Strategic Facility Location and Management using ArcGIS

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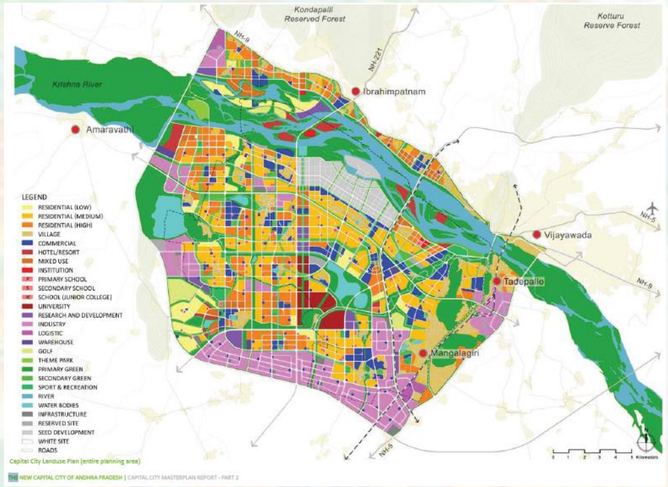
INTRODUCTION

As the population in India has been increasing over the decades, the urban sprawl is happening. Facilities that were installed by considering the existing demand areas are inadmissible in serving the next generations. Due to this improper planning, facilities of certain class are clustered in specific locations, which have induced inequity in service levels. It is observed from the literature, that spatial accessibility is often used by many of researcher's to quantify the efficiency of the existing plan. An attempt is made in this study to use this parameter in planning the whereabouts of the facilities locations. In an unconventional way, instead of quantifying the accessibility of the habitations to the facilities installed, reverse approach i.e. by quantify the spatial accessibility of all the existing land parcels followed by the hierarchical allotment to bridge the gap in service levels, is adopted to plan the locations of facilities which remain to be sustainable. In this study, to analyse the impact of the proposed methodology, a proposed master plan of an upcoming capital region is considered, and that is compared with the plan which was the outcome of this approach. And it is observed that the result obtained through the proposed methodology is more efficient which was shown in the form of statistics.

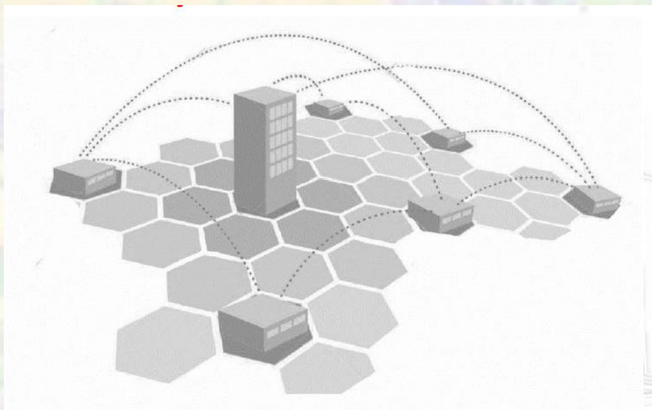
STUDY AREA

Amaravati, Located in Andhra Pradesh which is the proposed capital with a projected population of 4.4 million by 2050.

PROPOSED MASTER PLAN



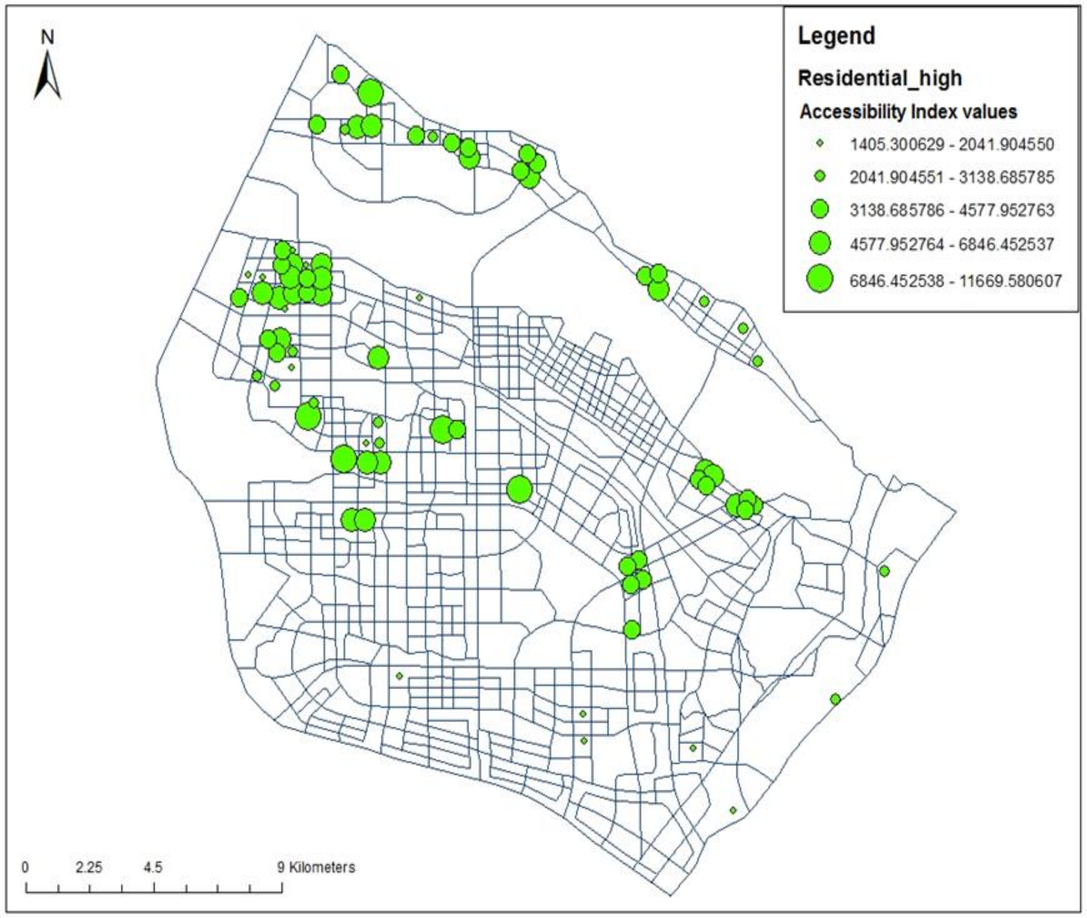
NEED OF METHODOLOGY



METHODOLOGY

1. Identification of boundaries of the case study
2. Quantifying the spatial accessibility to each land parcel
3. Prioritizing the exiting parcel based on the spatial accessibility values.
4. Proposing the re-allocation of facilities by considering the exiting master plan.

RESULTS AND DISCUSSION



CONCLUSION

In this study, strategic facility allocation is suggested. From the proposed methodology, it is observed that the maximum number of people can be benefited with the same investment capital. A pilot study which investigates the gap in the service levels is essential to plan the expansion in the efficient way. The available number of some facilities such as mosques, police stations, preparatory female schools, and elementary female schools from first to third grade is sufficient to cover almost the whole city, but improper distribution caused a deficiency in their coverage for some zones, which can be bridged with the proposed methodology in this study.

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