moderately well-developed road and rail infrastructure; growing concentration of industrial activity; considerable potential for renewable energy development, and a large and prosperous diaspora. This and the next section reviews this resource-base, taking stock of both challenges and assets.

Regional Development Histories

Andhra Pradesh is composed of three broad regions which have different endowments, post-Independence economic and development trajectories and social and political cultures. These are:

- **Uttar Andhra** is made up of the development of backward districts of Srikakulam and Vizianagaram as well as the industrial powerhouse of Visakhapatnam. All have extensive midland and upland areas of relative and sometimes severe backwardness.
- **Coastal Andhra** is made up of the agriculturally prosperous delta and coastal districts of East and West Godavari, Krishna, Guntur, Prakasam and Nellore, with a mix of prosperous agriculture and large unproductive semi-arid areas with endemic poverty
- **Rayalseema** is a semiarid and developmentally backward region made up of the districts of Kurnool, Anantapur, Kadapa and Chittor.

The endemic backwardness of Rayalseema, much of Uttar Andhra and the upland and forested areas of coastal Andhra, are important developmental and political challenges that will have to be addressed by concrete steps by the new AP government. As the political consciousness of the region has been heightened by the unified Andhra Pradesh and Telengana movements, it will be difficult to return to an earlier (1990s and 2000s) promise of incremental development. As later sections will detail, each region has a claim to host the capital and will gain in different ways from it.

Employment

A total of between 0.2 and 0.3 million new jobs have to be created every year in Andhra Pradesh to absorb new entrants into the workforce, within which youth employment remains the highest priority. This is especially true in backward areas of Rayalseema and Uttara Andhra, which have experienced farmer suicides, destitution and increasing outmigration due to very difficult livelihood conditions and endemic drought.

The traditional occupational landscape of the state dominated by agricultural, forest and mining based occupations is starting to change. The key drivers of this change include rising educational and aspiration levels, growth in the share of women in the workforce, the availability of new manufacturing opportunities and the potential of service sector industries such as IT and ITES. The choice of infrastructural and manufacturing investments, distribution of economic activity across state and choices made in the location and development of urban centres, will have an important bearing on employment potential. The building of Andhra Pradesh's Capital zone(s) should provide large direct and indirect employment opportunities, if suitably located and executed.

Geostrategic Location

Andhra Pradesh is positioning itself to become a primary economic entity in the Bay of Bengal region. It has the longest length of coastline and much deeper access to peninsular, Eastern and Northern India, than other neighbouring states like Tamil Nadu. Given the current economic development status of West Bengal and Orissa, this claim is feasible via a convergence of initiatives: fiscal prudence, carefully chosen investments, and policy and implementation coordination.

It may be difficult for Bangladesh and Myanmar to compete with a resurgent Andhra, in spite of their larger demographic size and economic depth. The development of Andhra deep water ports along with efficient bulk cargo and container traffic movement could also provide competition to Sri Lanka as a maritime and transhipment destination. The development of gas and renewable-led energy infrastructure in Andhra Pradesh along with the development of dedicated freight corridors could enable the state to become a significant competitor to Thailand and Malaysia as a cost-effective manufacturing hub for Japanese, Korean, European and US transnational supply chains

The key to this would be developing strategic infrastructure, maintaining competitive transportation costs, rapidly building a pool of skilled manufacturing and service sector workers, and providing an appropriate and responsive investment environment. Utilising the skills and investment of the Andhra diaspora could facilitate this process especially in the deployment of technology, IT, health and knowledge infrastructure in various parts of the state.

Andhra Pradesh could become the primary zone along the eastern coast for international and domestic trade (both import and export); energy production and distribution (thermal gas and renewable) and manufacturing that spans northern Tamil Nadu; eastern and central Karnataka; Telengana; eastern Maharashtra; eastern and central Madhya Pradesh; Chhattisgarh and Jharkhand; Orissa; West Bengal; Bihar, and eastern Uttar Pradesh. In addition, trans-shipment to and from Nepal, Bhutan and Bangladesh and processing of raw materials from Myanmar can be enabled in Andhra Pradesh.

A critical imperative would be to maintain a lower relative wage rates and cost of production than Malaysia, Thailand, Indonesia, Vietnam and southern and western China in a selected cluster of industries. This could assist in the relocation of industries from these regions to Andhra due to wage inflation and a range of environmental concerns, apart from the incentive for multinationals seeking to address the rapidly expanding domestic market. A farsighted policy of skill and knowledge development, infrastructure and industrial promotion, environmental protection and light-touch regulation will be important to operationalise this development strategy.

Strategic and Defence Investments

Andhra Pradesh is also strategically situated at the junction of the Golden quadrilateral's north-south corridor, the developing East coast industrial corridor and the proposed Chennai-Bangalore-Mumbai economic corridor. If the appropriate strategic rail connectivity is provided, the state is well-connected with Calcutta, Chennai, Bangalore and Hyderabad, and through them, with Mumbai/western India and Delhi/northern India. The development of strategic rail and expanded road connectivity, the development of new ports and their connection to this network and universal access to high-speed Internet across the state will place it an important strategic position along India's eastern seaboard. These connections will enable the development of both service industries, especially education, health, IT and ITES, in the smaller cities of Andhra which should have cost arbitrage advantage compared to existing metropolitan centres like Chennai and Bangalore. The role of the Andhra diaspora in enabling this both in knowledge and investment terms could be significant.

Given the concentration of important economic assets and employment potential in Andhra Pradesh, it is possible that Indian strategic and defence industries would need to be increasingly situated in the state. The availability of large amounts of developable land, especially in Rayalseema and the mid and upland areas of many districts, implies that land-intensive defence activity could easily be relocated located in the state. In addition, the Navy, Coast Guard and Air Force require land for new bases that could be located within the state providing additional fillip to development and local employment. Similarly, the creation of screening and recruitment facilities for the Army and all three Armed Forces and paramilitary agencies are a possibility.

Strategic Infrastructure: Existing and Proposed

Andhra Pradesh has better strategic infrastructure than many other states, especially in the form of ports, roads and railway lines and functioning energy systems. Access and connectivity to underdeveloped and backward parts of the state, however, continues to be a serious challenge. With the easy availability of information about options and the comparative performance of other states, it may become difficult to maintain economic and employment growth, address questions of inclusion and balanced regional development, and engage with popular expectations without a serious understanding of and intervention into the infrastructure sector.

There are a number of major strategic infrastructure investments that are planned or are in the process of being executed in Andhra Pradesh:

- The **Polavaram multipurpose project** could provide the state the necessary ‘surplus’ water to provide irrigation to the Godavari and Krishna deltas via an existing canal system. This would provide the opportunity to release some amount of water from the Krishna into severely drought prone Rayalseema. While there are serious engineering, institutional and political challenges to make this happen, if executed in the short to medium range, this has the potential to transform development options before the state. There remains, however, a serious risk of displacement of a large number of families in the submergence zone.
- The development of a string of **deep water and intermediate ports** with advance container, bulk handling and specialised functions can transform the 700 km coastline of Andhra Pradesh into a major maritime zone for trade and commerce linking domestic markets in Central, Eastern and Northern India with East and south-east Asia.
- The creation of an **East Coast Industrial Corridor** underpinned by a dedicated rail corridor that stretches from Kolkata to Chennai, passing through major petrochemical and industrial zones in coastal Andhra could become a potential driver of growth and employment in the state if environmental and exclusionary concerns are addressed.
- The expansion of the existing **railway network** connecting new ports with the main/dedicated freight corridor, providing links between Rayalseema cities and central Andhra Pradesh and high-speed connections for both freight and passenger traffic through the state.
- The expansion of existing **airports** to become international in three locations and the further development of airport infrastructure will help provide direct access to other metropolitan locations in India and to Europe, Africa and East Asia.
- The building and development of a **gas pipeline network** that connects Kakinada as the onshore landing point for KG basin gas as well as two recently announced LNG terminals and connection to the West coast gas grid via Bangalore, will be important to industrial development in coastal Andhra Pradesh and Rayalseema.
- The development of large-scale/decentralised **renewable energy infrastructure** using wind and photovoltaics, especially in districts of Rayalseema with large areas of uncultivable land;
- The expansion and further development of the **road network** will improve connectivity and accessibility within the state.

The development of this infrastructure and the commitment of the government of Andhra Pradesh to balanced regional development provides that the state with the option to build Capital zones in more than one location, balancing economic development imperatives with regional political aspiration. Transportation networks for both freight and high speed passenger traffic will be the key to this.

The future of the Andhra Pradesh economy is being linked to the development of extensive clean and green manufacturing capacity that prepares for the shift of global manufacturing out of East Asia towards South Asia and Africa over the next two decades. This is predicated on the deployment of cost-effective, productive and robust transportation infrastructure that links ports and manufacturing clusters to areas of demand and supply within the domestic and international markets. This is indicated on the list of proposed and existing strategic infrastructure above. Much of the recent development of the state has focused on the expansion of strategic road infrastructure and improvements in village connectivity. The latter needs to be accelerated considerably, especially as manufacturing employment will tend to cluster around corridors and nodes.

It is possible, given Andhra Pradesh's settlement structure, that industrialisation does not to be accompanied by mass migration as in the case of China. The expansion of regional road networks and village bus connectivity— combined with an improvement of rail connectivity along routes that connect Rayalseema to the Golden Quadrilateral and the N-S corridors via new rail and freight corridors— will be central to this strategy.

Simultaneous development and coverage of all settlements in the state with 3G and 4G optical fibre linked connectivity would enable the rapid expansion of service industries to small towns. This could further make possible the integration of governance and services to boost manufacturing, logistics, agriculture and allied economic sectors. This rapid expansion of telecommunication capacity will also require a strategic investment in undersea cable capacity connecting the state to global networks in 3 to 5 years.

Railways: The improvement of existing rail infrastructure and the development of new infrastructure to take larger volumes of freight traffic as well as reduce the time of travel between different cities is an important priority both for economic and environmental efficiency considerations. The availability of a high-speed rail network that enables a connection between the new AP capital and key nodes like Bangalore, Chennai and Kolkata, is a further pressing need. Linkage between a string of existing ports and proposed new ports and the main north-south and east-west railway networks will be important for both port functioning and regional economic development. The use of Metrorail in some regions and centres could also give a fillip to development.

Roads: Andhra Pradesh's road infrastructure across most regions is better than the road conditions in many other Indian states. However, there are a number of regions and towns that are badly connected either because of poor road conditions or inadequate traffic handling capacity. These need to be addressed through systematic process of extension, widening and improvement, and enabling a systematic shift towards public transportation within and around urban centres. **Air transport:** There are current proposals to develop three international airports in

Visakhapatnam, Vijayawada and Tirupati. This should provide good coverage of the three major regions of the state. There are however some issues to be resolved for the Vijayawada and Visakhapatnam airports because of their proximity to the Hyderabad PPP concession airport and the availability of land for expansion to accommodate large aircraft. The economic feasibility of creating yet another air hub on India's east coast that would compete not only with Bangalore, Chennai and Hyderabad but also Singapore, Kuala Lumpur and Bangkok, needs to be looked at critically.

There have been a number of calls for the development of smaller airports and airstrips but these do not seem to bear too much of merit (except for emergency management) given the relatively small distance between these locations and the small volume of traffic that can be expected from them. It may be pragmatic to develop high-quality rail and road links to these airports and between them to enable adequate coverage of the whole of Andhra Pradesh. The integration of high-speed rail links with the airport can boost both investment and development across state.

Energy

Short-term energy security is a serious challenge in Andhra Pradesh because of the disruption caused by bifurcation. However, given the large unutilised power generation capacity; the ongoing and planned expansion of ports and LNG terminals; the plan to develop an integrated gas and smart power grid for the state and link it to the national gas grid and HVDC network, it is possible to imagine that considerable progress on the power and energy front can be made in the next 3 to 5 years. Given the Relatively healthy status of the power transmission and distribution infrastructure as well as the low technical losses and progress in bifurcation of agricultural and mixed feeders, the state should be able to execute an acceleration of the power reform initiatives of the late 1990s.

A key missing link is a systematic and fast track plan to develop and increase use of renewable energy sources in the state that can work alongside, a targeted program to increase energy efficiency and deliver quality power on a 24/7 basis. Rayalseema has considerable wind, solar photovoltaic and solar thermal potential, especially if water security is assured. As in the case of Tamil Nadu, Andhra Pradesh can accelerate the creation of new power generation capacity to renewables with a mix of large scale commercial wind and solar and decentralised grid-connected farm and roof top energy systems. When tied to a gas and smart power grid, this could provide the necessary energy for decentralised industrial and service sector development across state.

Andhra Pradesh needs to industrialise to provide much of the incremental employment that its young people expect. The state does not have significant coal reserves as other states in eastern India. It does however have considerable wind and solar power generation potential which needs to be exploited and established as quickly as possible to enable energy security. In addition offshore gas and oil are important resources that could help generate energy that could underpin its industrial development.

With the potential availability of gas from the K-G basin and its distribution to the coastal corridor and across Rayalseema and the major urban centres of Andhra Pradesh will be important. The decision of the Government of Andhra Pradesh to develop a state gas grid is an important forward-looking investment that will bear fruit in the medium run.

Much of Andhra Pradesh is hot and humid. The deployment of energy efficient buildings technologies; extensive implementation of the ECBC for commercial, industrial and residential buildings; and the establishment of zonal co-generation capacity to reduce energy demand for cooling large new urban areas, must be made possible.

Irrigation and Water Resources

The state has systematically developed its water resources especially in the Krishna and Godavari basins. This is, however, subject to water sharing agreements especially with the states of Telengana and Tamil Nadu that can be expected to become more acrimonious as the pressure of population and water scarcity mount across the region. The Polavaram dam, an extensive network of intra-basin and cross-basin gravity and lift canals and irrigation schemes are seen as “magic bullets” to some of these challenges. The reality is expected to be much more complex and must include equitable resolution of water resources, a review of standards currently being used, incentivising water efficiency measures, altering the crop mix to reflect water availability and reduce the risk of drought impact, and, finally, altering the institutional structures and incentives.

Information infrastructure

One of the major factors of the development of undivided Andhra Pradesh was the rapid expansion of communication and information infrastructure starting in the mid-1990s. This is expected to expand in Andhra Pradesh with fibre-optic and 4G mobile telephony and data services expanding to cover all settlements of the state in the next few years. This is a mission-critical and path-breaking opportunity, not only to build communication, data and knowledge access across the state equalising many inequalities of opportunity of education and commerce, but also to act as an important means to integrate different regions of the state, improve public service delivery and enable e-governance.

All major urban centres, education and knowledge hubs and service sector clusters will need to be connected with high bandwidth infrastructure. The state as a whole should attempt to have direct access to submarine optical fibre networks to increase its medium-term comparative advantage. This is an investment that should be possible to make from state and private sector funds, independent of the Government of India.

Environmental services infrastructure

The functioning of both urban centres and Capital zones will be dependent on the upgrading and establishment of basic, affordable and sustainable environmental services: water supply, sanitation sewerage, drainage and solid waste management. There is much to be improved in terms of universal access, quality of service and infrastructure in most Andhra Pradesh towns. This needs to be an investment priority of the new government and include necessary institutional reforms to make these urban public services fully functional.

To integrate land use, transportation and economic development, environmental, energy and information services, planning needs to be institutionalised across the state, especially for proposed Capital zones. These will need to incentivise the containment and reduction of sprawl, conservation of ecosystem services, reduction in the resource footprint and environmental impact, and promote sustainable transportation, energy and information systems. This can be

partially leveraged from the proposed GoI investment in ‘smart’ cities as long as they are focused on the delivery of improved services to citizens.

Most urban centres in Andhra Pradesh are or will experience moderate to severe water supply challenges. Except for cities along large rivers and access to surface water such as Rajahmundry and Vijayawada, or others in which groundwater levels are relatively high like Visakhapatnam, most urban areas struggle during summer months and during droughts. In most Rayalseema towns, surface water is supplied from considerable distances (including upstream reservoirs and canals) with some augmentation through public and private groundwater supply.

The precarious water situation across much of the state is made even more so by water contests with neighbouring states as well as inefficient use of water for irrigation. This implies that urban water security requires long-range thinking, catchment and source protection, and considerable investment in physical and institutional infrastructure to not only supply water, but incentivise recycling, reuse and water efficiency.

Some cities in Andhra Pradesh have significant water supply networks with a fair degree of underground sewerage and drainage. However, universal coverage of water, wastewater and sewerage services are still a long way off, even in the larger and better off cities. In the smaller centres and large villages, sewerage and underground drainage is often non-existent.

This implies that the development of water supply and environmental services infrastructure is an important priority that should guide and constrain the development of existing centres, urban extensions and new towns and villages.

Solid waste management in many cities across Andhra Pradesh requires considerable attention, expansion of coverage, significant institutional and implementation changes and incentives to segregate and scientifically recycle and dispose of waste. This needs to be dealt with urgently as it not only creates a significant public health challenge, but also makes these cities unattractive for residents, investors and potential visitors. It also has strong long-term impacts on drainage and flooding due to the ingress of solid waste and construction debris into the drainage system as it is not cleared regularly.

Ground and surface water pollution is reported to be increasing at alarming rates across much of Andhra Pradesh. This is partially because of inadequate infrastructure, the difficulty of regulating discharge, and the lack of incentives to ensure that pollution is addressed effectively at source.

Building & Construction

Andhra Pradesh is one of the most important centres for the production and export of building material and a source of migrant construction workers in the country. This is expected to expand over time with increasing infrastructure development and urbanisation of the state.

The development of the capital zones and infrastructure for the new state over next decade is a remarkable opportunity to develop a leadership position in this sector, upgrade skills and institutional capacities including mechanisation, and thus help increase both productivity as well as the commercial effectiveness of construction and building related enterprises.

Rayalseema has extensive stone, waste stone, cement and other building material industries as do some parts of northern Andhra Pradesh. A judicious choice of building technologies that enable cost-effective and energy-efficient construction along with giving a fillip to local enterprises and employment generation needs to be prioritised both for infrastructure development and development of Capital zones across state. This may imply the modification and development of new norms and standards for construction design and practice that are in line with best practices in the country

This will require careful strategic thinking as construction sector has high employment generation potential for relatively low skilled workers. The integration of skill development, apprenticeship, mechanisation and productivity increases for building and construction needs to be systematically thought through and implemented in a mission mode.

There will, however, be moderate to serious shortages of skilled manpower as the process of infrastructure and Capital zone development kicks off over the next five to ten years in Andhra Pradesh. The AP Capital zone project should enable India to become a market leader in the planning, design, execution and operational management of sustainable and productive cities in the world. There is considerable market potential for this capacity, within South Asia, the Middle East and Africa. Building a capacity for this in Andhra Pradesh would provide a sustained economic basis for the development of the state if there is enough emphasis on skill and enterprise development.

A detailed feasibility study is needed on the potential of the Capital zone projects to create skilled and unskilled employment and to further develop the construction and building sector of Andhra Pradesh.

Infrastructure Gaps in the AP Reorganisation Act (2014)

In spite of its attempts to be comprehensive and extensive consultation and debate in advance of its legislation, the AP Reorganisation Act (2014) has some glaring omissions. The most important are access to onshore and offshore natural gas, which could help provide fillip to industrial development in Telengana and access to irrigation and water infrastructure in many drought prone areas.

Educational institutions

The balancing of access to higher education infrastructure and universities in particular across Andhra Pradesh is an old demand that goes back to the pre-Independence period⁷. Despite the establishment of Andhra University in Vishakhapatnam in 1927, the regional imbalance is clear – over 200 Central education, R&D institutions as well as the major university and higher education infrastructure cluster in Hyderabad.

Given that establishing high-quality higher education institutions takes many decades, a pragmatic approach is needed not only to locate them more equitably but to also build their capacities and faculty. This will take time and require the management of expectations since that quick fixes can immediately fill the gap in access to higher education. As a matter of principle, however, two simultaneous objectives will need to be fulfilled. First, the location of multiple educational institutions, as defined in the AP Reorganisation Act, must occur equitably across the 13 districts of the state based on need, functional priority (e.g. location of the tribal University in tribal dominated districts; the Petroleum University close to primary oil and gas producing areas) and the availability of land and infrastructure. Second, the opportunity to create educational clusters and hubs that leverage the positive externality of bringing multiple facilities together must be taken. Given the exigencies of the current situation, it may be best to plan and build these clusters using public institutions as a catalyst. This would provide independent and private institutions the opportunity to fill in gaps in provision. This will require a progressive and forward-looking policy of higher education autonomy and appropriate regulation.

Healthcare institutions

Access to healthcare institutions is a serious concern across most of the backward areas of Andhra Pradesh. This is especially true of tertiary healthcare facilities with large populations being unserved by quality facilities and services. It is also exacerbated by the limited number of quality teaching hospitals and medical research institutions in the state. This is of significance since the bulk of the excellent tertiary medical infrastructure and teaching capacities in and around the Hyderabad region have been established, financed and largely staffed by people from Andhra Pradesh. The short-term uncertainty of their status in Telengana, also plays a role in defining the current popular perception in the state.

The establishment and expansion of quality tertiary healthcare in Rayalseema, could be enabled by the expansion of existing facilities in Tirupati and Puttaparthi. Similar attention will need to be paid to other backward areas, including Srikakulam and Vizianagaram districts.

⁷ That two University centers are to be developed under the Andhra University, one at Waltair and the other at Anantapur so as to distribute the centres of culture over the Andhradesa and create opportunities for social and cultural intercourse amongst the Andhras and locate colleges in areas favourable to the subjects dealt with" Sri Bagh agreement (15 Oct 1937)

Environmental Context

Andhra Pradesh has a large number of biodiversity hotspots and environmentally sensitive areas ranging from wide stretches of the sea coast; intertidal zones and coastal wetlands; estuarine and delta areas to extensive forests and national parks. In addition, both irrigated agricultural areas and some of the inland semiarid areas are both sensitive and important landscapes. The delivery of ecosystem services, especially surface and groundwater, across the state are dependent on the health and conservation of many of these natural areas.

Insensitive and often illegal mining and forest exploitation; road and transportation corridor development; industrial development with uncontrolled air, water and soil pollution; the fracturing of ecological landscapes; and radical changes in land use and land cover have all had an impact on the environment and biodiversity in the state. In turn these have impacted economic systems and livelihoods especially in the agriculture, horticulture, aquaculture, sericulture and animal husbandry sectors that provide the bulk of employment in the state and underpin the livelihoods of millions of poor and vulnerable people.

Much of historical urbanisation in the state is widely dispersed and not very concentrated. This has historically imposed limited burdens on the environment. It is usually only along particular and rapidly growing corridors and clusters that serious human-environment stress and conflict is observed. Increasing urbanisation and concentrated industrialisation could exacerbate this via increased risk and services and natural hazards as well as increasing the exposure and vulnerability of cities, settlements and populations in many parts of the state.

It is therefore important, that future development, especially of exemplary Andhra Pradesh' Capital zones follows the core principles of sustainable development, as outlined both in national policy and UN guidelines. In doing this, Andhra Pradesh, will not only with protecting own interests and that of its people but also setting an example of a new form of decentralised development that seeks to maintain a balance between the urban and rural, development and conservation and poverty reduction and economic and infrastructure development. This is discussed in more detail below.

The core principle will therefore be to conserve sensitive ecological systems and economically productive land and waterscapes in the state that support much of the agriculture and allied economic activity. Urban, industrial and infrastructure expansion, and new development should as far as possible be located in less productive or sensitive areas. This will require more sensitive planning, effective, conservation and development regulation, enforcement of existing laws, facilitate participative development and often a higher level of investment than conventional projects – in all of which Andhra Pradesh has demonstrated its leadership in since the 1990s.

Urban Dynamics

Andhra Pradesh has a level of urbanisation that is lower than the All India average and, without strong policy support, it is not expected to grow dramatically. About 15 million of the 50 million residents of the state live in urban areas. The distribution of settlements and urbanisation is relatively uniform across the state with low densities in tribal areas of Uttara Andhra and many parts of Rayalseema.

A distinguishing feature of the state, as compared to Telengana, is a relatively low-level of urban primacy. Visakhapatnam, the largest city of the state, has less than 2 million people and 5% of the population unlike Hyderabad and the adjoining districts in Telengana which constitute over a third of the population of the state.

The distribution and hierarchy of urban centres in AP is thus well-balanced with a well-distributed set of functional urban clusters emerging across most regions of the state driven by employment and economic opportunity and connectivity. In that sense, it is similar to Kerala and the Konkan coast. Andhra Pradesh is almost exemplary of the opportunity of RUrban development: balancing of rural and urban development interests and the provision of urban services and amenities in rural areas.

Therefore, unlike other states, the nature and distribution of settlements in urban centres and Andhra Pradesh matches well with a decentralised development strategy that attempts to balance resources and opportunities across districts and regions. Given that this is a well-established principle in both political practice and imagination, that is an important facet of the current popular and political discourse, and that it is borne out by core principles of economic geography and sustainability, the process of choosing the location and function of Capital zones must draw strongly from this logic.

Part Two: Conceptualising Regional Development

There are two broad forms of developmental narratives that are in conversation around the capital question. One narrative makes the case for balanced regional economic development through a hierarchy of large and smaller urban centres. It does, however, place an emphasis on significant investments in economic and strategic transportation corridors in central, northern Andhra and Rayalseema. This is based on the imagination that the economies of scale that would be achieved would attract domestic, foreign and diaspora investment that would create significant multiplier impacts that would provide the growth impetus to the state economy. This in turn would lead to better fiscal health, the ability to service modern infrastructure and service delivery to both urban and rural Andhra Pradesh historical and current regional economic disturbances. This is partially based on the success of the Hyderabad model of development. This narrative has strong detractors, not least because of the role of the success of the ‘Hyderabad model’ during the process of bifurcation of undivided Andhra Pradesh. We discuss this model in detail below.

The Hyderabad ‘Model’

One of the primary political and development concerns of people across Andhra Pradesh is the potentially contested promise of a capital being able to hold together disparate regions of the new state.

They turn therefore to Hyderabad. The economic success of Hyderabad and its growth as a cosmopolitan metropolis drew people and significant surplus investment from all regions of the undivided Andhra Pradesh along with migrants and firms from across India and other parts of the world. The systematic investment of both financial and human capital from coastal Andhra Pradesh and Rayalseema into Hyderabad along with liberal and entrepreneurial government policies enabled the rapid growth of the city, attracted significant domestic and foreign investment, which further engendered growth and employment opportunities for people from within the state and outside.

An unintended consequence of the growth and sprawl of Hyderabad was a significant and often speculative real estate boom in which people from all regions of Andhra Pradesh, but especially coastal Andhra and Rayalseema, contributed via investment and enterprise. The illiquidity of this investment, the risks now posed to the realisation of value in volatile market conditions, and ongoing acrimony about domicile and residential status, have led to considerable anxiety and uncertainty in both Hyderabad and Andhra Pradesh.

A large number of people across Andhra Pradesh are thus apprehensive that the bifurcation process would be replicated in the new capital creation process leading to a downward spiral as backward regions like Telengana and Uttar Andhra Pradesh seek both justice and political/economic compensation. Their perception is that only a limited number of developers and real estate firms and their associated political patrons will gain in the short run from this process. The reports of significant volatility in real estate markets in coastal Andhra Pradesh have done little to assuage these fears.

How then do we deal with the question of Hyderabad? The Andhra Pradesh Reorganisation Act stipulates Hyderabad as the joint capital of Andhra Pradesh and Telengana till 2024. While this is a

legally binding position, it appears increasingly unviable due to a long history of contests and underlying tensions that accompanied the bifurcation. In practice, even though it may be possible for the government of Andhra Pradesh to function from Hyderabad with bifurcated state government infrastructure, the relative distance and perceived inaccessibility of the state from Hyderabad will make governance challenging and unnecessarily complex. Therefore, first the establishment of core administrative functions and then the establishment of a full set of capital functions within the territory of Andhra Pradesh in the next 2-3 years seem to be an inevitability.

A Regional Development Perspective

The second narrative, one endorsed by this report, is to approach the capital question in the context of a broader pathway of balanced regional development, away from urban primacy. The key principles of balanced regional development that may be used in the case of Andhra Pradesh include:

- First charge of critical development resources, infrastructure and institutions in the service of the most backward regions and populations
- Preference for connectivity to those regions and clusters which have large unserved and poorly connected populations, with the caveat of being economically viable in the long run
- Residual publicly funded infrastructure, institutions and investments in locations and clusters that will enable inclusive development and employment generation
- Appropriate regulation and incentives for private and PPP investment in other locations
- Devolution of administrative functions, to locations in which they best serve their purpose e.g. Ports and Fisheries to a coastal location; Mining to a district with intensive mining operations

These principles have to then be applied to the key elements of a Comprehensive Development Package for the state, which will have elements of Central assistance. The minimum elements of this package will include:

- **Entitlements:** around equitable access to water based on historical agreements
- **Infrastructure:** rail, road, air, port and urban mass transit infrastructure; water, drainage and wastewater; power, gas and telecommunication networks
- **Institutions:** education and healthcare institutions as part of the Central package and incentives and regulation to attract appropriate private investments
- **Investments:** domestic and international private investment in enterprises, housing and buildings that create the development impetus and incremental employment the state needs; catalysed by Central and State investments, policies and regulation
- **Capital functions:** the Legislature, the Secretariat, the High Court, and associated services, public areas and areas for housing and new development that could be clustered or unbundled into multiple locations. The two capitals model as used by Karnataka, Maharashtra, Jammu and Kashmir is one option, with one city being the primary and the second being the secondary capital in which, for example, one legislative session a year is held

- **Administrative functions:** the distribution of 110 Departments and allied offices that are currently based in Hyderabad, but need to be relocated as expeditiously as possible

There are different ways to structure these entitlements and functions across capitals and regions. One strong, relatively unified articulation across all regions is the need for balanced regional development, decentralisation of government functions, and a spreading of institutional investments across all the 13 districts of Andhra Pradesh.

