

Planning Support System for Urban and Regional Area Using GIS

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ABSTRACT

The Planning Support System (PSS) is an architecture that, using computer science, supplies decision support information in the field of planning. PSS or the DSS contributes to rationalizing planning process by providing necessary support to systematically structure and formulate problems, develop alternative plans or policy scenarios, assess and evaluate their impacts and to choose the proper decision, policy or plan. In this research work one prototype PSS model developed and suggested for the urban and regional planners. This will help to planners for the efficient planning process.

Keywords: Planning Support System, DSS, GIS & RS.

I. INTRODUCTION

Some people believe that the way to improve planning support is to combine the planning model and GIS technique to formulate an integrated system for planning and decision support system purposes. The concept of PSS with combining a range of computer-based methods and models into an integrated system that is used to support a particular planning function. PSS as information technology that are used specifically by planners to undertake their unique professional responsibilities. However, the Planning Support System (PSS) is an architecture that, using computer science, supplies decision supports information in the field of planning.

PSS or the DSS contributes to rationalizing planning process by providing necessary support to systematically structure and formulate problems, develop alternative plans or policy scenarios, assess and evaluate their impacts and to choose the proper decision, policy or plan.

II. Development of PSS tool

There are so many geospatial data processing as well as image processing software's are available in the market. But the actual users at the urban and regional level are not having expertise in those software's. Here in this PSS tool we have providing the all map overlay management through enabling or disabling of different loaded map. Through this feature the planners can use this map overlay as like the layers in geospatial software. We can also easily add or remove the different map through the coding part. In addition to user can filter the different attributes provided in map. We can also able to use the query function.

In this study we have developed the PSS tool which will used to assist the planners of urban and regional area. This PSS tool is developed using .Net platform. This tool will used to perform all map overlay management through enabling or disabling of different loaded map layers like, village locations, digital elevation model (DEM), ASTER Satellite Imageries, Multicolored elevation contour line, etc.

III. Study Area

The district has an area of 10,502 km² while according to 2011 census its population is 3,361,292 of which 27.19% were urban. The Godavari River flows through the district. Nanded District is situated in the southeastern part of the Indian state of Maharashtra. The District lies in the eastern portion of Marathwada region, which corresponds to Aurangabad Division of Maharashtra. Nanded city is the district headquarters of the district. Nanded District shares its border with Andhra Pradesh.

IV. Proposed Information System

The tool is working like geo-server providing information in the form of Maps. The front is used as the .Net and Back end is used as the SQL. The concept of relational database management was implemented in this framework.

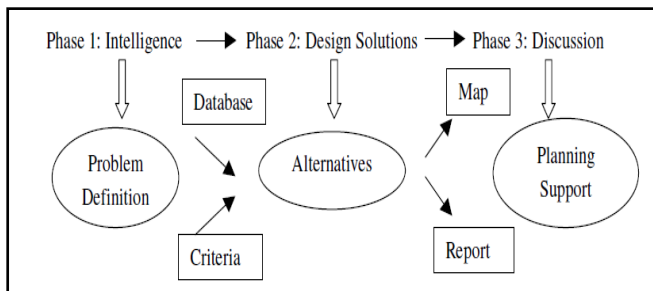


Figure 1. Conceptual Framework of Proposed PSS

V. Developed PSS Software and Discussion

Following are the some screenshots of the developed PSS software for the Planning related analysis. In this PSS software easy access to all developed maps as well as different scenario studied in regards of planning of urban and regional area. As we discussed above, while discussing the difference between PSS and DSS, the users of PSS are the technocrats. These technocrats will easily understand the importance of planning in the geographic visualised format. In this PSS software we providing access to all GIS based digitised maps which will attract the planners and the stakeholders

of urban and regional area according to their interest. Therefore planning will became the more nourished. Some screenshots of PSS software are as follows:

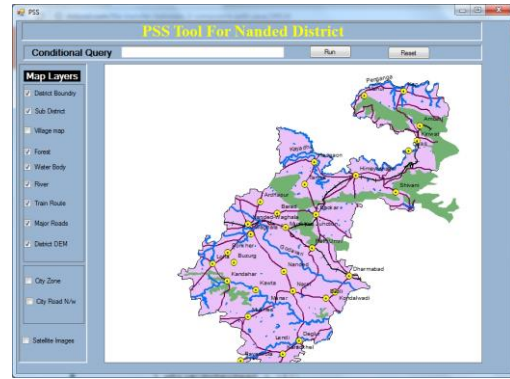


Figure 2. PSS software displaying several layers of Nanded district

In the above figure the on the left panel the list of available layers are displayed and in the work area according to selected layer the layer features are represented in GIS data formats.

The above figure shows the layers of Nanded district such as District administrative boundary, Sub-district locations, Forest area, water bodies River network , District road network, Rail routes, etc.



