An Editorial

Enhanced Environmental Systems using advanced Data Analytics

Environment is one of the emerging and alarming concern and this is the merger of Environment as well as allied subjects, and here the subject is Informatics. Environmental Informatics is a major emerging discipline dedicated in Environmental Management and monitoring using different tools, techniques and sub-technologies of IT, Computing, Computer Science or allied branches. There are various technologies in IT and out of which few are very emerging technologies such as Internet of Things (IoT) and Cloud Computing (Big Data Analytics), and all these are important in Environmental Systems, and monitoring. As far as Informatics is concerned Geo-Informatics is helpful in better environmental solutions, and therefore required in various areas such as viz.—

- ❒ ecology,
- ❒ agriculture,
- ❒ oceanography,
- ❒ climatology,
- ❒ forestry and
- ❒ anthropology

As far as basic Information Technology tools are concerned some important are Database Technology, Web Technology, Network and Communication Technology, etc. Due to the closer of Environment and Informatics now Environmental Informatics is a best subject for the Environment related activities using tools, techniques and sub-technologies of IT, Computing, Computer Science, or allied branches. Bigdata term was coined in the year 1990 and later gained popularity after the massive growth of data in different domains and it has done mainly for the Internet services. The 'Tera Data Corporation' is the concept of Big Data and later known as a Big Data Technology (parallel processing DBC 1012) in 1984. Later, various structured and unstructured data, etc. are also being used for the purpose of proper data management. In the year 2001 Seisent IMC did a good job for the purpose of development of the Big Data as well allied fields. The planning and projects of the Google, Apache, Map-reduce techniques (by Google) and Hadoop (by Apache) later considered as important in Bigdata management. Big Data

is gaining its popularity in all the sectors viz. government, administration, management, etc. As far as its size, it is increasing day by day and applicable in diverse areas of Environment and allied areas. It now an important factor that, both the developed and developing countries are also moving towards implementing Environmental Informatics in real-life practice. Worldwide different types of data are generating. Big Data is widely applicable in managing current challenges specially the challenges of the Climate Change including global warming. Many countries worldwide taking various initiatives and projects related to the Big Data in respect of Environment, and out of which Copernicus may be treated as one of the important and developed project in Europe.

As far as *Global Forest Change* is concerned, this is required in managing forest and justified in deforestation by counting trees and here high-resolution satellite imagery is basically used for. *Danger Map* is another important international project required in determining pollution and it is used by the users based on their uses pattern. As far as *Smart Cities and Urban Planning* the applications in cities and urban areas are important and changing drastically and according to United Nations two-third of the world population by 2030 may be live in the cities for availing advanced benefits from the cities and towns. The environmental challenges for such cities could be considered as important and using Big Data managing green data is possible for solving the emerging problems. Big Data and Analytics is required in managing competitiveness of renewable energies in fossil fuels. The Big Data is required in ensuring clean technologies by various means like power management, environmental systems, etc. Big Data and Analytics required for data collection the for possible power, in geographic data management, geospatial data management, Big Data Management, etc. Big Data and Analytics are required in different activities of environment and ecology. Environmental Informatics is timely in simple cartographic naval navigation, in geographic surveying, in GIS-based data collection and development, in disaster and emergency management, etc. Therefore Environmental Informatics is the need of the hour and required for various environmental management and systems.

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