Another response drawing upon the experience of other states of having more than one capital (Karnataka with Bangalore and Belgaum; Maharashtra with Mumbai and Nagpur) and others with the High Court being located outside the state capital (Rajasthan, Uttar Pradesh) is to unbundle the customary functions of a state capital and distributes them across regions to help balance political aspirations, the balance of power between regions and access to the state by its citizens.

The final part of this report now turns to the process of choosing a capital in response to these contexts and within this developmental frame.

Part Three: New Capital Development

The recent history of new Capital development

A number of lessons can be drawn from the last century of new national capital development ranging from Canberra (1908), Pretoria (1907) and New Delhi (1911), which were part of the expansion and consolidation of power of the British Empire; postcolonial capitals: Brasilia (1956) and Islamabad (1959) to more recent Abuja (1976) and Putrajaya (1995)⁸

India offers much to this list: Chandigarh (1947), Bhubaneswar (1948), Gandhinagar (1960), the aborted Maharashtra capital at Navi Mumbai (1971) to Naya Raipur (2000).

Key high-level lessons that emerge from these experiences include:

- The mean period of development, i.e. from founding to function occupation ranges from 6 to over 20 years
- The period it typically takes for a critical urban mass of 0.5- 1 million population size to emerge for a greenfield city is between 20 and 30 years after this initial development period. In short, a period of 40 to 50 years from conception. Chinese cities have been an exception over the last two decades, but they are governed by a whole range of economic, institutional and political drivers that are neither present nor viable in India
- Very few of the cities were designed taking into account a truly dynamic urban planning frame that would accommodate moderate to rapid growth and future metropolitan development. Islamabad and Bhubaneswar are exceptions.
- A strong influence of the Garden city on most plans with a greater emphasis on resources, functional development and infrastructure in the more recent past

⁸ IIHS (2014) The experience of building new capitals

- A wide range of densities, but Indian cities had a range of gross densities from ~ 3,250-7,000 persons per square kilometre. This implies that at a gross density of 5,000 persons per square kilometre, an indicative footprint of 200 km², i.e. 20,000 ha or 50,000 acres for Greenfield development of 1 million.
- The overall indicative investment (at 2004-5 prices excluding the cost of land acquisition) was between Rs. 80 and 940 crores, or a rough per capita investment of between Rs. 900 – 16,000 per capita.

Based on this experience, it will be best if Andhra Pradesh were very cautious about large-scale Greenfield development. It could also be useful for the state to consider building on existing urban areas and fabric to avoid multi-decade long gestation periods.

In addition, the public articulation of expectations of capital investment in the new capital is between 10 and 30 times the historical investment that have been made in similar projects in the past in India. This may be completely unrealistic given the economic status of the state and the fiscal challenges being faced by the Govt. of India.

Distributing Capital functions

The Andhra Pradesh capital will perform three broad functions: administrative and governance; socio-political and symbolic; and economic. Given a precedence of the unbundling of these functions over 1953-56, it may be possible for Andhra Pradesh to consider multiple Capital zones across the three major regions of the state.

Administrative and governance functions could potentially be segregated into two sets. Core capital functions could include the Legislature, Secretariat and some administrative offices and possibly the High Court and linked judicial tribunals. Other functions that include delegated offices and departments could be distributed across multiple locations across state. For example, departments for mining could be located in Rayalseema, while those for ports and fisheries could be located in one of the coastal cities.

Economic development could be linked to the other two functions, but is not essential. For example Visakhapatnam has grown into a thriving and economically active cosmopolitan city without the opportunity of bringing together significant administrative political functions. There are multiple precedents of the separation of economic, social, political and administrative power which have worked effectively in federal countries ranging from the United States and Brazil to Malaysia and even China. This however is a decision that would need to be taken by the political leadership of the state.

The bifurcation of undivided Andhra Pradesh has created is strong sense of disquiet and anxiety among the people of the state. There is a strong feeling of loss, a strong sense of pride and the need for symbols that point towards the future rather than the past - and that speak to the concerns, sacrifices and struggles of people who come from three rather different regions of the state. The Capital zones will need to speak directly to these aspirations in both political terms, in their sociological symbolism and in the nature of the built environment and urban design that emerges.

Characteristics of a Potential Capital Zone

Based on a high-level analysis of existing literature on the planning of both Indian state and other national capitals over the last century, a series of critical criteria that were used to decide on particular locations, are presented below in broad order of significance:

- Availability of water
- Connectivity
- Favourable climate
- Proximity to existing large urban centre capital
- Land availability, suitability and cost and ease of acquisition
- Cost and ease of construction
- Topography
- Centrality
- Defence and security concerns
- Historical significance

In short, most of the criteria being discussed in the case of the new AP Capital zones have been successfully used in defining the location of many national and state capitals in the past. The only exceptions have been favourable climate (which is not figured much in the AP debate) and centrality versus connectivity, which is typically the second most important criteria in capital location selection. Economic and functional criteria have figured more recently, compared to earlier capitals that were based on picturesque and other grounds.

Climate

There are few locations in Andhra Pradesh that have a favourable climate because much of the state is either in semi-arid terrain or along the coast. The only hill-station (Horsley Hills) is inappropriate for Capital zone even though it is not very far from Tirupati. Vijayawada and Guntur are among the less comfortable locations in the state from a temperature and humidity point of view. Other locations, for example Visakhapatnam and Tirupati, fare relatively better. This will have an impact on the overall energy demand and the potential to use of passive solar technology for buildings. While this may not be a very significant difference in initial investments, the medium to long range life cycle costs could be significant.

Risk

Andhra Pradesh is one of the most hazard risk prone states in India. Much of the state is regularly impacted by drought which has a direct bearing on water security for urban areas apart from impacts on livelihood security, especially in rural areas. Coastal areas of the state are highly vulnerable to cyclonic storms and associated storm surges as well as fluvial and fluvial flooding, especially in settlements located in or along the course of major rivers. Areas adjoining deltas and estuaries of major rivers are also exposed to flooding. Earthquakes are relatively infrequent but a moderately high risk hazard with a number of major urban centres in coastal Andhra being exposed to both shaking and liquefaction. Landslides are also relatively common in some hilly areas of the state. The most serious emerging risks are linked to the rapid expansion of urban

areas and climate change which will exacerbate future extreme weather, cyclonic storms, storm surge and sea level rise. More details are available in Annex III.

Land availability and Real Estate speculation

One of the most important constraints, especially in land-poor areas in coastal Andhra, is the availability of public land and/or appropriately priced private land to develop the Capital zones. In the densely populated and cropped regions of coastal Andhra Pradesh, the lack of wasteland or unirrigated lowlands and the consequent high risk of displacement of agricultural land to non-agricultural purposes, is a matter of ecological and food security.

The GoAP is currently assessing the suitability of land assembly options to consolidate 1,500 acres of land (to be potentially scaled up to 5,000- 10,000 acres) for a Capital zone in the Vijayawada-Guntur- Tenali-Mangalagiri (VGTM) region. Land assembly options being considered include: (a) outright Acquisition; (b) PPP based Land Acquisition; and (c) Land Pooling.

A detailed analysis, presented in Annex III, found that:

- The range of effective costs of land accruing to government from Rs 1.96 crores to Rs.8.49 crores per acre – indicates the need for a careful analysis before the choice of a greenfield site or areas where land prices are expected to be very high as in the case of VGTM.
- For Land Acquisition (including a land sharing PPP model of acquisition), time is the chief constraint. Land acquisition would require a minimum 3 to 4 years to implement, even without project delays. As the financial analysis in Annex III highlights, an increase in the base market price of land would quickly make a capital project unfeasible from the cost perspective. Land acquisition may quickly become a very expensive option given that the base cost of land in the Vijayawada-Guntur area is already experiencing a hike. Land consolidation at this scale has also not been attempted successfully via LARR mechanisms in the country yet. Delays and disputes that come up will have to be settled to satisfy the courts, which may mean project delays. The political feasibility of different levels of land sharing with the farmers/ owners is under question in this region. The present estimate of giving landowners 36% of net developed area back may be lower than the expectations of landowners.
- Land Pooling would require 4 years to implement without project delays. However, unlike the Land Acquisition approach, a land price increase will not directly increase costs for the GoAP. Land consolidation at this scale has not been attempted via land pooling yet. Land pooling may provide GoAP with non-contiguous land, which may not be suitable for developing city level facilities. It would be necessary to consider the feasibility of different levels of land sharing with the farmers/ owners. The present estimate of giving landowners 24% of net developed area back may be lower than the expectations of landowners. However, land pooling potentially offers a more politically feasible alternative and may be preferable for developing the facilities where aggregate land is of lower priority.

There is a clear and articulated concern that real estate and speculative interests have taken control of the land assembly process for the Capital zone in VGTM. While, this may well be untrue, the high prevailing market prices make the large scale assembly of land economically challenging, if not unviable. This implies that the GoAP may need to moderate its stated ambitions of the scale

and grandeur of the Capital zone in the mid-term (10 to 15 years) or it needs to take a phased approach that first upgrades a host urban region in terms of infrastructure and services; along with building a modest Capital zone and then use the economic buoyancy generated to help accelerate the development of this area, by effective planning and land use regulation, local economic development and poverty reduction, quality delivery of universal public services and good localised governance.

Symbolic value of some locations

Andhra Pradesh is a state whose people put considerable value on the symbolic nature of places, buildings and the outward appearance of institutions. This presents an interesting challenge of how much to keep of the remembered and the more recent past, and how much to embrace of a future that may be imagined in terms of other cultures and geographies which then have to be assimilated into the state's culture. In addition, building an open and cosmopolitan culture, which brings people, firms and institutions from across India and South Asia, and potentially from across the world, is an important strategic basis of a long-term development strategy for the state.

Tirupati is an excellent example of the importance and inter-mingling of faith, cosmopolitanism and modernity which has deep resonance with the people of Telengana and Andhra Pradesh, in particular, and other parts of the world. It is seen as a Centre of faith and spiritual power and yet has a strong sense of the modern in its five universities and rapidly growing population and economy.

Greenfield versus extension to an existing city

An important planning and economic consideration in the creation of various Capital zones for the state is a balance between densification of existing cities/settlements versus extension and greenfield development. Each have their own opportunities and challenges. Existing cities with a dense footprint and moderately good infrastructure, like Vijayawada, are good places to build on, especially because they have a functioning economy, established institutions and cultures and a municipal system that can deliver basic services, which is important for government that wants to get down to business as quickly as possible.

The challenge with existing settlements is that they come linked with a particular culture and history which may be difficult to shape and mould in new directions. They will also require considerable investments in infrastructure, services and institutional development to embrace a more diverse and intense requirements of a Capital zone. The costs, both in terms of time and investment of doing this, should typically be less than that of extensions and greenfield development.

Extensions to existing cities/settlements have the advantage of being able to draw upon the established economy, institutional cultures of an existing city, and yet plan more effectively and embrace new forms of urbanism that may be rather difficult to implement in an older location. The costs and time to extend can be expected to be significantly more than building on an existing settlement, but less than that of a large-scale greenfield city building project. Greenfield projects, especially if they imply the building of the infrastructure and built environment of a potential 1-3 million city, can take many decades to go critical and involve very large and unaffordable initial investments on land development, infrastructure, creating the built environment, economic and

social infrastructure. Examples of these in India include: Chandigarh, Gandhinagar and more recently Naya Raipur. These often iconic projects often take a long while to live up to their claims and hence can become political and economic liabilities for their promoters.

Urban Primacy

Given the current level of urbanisation and settlement structure of Andhra Pradesh, it can be expected that its level of urbanisation (currently 28%) will converge with that of India and emerge at roughly 50% by the mid to late 2040s. If the state pursues a path of sustainable economic development, it could maintain a relatively high growth of both economic output and employment in the agriculture, animal husbandry and aquaculture sectors. This could enable the growth of large villages and smaller market towns driven by agricultural prosperity that would hopefully expand from coastal Andhra towards Rayalseema and parts of northern coastal Andhra.

With the development of better connectivity, communication infrastructure, a string of ports, gas and renewable energy infrastructure along coastal Andhra and Rayalseema, industrial development and employment can be expected take off within/along a series of economic corridors and clusters that are already developing. This will provide an important counterbalance to the tendency for primacy in the three major urban regions of Visakhapatnam, Vijayawada-Guntur and Tirupati.

If appropriate regional development plans that integrate smaller towns and the embedding rural urban regions of these three potential metropolitan clusters are managed effectively, they could provide considerable impetus to future employment and economic development, and in turn to political stability in the state.

The imagination that Andhra Pradesh could have multiple Capital zones for different core capital functions, i.e. industrial development, services and knowledge development, and administration and governance, speaks to a 21st-century networked framework of governance and development that does not over-concentrate political, economic power and investment in any single location as did colonial and historical empires that were created at a different point of time and history.

Potential Capital Zone locations

A detailed analysis of the potential of the 13 districts of Andhra Pradesh to locate appropriate Capital zones, based on multidimensional District Suitability Index presented in Table (1) of Annex III. Among others, four broad clusters of locations emerge from this analysis:

- Vijayawada-Guntur
- Greater Vishakhapatnam
- Nellore
- Tirupati-Kalahasti in Rayalseema

Each has its own unique character. Tirupati, given its history as a major spiritual centre, has a large concentration of educational institutions and service industries. Visakhapatnam is a major industrial centre, port and education and services hub. Vijayawada and Guntur are trading towns with a mix of institutional and service sector development located in agriculturally prosperous region with high levels of connectivity.

Each of these locations will need an upgradation of basic urban and social infrastructure; addressing ongoing expanding challenges of urban informality; improved land-use and transportation planning and significantly improved urban service delivery and governance. The cost of upgrading and retrofitting infrastructure, service delivery and building on the capacity of existing institutions can be expected to be significantly lower than greenfield development. Further, it is likely to be much quicker than the planning, development and occupation of a new greenfield city. In addition, the cost and dislocation due to land acquisition may be significantly reduced. Given the current economic situation of the state, it may be wise to focus on upgradation of infrastructure and services, using planning and development control instruments along with appropriate transportation infrastructure to help densify existing cities. Only having exhausted that option would it make sense to extend or invest in significant new development on greenfield sites.

The capacity to execute large-scale urban development and building construction projects is available in Andhra Pradesh. The financial incentives to make this work in the timeframe anticipated, however, is a matter that requires deeper examination that we discuss later in this note.

Phasing, Planning and Implementation

The Andhra Pradesh Reorganisation Act (2014) provides for a period of 10 years during which Hyderabad will remain the joint capital of the two states of Telengana and Andhra Pradesh. There is however a groundswell of opinion in Andhra Pradesh, both political and popular, that suggests that a movement to a new capital in a much shorter period of time is necessary.

In addition, the practical realities of governance of a state of 50 million people spread out over large geography, will require the establishment of core governance and policy making functions within the territory of the state. Another practical reality to be addressed is the five-year cycle of elections which will push political parties to attempt to deliver on some of their basic promises of the 2014 election by 2018-19. All of this implies, that the process of planning, economic and

financial viability and addressing core issues like land acquisition need to be largely sorted by 2015.

Within the phasing of major projects in the state, the development of long gestation infrastructure projects needs to be given priority. This is partly because of the complexity of their execution, land and mobilisation challenges and procurement and management issues. The economic and social impacts and multipliers will not start being visible on the ground, till service delivery from infrastructure elements is enabled, whether it be rail, road or air infrastructure.

Within the capital functions, an immediate requirement to establish a fully functional Secretariat and Departmental functions, in the locations in which they will probably be delivered is a critical immediate priority. This does, however militate against a core principle of new city development, i.e. priority to the creation of housing for construction workers and low-income households, as they will be the people who actually build the city. Neglect of this essential fact often leads to the lack of integration of informal settlements into the operational fabric of the city.

There is also a risk that temporary sites for both government offices in housing tend to become more prominent because of a range of constraints, including funding, political inertia and the difficulty of justifying initial sunk costs. Hence, a life cycle costing of the development of this functions over a short (3 to 5 years), medium (6 to 15 years) and the long-term (15+ years) is very useful in maintaining perspective of the trade-offs between short-term and long-term interests.

Hence the development of a medium-term expenditure plan that matches with the MTEF for Andhra Pradesh should be a priority before the presentation of the 2015 budget.

Building Institutional capacity to Plan and deliver

There has been a strong tendency in undivided Andhra Pradesh to benchmark the imagination of particular development trajectories to international examples such as South Korea or Singapore. These are positive aspirations but the economic, social and political reality of Andhra Pradesh is so different from these middle/high-income countries with very different political and social systems that drawing a direct relationship from their experience and current status should be handled with serious caution. This is especially true of the development of the Capital zone as it has to be economically and fiscally viable in a low-and middle-income transition economy.

One of the most serious risks to the development of Andhra Pradesh's new Capital zones is the limited institutional capacity within the government, public planning and development agencies, academic institutions and civil society organisations to take on such a large process of planned economic infrastructural and social development. There is, however, moderate to high capacity within the private sector to build both buildings and infrastructure, which will be necessary in a largely PPP-driven financing plan. This will need to be harnessed to deliver tangible outcomes. In other words, even-handed and balanced urban sector regulation by the state will be necessary.

Overloading both the fiscal capability and the investment potential of the household and private sector as well as the state to build an overambitious capital may be a serious strategic overreach. A cautious approach which matches economic development, employment creation and sustainable investment and funding streams to the requirements for infrastructure and urban development is critical. Pre-emptive and even-handed regulation of factor markets, especially in

land and labour, are an important precondition for the success of these initiatives as land is expected to be a significant part of the financial envelope for Andhra Pradesh.

It must also be realised that fiscal and institutional overdependence on the Centre may also be unwise. It is inevitable as time goes by that other economic and political considerations take precedence and distract the attention of the Government of India, in spite of the letter and spirit of the AP Reorganisation Act (2014). It is possible that there will be a steady diminishing interest in committing resources and political capital to a contested process that demands inordinate amounts of resources that are fiscally unsustainable.

Hence, it is important for Andhra Pradesh to be extremely pragmatic in managing the expectations it creates among its people, potential partners, investors and the state system. It may be wise to be conservative and over-deliver on contained expectations rather than vice versa. The creation of long-term institutional capacity, especially within government and in universities and research institutions, will be important to the success of this strategy.

Significant additional institutional capacities are required to develop Andhra Pradesh's Capital zones. Initially the most significant capacity is that of strategic planning to enable the integration of economic development, infrastructure, land use and sustainability planning and social development into the choice of sites and structuring of financial and physical planning and establishing a strategic framework which are situated within a 5, 10, 50 and 100 year perspective planning frame.

Following this the state will need to establish a multidisciplinary spear head team, headed by a senior IAS officer and reporting directly to the concerned minister and CMO. This team would need to bring together specialists from various domains, including economic development, social development, governance, legal and institutional design, environmental planning, regional and town planning, urban design, water supply and environmental services, transportation and energy planning risk, management and climate change mitigation and adaptation, municipal finance and financial management.

Very little of this capacity exists within the traditional Town Planning and Roads and Building cadres within the state. Technically competent, experienced, outcome oriented and innovative officers will need to be brought onto this team from within the state, drawing upon deputationists from other states and pulling together long-term consultants from the private sector who have experience in planning, designing and executing public and PPP projects. Special incentives may need to be given to facilitate the movement of this team from Hyderabad and other metropolitan cities to appropriate locations in Andhra Pradesh.

A Comprehensive Economic Development Package

The comprehensive development of the state of Andhra Pradesh is dependent on a strategic set of investments in the infrastructure, industrial and knowledge institution sectors. This should be used judiciously to support balanced regional economic development, and address regional aspirations that would help the people of the state to come together.

Table 1: - INDICATIVE ANDHRA PRADESH ECONOMIC DEVELOPMENT PACKAGE (2014 prices)

| S.No. | Capital Element | Investment Potential (Rs. crore) | Financing Mode | Remarks |
|---|--|----------------------------------|--------------------------------|--|
| 1 | Central Educational Institutions | 7,000 | Central Govt. | AP Reorganisation Act, Section 93 read with Schedule 13 |
| 2 | Railways | 7,305 | Central Govt. | AP Reorganisation Act, Section 93 read with Schedule 13. (Details in Annexure X) |
| 3 | Major Port (potentially at Dugarajapatnam) | 10,000 | Central Govt. | AP Reorganisation Act, Section 93 read with Schedule 13 |
| Sub-total Central Government | | 24,305 | | |
| 4 | Roads | 22,000 | NHAI & PPP | AP Reorganisation Act, Section 93 read with Schedule 13 (Details in Annexure X) |
| 5 | Airports | 10,200 | AAI & PPP | AP Reorganisation Act, Section 93 read with Schedule 13, (Details in Annexure X) |
| 6 | Metro Rail Transport System | 30,000 | MoUD & PPP | AP Reorganisation Act, Section 93 read with Schedule 13, |
| 7 | Water ways (NW-4) | 1,500 | IWWAI, State Govt. and PPP | APCMO presentation on infrastructure |
| Sub-total Central Authorities PPP | | 63,700 | | |
| 8 | Integrated Steel Plant | 25,000 | Central PSU | AP Reorganisation Act, Section 93 read with Schedule 13, SAIL to examine feasibility. |
| 9 | Greenfield Crude Oil Refinery | 15,000 | Central PSU | AP Reorganisation Act, Section 93 read with Schedule 13, HPCL or IOC to examine feasibility. |
| Sub-total Central PSUs | | 40,000 | | |
| 10 | Gas Grid | 5,000 | Central and State Govt. PSU JV | Gas Grid does not figure in the AP Reorganisation Act. Availability of gas pipeline infrastructure will improve industrialization especially in backward areas. Gujarat has estimated a sum of Rs. 6230 Cr for completion of State Gas Grid. |
| Sub-total Central & State PSUs | | 5,000 | | |
| 11 | Gangavaram LNG terminal | 4,500 | PPP | APCMO presentation on infrastructure |
| 12 | Other Major and Minor Ports | 12,000 | PPP | APCMO presentation on infrastructure |
| 13 | Vizag-Chennai Industrial Corridor | 100,000 | PPP | Former Minister's Statement |
| 14 | IT Investment Region & Electronic Manufacturing Clusters | 200,000 | PPP | Hyderabad ITIR investment potential at Rs. 2.2 L Crore |
| Sub-total State PPP | | 316,500 | | |
| Grand Total Economic Package | | 449,505 | | |
| Note: The investment potential is indicative and would undergo revision upon completion of feasibility studies. | | | | |

An indicative Rs 4.5 lakh crore package based on the agreements contained in the Andhra Pradesh Reorganisation Act (2014) and various statements made by the Government of Andhra Pradesh are presented in Table 1.

The estimated investment potential in the two largest items i.e. the Visakhapatnam-Chennai industrial corridor, which is expected to be part of the East Coast Industrial Corridor (ECIC); and the proposed IT Investment Region and Electronic Manufacturing Clusters are very broad brush and will require extensive mobilisation of capital and private investor interest to execute.

It is clear from this very broad estimate, that there is a pressing need to develop considerable capacity to structure, manage and regulate PPP investments within the Government of Andhra Pradesh.

Table 2: - INDICATIVE ANDHRA PRADESH TRANSPORT DEVELOPMENT PACKAGE (2014 prices)

| S. No. | Potential Investment Project | Estimated Investment (Rs. Cr) |
|---------------------------|---|-------------------------------|
| Railways | | |
| 1 | Nallapadu - Dronachalam Electrification | 500 |
| 2 | Bibinagar - Nallapadu Electrification (248 km) | 375 |
| 3 | Vijayawada-Gudivada-Bhimavaram-Narsapur-Machilipatnam Doubling (221 Km) | 1,200 |
| 4 | Guntur - Tenali - Repalle Doubling (25 Km) | 150 |
| 5 | Gudur - Dugarajapatnam New Line (45 km) | 330 |
| 6 | Nadikudi - Srikalahasti New line (308 Km) | 1,500 |
| 7 | Bhadrachalam - Kovvur New line (180 Km) | 1,000 |
| 8 | Kadapa - Bangalore New line (225 Km) | 2,250 |
| Sub-total Railways | | 7,305 |
| Roads | | |
| 1 | Road upgradation to 8-lane between Hyderabad and New Capital | 15,000 |
| 2 | 4 Laning of Gooty- Prodattur -Badvel - Nellore (293 Km) | 3,000 |
| 3 | 4 Laning of Kurnool -Atmakoor - Vinukonda - Nallapadu (420 Km) | 4,000 |
| Sub-total Roads | | 22,000 |
| Airports | | |
| 1 | Green field airport at Vizag | 4,500 |
| 2 | Green field airport at Vijayawada | 4,500 |
| 3 | Expansion & modernization of Tirupati airport | 1,200 |
| Sub-total Airports | | 10,200 |

Indicative Capital Zone Investment Package

An indicative Capital zone investment package has been developed based on field visits across state; an assessment of the: existing situation in a typical Andhra Pradesh city; broad brush estimates of investments required to upgrade urban infrastructure and provide universal coverage of basic services in such a typical city; departmental and grade-wise analysis of human resources of the GoAP in Hyderabad and the districts; indicative investment required to relocate these GoAP staff from Hyderabad to the proposed Capital zones; indicative investments required to cater to the demand from and expansion in public services in the host Capital zone cities over a 10 and 20 year time horizon.

A broad brush investment plan is presented in three parts. The first provides indicative cost estimates for buildings in the Capital zone. The second provides broad brush estimates of common infrastructure for this zone. The third makes three estimates: typical investments to upgrade the host city to universal provision of basic services as per JNNURM standards; investments required to cater to population growth over a 10 and 20 growth horizon.

The overall estimate for buildings for the Capital zone is about Rs. 10,500 crores, as shown in Table 3. The bulk of this (63%) goes to office space and housing for Directorate staff, of which a significant proportion can be devolved to district Headquarters across the state, based on the principles outlined in this document. This is followed by (19%) building and housing for the Raj Bhawan, the CMs interim Secretariat, Legislature and Secretariat complex and housing for Secretariat staff. The High Court complex, offices and housing, follows at 12% of the total investment estimate. Other infrastructure, including, guesthouses and conference centres make up the remaining 5%. All land acquisition costs will be borne by the GoAP.

Table 3: - INDICATIVE COST ESTIMATE FOR AP CAPITAL ZONE (2014 prices)

| | | Estimated Investment (Rs. Cr) | % of total |
|----|---------------|--|-------------------|
| 1 | CORE | Raj Bhavan | 56 |
| 2 | | CM's Interim Secretariat | 68 |
| 3 | | Legislature | 450 |
| 4 | | Secretariat | 361 |
| 5 | | Secretariat Housing | 1,097 |
| | | Sub-total Legislature & Secretariat | 2,032 |
| 6 | | High Court Complex | 516 |
| 7 | | High Court Offices | 98 |
| 8 | | High Court Housing | 657 |
| | | Sub-total High Court | 1,271 |
| 9 | | Directorates | 1,260 |
| 10 | | Directorate Housing | 5,398 |
| | | Sub-total Directorates | 6,658 |
| 11 | OTHERS | Guest Houses | 210 |
| 12 | | Conference Halls & Convention Centers | 349 |
| | | Sub-total Additional Buildings & Institutions | 559 |
| | | | 10,519 |

Note: Cost estimates are indicative and may undergo changes during planning and design

The estimated common infrastructure costs for the Capital zone, as shown in Table 4 is close to Rs. 1,536 crores. The single largest component is, water supply (33%), followed by underground storm water drainage (25%), sewerage and wastewater treatment (18%), roads (17%), power (7%) and solid waste management (2%). All land costs including for landfills are excluded.

Table 4: - INDICATIVE COST ESTIMATE FOR AP CAPITAL ZONE INFRASTRUCTURE (2014 prices)

| S.No | | Capital Element | Rs. Cr | % age of Total |
|-------------|-----------------------|------------------------|---------------|-----------------------|
| 1 | INFRASTRUCTURE | Trunk Main Roads | 133 | 9 |
| 2 | | Subsidiary Roads | 120 | 8 |
| 3 | | Water Supply Network | 334 | 22 |
| 4 | | Water Treatment | 168 | 11 |
| 5 | | Sewerage Network | 210 | 14 |
| 6 | | Wastewater treatment | 57 | 4 |
| 7 | | Storm Water Drainage | 384 | 25 |
| 8 | | Solid Waste Management | 29 | 2 |
| 9 | | Electricity | 102 | 7 |
| | | Grand Total | 1536 | |

Note: Cost estimates are indicative numbers and may undergo revisions during planning and design stages

Table 5 shows the estimated cost for upgradation of urban infrastructure and services in the host city, and the incremental infrastructure for expected population growth over a 10 and 20 year period at about Rs. 5,900 crores, Rs. 4,100 crores and Rs. 5,100 crores, respectively. This adds up to a grand total of about Rs. 15,000 crores of projected investment.

The single largest component is, water supply and underground storm water drainage (29% each), followed by sewerage and wastewater treatment (22%), roads (14%), Power (4%) and solid waste management (2%). The cost of land required for these activities is not factored into this analysis, as it is a GoAP responsibility.