Figure 2. (a) : Displaying River Layer

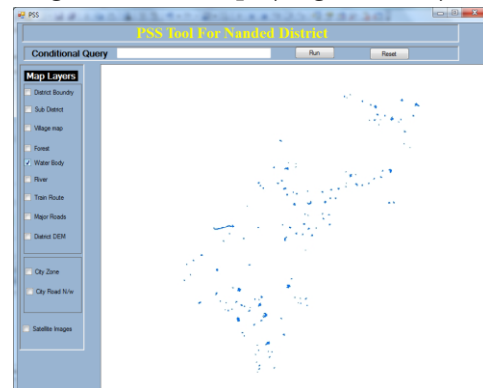


Figure 2. (b): Displaying Water body Layer

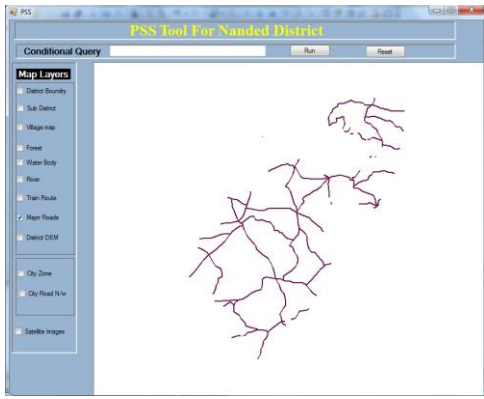


Figure 2. (c): Displaying District Roads Layer

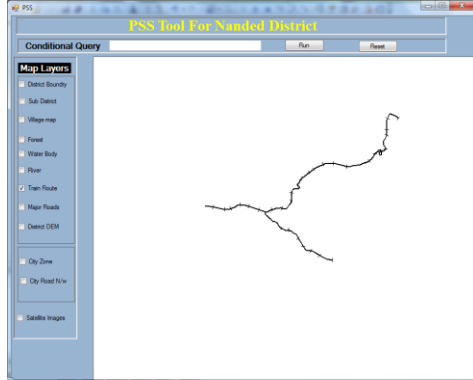


Figure 2. (d) Displaying District Rail Route Layer

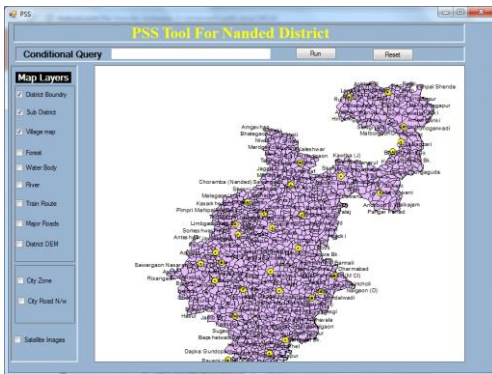


Figure2. (e) Displaying District Village Map Layer

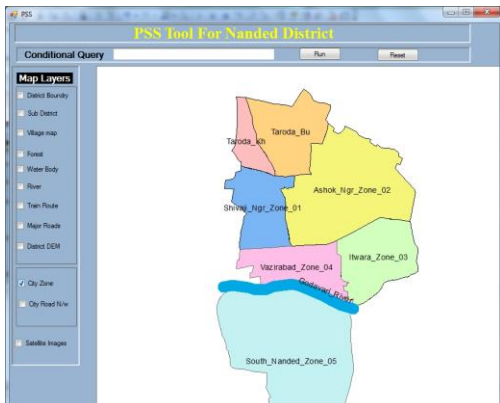


Figure 2. (f) Displaying NWMC City Zones

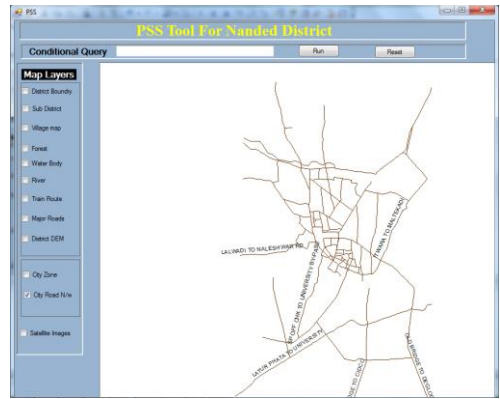


Figure 2. (g) Displaying NWMC City Road Network Layer

All above figure (a) to (g) are displaying the different geographical layers of Nanded district. All these layers are supported with geodatabase, therefore planners can use these maps for effective planning to satisfy the following objectives:

- To understand the concept of planning and sustainable development
- To understand the concept of stakeholder involvement in urban planning
- To analyze the limits of current planning support systems
- To show a picture of current planning support practice in the world
- To explain how PSS can be used to improve planning support system

V. Conclusion

In this chapter we developed new approach of Planning Support System, which is an integration of different advanced technologies used in this thesis. Development of this Planning Support System is an ultimate goal of this research study, this is being try to achieve in this chapter. It needs spatial analysis functions to incorporate the decision space into intuitive scenarios. GIS can provide strong function for data management and spatial analysis as well as combining with some models and analysis methods to generate alternatives. In this research work, it has been supposed that PSS emphasizes on design stage while DSS pay more attention on making choice, as

well as the users of the PSS are technocrats while the users of the DSS are decision-makers.

VI. References

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