

CLOUD SDI MODEL FOR COASTAL INFORMATION INFRASTRUCTURE NETWORK OF EASTERN SEABOARD OF ODISHA, INDIA

Smruti Ranjan Panda, Jagadish Kumar Tripathy
Dept. of Earth Sciences, Sambalpur University, Odisha, India

Sachikanta Nanda²,
College of Engineering & Technology, SRMIST, Kattankulathur, Chennai

Kamal Kumar Barik³
Centurion University of Technology and Management, Odisha, India

ABSTRACT

Spatial Data Infrastructure (SDI) has been emerged as one of the important framework for sharing, analysis and processing of geospatial data. The Cloud computing is a paradigm where it helps to increase throughput and reduce latency at the edge of the client for storing and various geospatial analysis. The present research paper proposed and developed a Cloud computing based SDI named as Cloud SDI Model which is combining the technology effort of cloud computing and SDI; for sharing, analysis and processing of geospatial data particularly in coastal management in India. The main purpose of the Cloud SDI Model is to integrate all the geospatial information of coastal districts of India that can help the decision maker/ planner or common user. The present Cloud SDI Model has been used Quantum GIS for geospatial database creations where as QGIS Plugin has been linked with Quantum GIS for invoking cloud computing environment. The present Model has been validated by taking selective area of Odisha coast, India as case study.

Keywords: SDI, Cloud computing, geospatial data, Odisha coast, geospatial analysis

INTRODUCTION

Spatial Data Infrastructure (SDI) has been facilitated the sharing and exchanging of geospatial data holding by different stakeholders. It has already initiated to create an environment that enable a wide variety of users to access, retrieve and disseminate geospatial as well as non spatial data in secure way^{1,2}. The technological growing need to organise the data across various disciplines and organisations and also the need to create multi-participant, decision-supported environments have resulted in the concept of SDI. It enable users to save resources, time and effort when trying to acquire new datasets by avoiding duplication of expenses associated with generation and maintenance of geospatial data^{3,4}.

SDI can be used for decision making, storage of various kinds of geostial data, bringing data and maps to a common scale as per the user needs, superimposing, querying and analyzing the data and designing/ presenting final maps/ reports to the administrators and planners^{5,6&7}. The utility of SDI for decision making and planning of land resources has become widely popular and are being used for a wide range of applications^{8,9}. There are five important components of SDI Model which has been encapsulated and has shown in Fig. 1. In the dynamic nature of SDI Model, Technologies, polices and accessing network are the core dynamic components where as people and data are the static components¹.

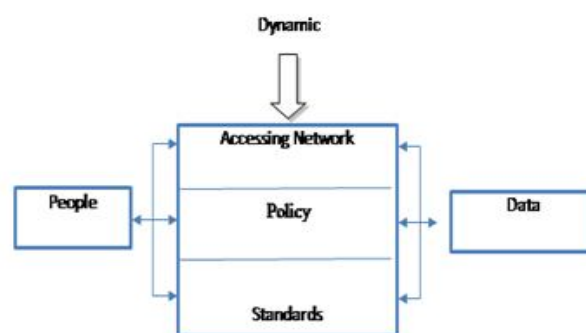


Fig. 1—Component of SDI Model.