Table 5: - INDICATIVE COST ESTIMATE FOR INFRASTRUCTURE UGRADATION & EXTENSION PROVISION FOR HOST URBAN AREA (2014 prices in Rs. Crore)

| S.No | Capital Element | Phase 1 Upgradation to universal JNNURM coverage standards (1.5+ mill) | Phase 2: Population increase of 25% (~0.4 mill) | Phase 3: Population increase of 25% (~0.5 mill) | Grand Total | % of Total |
|------|-------------------------------------|--|---|---|----------------|---------------|
| 1 | Trunk Main Roads | 309 | 356 | 444 | 1,109 | 7 |
| 2 | Subsidiary Roads | 278 | 320 | 400 | 998 | 7 |
| 3 | Water Supply Network | 772 | 888 | 1112 | 2,772 | 18 |
| 4 | Water Treatment | 700 | 441 | 553 | 1,694 | 11 |
| 5 | Sewerage Network | 1239 | 560 | 700 | 2,499 | 17 |
| 6 | Wastewater Treatment | 396 | 151 | 189 | 736 | 5 |
| 7 | Storm Water Drainage | 2072 | 1013 | 1267 | 4,353 | 29 |
| 8 | Solid Waste Management | 96 | 77 | 96 | 268 | 2 |
| 9 | Electricity | - | 273 | 340 | 613 | 4 |
| | Sub-total Infrastructure | 5,861 | 4,079 | 5,102 | 15,042 | |
| | % age of Total | 39 | 27 | 34 | | |

Note: Cost estimates are indicative and may undergo revisions during planning and design

Supporting Document - II

Important Strategic considerations regarding Andhra Pradesh Finances

1. The White paper on Public Finances released by Govt. of AP, conveys the precarious fiscal position of Andhra Pradesh. Residuary Andhra Pradesh with 58.32 percent of population of the United State earns only 44.6% percent of total revenues of the erstwhile Combined State, leading to a huge resource gap of Rs. 18,236 Cr. Furthermore, on account of population being the basis for apportionment of liabilities, AP has a higher Debt/ GSDP ratio. Thus there is no gainsaying the fact that the State of Andhra Pradesh is in a situation where considerable financial resources will be required to place the State economy on a sustainable growth and development path over the next 10 years, in a situation of tight fiscal space.

Front loading

2. Most of these resources will need to be front loaded because:-
- The temporary Capital, Hyderabad is 200 km from the closest border of Andhra Pradesh. This is administratively untenable in the medium term.
 - Construction and provisioning of the State Capital functions including the Secretariat, Raj Bhavan, High Court and judicial bodies and the Legislature along with housing requirements will need to be in place as early as possible.
 - Andhra Pradesh does not have the luxury of a city that possesses spare private capacity to provide for housing, sanitation, water, transport etc. as was the case with Bhubaneswar (Cuttack), Gandhinagar (Ahmedabad) or Dispur (Guwahati), to sequence these investments. Public and Private infrastructure for such a Capital will need to be constructed and completed simultaneously with the creation of physical assets necessary to house the core administration functions.

It is, therefore, important that the State of Andhra Pradesh receives all Central resources for the purposes of setting up capital functions within a medium-term time frame. In our view, it is highly desirable that this time frame does not exceed 5 years. It is important to ensure that the commitments in spirit to provide resources for suitable Capital city for Andhra Pradesh as mentioned in the AP Reorganisation Act be demonstrated as commitments in action to the people of the State. If this is not done, then the sense of injustice and simmering discontent that the people of the State feel will result in a level of political tension that could cause long lasting damage to peace tranquillity and development prospects of the State

and region. Being of this view we, therefore, present all our financing estimates in **Supporting Document - I** with a 5 year horizon. We are confident that the commitment of such resources will, apart from sending a correct political signal, also enable the State government to increase the level of predictability and fiscal sustainability of their forward planning. This will provide some relief in what are extremely difficult political and economic circumstances faced by newly elected government.

Constant Prices

3. It is important to note that the Central Assistance is to be calculated in constant prices (14-15). Thus Rs. 1000 Cr. of central assistance at 6% inflation rate will be budgeted as follows:

| FY | 14-15 | 15-16 | 16-17 | 17-18 | 18-19 | Total |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Expenditure (in Rs. Cr.) | 1000 | 1060 | 1124 | 1191 | 1262 | 5637 |

4. The next question in the context of financing is the extent to which resources for the Capital can be secured in the most cost effective manner and in a manner that does not jeopardise or force a trade-off between the construction of the Capital and the resources needed for the balanced development of the State of Andhra Pradesh.
5. In this context it is noted that section 46 (2) of the Andhra Pradesh reorganisation Act states that "Notwithstanding anything in sub-section (1), the Central Government may, having regard to the resources available to the successor State of Andhra Pradesh, make appropriate grants and also ensure that adequate benefits and incentives in the form of special development package are given to the backward areas of that State". The above statement does not make any explicit or quantified financial commitment. The terms "Appropriate Grants" and "Adequate Benefits and Incentives" do not automatically commit Central Government to a minimum threshold of support.

Special Category Status and Fourteenth Finance Commission

6. The statement of the former Prime Minister in the Rajya Sabha on 20th February 2014, namely ".....Special Category Status will be extended to the successor state of Andhra Pradeshfor a period of five years. This will put the state's finances on a firmer footing....." is not a commitment made in the Act. It will need to be ratified by the present administration. Without a doubt, granting of special category status is justified, desirable and would go a very long way in making the fiscal position of

Andhra Pradesh compatible with present challenges before the State, including importantly the resources necessary to create a Capital. However, it cannot be automatically assumed, notwithstanding desirability, that this commitment will be activated in the immediate future when it is needed the most. The Central Government will need to affirm its approval for the status and will then have to consult the National Development Council (NDC) to ratify such. There is political risk that such ratification will not be straight forward, given that several States other than Telengana have also demanded special category status. The argument that Andhra Pradesh is in a special situation may have sympathy, but is unlikely to generate affirmative support, from these States.

7. The most immediate scope for significant relaxation of what we recognise is a very tight fiscal constraint on the State of Andhra Pradesh would be the award of the Fourteenth Finance Commission. It needs to be clearly understood that typically the Finance Commission does not, in any explicit manner, draw a distinction between the General and Special Category States. It is indeed true that the Thirteenth Finance Commission provided Special Category States with somewhat more relaxed FRBM guidelines than the General Category States. It may be noted that the Thirteenth Finance Commission was the only Commission that distinguished between General and Special category States in the FRBM roadmap and there is no reason to expect the Fourteenth Finance Commission to carry on with the precedence. It should further be noted that no General Category State received a Non Plan Revenue Deficit Grant (NPRD), despite the fact that at least 3 General category States projected a continuing revenue deficit in their Memoranda to the Commission. Thus, making the case that a revenue deficit is likely to be incurred does not automatically imply the award of NPRD grant by the Finance Commission.
8. This Committee is of the view that Andhra Pradesh is in a structurally untenable fiscal position that is not of its own making, and therefore an appropriate NPRD grant would be both necessary and desirable. However, whether this argument is accepted and if so, the calculation of the volume of the grant, will depend on the view taken by Fourteenth Finance Commission, inter-alia on the basis of the State Government's Memorandum to which this Committee has not had access.

It would, therefore, be prudent to be cautious about the likely availability of fiscal space from this most important source. In any case, Andhra Pradesh will not be accorded Special Category status before the Fourteenth Finance Commission Report is finalised, given the above.

Tax incentives

9. The Central Government has also committed to take “Appropriate fiscal measures, including offer of tax incentives to the successor States” in section 94(1). In our view, if Andhra Pradesh singularly and specifically were provided such tax benefits this undoubtedly would boost industrial development of the State and considerably reduce the need for the State government to undertake tax expenditure on this account. However, the Act specifies that:
10. These tax incentives will be provided to both successor States. This would negate if not completely nullify the benefits to be accrued by Andhra Pradesh vis-à-vis other States.
11. In the case of indirect tax exemptions, the introduction of GST would substantially negate any comparative advantage to Andhra Pradesh.
12. In the case of direct tax incentives, given the historical record, it is highly unlikely that such incentive, if offered, would not invite severe resistance and even legal action from neighbouring States. The recent letter from Chief Minister of Tamil Nadu to the Prime Minister reported in the Press, indicates that resistance has already commenced.
13. Decentralised economic development can bring attractive benefits which may even outweigh the attractiveness of decentralised location of Administrative functions. However, to bring about decentralised development in a region that do not already possess existing activity hubs, both planning and incentivisation are necessary. Tax incentives can play an important role here. For eg: The average DDP growth rate in Dehradun during 07-09 was 10.55 % which is relatively comparable to the DDP growth rate of Udhampur at 9.40%.

PPP

14. The state government has, quite understandable, proposed the PPP route as mean for overcoming financial difficulty. However:-
 - Given that unless special category status is obtained and State Non-Plan Revenue Deficit (NPRD) is covered in full through central transfers, the state fiscal position will not attract reasonably high credit ratings.

- This would mean that risk adjusted cost of capital calculations done by private partners on different PPP projects will require significantly higher levels of Viability Gap Funding (VGF).
- The Centre has made no commitment till date to cover VGF; therefore, burden of such VGF will fall on state finances.

Currently for the Capital, State government estimates PPP of Rs.40358 crores much of this is on account of Central Business Districts, Airports, BRTS and Gas Pipe lines, which will require considerable front loading and therefore concomitant high commitment to VGF in a situation of a high forecast revenue deficit.

Due to the above, it must be concluded that it would be both imprudent and incorrect to assume that central assistance would automatically alleviate the burden upon the state of Andhra Pradesh to ensure fiscally sustainable development and creation of Capital infrastructure in the shortest possible time. It is, therefore, important to approach the issue of financing of the Capital construction by acknowledging:-

- That there is a trade-off between availability of central resources for Capital construction and other purposes, such as land acquisition.
- That view of this trade-off it is important that the State government design and execute a fiscal strategy for design and construction of Capital minimising the State burden on exchequer.

Such a strategy must also ensure that where resources are not front loaded, State government can independently using the strategic financial and administrative means at its disposal, not allow financial constraints to impede the speedy construction of the Capital. This requires the State to be opportunistic for instance, use the provisions for development of backward areas in the Act to access financing for Capital functions.

Land acquisition – fiscal perspective

15. There is, therefore, a trade-off between the understandable desire to design the Capital as a central hub to provide a spur to the overall development of State, and the cost of locating such a Capital in areas where such land acquisition may be expensive.
16. This is not to say that there is no viable solution to the problem. However, the Committee must highlight this trade-off in fulfilment of its terms of reference while considering the possible location of different Capital functions.

17. Govt. of AP in a communication to the Committee has indicated requirement of land of around 1300 acres to house all the core capital functions viz. Raj Bhawan, Legislature, High Court, Secretariat, Directorates, Housing etc. GoAP has also indicated that the entire Capital metropolis to house all the peripheral functions etc. would require an extant of 20,000 acres. This is a sizeable ask.

The strategies to minimize the overall land requirement could be

- ***First***, To make use of existing Govt. lands. Any general indicator about the quantum of land available should be carefully checked in regard to location, access to services, possible impact in infrastructure, land ownership, including constraints such as land assigned to landless labourers etc.
- ***Then Second***, To make use of degraded forest lands as mentioned in Sec 94(4) of AP Reorganisation Act which reads as "The Central Government shall facilitate the creation of a new capital for the successor State of Andhra Pradesh, if considered necessary, by denotifying degraded forest land". For eg. It has been communicated to the Committee in the meeting with Krishna district administration that around 14,000 acres of forest land is currently not under forest cover in that district. This should be explored in detail before taking recourse to land acquisition.
- ***Then Third***, To decentralize the Capital functions to reduce the land requirement. The Committee fully recognises that inappropriate decentralization may lead to inefficiencies in the form of expensive logistical challenges and administrative disruptions. Prima facie, there exists a merit in locating many directorates (based on functional requirements) and a bulk of Public training institutions outside the Capital. Note submitted by Govt. of AP indicates availability of land near District HQs to accommodate the distributed Capital functions and other Public Institutions.
- ***As an unavoidable Final***, To acquire bulk of land either through land acquisition act or land pooling policy once it is established that
 - There is absence of degraded forest land
 - There is need to provide continuity between various land pockets to facilitate planned development.

A separate detailed note on land pooling has been provided as part of the main report and also made available to AP Government.

SUPPORTING DOCUMENT III

ANDHRA PRADESH DEVELOPMENT PROFILE AND CAPITAL ZONE SHORTLISTING

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Glossary of Terms

- APGENCO – Andhra Pradesh Power Generation Corporation
- GDDP – Gross District Domestic Product
- GFCF – Gross Fixed Capital Formation
- GSDP - Gross State Domestic Product
- GQ – Golden Quadrilateral
- K-G basin – Krishna Godavari basin
- NSSO – National Sample Survey Organization
- NIMZ - National Investment and Manufacturing Zones
- ToR – Terms of Reference

INTRODUCTION

This note provides a high-level overview of the economic development profile of Andhra Pradesh based on the latest publicly available data. The primary unit of enquiry is the district, as detailed *mandal* level data, especially of economic and recent employment information is not available. This note provides the evidence base on which the core findings, suggestions and options are presented in the main report. Additional detailed analysis will be necessary to assist in the planning and response to particular developmental or locational issues, which can be built on this analysis.

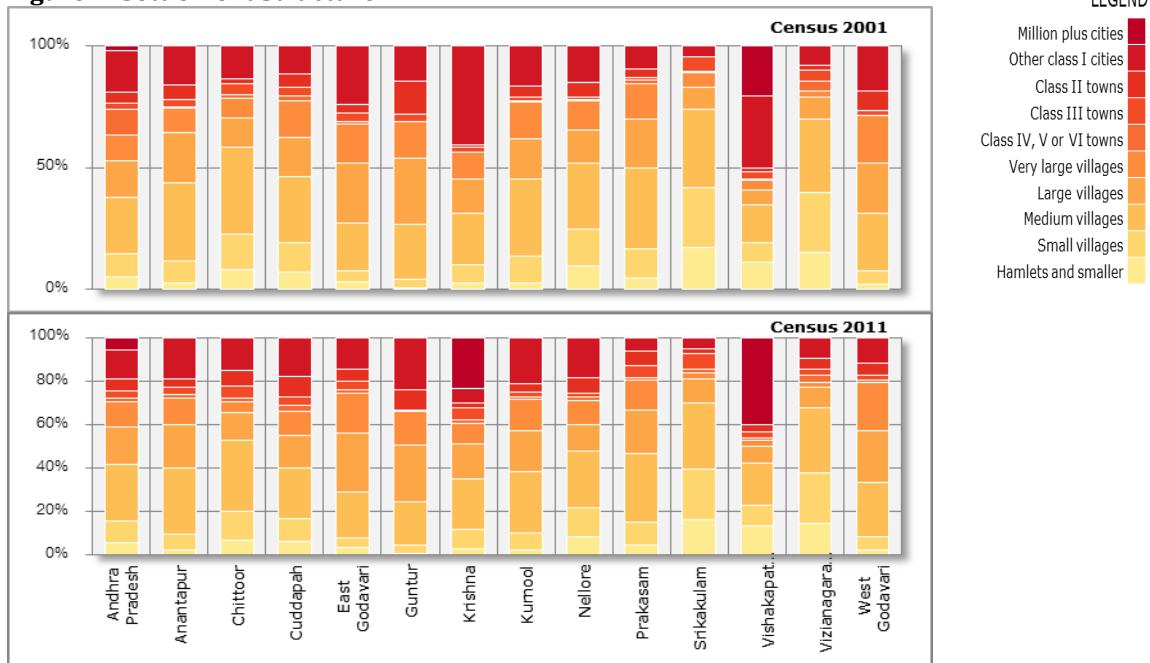
A Rural state with an Urban, Industrial and Trade-led development strategy

Unlike most other states along India's eastern seaboard and the former unified state of Andhra Pradesh, the current state of AP has two unique features: a lower than average level of urbanization (28 percent compared to India's 32 percent) and a widely dispersed and decentralized settlement structure, with moderately high levels of connectivity especially along the coast (Fig 2). In this it is probably more similar to Kerala and parts of Tamil Nadu, than to its adjoining states of Telangana and Karnataka. It has only two million+ cities: Vijayawada (1.03 million) and Vishakhapatnam (1.7 million), and each of the 13 districts has at least one town of over 1 lakh population¹ as shown in Figs 2&3.

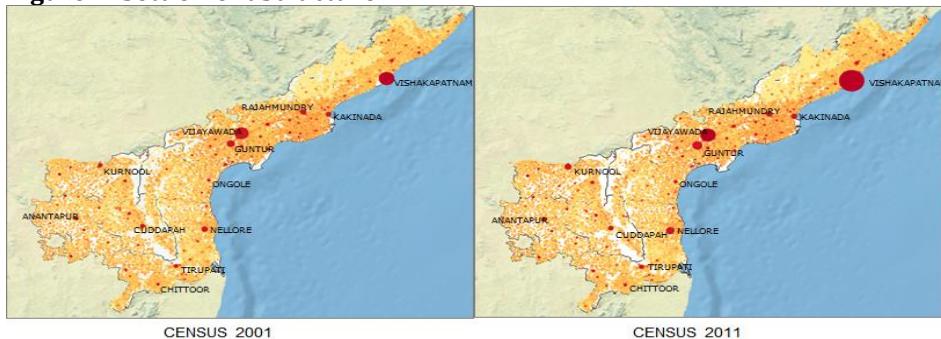
Andhra Pradesh is primarily a rural state, and will continue to be so for the next 2 to 3 decades. The bulk of the state population (72 percent) lives in over 9,000 villages (Census 2011). While a slow change in economic structure away from the primary sector (agriculture, horticulture, pisciculture, sericulture and mining) towards manufacturing and services has taken place over the last two decades; the employment structure continues to be agrarian, with a strong cultural tie to the land. This implies that a careful balance would need to be maintained between rural and urban areas, even in the medium run and especially if a manufacturing and services-led development strategy is adopted.

AP's population of 50 million is most densely concentrated in the agriculturally prosperous Godavari and Krishna delta districts and more industrialised districts like Visakhapatnam. East Godavari and Guntur are the most populous districts. The population is also concentrated along major economic and transportation corridors like the Golden Quadrilateral and the North South corridor. Vishakhapatnam is the most urbanized district in the state with more than 30% of its population living in urban areas. Vishakhapatnam (1.7 million), Vijayawada (1.03 million), Guntur (0.6 million) and Nellore (0.5 million) are the most populated cities.

¹ Census of India, 2011

Figure 1: Settlement Structure

Source: Census of India, 2011

Figure 2: Settlement Structure

Census of India, 2011

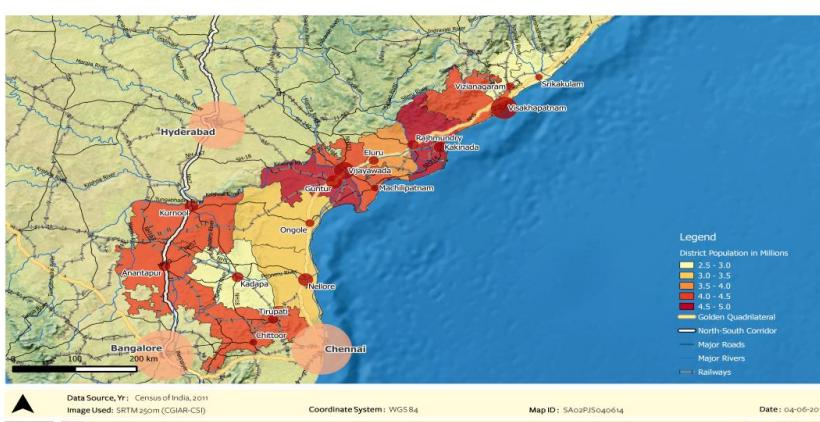
Figure 3: District-wise Population

SIVARAMAKRISHNAN COMMITTEE: ANDHRA PRADESH CAPITAL



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HUMAN SETTLEMENTS

DISTRICTS



Source: Census of India, 2011

This is significant as the stated development strategy of the GoAP² focusses on three elements and five missions: economic growth driven by the development of port, manufacturing, trade and commerce led development along the coast; supported by strong service sector growth around human and high-end services; balanced regional development via the creation of strategic infrastructure and improved connectivity linked to ongoing national initiatives (GQ, NS, ECIC, CB); regional and state specific economic corridors and clusters; and strategic urbanization to accelerate secondary and tertiary sector productivity growth; provide significant incremental employment; provide sites to attract domestic, diaspora and foreign investment and the expected direct and indirect multiplier impacts that these would create. The creation of a new capital or capital zones is the keystone of this forward looking development strategy.

ECONOMIC DEVELOPMENT

The bifurcation of Andhra Pradesh and Telangana has caused considerable economic disruption and uncertainty (GoAP, 2014). However, both in gross output terms and in terms of economic growth potential and resilience, the Andhra Pradesh economy appears to have better fundamentals than that of Telangana. The state experienced a growth spurt from the mid-1990s to the mid-2000s after which a substantial slowdown is observed over the last two years.

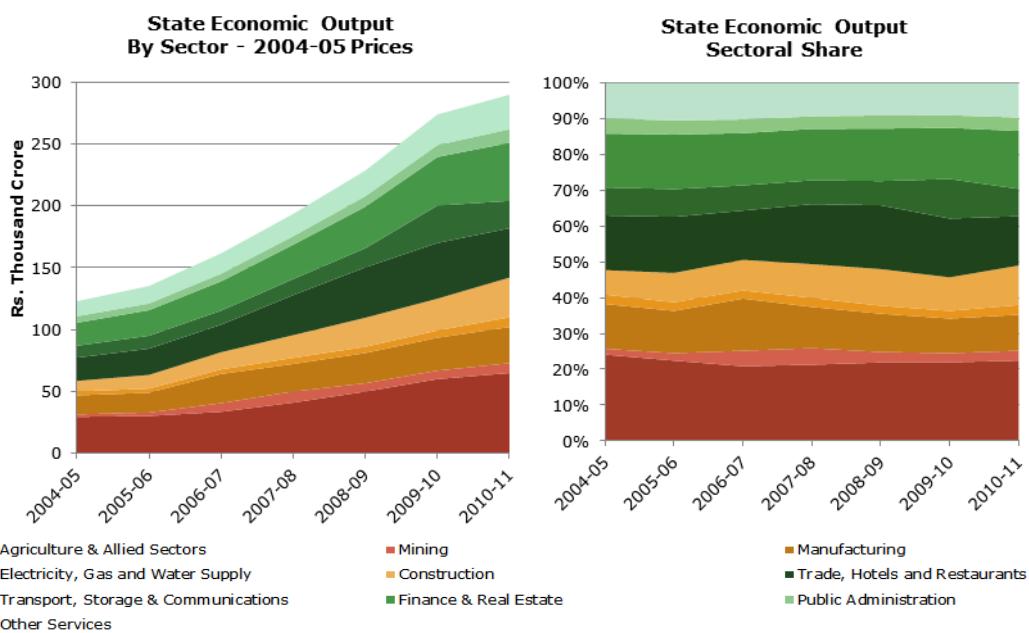
The structure of the state economy has been largely stable, with a significant share coming from agriculture and allied activities; trade and commerce and finance and real estate. The share of public administration is both minor and stable, indicating that potential economic development of the state capital, as an administrative centre can be expected to be marginal.

² GoAP budget 2014, White Papers on Industry, Infrastructure and Employment; Governance; Human Resources and Social Development, GoAP, 2014

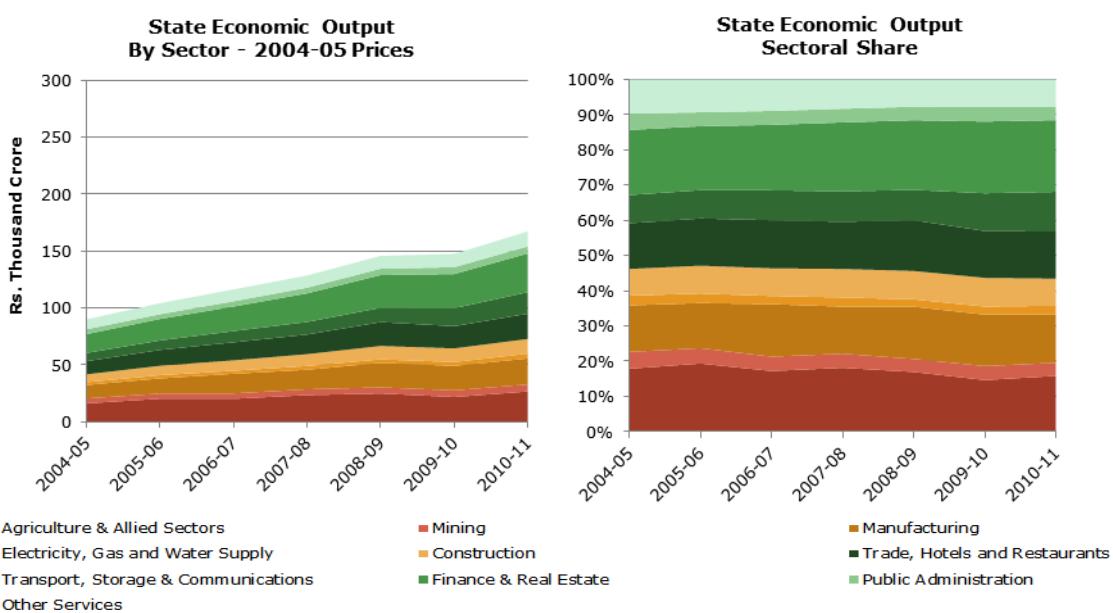
ECONOMIC OUTPUT

Figure 4: State Economic Output (Gross State Domestic Product) – Andhra Pradesh & Telangana, 2010-11

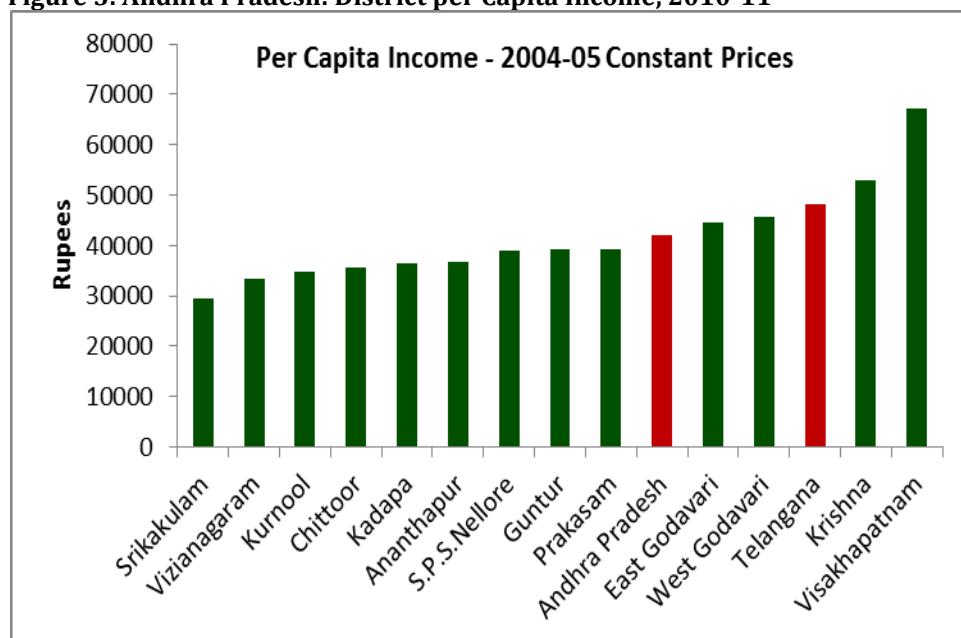
ANDHRA PRADESH



TELANGANA



Source: AP Directorate of Statistics and Economics, Hyderabad, various years

Figure 5: Andhra Pradesh: District per Capita Income, 2010-11

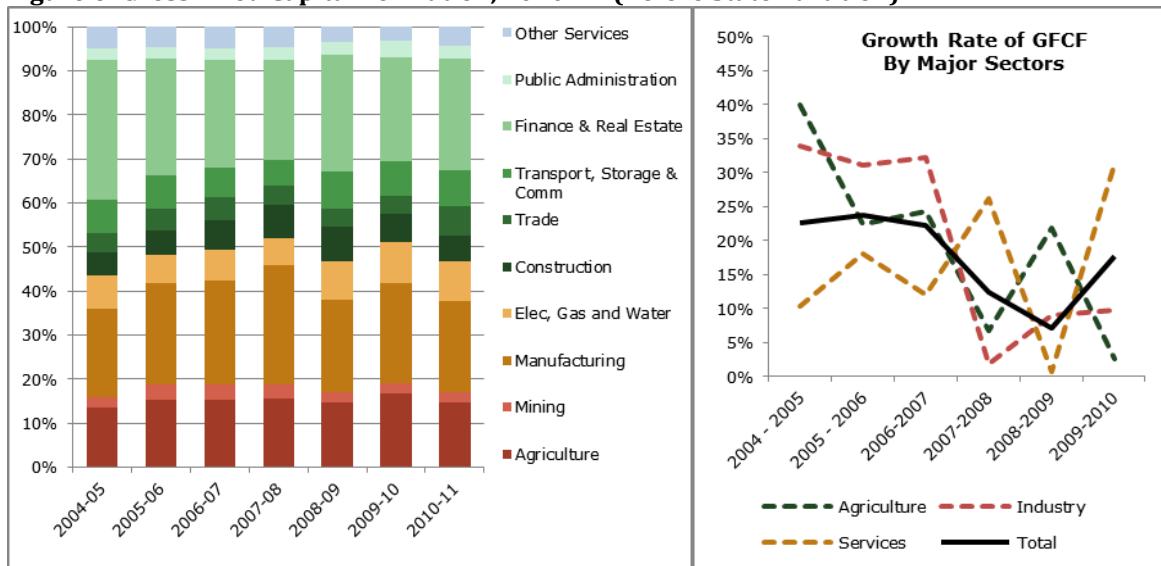
Source: Directorate of Economics and Statistics, Hyderabad

Telangana has a lower GSDP than AP, but a higher per capita GSDP largely because of the smaller population and the impact of Greater Hyderabad that dominates the economic landscape of the state. Andhra Pradesh has a significantly higher agricultural output, while the share of industrial output is higher in Telangana. On an average, AP has witnessed a higher growth rate as compared to Telangana, up till 2009-10.

