

## **An Integrated System Dynamics Modeling Approach for Predicting the Dynamic Functions towards Sustainable Development of Chennai Metropolitan City, India**

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### **Abstract**

System concept is employed in planning to overcome inadequacy of traditional methods in addressing increasingly complex problems, which require holistic approach, and where emphasis is put mainly on interrelationships of individual subsystem within the system by various Scholars. In this present research, System Dynamic models for various subsystems were developed by employing STELLA software 9.1.4 Version, to recognize the functions of the system. An integrated System Dynamic model for energy efficient sustainable development was developed to look at the dynamic functions, under different alternative conditions. The validated model has been employed to project the control parameters, which decide the functions of the system and thereby developed the projected year model for the year 2041 A.D. Further, alternative plausible scenarios were developed and tested in the forecasted year model 2041 A.D., by employing simulation techniques for arriving at plausible decisions. The results of optimal scenario chosen were analyzed, and recommended for the sustainable development of the system to evolve plausible policy planning guidelines for development.

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