Andhra Pradesh's strong comparative advantage is its agriculture and allied sectors, largely because of fertile land in the Delta areas and extensive irrigation. It will be important in the medium and long-term to maintain this strategic asset, increase productivity considerably and use its potential to generate large-scale employment. This would mean careful land use controls and containing urban growth and sprawl so that it does not cut into productive agricultural areas.

The state also has considerable minerals and mining potential, especially in its more backward and semiarid areas. The development of these extractive industries without damaging the environment and creating employment will be an important initiative, especially for the Rayalseema districts.

Andhra Pradesh has a strong base of industrialisation in some regions, initially driven by state sector investments in PSUs. This needs to be expanded further into backward region, like Rayalseema and northern AP. Given the long history of literacy and education in Andhra Pradesh, it is well placed to benefit from the human and advanced technology services industry. The availability of appropriate infrastructure, simplifying procedures to develop new enterprises and appropriate government regulation and incentives can help accelerate this process in some of the more difficult and backward regions.

Figure 6: Gross Fixed Capital Formation, 2010-11 (Before State Partition)

Source: Directorate of Economics and Statistics, Hyderabad

Manufacturing, real estate and agriculture are the most important components of Fixed Capital Formation in unified AP as shown in Figure 6. The proportion of capital formation in construction, trade and transport are lower than expected and will have to be raised considerably in order to realize the expected growth multipliers from the sectors. It is a matter of concern for the state that the growth rate of Gross Fixed Capital Formation fell significantly from 2007 to 2009. There was a revival in 2009-10.

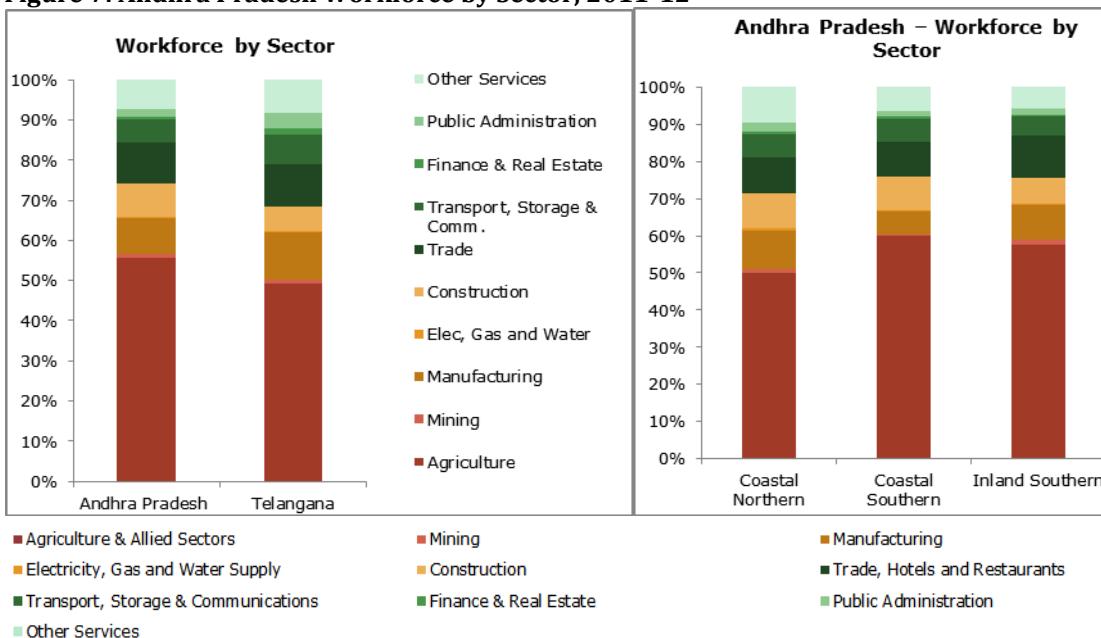
Post-bifurcation stabilization of the political situation in the state; establishing the new state administration and setting standards for good governance, will give confidence to existing and potential investors. These efforts are necessary to complement ongoing state government and GoI investments to maintain a stable growth strategy.

EMPLOYMENT & PRODUCTIVITY ENHANCEMENT

Andhra Pradesh has over 7 million people in rural areas and 4.5 million people in urban areas who live below the poverty line³. One of the most significant measures to address this is to expand the potential for employment generation and productivity increases, especially in the low and medium scale manufacturing and services sector. Protecting agricultural and allied jobs in the coastal region will become an important priority. Displacing large populations in the most fertile districts of the state through large-scale urbanisation or real estate speculation militates directly against this.

³ Report of the Expert Group to Review the Methodology for Measurement of Poverty, Government of India, Planning Commission, June, 2014

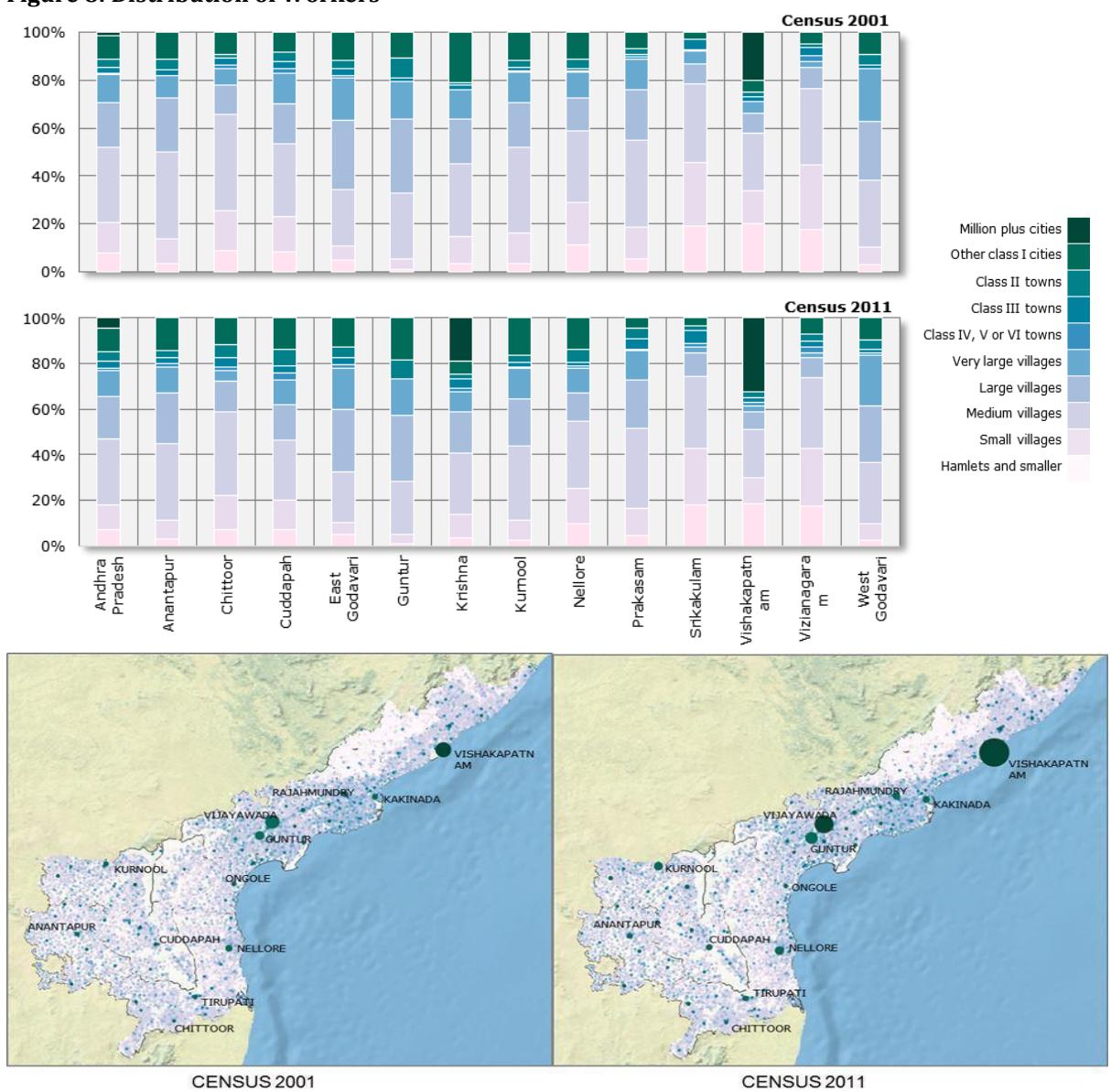
Figure 7: Andhra Pradesh Workforce by Sector, 2011-12



Source: NSSO Employment and Unemployment Survey, 2011-12,

Coastal Northern – Srikakulam, Vizianagaram, Vishakhapatnam, West Godavari, East Godavari
 Coastal Southern – Krishna, Guntur, Prakasam, Nellore
 Inland Southern – Kadapa, Kurnool, Anantpur, Chittoor

AP given the productive Krishna & Godavari deltas has a larger share of agricultural workforce than Telangana; which has a larger manufacturing and services workforce than AP. From the NSS data, we see that the Coastal Northern Region of the state has a higher number of workers in industry and services as compared to the other two regions. From the Census data, we see that most of the workforce is concentrated in villages and small towns. Vishakhapatnam is an exception with a significantly high number of workers in urban areas, followed by Vijayawada.

Figure 8: Distribution of Workers

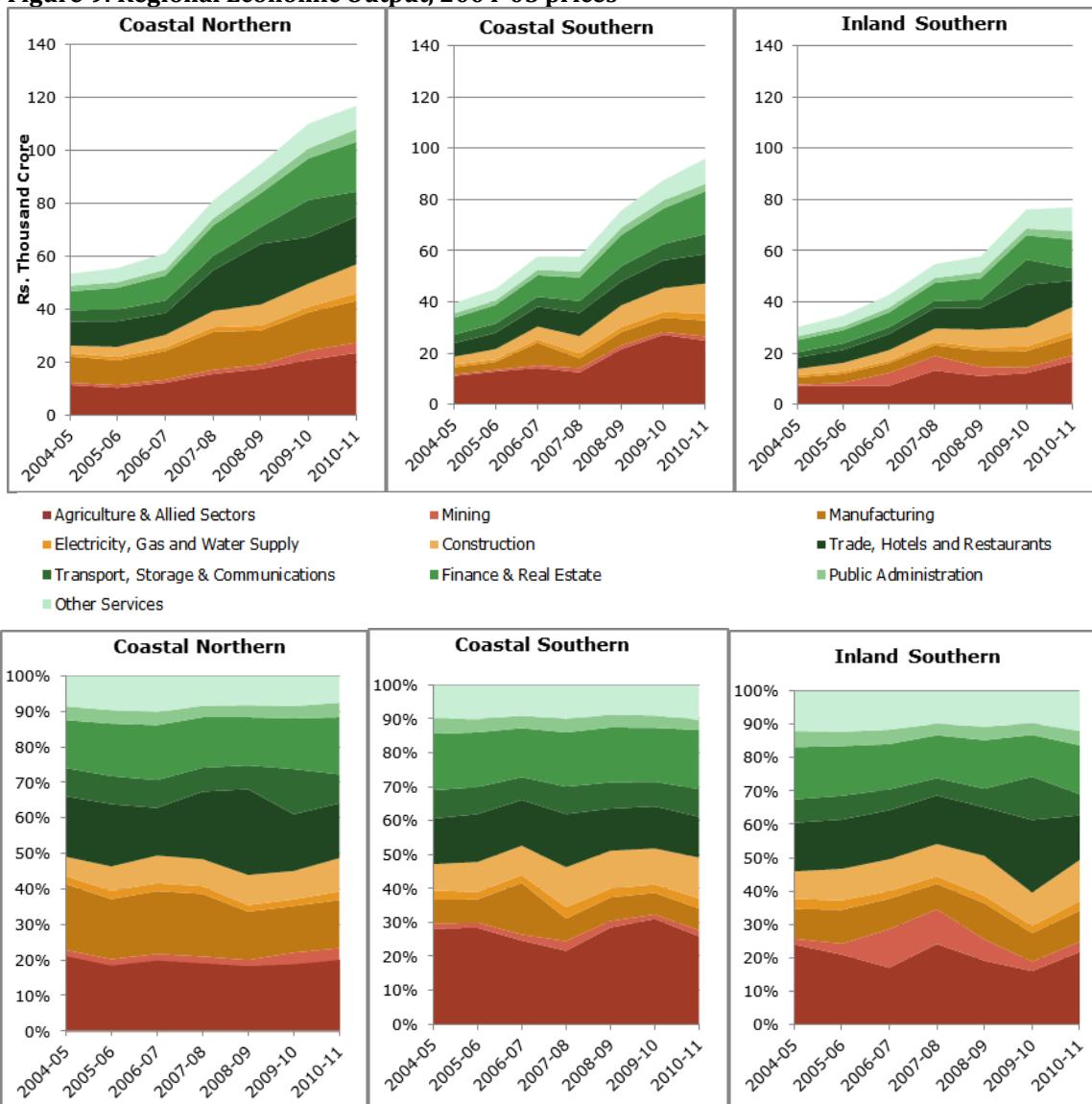
Source: Census of India, 2011

The state is to create an incremental 2 to 3 lakh jobs annually for the next two decades to address the aspirations and livelihood needs of a new generation. The bulk of this will need to be not only distributed across the state, but located in large villages and small towns, as shown in Figure 8. A development pathway of overconcentration of investment in the larger urban centres in the state, in spite of agglomeration economies, will find it difficult to deliver the expected new livelihood opportunities. More appropriate would be ensuring balanced investment in infrastructure and connectivity across different settlements as well as investing in appropriate sizes and locations of enterprises to generate employment.

REGIONAL GROWTH DIFFERENTIALS

There are very visible regional differentials in economic development patterns in the state. The northern coastal region has the highest output, followed by the coastal southern and the inland southern regions. The southern inland region of Rayalaseema clearly lags compared to the rest of the state in terms of economic output, as shown in Figure 9.

Figure 9: Regional Economic Output, 2004-05 prices



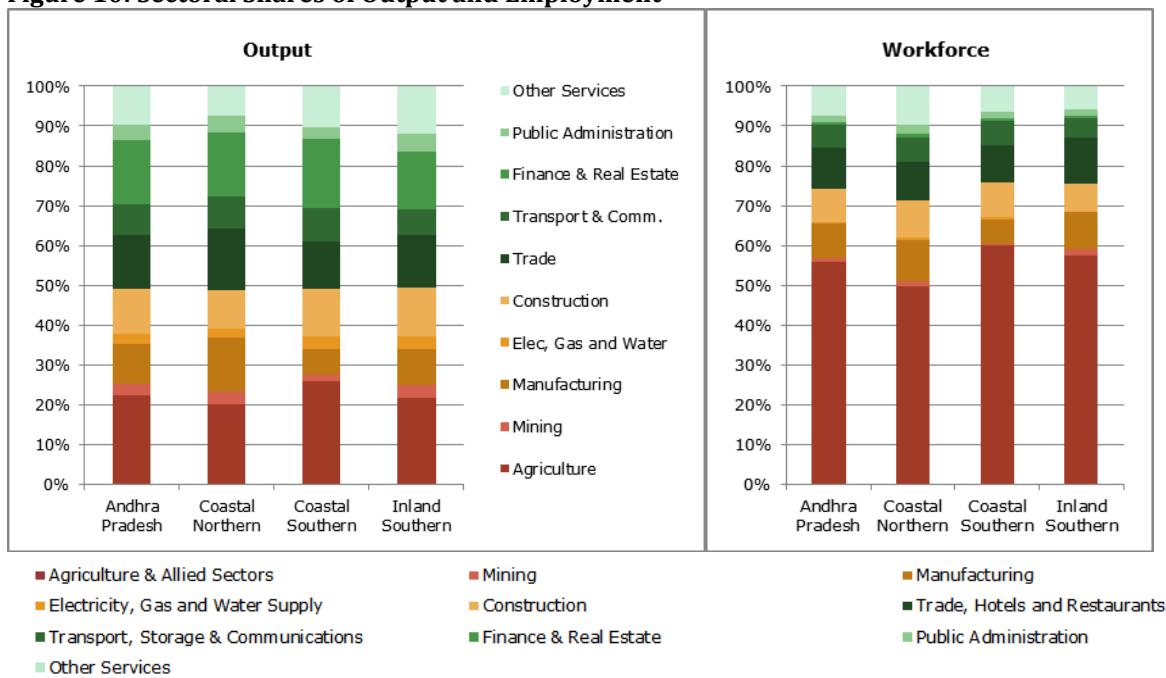
Source: Directorate of Economics and Statistics, Hyderabad

Coastal Northern – Srikakulam, Vizianagaram, Vishakhapatnam, West Godavari, East Godavari
 Coastal Southern – Krishna, Guntur, Prakasam, Nellore
 Inland Southern – Kadapa, Kurnool, Anantapur, Chittoor

Andhra Pradesh has a very strong agricultural base. However, even though agriculture employs over 50% of the workforce it has been generating only 20% of the state's economic output. Industry generates approximately 25% of the output while employing around 15% of the workforce while services makes up 50% of the

output while employing around 25% of the workforce, as shown in Figure 10. Agricultural employment is highest in the southern coastal districts where it is nearly 60% of the workforce, followed by Rayalseema and northern coastal Andhra Pradesh, which has the largest share of the manufacturing workforce in the state.

Figure 10: Sectoral Shares of Output and Employment



Source: Directorate of Statistics & Economics, Hyderabad; NSSO Employment & Unemployment Survey, 2011-12

Coastal Northern – Srikakulam, Vizianagaram, Vishakhapatnam, West Godavari, East Godavari
 Coastal Southern – Krishna, Guntur, Prakasam, Nellore
 Inland Southern – Kadapa, Kurnool, Anantapur, Chittoor

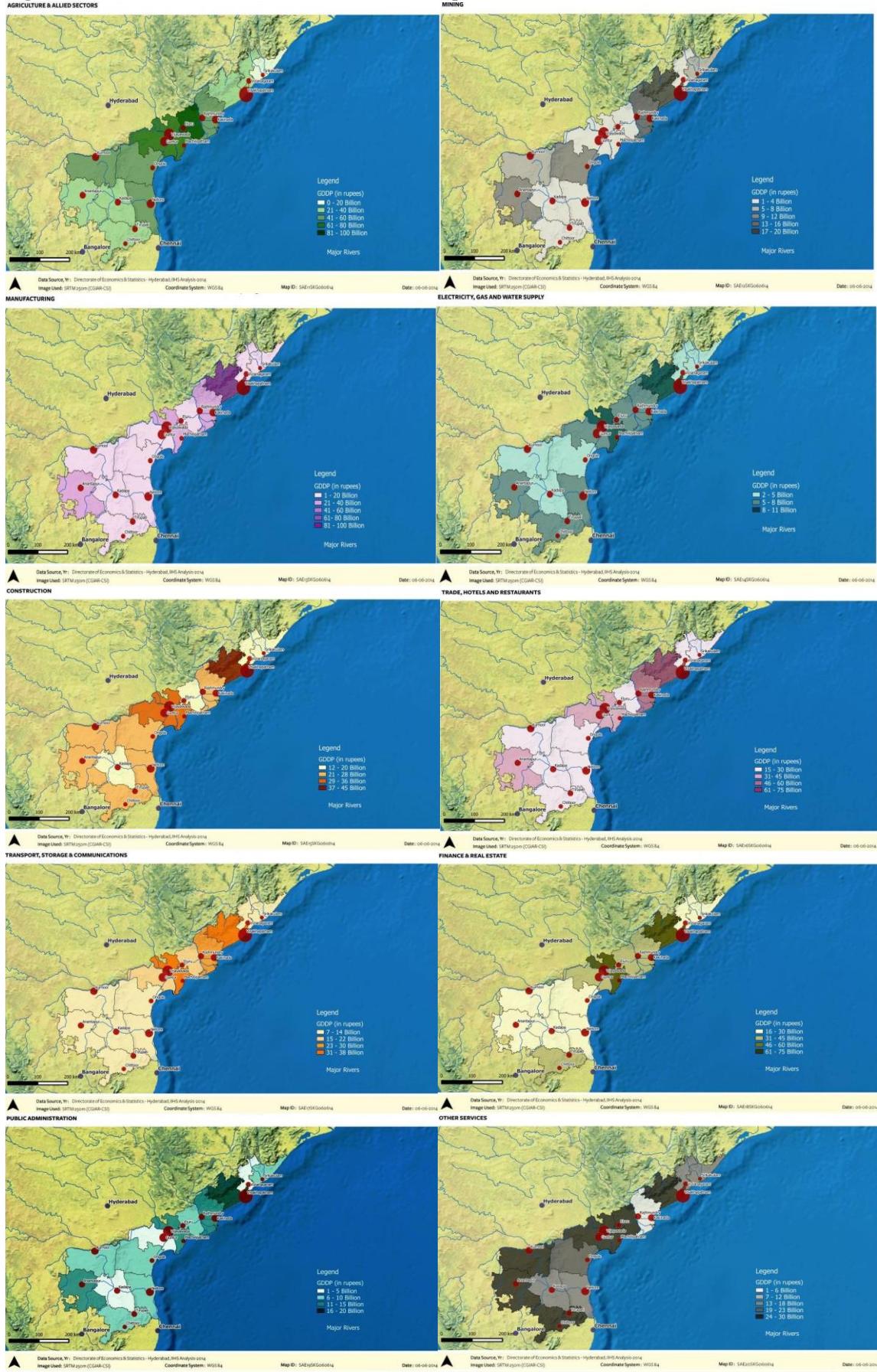
DISTRICT ECONOMIC OUTPUT

The following maps present variations in economic output across the different districts of the state. The most agriculturally productive districts are along the Godavari and Krishna deltas and the coastal plains. The most active mining related districts are Visakhapatnam, East Godavari, Anantapur and Kurnool. Manufacturing is highly concentrated in Visakhapatnam district and then moderately well distributed across the state apart from some concentration in Krishna and Anantapur districts. The power, gas and water-utility related industry is highly concentrated in Visakhapatnam and Krishna districts, the south coastal region and parts of Rayalaseema. Trade is concentrated in Visakhapatnam, East Godavari, Guntur, Krishna and Anantapur districts. Transportation and Communication is concentrated in Visakhapatnam, Krishna, East Godavari and to a lesser extent in West Godavari and Guntur districts. Real estate and Finance are highly concentrated in Visakhapatnam and Krishna districts, with lower concentration in the central coastal districts and Chittoor. The highest concentration of public administration output is in Visakhapatnam, East Godavari, Anantapur and Krishna districts. The distribution of Other Services is strong across Visakhapatnam, central coastal Andhra and much of Rayalaseema.

The significant variation in the economic and employment geography of the state, points to two important strategic directions. First, the importance of strengthening and protecting existing economic activities in areas in which they have a comparative advantage is high. Improvements in infrastructure will be necessary, particularly quality power availability and road and rail, except in the case of services where air connectivity may become a decisive factor. Another crucial factor which has received limited attention is the development of skills and matching human development investments with potential economic development activities. In a manufacturing, trade and communications, human and high-tech services-centric economy, this will provide the most important piece for productivity increases and domestic and international competitiveness.

The state will need to use a judicious mix of balanced regional development strategies and focused interventions to increase employability, productivity and output, while simultaneously reducing poverty and vulnerability. This will imply strengthening decentralised planning and local capacity and harnessing the potential for good governance at city and panchayat levels.

The capital zone is expected to play an important role in the medium run to enable this. It is recognised that there will be a strong preference for a centralised administration for a new state. However, in spite of the obvious challenges of administrative efficiency and managerial effectiveness of greater decentralisation in the short run, the long run benefits to the state, its economy and social development are expected to be significant as has been demonstrated in adjoining states like Tamil Nadu and Kerala.

Figure 11: Distribution of District Economic Output, 2010-11

Source: Directorate of Statistics & Economics, Hyderabad

ECONOMIC CONCENTRATION AND INFRASTRUCTURE

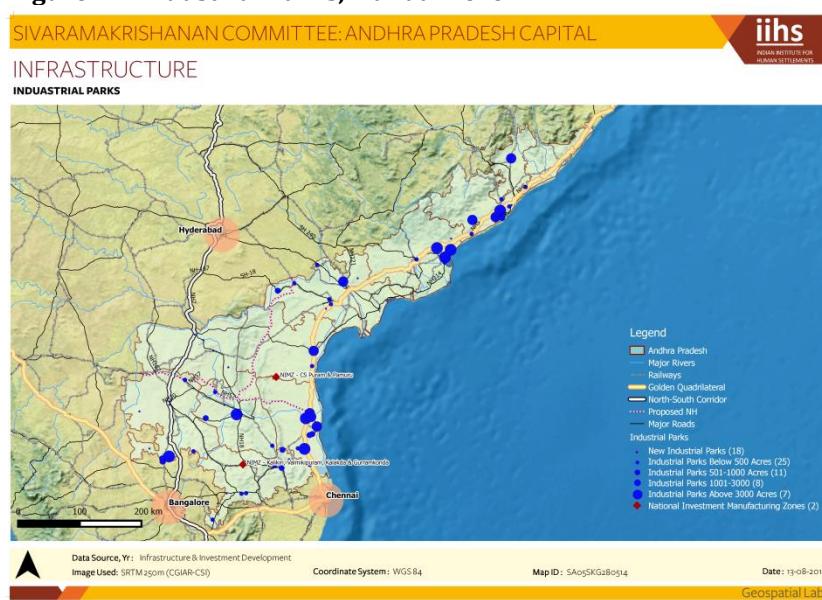
The nature of development in the 20th-century focused on encouraging concentration and economies of scale through industrialisation and urbanization. In the 21st-century, with the development of powerful network-based production systems for power, communications and information; establishment of global just-in-time supply chains; and the need to conserve, recycle, reuse and mitigate the impact of the use of scarce natural resources like water and fossil fuels - the most competitive and sustainable regions are moving towards tightly connected and 'intelligent' networked infrastructure.

Given the existing scaffolding for a statewide infrastructure network for goods and passenger transportation, power and gas, mobile and fibre-optic communication and water management and the fact that the bulk of the future infrastructure for the state is yet to be built - implies that Andhra Pradesh would be best served by investing in cost-effective, flexible and state-of-the-art infrastructure systems to enable it to leapfrog in terms of economic development, productivity and equitable public service delivery. The following section explores the current available infrastructure in the state and the potential for new strategic investments in this sector.

INDUSTRY

Industrial development in the state has taken place in greater measure in the coastal regions as compared to the inland areas. There are a number of industrial parks which have come up in clusters along the Golden Quadrilateral, taking advantage of better connectivity to major cities like Chennai. There are two National Investment and Manufacturing Zones in Chittoor and Prakasam districts which have been proposed to promote equitable industrial growth in the state, whose performance is still unclear. Industrial development, except in Visakhapatnam zone and select other locations is less advanced than the region around Hyderabad in Telangana.

Figure 12: Industrial Parks, Mandal Level



Source: Infrastructure and Investment Department, GoAP

Effectively planned and executed infrastructure development and well targeted investment will be required, along all these economic and industrial growth corridors and clusters that are being planned, if the expected employment and growth dividend from manufacturing is expected to be realised and maintained over the medium run.

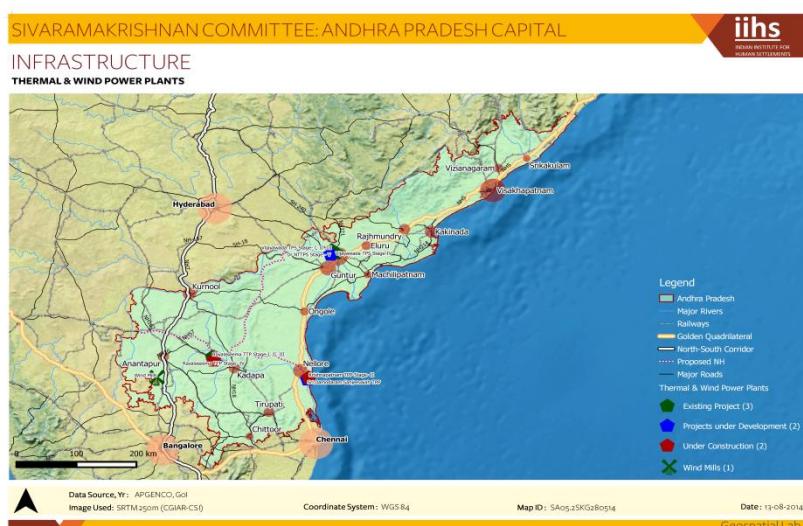
POWER GENERATION

There are nine existing hydro power generation stations in the state with another one under construction in Polavaram. There are three thermal power generating stations in the state, two more are under construction and two others have been proposed. There is only one major wind power generation zone in the state which is located in Anantapur. A number of large-scale solar thermal and PV projects have been announced in various parts of the state including Rayalseema. There is one functional refinery, one proposed refinery and two proposed LNG terminals in the state.

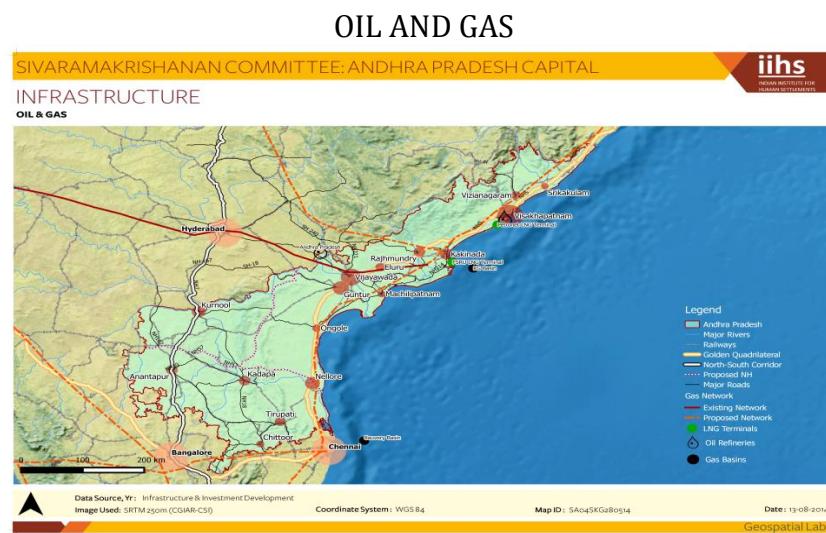
Figure 13: Power Generation in AP
HYDRO POWER PLANTS



THERMAL AND WIND POWER PLANTS



The state is planning to develop a state gas grid, on the lines of Gujarat that is connected to the national gas grid. There are two gas networks that have been proposed along the GQ and towards the North in addition to one that is already functioning. K-G and Cauvery basin gas reserves (if available) hold considerable potential for cleaner energy-led development. Strategic development, landing and transmission of these fuels could enable much needed industrial development along coastal corridors and Rayalseema. Alternatively, more expensive imported gas could fill some of the demand-supply gap in the state and spur considerable 'green' manufacturing growth and the significant reduction in air pollution if extended to urban public transport across major cities.



Source: Infrastructure and Investment Department, GoAP, APGENCO; Govt of India

Establishing a state gas grid is a key missed opportunity of the AP Reorganisation Act (2014) given that the state has the second highest demand potential for gas in the country, next to Gujarat. Due to the non-availability of sufficient domestic gas and no LNG import terminal AP has a high shortfall in gas supply.

Gas is expected to be available via the GoI at competitive international prices, to feed electric power plants and the process heat needs of industry but pipeline laying is proceeding very slowly.

Proximity to KG D6 and existing gas infrastructure makes the development of a state gas grid, and a city gas distribution network an important strategic infrastructure. There is an opportunity for a Gas pipeline between Ananthapur-Bangalore and extension of the Vishakhapatnam-Vijayawada LPG pipeline to Rayalseema, and the Kakinada-Srikakulam, pipeline to Ennore via Nellore.

Strategic development, landing and transmission of LNG and LPG could enable much needed industrial development along coastal corridors and Rayalseema. Alternatively, more expensive imported gas could fill some of the demand-supply gap in state power production and spur considerable 'green' manufacturing growth and the significant reduction in air pollution if extended to urban public transport across major cities.

TRANSPORTATION

Andhra Pradesh has a historic advantage of a long coastline and a maritime culture, despite the high risks that it concentrates in its coastal zone. The development of the Kolkata-Chennai rail line and coastal roads, starting close to a century ago, has provided AP a strong road and rail backbone to enable its economic development. The expansion of the Golden quadrilateral and the north-south road corridor, have enhanced this impact considerably over the last decade. However, there are many parts of the state, especially in the backward areas of Rayalseema and northern Andhra where road and rail connectivity is poor. Enabling the construction of these road and rail links will be an important priority for the Andhra Pradesh government.

ROAD, RAIL, AIRPORTS AND PORTS

The state is relatively well connected by road and rail.

Roads: The state is relatively well connected by road and rail. A significant portion of the Golden Quadrilateral (GQ) runs through the state which is an important strategic advantage. The North-South (NS) corridor runs through the districts of Kurnool and Ananthapur connecting Hyderabad and Bangalore. Roads will form the backbone of connectivity within the state to link all districts and urban centres for trade, commerce and passenger movement. Widening roads and increasing connectivity with a number of backward areas will help meet larger economic and balanced regional development goals. Building bridges, drainage and other road infrastructure that meet the long-term needs of the state will be important, given the terrain.

There is a need to upgrade the road network connecting the GQ and NS. Improvement in connectivity between Rayalseema and North Andhra and Central Andhra needs to be taken up on priority basis in order to open up the hinterland for further development.

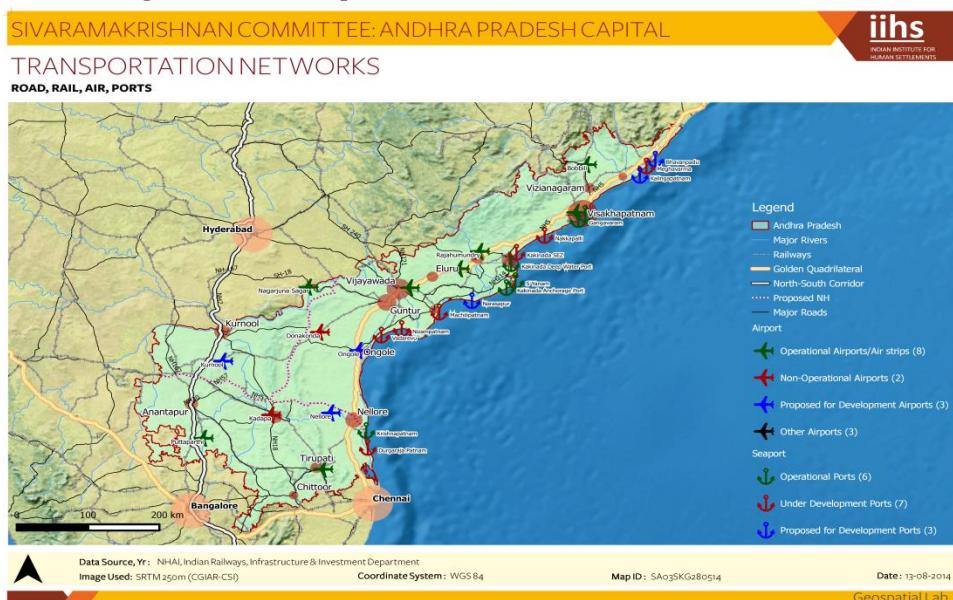
Railways: Electrification, doubling line capacity and construction of new lines to especially connect Rayalseema to the rest of AP, Bangalore, Hyderabad and Chennai and improve linkages between south-central Andhra Pradesh is important to reclaim the loss of modal share to roads. Expanding freight capacity and increasing train velocities to enable quicker mobility, will be important for economic development. The proposed Diamond Quadrilateral alignment is still under consideration, but appropriate high speed rail services are needed to connect Vishakhapatnam and Rayalseema via Vijaywada and by extension to Bangalore and Chennai. In the interim, traditional trains with increased frequency and speed should continue to be cost effective.

Ports: Andhra Pradesh has one Major Port (at Vishakhapatnam) and 4 non-major ports at Kakinada Deepwater, Krishnapatanam, Gangavarm and Rawa; and 7 more under development at Machlipatnam, Meghavaram, Nakkapalli, Kakinada SEZ while 6

others at Kalingapatnam, Bhavanapadu, Duggarajapatnam, Ramayapatnam, Bheemunipatnam, Narsapur have been proposed.

Apart from the establishment of new ports the state should examine the efficiency of operations at the existing ports and their connectivity to the main rail and road networks.

Figure 14: Transportation Networks



Source: NHAI, Indian Railways, Infrastructure and Investment Department, AP

AIRPORTS

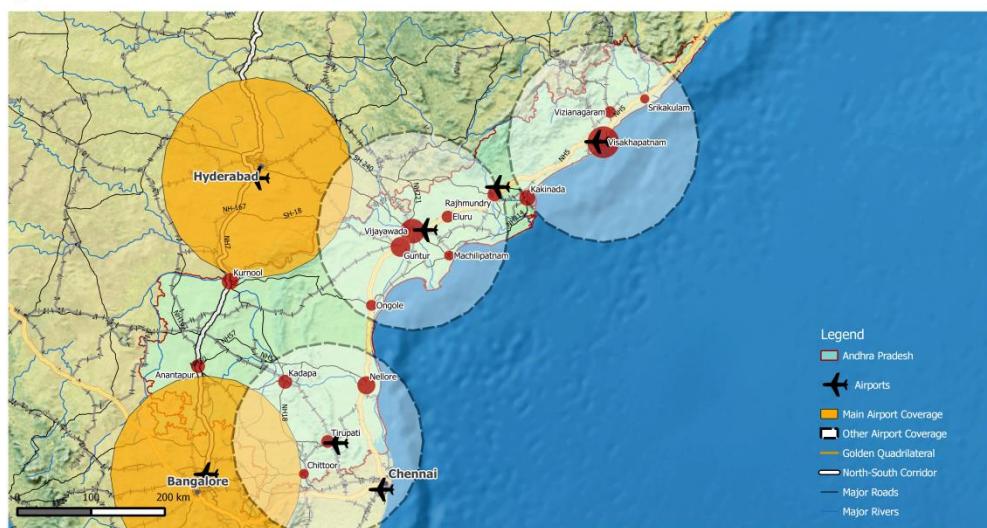
Airport infrastructure is needed to promote the development of services, tourism and knowledge-based enterprises in the state. There are 8 functioning airports/airstrips in the state. The main airports are at Vishakhapatnam, Vijayawada and Tirupati - which are expected to be upgraded to international airports. Three more airports have been proposed for development at Putaparathi, Cuddapah, and Rajahmundry. The state is also contemplating the development of no-frills airports at Kuppam, Kurnool, Nellore, Srikakulam and Vijayanagaram.

Figure 15: Airports

SIVARAMAKRISHNAN COMMITTEE: ANDHRA PRADESH CAPITAL

AIRPORTS

150 KM RADIAL COVERAGE



Data Source, Yr: Airport Authority of India

Image Used: SRTM250m (CGIAR-CSI)

Coordinate System: WGS 84

Map ID: SA15PJ5290514

Date: 29-05-2014

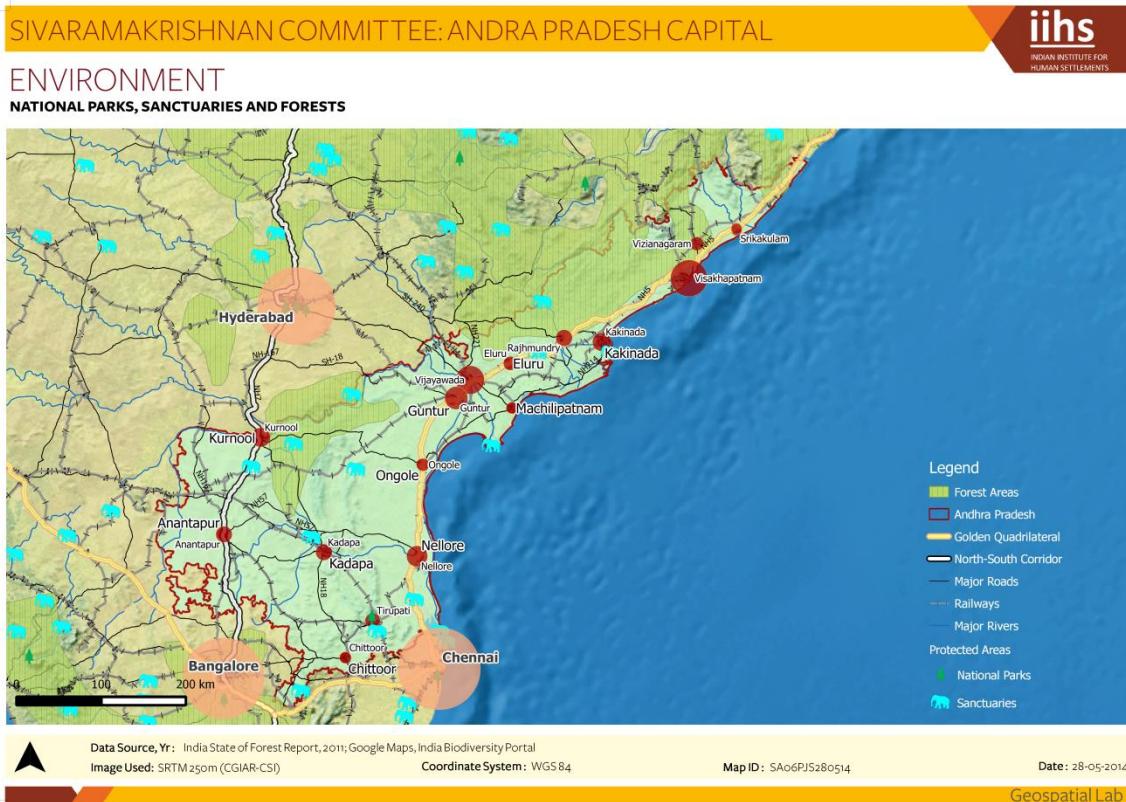
Geospatial Lab.

Source: Airport Authority of India

Inland Waterways: Inland Waterways Authority of India (IWAI) has identified a 1,078 km stretch between Kakinada and Puducherry as National Waterway No. 4 that links the rivers Krishna and Godavari via the Eluru Canal, Kakinada Canal, Commamur Canal, Buckingham Canal and Kalluvelly tank. While this pima facie seems like a positive intervention, ground trothing revealed that encroachment of the canal right of way and low draught may make this unviable or challenging.

ENVIRONMENT

The state is rich in biodiversity with forests in the upland and midland areas and in the south, delta, estuary and coastal wetlands in the rich and fertile Krishna-Godavari and Cauvery delta regions and along the long coastline. A number of wildlife sanctuaries dot the landscape.

Figure 16: National Parks, Sanctuaries and Forests

Source: India State of Forests Report, 2011; Google Maps; India Biodiversity Portal

There is therefore considerable potential for both environmental conservation and conflict in the state. The expansion of urbanisation, industrial corridors and SEZ's, ports and airports, gas pipelines and road and rail alignments, all have the potential to adversely affect the environment, especially in environmentally sensitive areas and biodiversity hotspots that dot the state. Given India's stringent environmental regulations and the no-compromise position of courts on this question, the planning location and development of infrastructure and urbanisation, including the capital zones has to be especially sensitively executed.

The Andhra Pradesh Reorganisation Act (2014) provides for the conversion of degraded forest land into use for the state capital zones. This however, needs to be cautiously used, as conservation of forests even if under horticulture and other uses is an important national priority.

RISK

Andhra Pradesh is one of the most hazard prone states along the eastern coast. This is one of the major reasons why very few major towns and cities were located along the coast and in the coastal plain. It is exposed to a complex mix of hydro-meteorological (drought, flooding, cyclones and storm surge) and seismo-tectonic (earthquakes, liquefaction and landslides) hazard risks. With increasing industrialisation and population growth, the intensity and frequency of technological hazards can be expected to increase. Increasing population densities implies that hazard exposure will increase across much of the state, particularly since vulnerable populations are relatively high, especially in backward, drought prone and coastal areas.

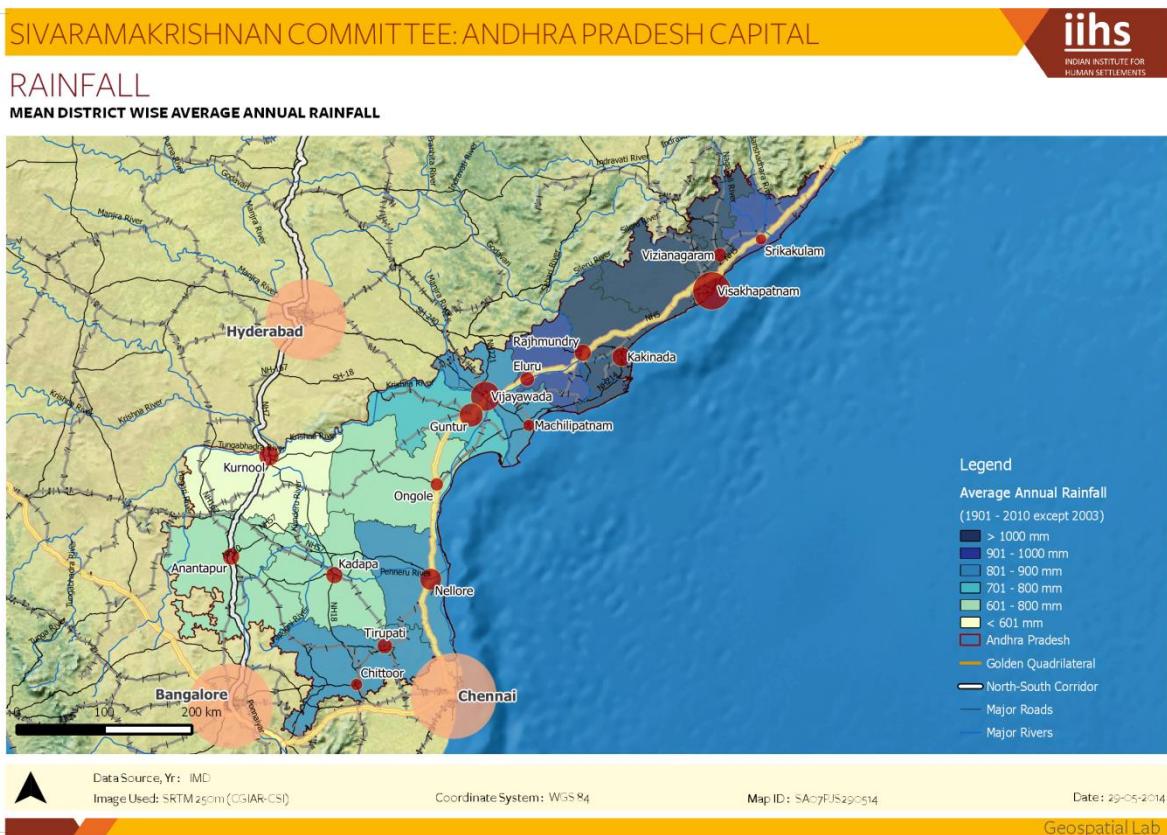
Climate change and associated factors are associated with an increase in the intensity and frequency of extreme rainfall, cyclonic storms and storm surge. Sea level rise and saline ingress can be expected along the Andhra coast, impacting both the Godavari and Krishna deltas, lake and wetland areas, apart from settlements and economic activity along the coast.

Addressing both existing and future risks is a very important question for urban development and hence the capital zones in Andhra Pradesh. High hazard risk levels may impose a binding constraint on the choice of a capital zone in a particular location.

RAINFALL AND DROUGHT

Most of the state receives average to scanty rainfall, the coastal northern districts are the only ones to get more than 1000 mm average annual rainfall in the state.

Figure 17: Rainfall Distribution

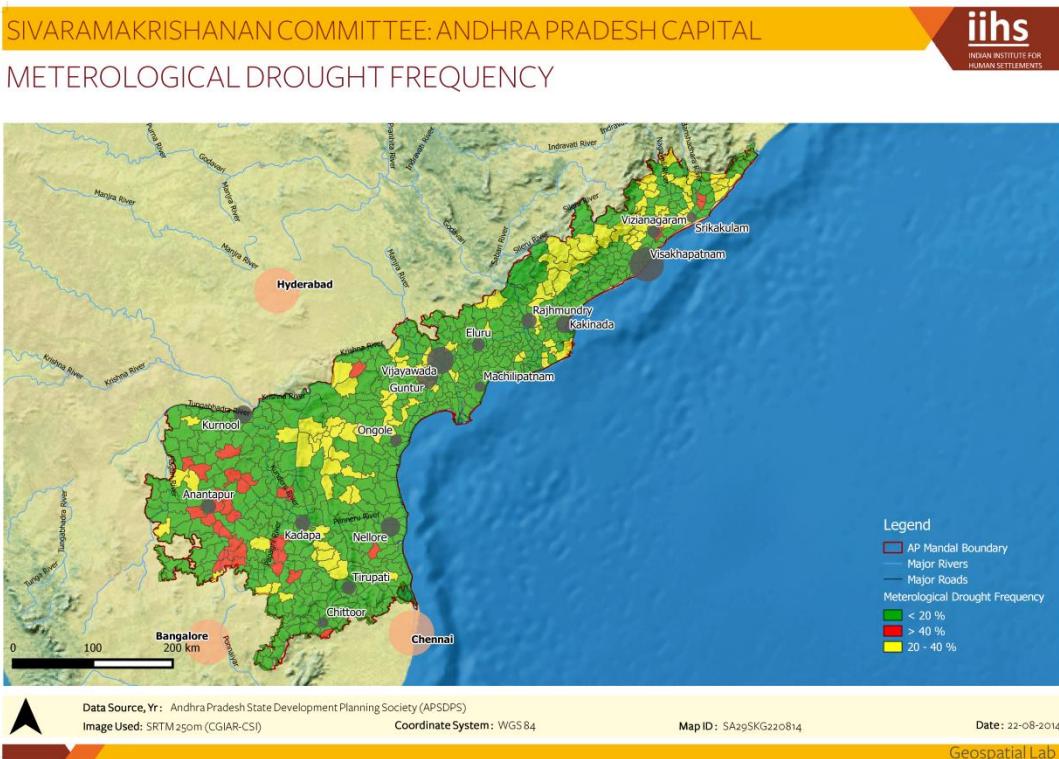


Source: Indian Meteorological Department

Keeping these patterns in mind, drought is the most severe risk that much of AP is exposed to. With rising temperatures and changing precipitation cycles in the context of climate change, drought is a risk that the state will have to combat. The Rayalaseema region is most prone to drought. About 30 mandals, majority of them located in this region, have a meteorological drought frequency greater than 40%. About 115 mandals, the majority of them located in Prakasam, East Godavari and Visakhapatnam districts, have meteorological drought frequency between 20 -40%, as shown in Figure 18.

Secure and sustainable water supply is a binding constraint for the capital zone project – hence, locations in drought prone areas without assured surface water supply should ideally not be considered.

Figure 18: Meteorological Drought Frequency



Source: Andhra Pradesh State Development Planning Society (APSDPS)

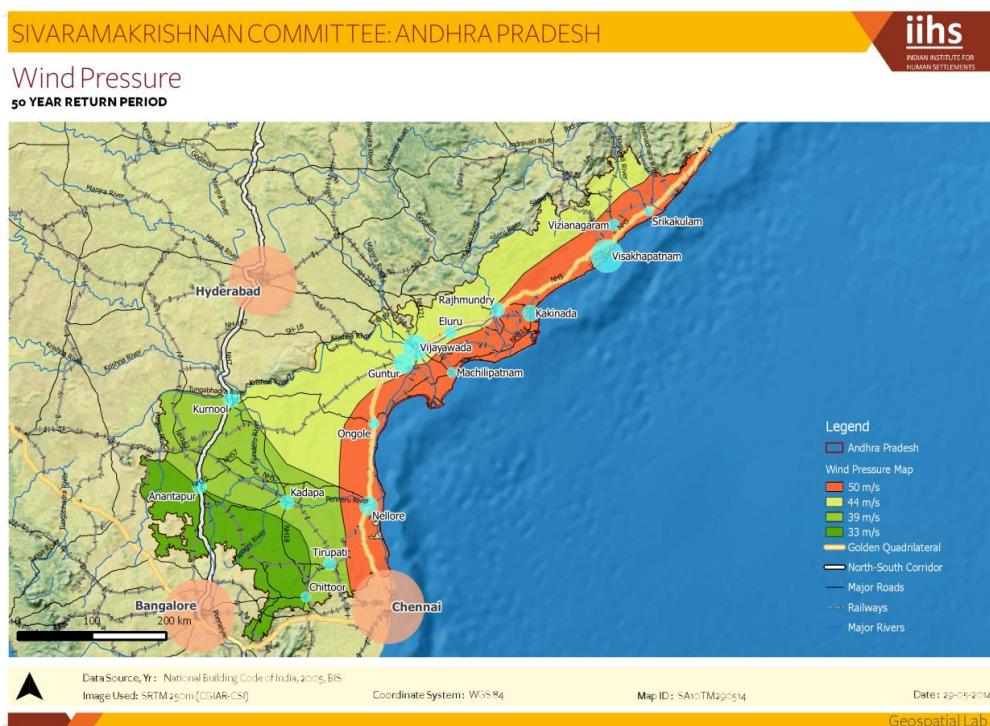
CYCLONIC WIND & STORMS

Cyclonic winds and storms are a serious and deepening risk to AP, especially due to climate change. The number and the frequency of cyclonic events in the state have increased in the last decade. The state is getting affected by a cyclonic event once every two years, which is severely affecting the state economy⁴. Many segments of the AP coast are highly or very highly exposed to cyclonic storms, storm surge, which will be exacerbated over the century by climate change and sea level rise as shown in Figure 20.

Nellore, Ongole, Machlipatanam, Kakinada, Rajamundhry, Vishakhapatnam, Srikakulam and Vizianagaram are all at high risk to cyclonic winds and surge, especially as these will be exacerbated by climate change. Vishakhapatnam is slightly more protected than other coastal cities due to its topography and coastline. Extreme caution should be taken while considering these cities and towns for capital zone location due to the high expected loss of life, damage to lifeline infrastructure and buildings and business interruption due to severe cyclonic storms or super cyclones in the future.

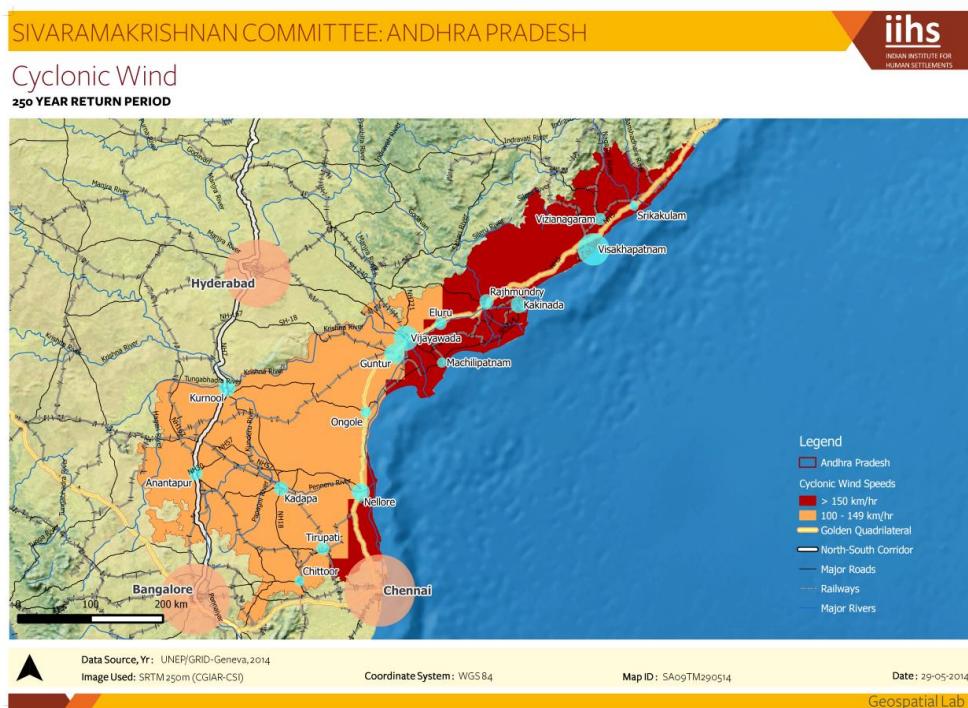
⁴ <http://disastermanagement.ap.gov.in/website/history.htm>

Figure 19: Wind Pressure



Source: National Building Code of India, 2005, BIS

Figure 20: Cyclonic Winds

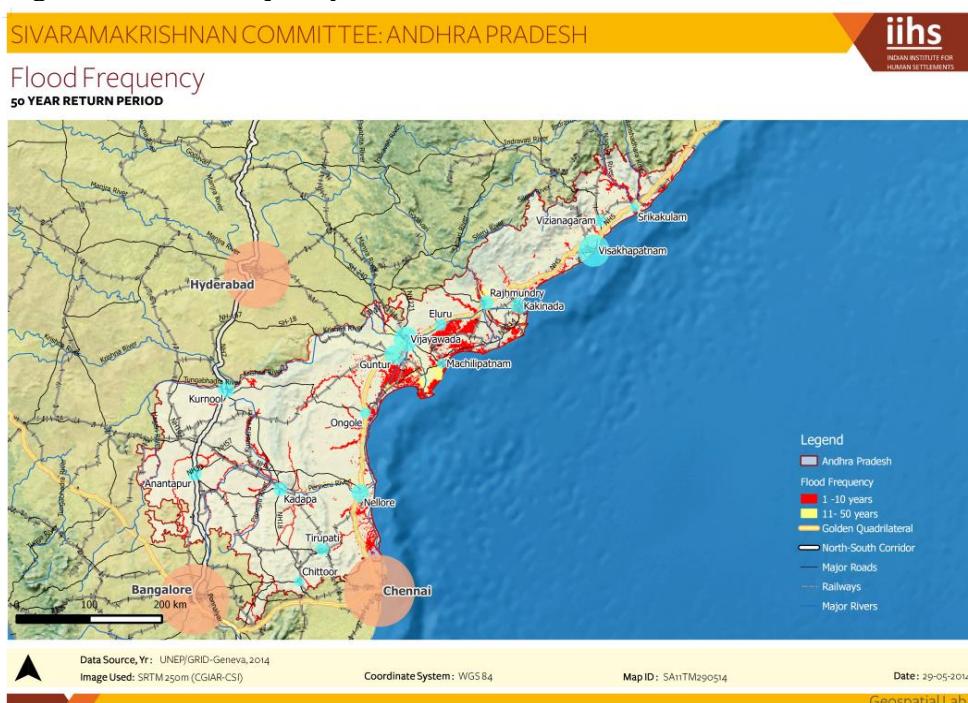


Source: UNEP-GRID, Geneva 2014

FLOODS

Relatively large areas of the deltas and coasts in AP are exposed to severe to very severe, fluvial, coastal and local flooding as shown in Figure 21. Floods frequently affect coastal districts of AP, Krishna, Guntur, East and West Godavari, which are located on the banks of Krishna and Godavari rivers. The October-November 2009 floods are one of the most devastating floods in the recent past. An estimated 20 lakh people were affected in the districts of Kurnool, Guntur and Krishna Districts⁵. Vijayawada, Guntur and Nellore cities are especially prone to flooding. Hence, a very cautious choice has to be made around these locations as capital zones.

Figure 21: Flood Frequency



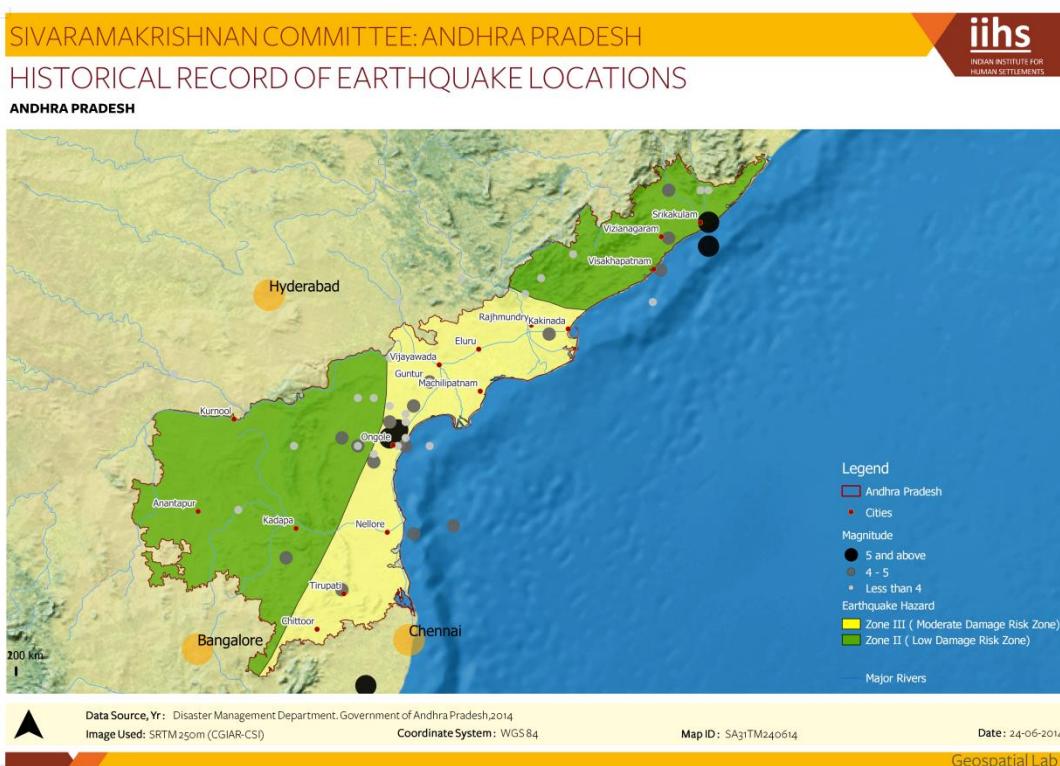
Source: UNEP-GRID, Geneva 2014

⁵ <http://disastermanagement.ap.gov.in/website/APSDMP1.pdf>

EARTHQUAKE

Andhra Pradesh lies in earthquake hazard Zone III and Zone II and is prone to moderate to low damage risk. The 1917 earthquake of 5.5M in Vizianagaram and the 1967 earthquake of 5.4M in the Ongole region of Prakasam district have been the two major earthquakes in the state. Past recorded events⁶ show that there are only five earthquakes of magnitude 5 and above, including the two mentioned above. Based on this a number of cities, including Tirupati, Nellore, Ongole, Guntur, Vijayawada, Rajamundhry and Kakinada are at moderate risk, especially to non-engineered buildings and poor quality multi-storey building construction, which suffered significantly even in distant locations like Ahmedabad during the Bhuj earthquake in Gujarat in 2001.

Figure 22: Earthquake Prone Areas



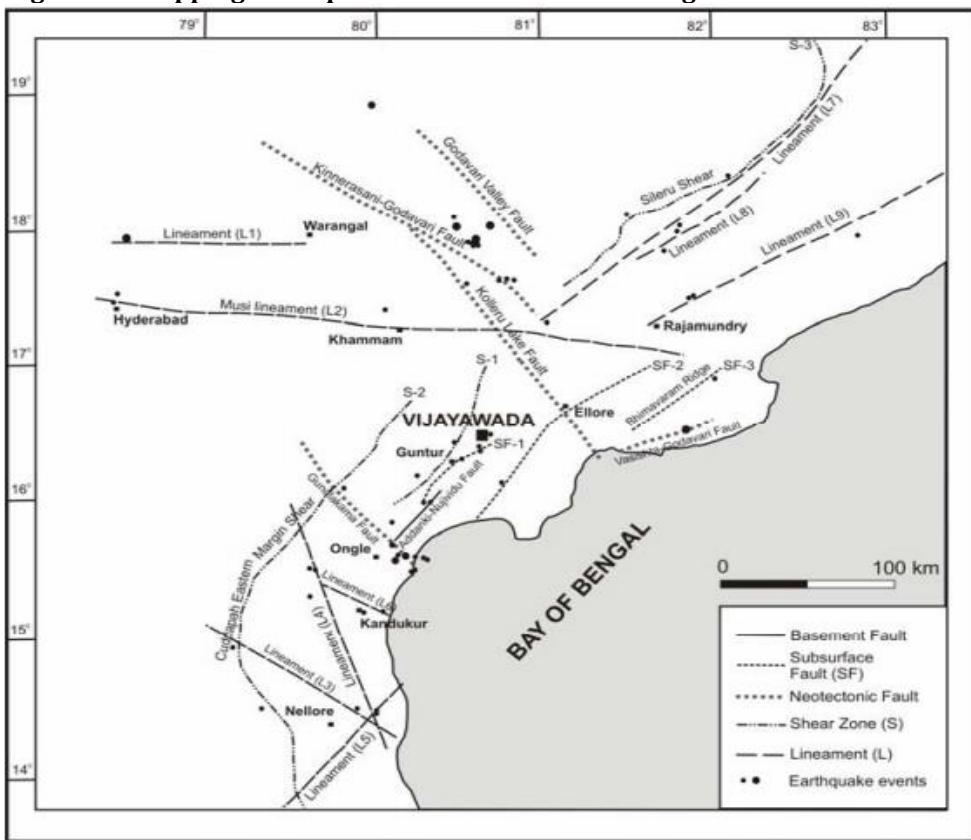
Source: Disaster Management Department, GoAP. 2014

⁶ <http://disastermanagement.ap.gov.in/website/100yrs%20eq.htm>

Earthquake Hazard in VGTM Region

Seismic micro-zonation study of the Vijayawada region conducted by the Geological Survey of India (GSI)⁷ reports that potential earthquakes could result from four neotectonic faults located within a range of 150 km from Vijayawada, as shown in Figure 23.

Figure 23: Mapping Earthquake Hazard in the VGTM Region



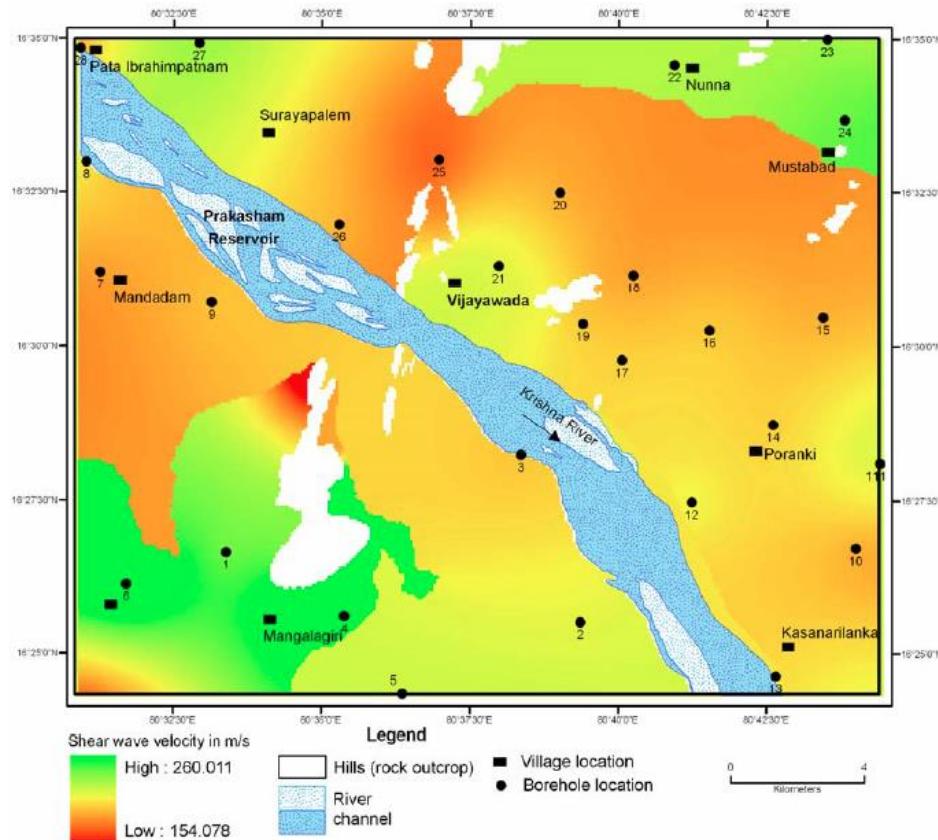
| Sl. No. | Name of source | Total fault length (km) | Surface rupture length (km) | M_w |
|---------|--------------------------------|-------------------------|-----------------------------|-------|
| 1 | Kinnersani-Godavari Fault | 226.28 | 113.14 | 7.5 |
| 2 | Godavari valley Fault | 128.34 | 64.17 | 7.2 |
| 3 | Gundlakamma Fault | 121.16 | 60.58 | 7.1 |
| 4 | Lineament (L6), NE of Kandukur | 47.50 | 23.75 | 6.7 |

Source: Gaffar et al, (2012)

The study reports that possible PGA of 0.22g as the ‘worst case scenario’. Low to moderate shear wave velocities are reported across much of the VGTM region, especially on both banks of the Krishna river as shown in Figure 24.

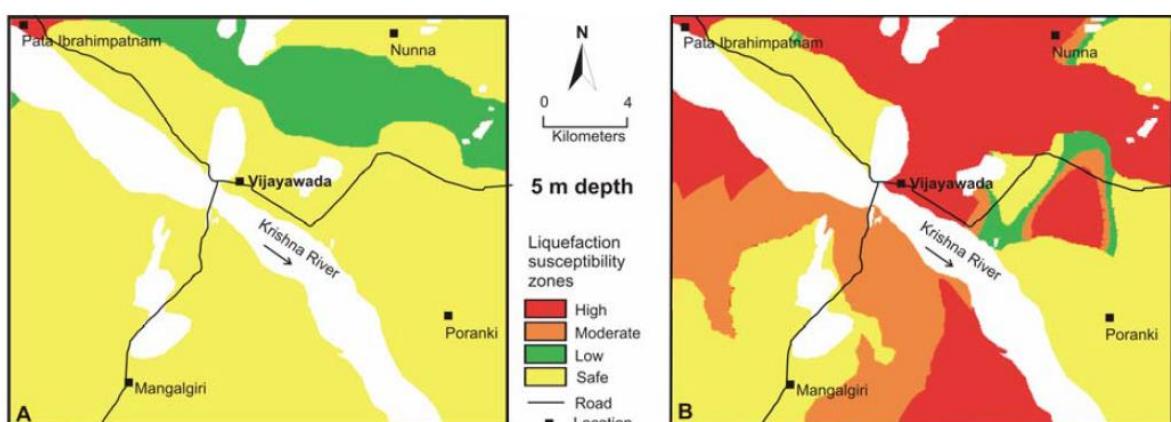
The availability of this microzonation study should guide the potential choice of locations for capital zones in the region when read along with a multi-hazard vulnerability analysis. This will need to be factored into the lifeline infrastructure development, development plan and building control regulations for this area.

⁷ <http://www.portal.gsi.gov.in/gsiDoc/fsptechrpt/report2010439.pdf>

Figure 24: Weighted Average Shear Wave Velocity Map.

Source: Gaffar et al, (2012)

Liquefaction during an earthquake may be a more significant risk, given the high groundwater table across this fertile region as shown in Figure 25. There are a number of high liquefaction vulnerable zones across the area, that will need to be carefully avoided or significant steps taken to strengthen building and infrastructure and further enforce building standard and codes.

Figure 25: Liquefaction hazard map at 5 m depth for (A) Scenario-1 and (B) Scenario-2.

Source: Gaffar et al, (2012)

(White shaded parts are either rock outcrops or active channel or reservoir areas).

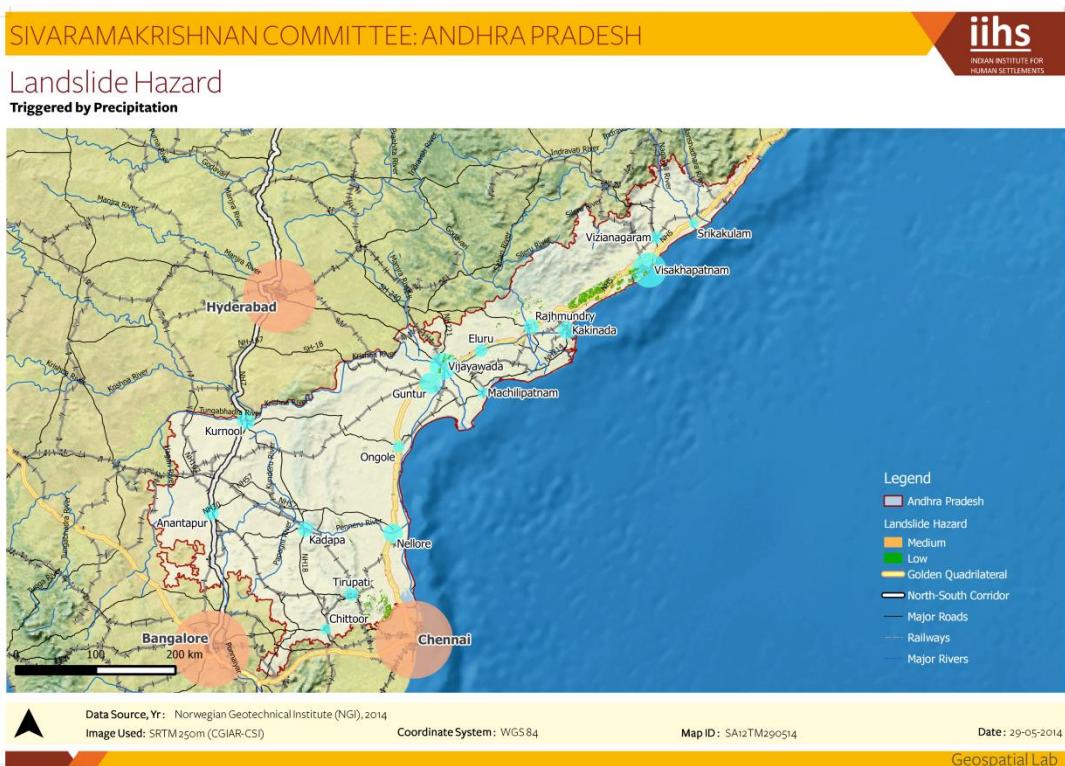
Scenario-1 for PGA of 0.06g with 60% probability of exceedance in 50 years

Scenario-2 for PGA of 0.22g with 20% probability of exceedance in 50 years.

LANDSLIDE

Landslides triggered by precipitation affect the hilly regions of Vishakapatnam and Vizianagaram districts, and also some parts near Tirupati in Chittoor District. These regions are prone to medium to low landslide hazard and can impact transportation, logistics and particular sites. The map (Figure 26) estimates the annual frequency of landslide triggered by precipitations. It depends on the combination of trigger and susceptibility defined by six parameters: slope factor, lithological (or geological) conditions, soil moisture condition, vegetation cover, precipitation and seismic conditions⁸.

Figure 26: Landslide Hazard



Source: Norwegian Geotechnical Institute, 2014

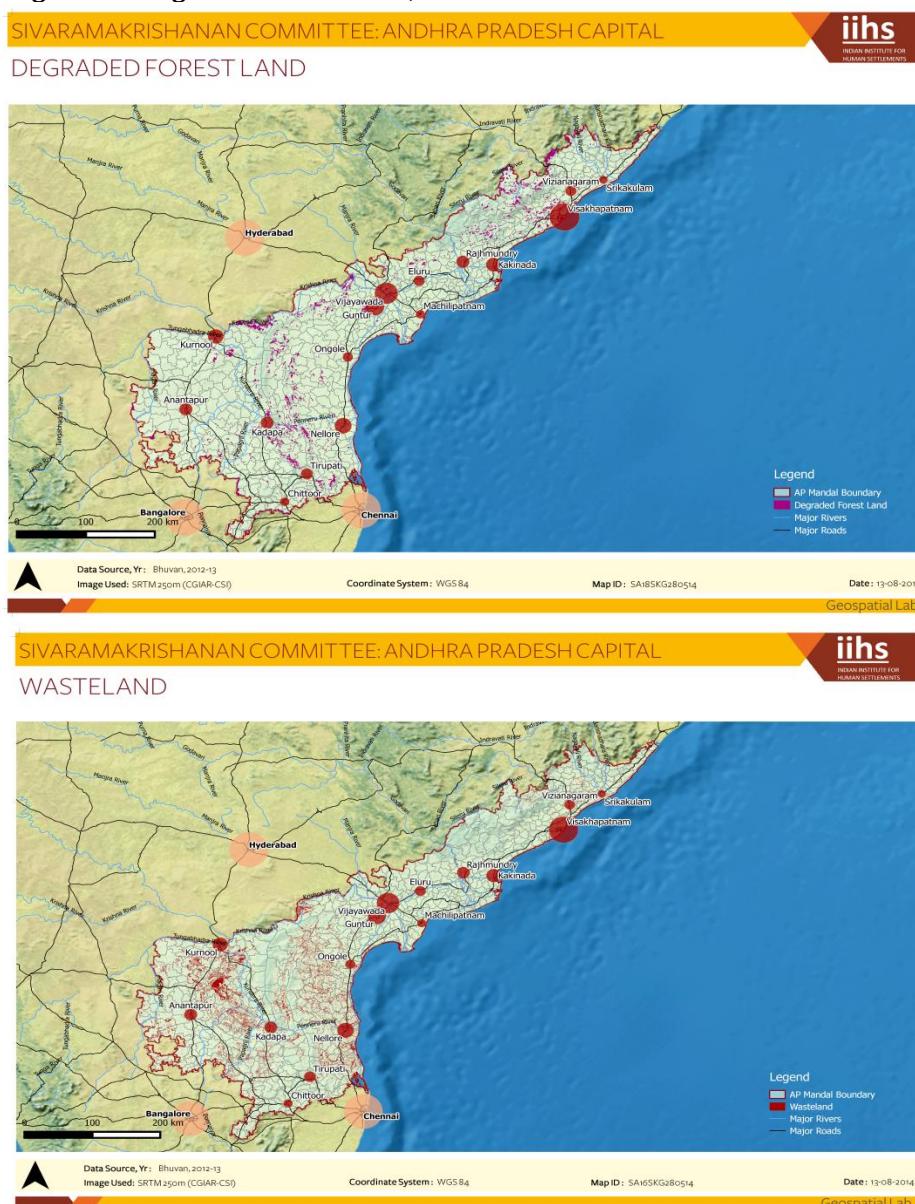
⁸ GIS processing International Centre for Geohazards /NGI

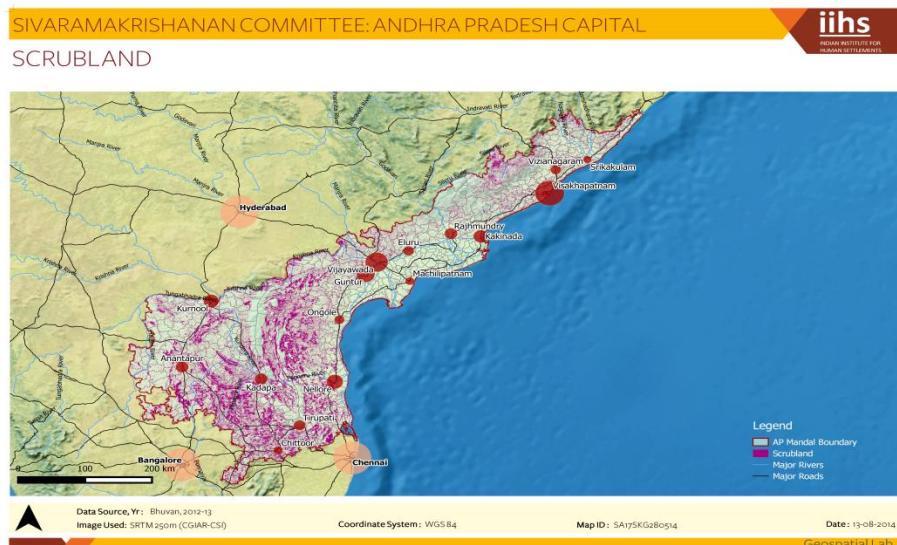
LAND AVAILABILITY

Land availability is one of the most important constraints to the location of a possible capital zone in Andhra Pradesh.

Small patches of degraded forest land are located in mid and upland areas of AP though there are few continuous patches. Relatively large patches of 'wasteland' are located in the Rayalseema and south coastal Andhra regions. Large areas of scrubland are located across Rayalseema, south coastal AP and the upland areas of other districts. These often contain productive land uses and undulating terrain with limited water availability.

Figure 27: Degraded Forest Land, Wasteland and Scrubland





Source: Bhuvan 2012-13

DISTRICT & CAPITAL ZONE SUITABILITY INDEX

Based on its ToR and a review of the experience of other Capital city development projects in India and abroad (IIHS, 2014) the Committee decided to use five screening criteria to examine the potential of various districts/urban areas as capital zones for Andhra Pradesh: water, risk, connectivity, land availability, and regional development. A District Suitability index has been computed for each of these five factors, along based on the series of sub-indices listed below.

INDEX COMPONENTS AND SUB-COMPONENTS:

1. Water
 - a. Average annual rainfall (using rainfall data from 1901 to 2010)
 - b. Distance to nearest perennial river
 - c. Distance to nearest large dam
 - d. Total groundwater availability
 - e. Mean depth of groundwater
2. Risk
 - a. Likelihoods of natural hazards: earthquakes, cyclonic storms, wind pressure, landslides, tsunami, fluvial floods.
 - b. Exposure: measured by population density and economic activity
3. Connectivity
 - a. Distance to large urban centres: Hyderabad, Bangalore, Chennai, Mumbai, Delhi, Vizag, Vijayawada, Raipur, and Bhubhaneshwar
 - b. Degree centrality index: for roads, railways, and air
 - c. Connectivity index: number of independent paths (road, rail, and air) to large urban centres
4. Land
 - a. Availability of scrubland, wasteland and degraded forest land in a 5, 10, and 15km zone around candidate cities/urban areas
5. Regional Development
 - a. Per capita income
 - b. HDI
 - c. Percent of HHs with access to latrine within premises
 - d. Percent of HHs with access to water within premises
 - e. Number of higher education institutions
 - f. Number of hospital beds per 10,000
 - g. Percent of net sown area under irrigation

METHODOLOGY

The sub-indices under water, risk, connectivity, and regional development were normalized and then combined using equal weights to come up with the indices. The index for land was computed using data on wasteland, scrubland, and degraded forest land from Bhuvan and calculating the total parcels of these three types of land within a 5, 10, and 15km buffer from candidate cities. The two most populated lakh-plus cities from each district were considered for calculating the index (list of cities is below) and the overall district score was computed using twice the weight to the larger city.

LIST OF CITIES CONSIDERED FOR LAND AVAILABILITY ANALYSIS

| District | City |
|----------------|----------------|
| Anantapur | Anantapur |
| | Hindupur |
| Chittoor | Madanapalle |
| | Tirupati |
| East Godavari | Kakinada |
| | Rajahmundry |
| Guntur | Guntur |
| | Tenali |
| Kadapa | Kadapa |
| | Proddatur |
| Krishna | Machilipatnam |
| | Vijayawada |
| Kurnool | Kurnool |
| | Nandyal |
| Nellore | Nellore |
| Prakasam | Ongole |
| | Chirala |
| Srikakulam | Srikakulam |
| Vishakhapatnam | Vishakhapatnam |
| Vizianagaram | Vizianagaram |
| West Godavari | Eluru |
| | Bhimavaram |

DISTRICT SUITABILITY INDEX

A District and Capital Zone Suitability Index was developed using equal weights for all indicators in each category, after a sensitivity analysis showed limited variation in rank ordering with different weights. A brief outline of the ranking of various districts based on these indicators is shown in Figure 28 and Table 1.

Krishna district is the best performer on the Regional Development Index followed by Vishakhapatnam, Guntur, East Godavari and West Godavari. Anantapur, Srikakulam and Vizianagaram are lagging behind on these indicators. Nellore and Guntur (Vijayawada) have low water risks. The third category measured land availability.

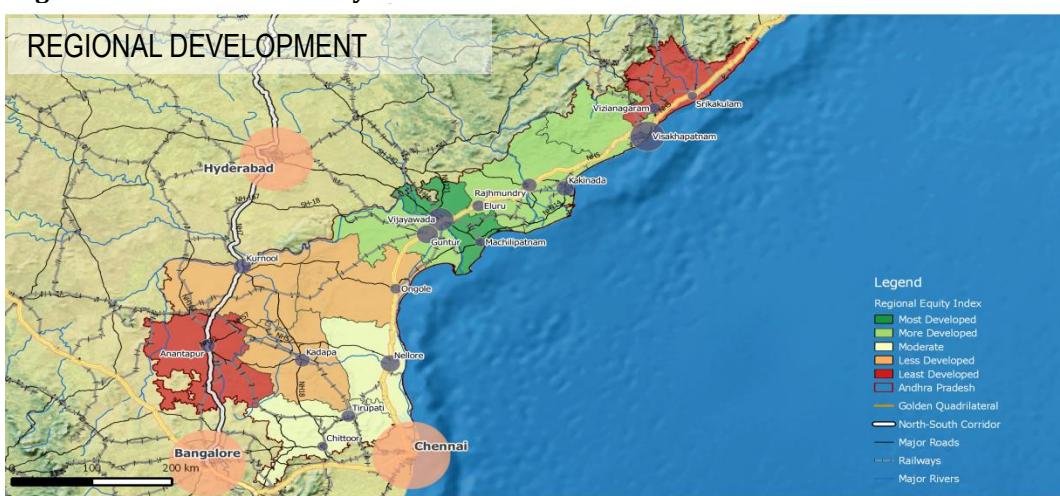
Nellore, Vishakhapatnam and Kadapa have the most amount land available while unused land is a constraint in Srikakulam, East Godavari and West Godavari districts. On the connectivity index, the best performers are Vijayawada, Guntur and Kakinada. Three clusters of districts emerge as highly suitable Krishna & Guntur; Vishakhapatnam & East Godavari; and Nellore.

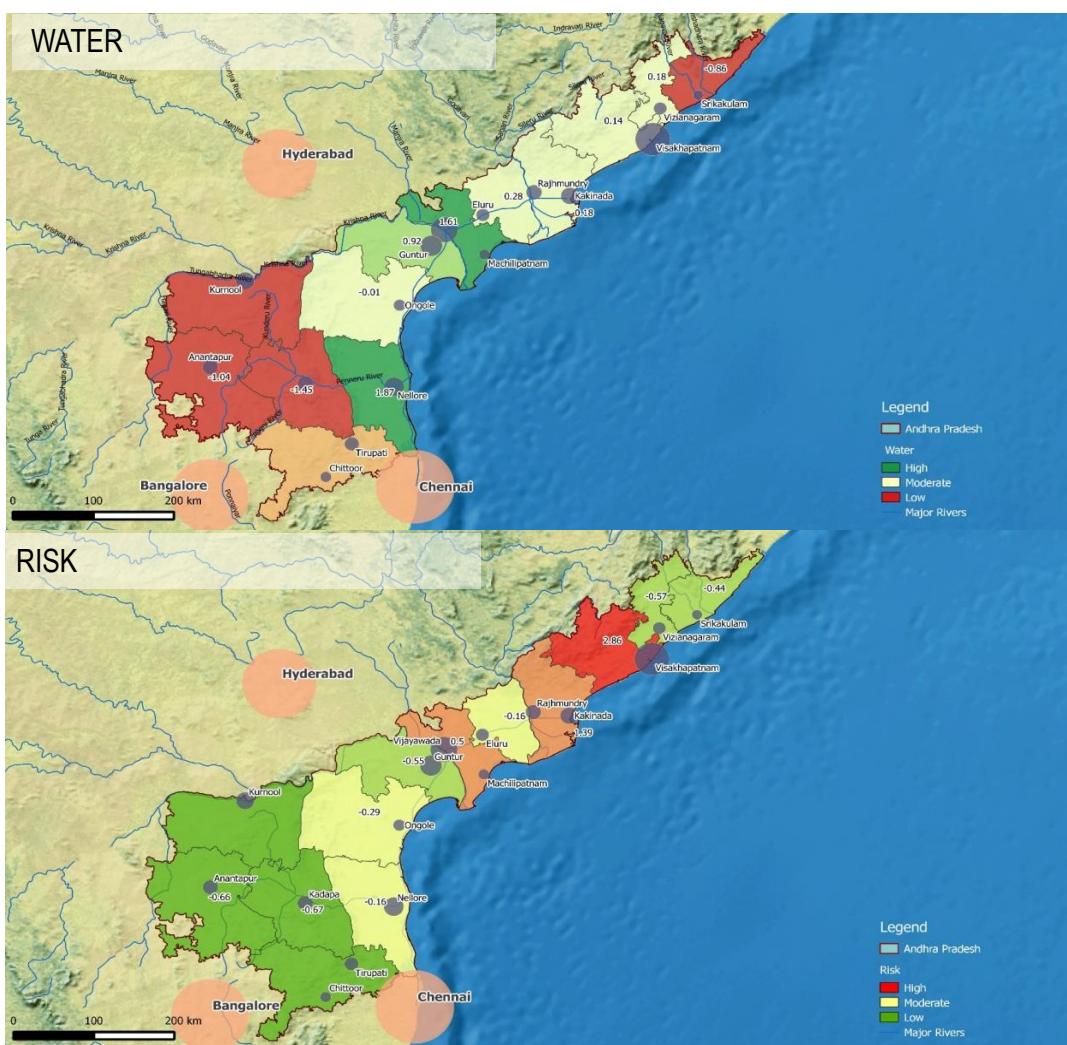
Table 1: District & Capital Zone Suitability Index

| City | District | RISK | CONN | WATER | LAND | REG DEV |
|----------------------------|---------------|-------|-------|-------|-------|---------|
| Vijayawada UA | Krishna | 0.5 | 1.81 | 1.61 | -0.64 | 1.39 |
| Greater Visakhapatnam (MC) | Visakhapatnam | 2.86 | -1.24 | 0.14 | 1.74 | 1.09 |
| Nellore UA | S.P.S Nellore | -0.16 | -0.17 | 1.87 | 2.05 | 0.36 |
| Kakinada UA | East Godavari | 1.39 | 1.48 | 0.18 | -0.98 | 0.88 |
| Guntur UA | Guntur | -0.55 | 1.49 | 0.92 | -0.34 | 1.04 |
| Ongole UA | Prakasam | -0.29 | 0.49 | -0.01 | -0.46 | -0.45 |
| Eluru UA | West Godavari | -0.16 | -0.84 | 0.28 | -1.13 | 0.82 |
| Tirupati UA | Chittoor | -0.64 | -0.95 | -0.49 | 0.59 | 0.22 |
| Kadapa UA | Y.S.R. Kadapa | -0.67 | -0.28 | -1.45 | 1.12 | -0.27 |
| Vizianagaram UA | Vizianagaram | -0.57 | -0.07 | 0.18 | -0.52 | -1.69 |
| Kurnool UA | Kurnool | -0.61 | 0.09 | -1.33 | -0.32 | -0.8 |
| Srikakulam UA | Srikakulam | -0.44 | -0.64 | -0.86 | -0.85 | -1.36 |
| Anantapur UA | Anantapur | -0.66 | -1.18 | -1.04 | -0.25 | -1.24 |

Source: IIHS analysis, 2014

Figure 28: District Suitability Indices





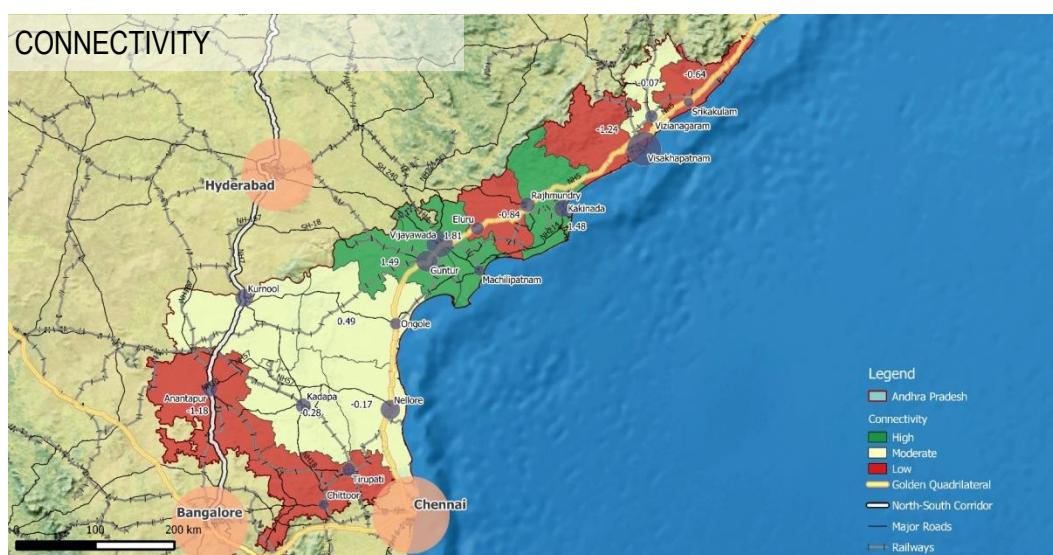
DataSource: IIHS Analysis 2014, Bhuvan - NRSC

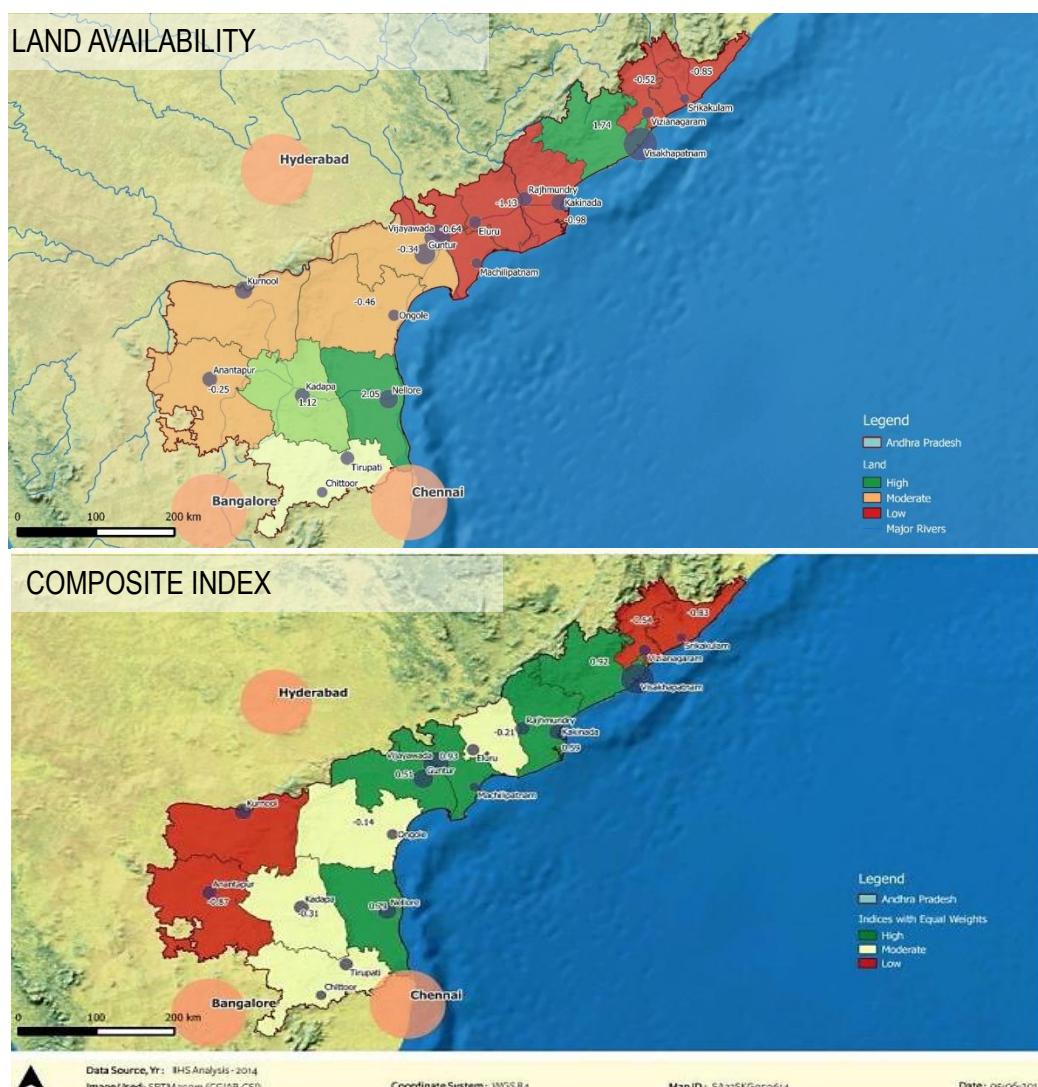
Image Used: Landsat-7, Cartosat

Coordinate System: WGS 84

Map ID: SA29SKG050614

Date: 05-06-2014



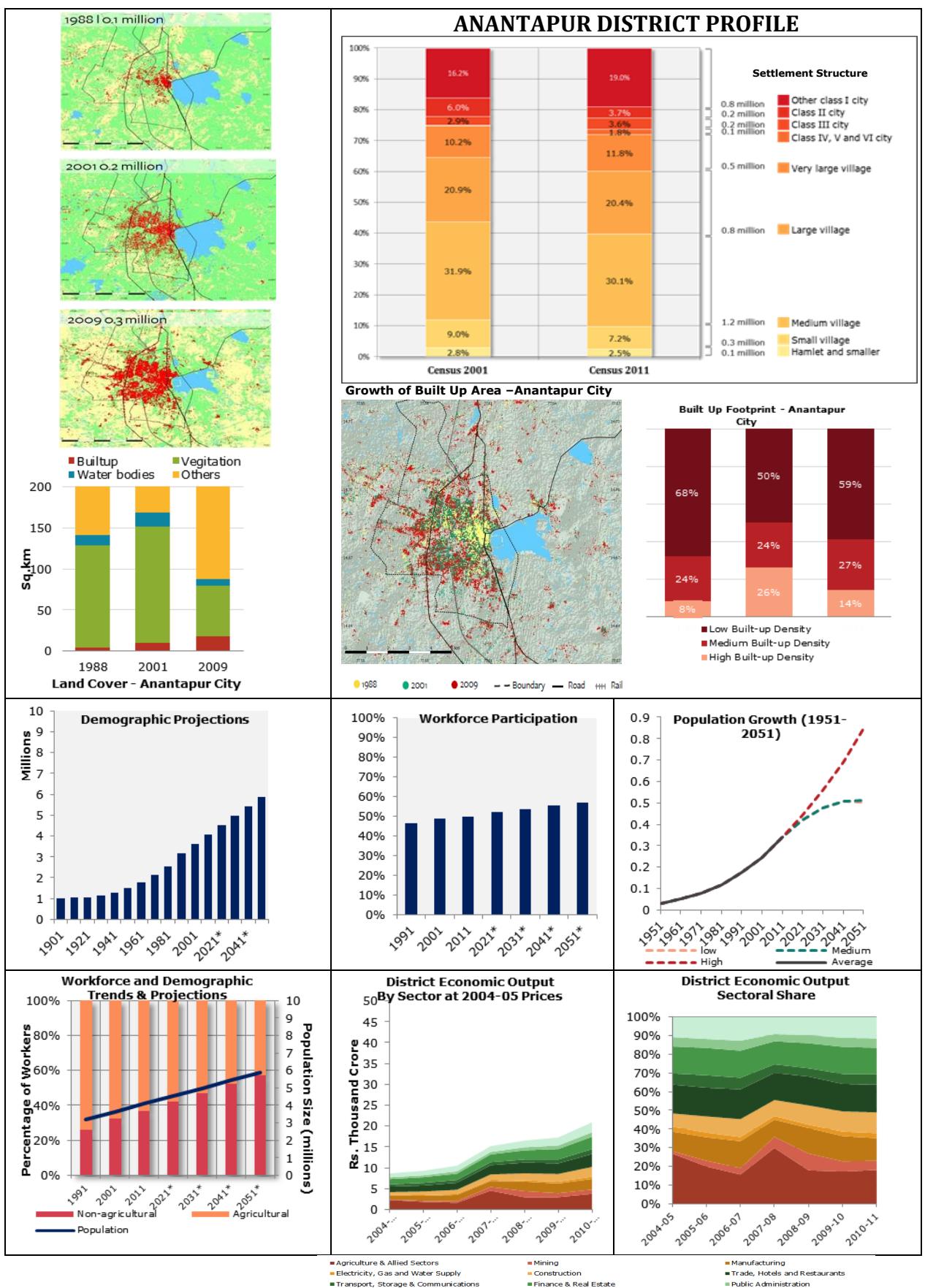


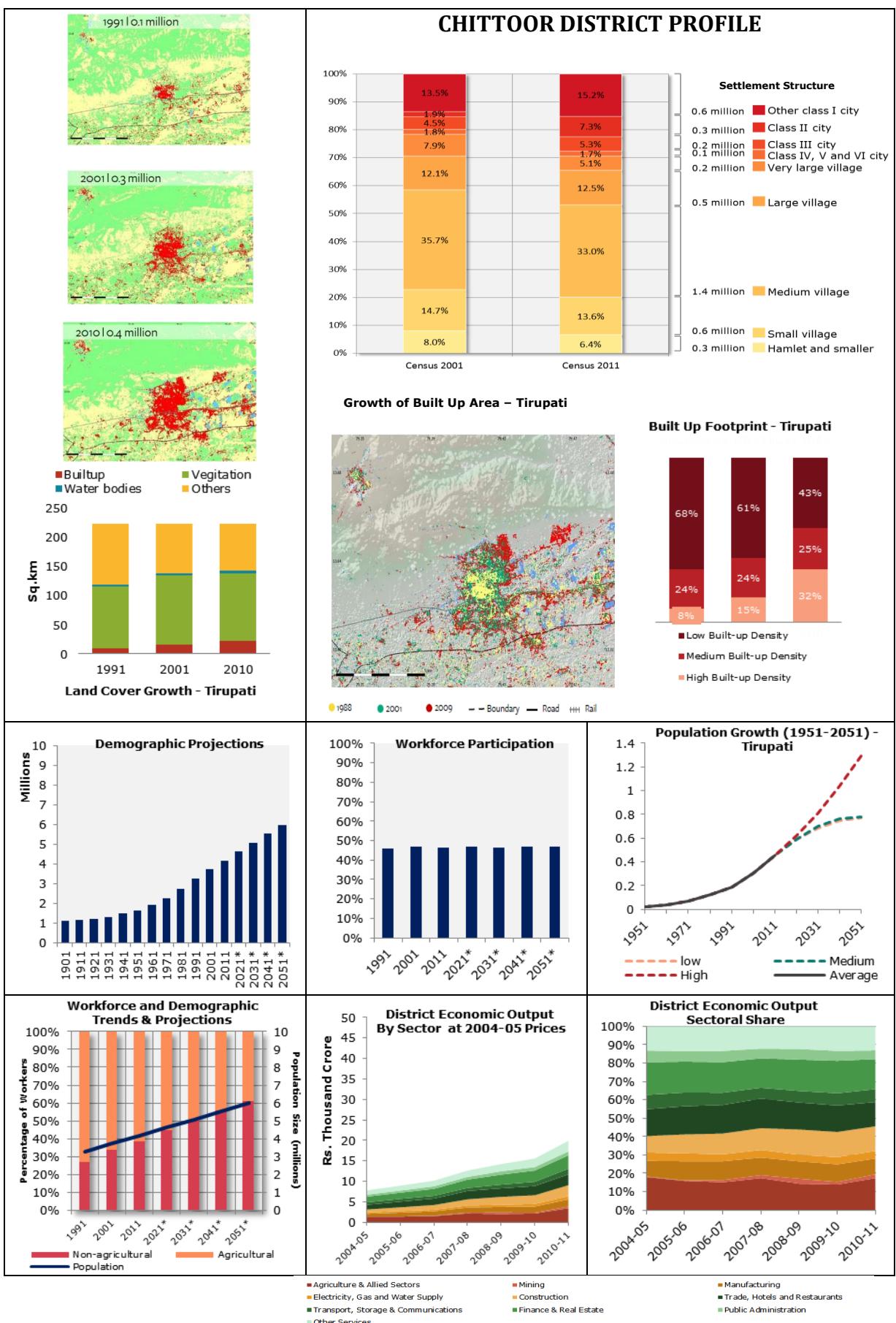
Source: IIHS Analysis, 2014

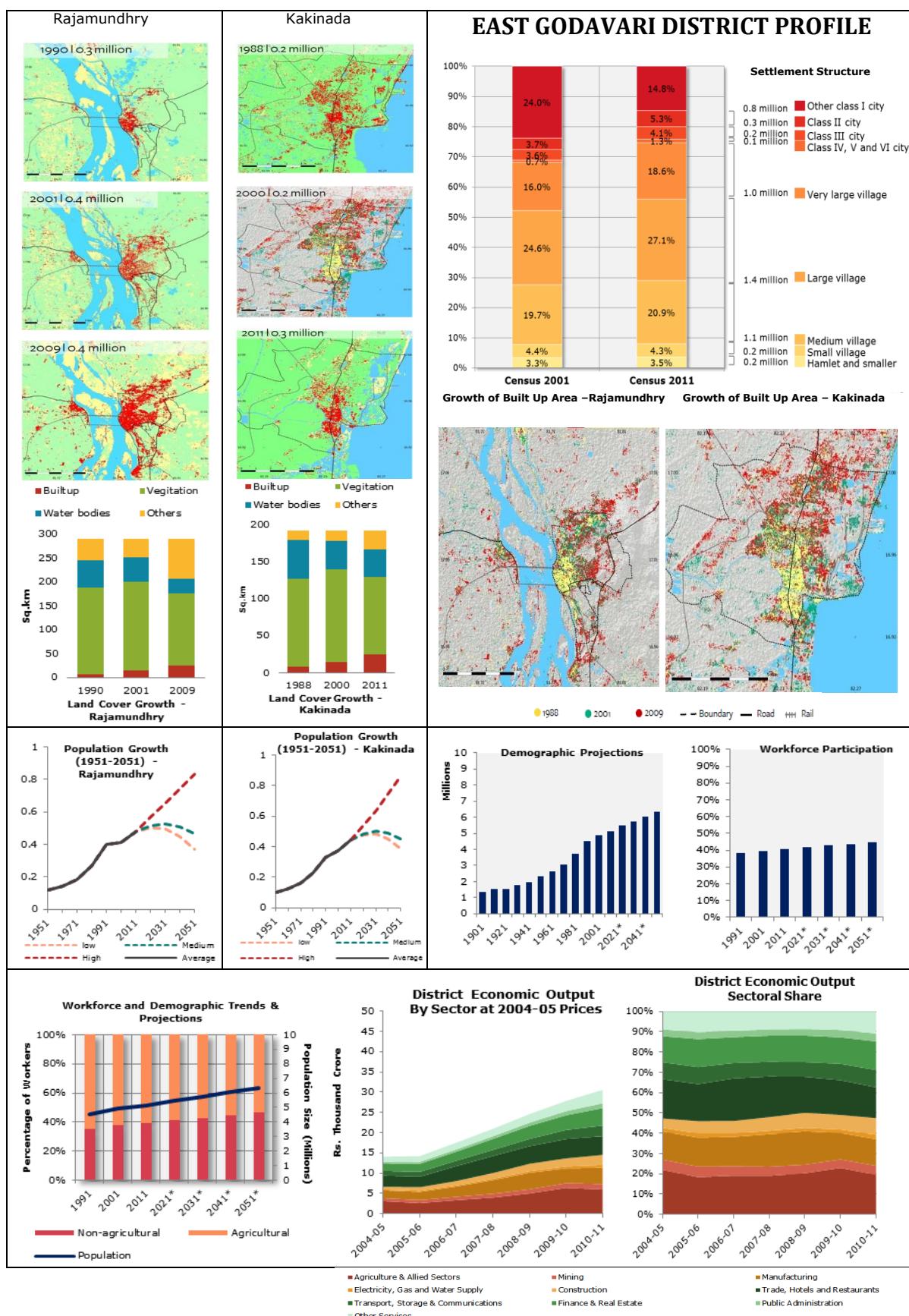
DISTRICT DEVELOPMENT PROFILE⁹

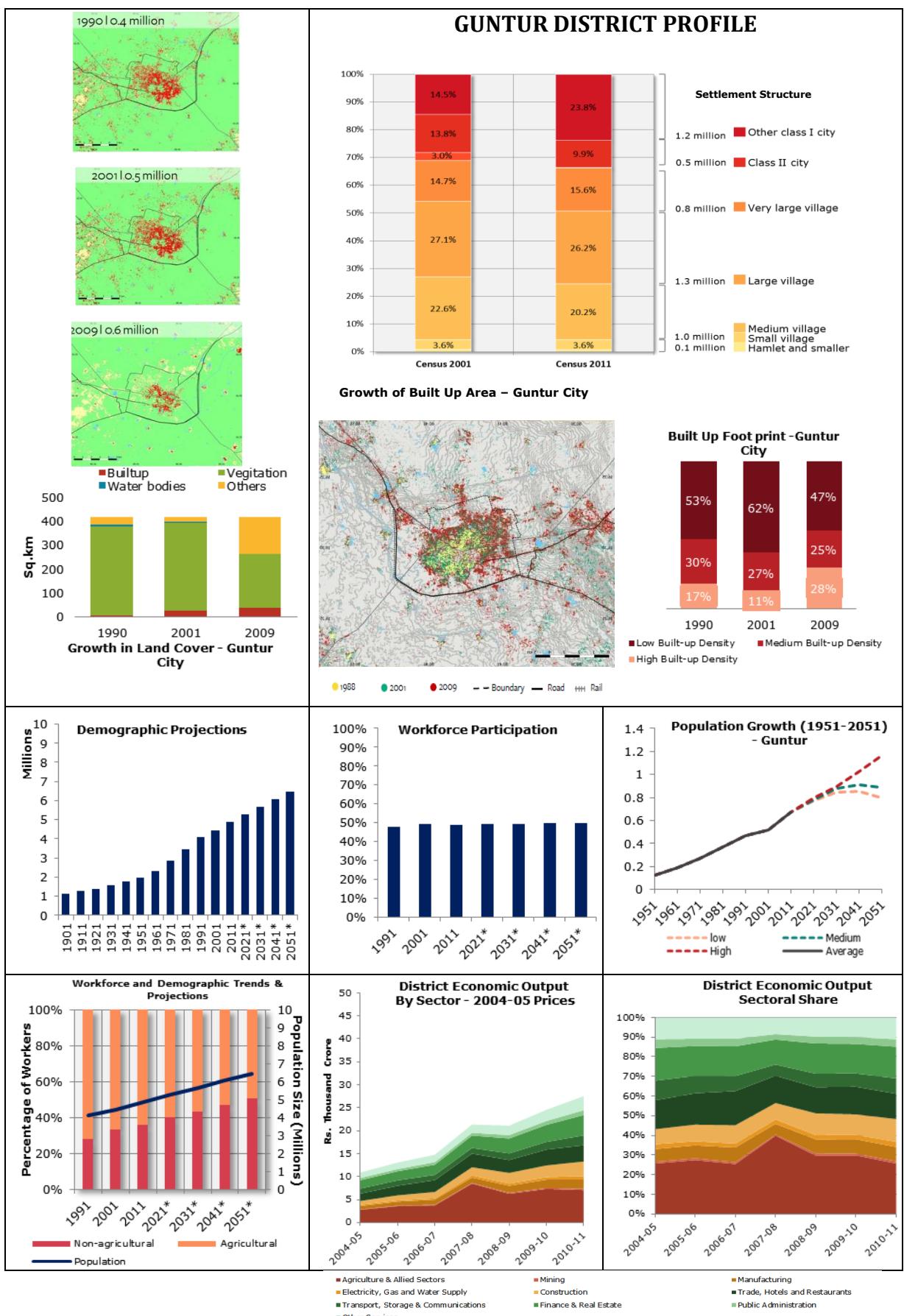
A detailed district development profile was put together based on available data on demographic, workforce, settlement structure and land use and land cover change of the major urban centers. This will be essential to the further development of balanced regional development strategies for the state.

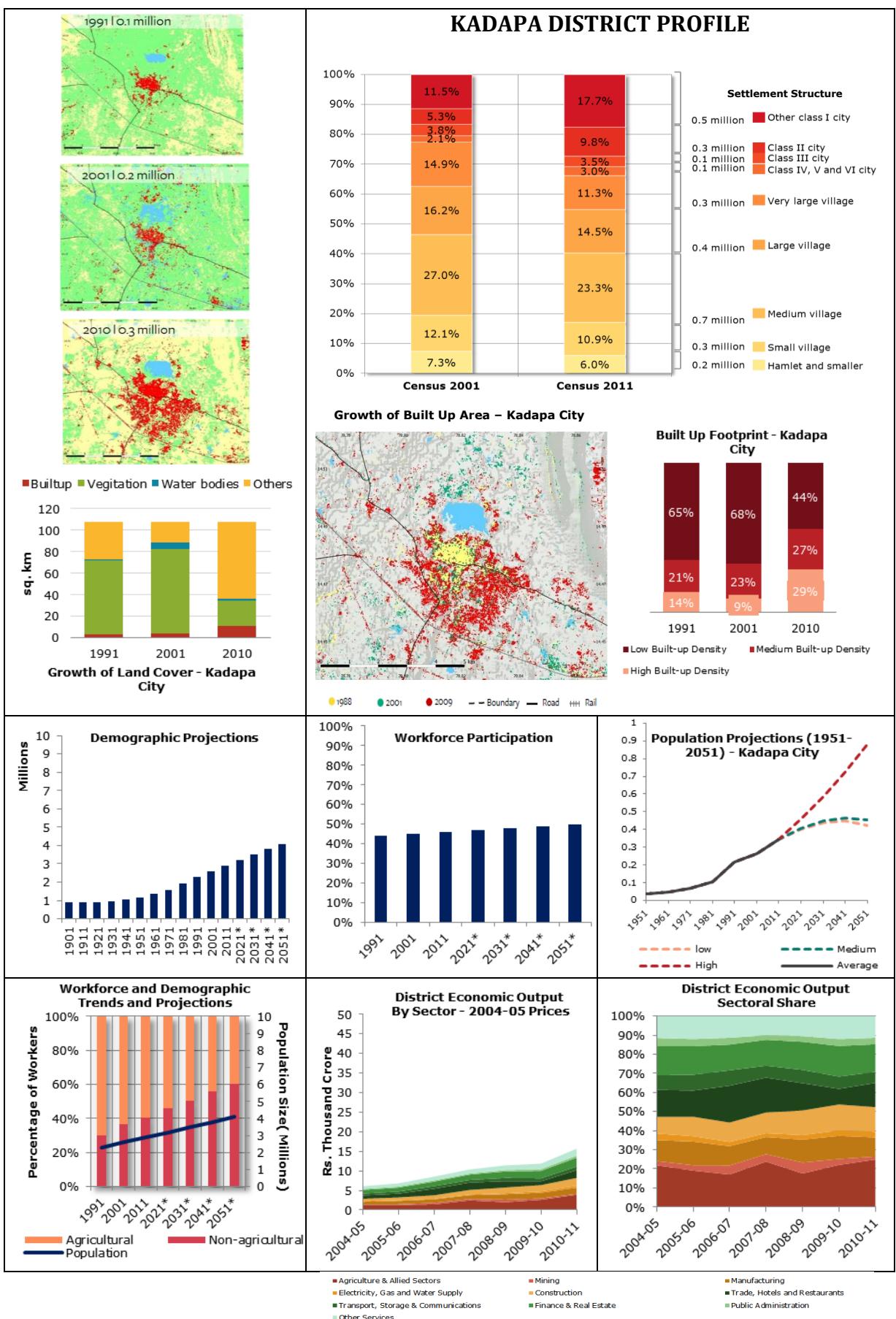
⁹ Sources for District Profiles: Cartosat (NRSC), NASA Landsat program and USGS; Census 2011; IIHS Analysis 2011-12; 2014

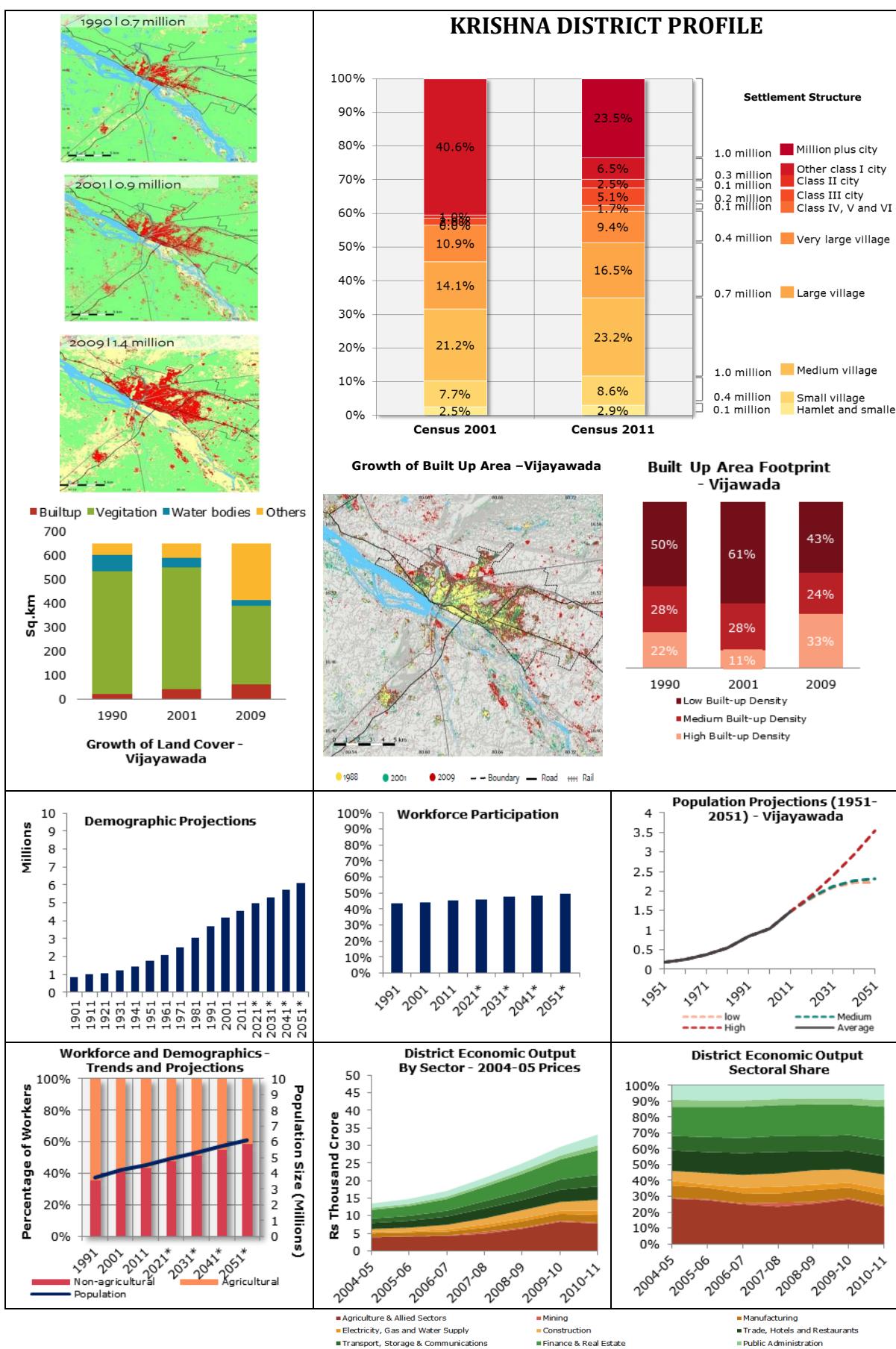


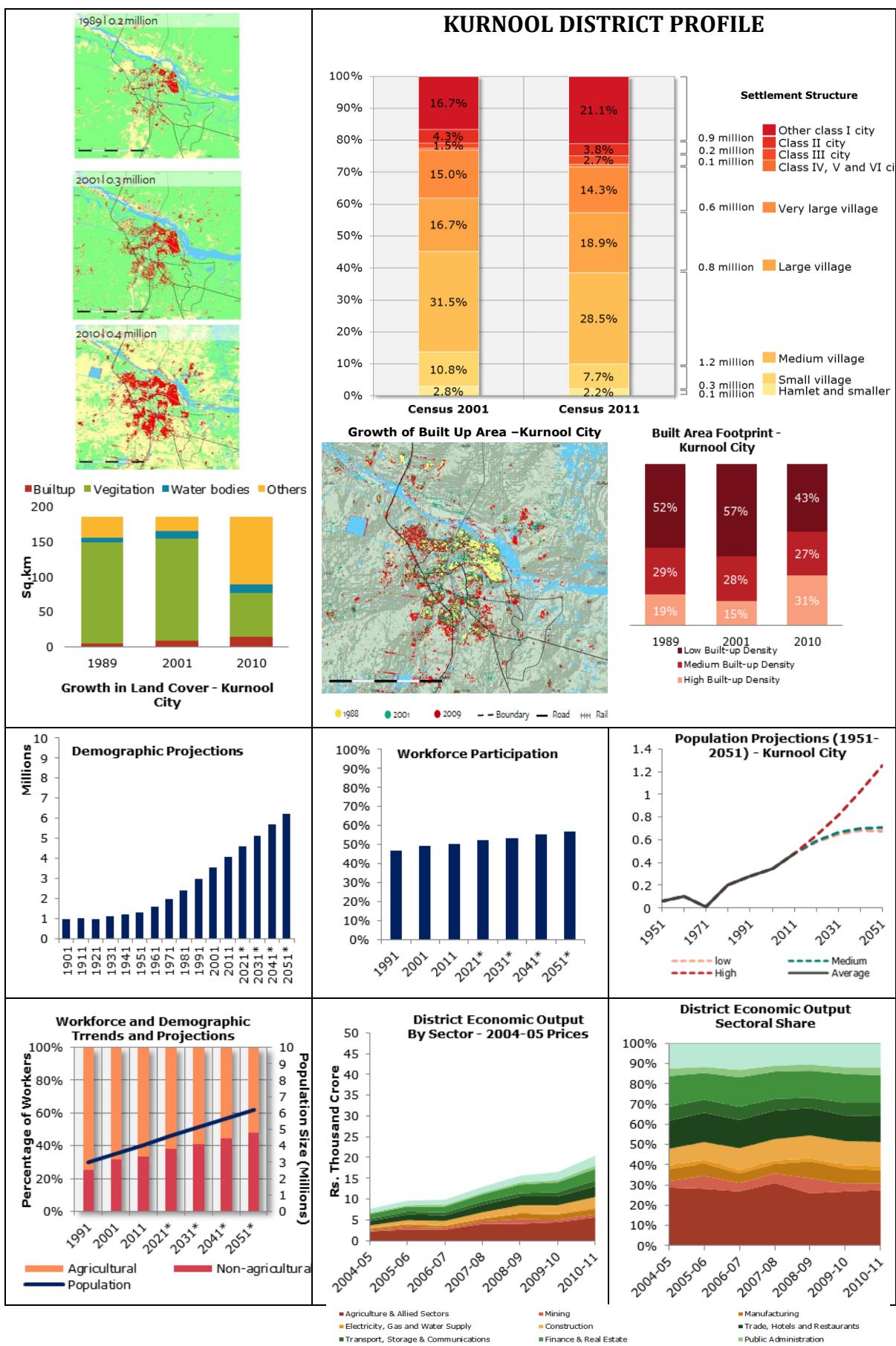


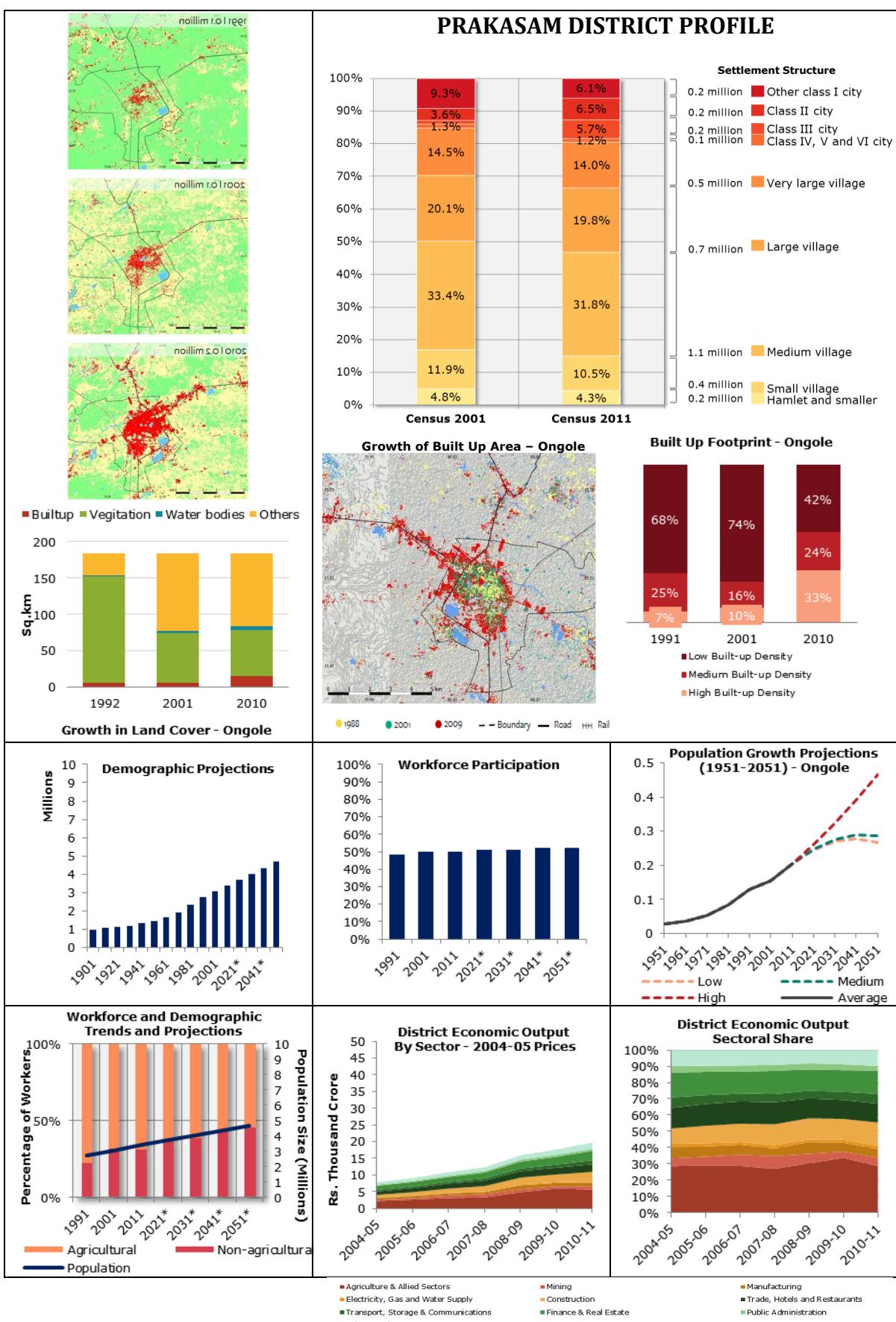


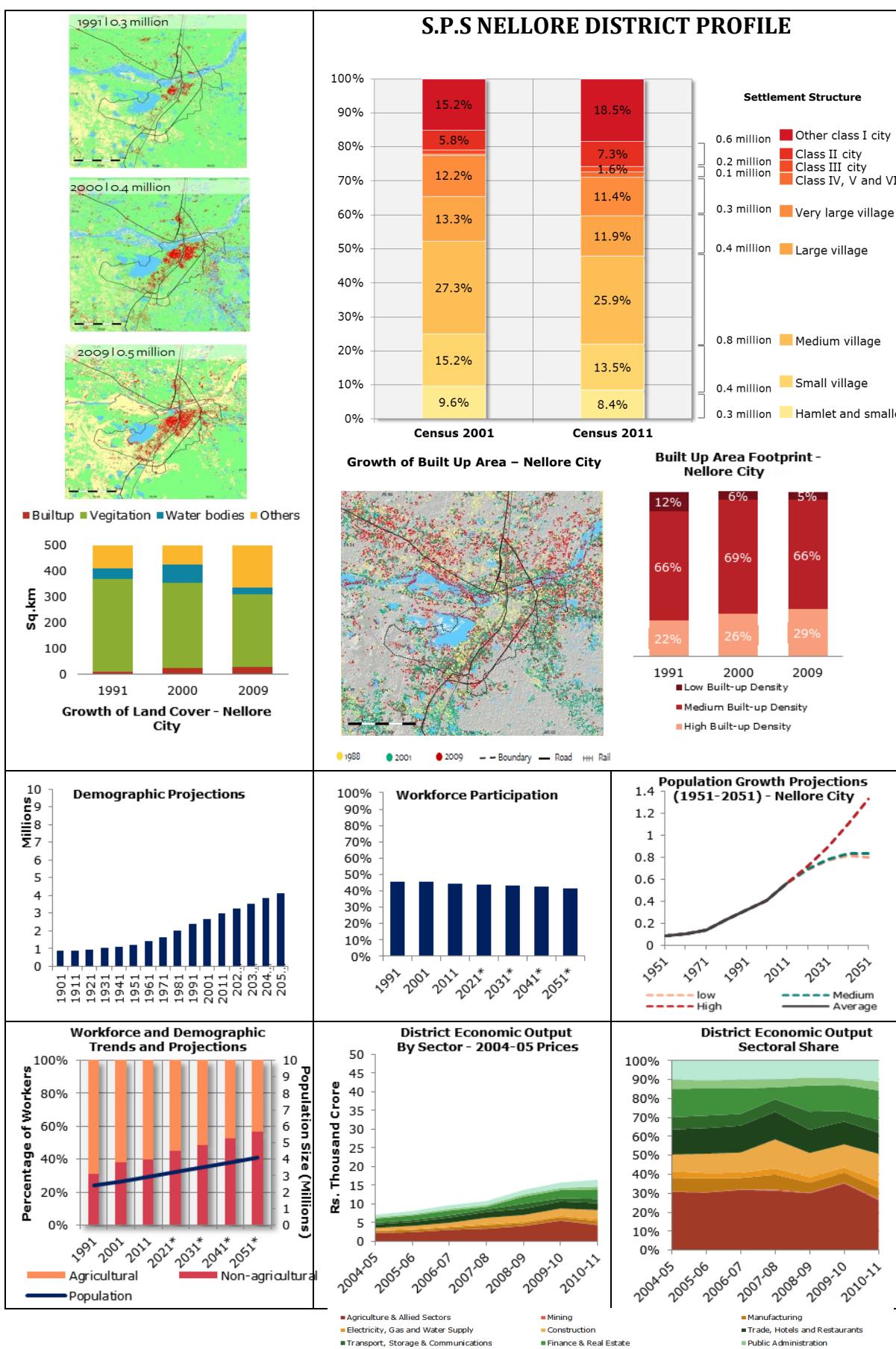


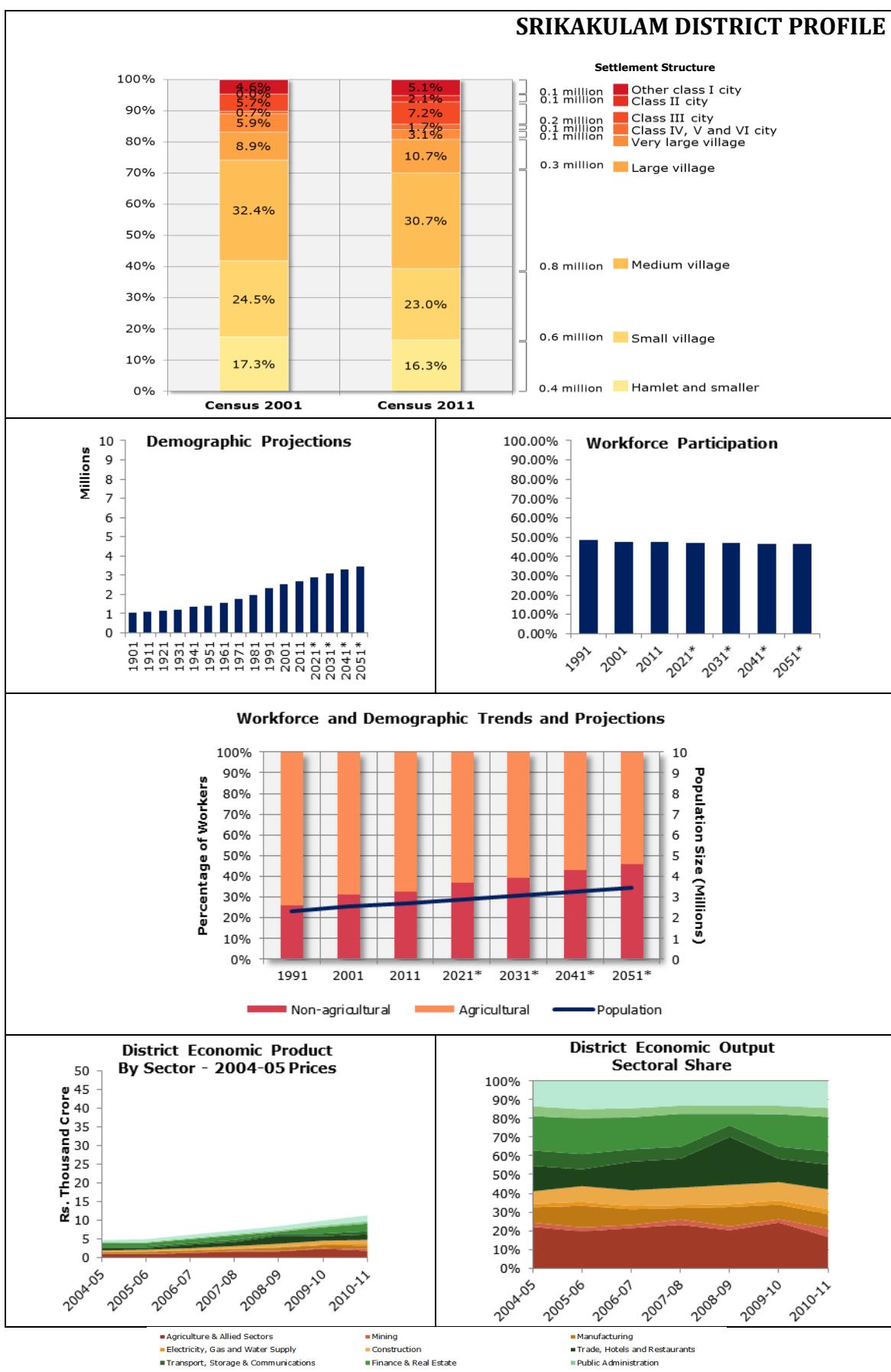




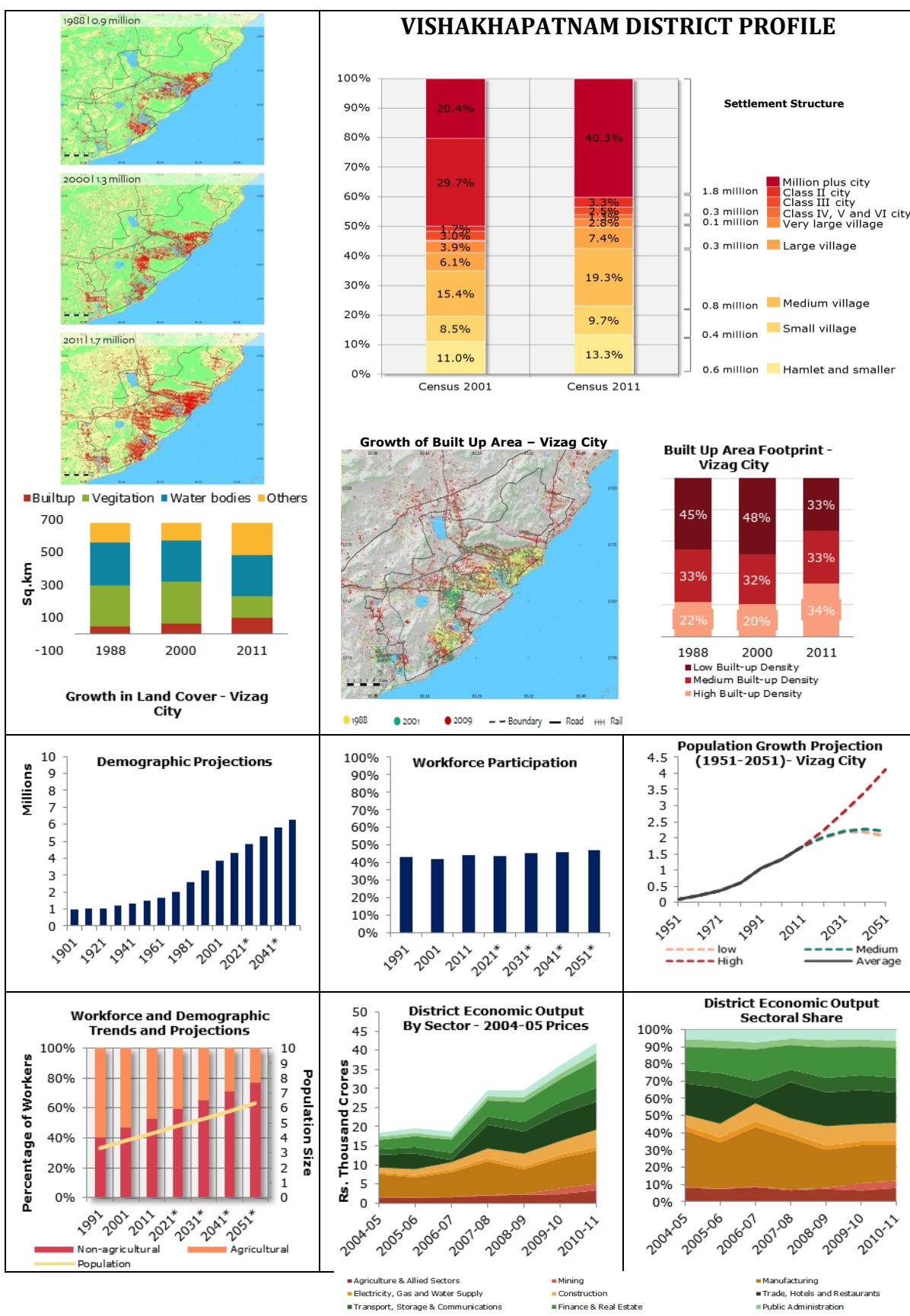


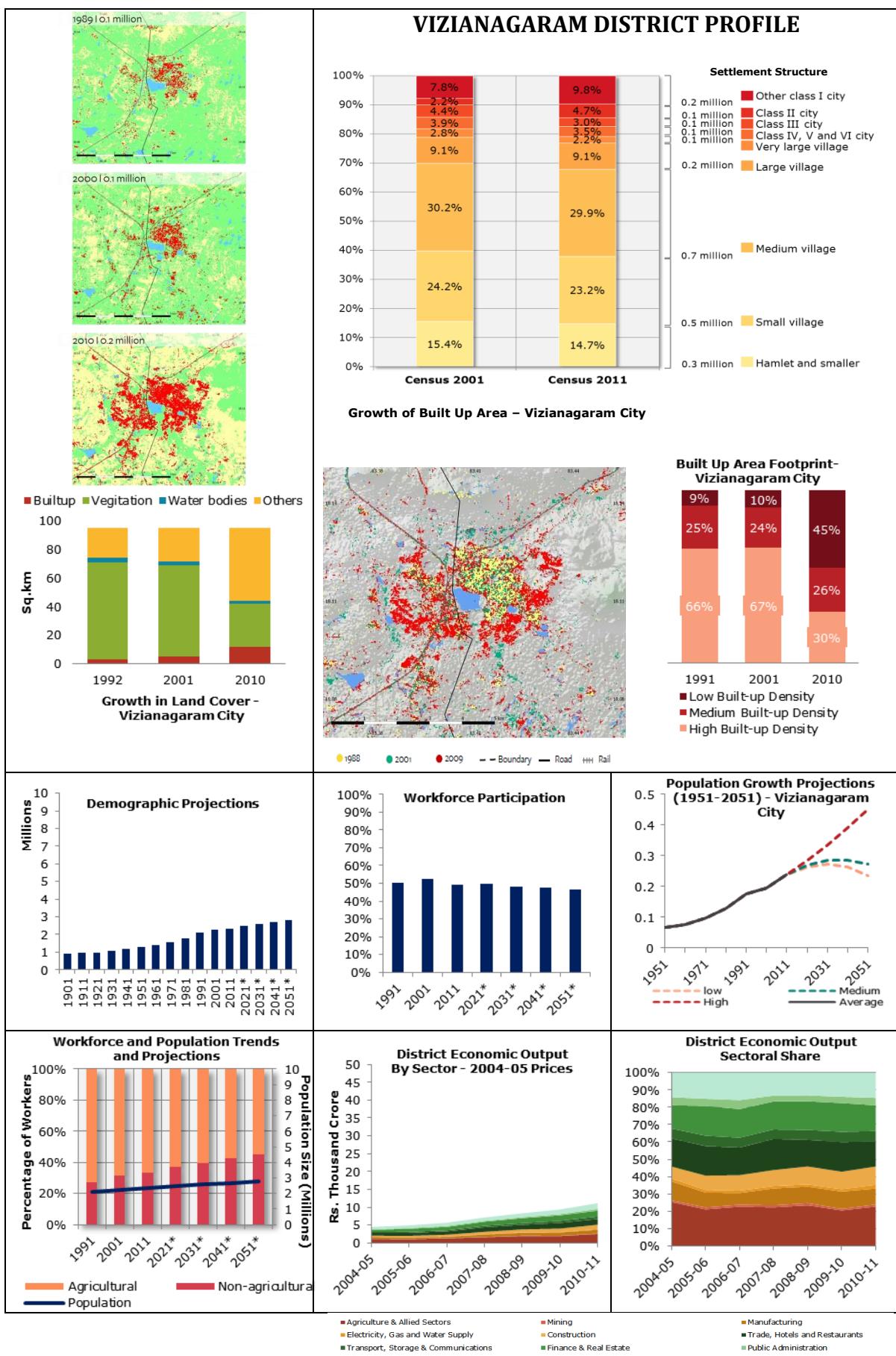


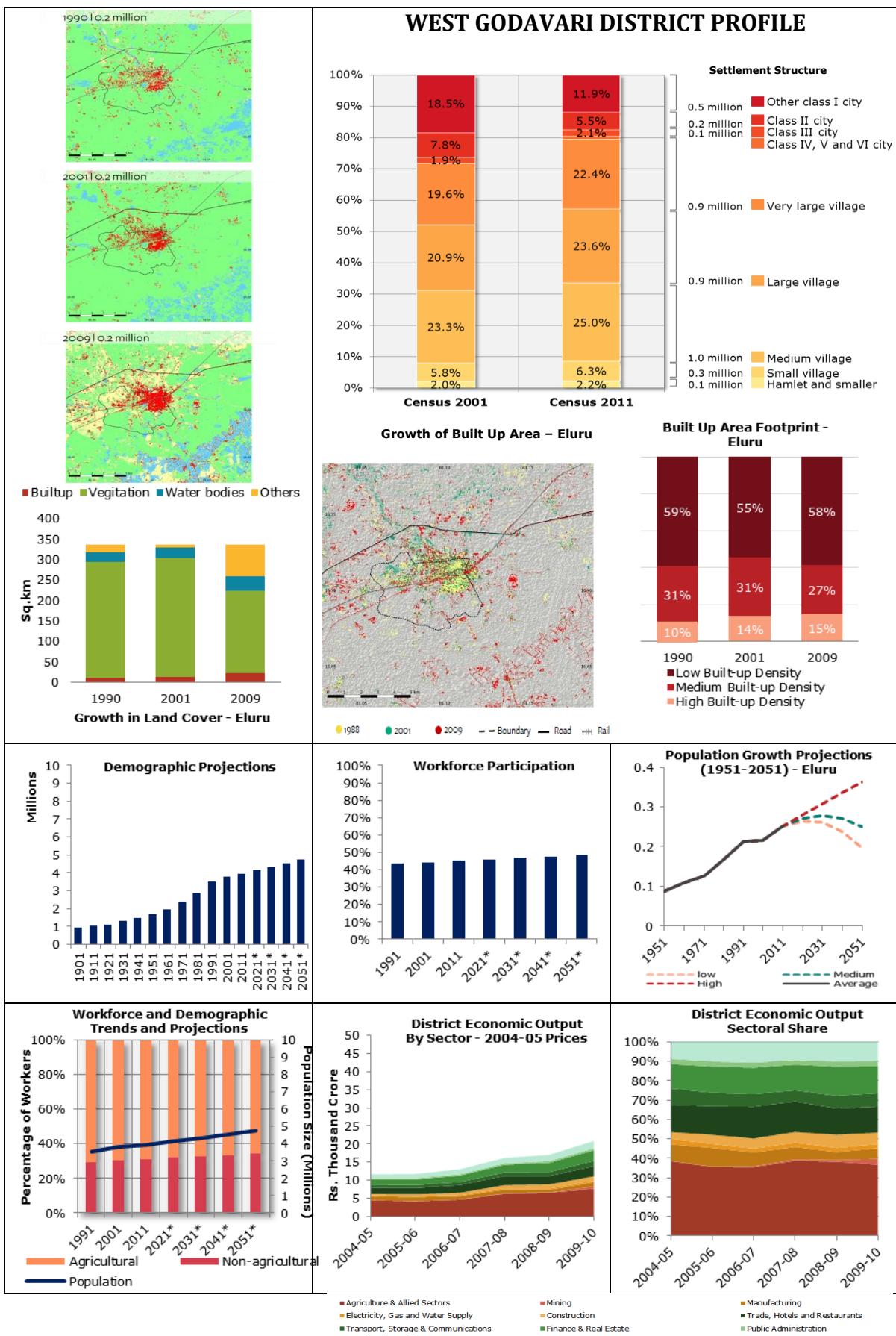




*Land Use Land Cover Images not available for Srikakulam







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