

**Proceedings of the Conference “Karnataka Geospatial Database”  
held on 28<sup>th</sup> December, 2010 at Yavanika, Bangalore.**

The conference on “Karnataka Geospatial Database” held on 28<sup>th</sup> December, 2010 at Yavanika was organized by Karnataka State Remote Sensing Applications Centre, an autonomous unit of IT, BT and S & T of Government of Karnataka. As a nodal agency, the KRSRAC is a link between user agencies and people at district and taluk levels, and is extending the availability of geospatial database for planning, formulation and implementation of development projects. The event organized is significant, because this is the silver jubilee year of KRSRAC and rightly the conference is a curtain raiser for the Silver Jubilee activities.

Melodious rendering of Nadageethe by the students of M.Tech Geo-informatics programme set the right mood to begin the conference. This was followed by lighting of lamp by the guests of the day.

The conference was inaugurated by Dr. V. Jayaraman, Director, NRSC – ISRO, Hyderabad. Dr. Jayaraman also delivered key note address. Dr Jayaraman traced the history and evolution of technology, particularly the communication and remote sensing technology. He emphasized that we should accept the technology what we have today, other wise we will be isolated. He also referred the Google earth which has produced Neo-geographers, but not accepted by purists. He referred to the GIS service in the context of Crowd computing and crowd service, where in about 500 million people will have facebook access. He recalled the association of ISRO with KRSRAC in the last two decades, and appreciated the service rendered.

Shri P. Ravikumar, I.A.S. Principal Secretary to Govt., Department of Rural Development and Panchayath Raj, GoK, released the LRIS report of Mysore District and addressed the gathering. Sri Ravikumar took the audience through the journey of KRSRAC from Yeshvanthapur to MS Building. He is of the opinion that people are impatient and want development at a faster rate. He suggested

working for sustainable/inclusive development. He appreciated the LRIS of Mysore and suggested to take up the work of other districts.

Shri Ashok Kumar C. Manoli, Principal Secretary to Govt., Department of IT, BT and S & T, GoK presided over the function and delivered presidential address. Shri Ashok S Manoli, in his presidential address congratulated the Director and staff of KRSRAC for their excellent service. He elaborated the need for organizing the conference. He advised the KRSRAC and officials of GoK to interact, so that district level officers can avail the geospatial data for better planning. Shri Manoli also referred about the future challenges of KRSRAC

Dr. D.K. Prabhuraj, Director, KRSRAC welcomed the guests and invitees and Shri C.R.Francis proposed vote of thanks.

The inauguration function was followed by technical sessions. A total of thirteen papers were presented in three technical sessions.

The first technical session “Geospatial Database for Urban and Country Planning” was chaired by Dr. S. Adiga, Advisor, RSI Soft Tech India Pvt. Ltd. Bangalore. Shri C.R. Francis, Scientist, KRSRAC was the rapporteur. Five papers were presented in this session.

Smt. Jayanthi, Dy. Director, Directorate of Municipal Administration, Bangalore presented a paper on “Slum Free City Planning under Rajiv Awas Yojana and Urban E-governance”. The theme of paper is to develop a national informative system and knowledge base with focus on urban poverty for the purpose of planning, policy making, project formulation, implementation, monitoring and review, especially in the areas of slum development, provision of basic services and affordable housing for the poor. The Directorate of Municipal Administration (DMA), as a nodal agency is responsible to survey the slums of Karnataka and to implement Rajiv Awas Yojana in Karnataka. A web based software “Asha Kirana Mahithi” has been developed for the storage of data on slums of Karnataka. The “AASTHI” (GIS based property tax system) and PGR are the other system discussed in the paper.

Shri T. Sheshadri, Advisor, BBMP, shared his experiences about role of GIS in property tax system of BBMP. The BBMP, with 198 wards in an area of about 800 sq.km. Is a great challenge in estimating the number of dwelling units of various types and commercial establishments, vehicle tracking system to monitor solid waste management system. Though the use of GIS is in vogue since 2003, the GIS technology is of utmost importance now, because of increase in BBMP jurisdiction from 226 to 200 sq.km, increase in the number of wards from 100-198, change in the ward boundaries due to delimitation and change in the ward and street numbers. The GIS helps to assign unique Property Identification Number (PID), accurate information of properties such as dimension, built up area, land use type etc., The GIS framework also helps in integrations and interconnections of platforms for all other services such as trade license, grievance redressal, automated building plan approval etc.

Shri Shivarudraiah, Dy. Director, SSLR and Vice Principal, Survey Training Institute, GoK delivered a talk on “Application of Information science (GIS)” for cadastral land records (CLR). Shri Shivarudraiah discussed about Bhoomi project and its impact and the services rendered to land owners. Bhoomi is a computerized land record system in Karnataka, which is capable of storing continuous updating and process management (mutation). It is also a system where data is secured and electronically processed. It is possible to integrate data with individual maps and registration process. The Bhoomi is characterized by efficient delivery of records, accountability, transparency, authenticity, sustaining programme, removal of preferential services, elimination of intermediaries and direct contact with the system.

Dr. V. Shreedhara, Scientist, KRSAC presented a paper on “Identification of suitable landfill sites for dumping municipal solid wastes in the urban local bodies of Karnataka State using Geo-spatial technology”. Dr. V. Shreedhara discussed the generation, analysis and integration of thematic layers using GIS, for development of action plans and for locating site for solid waste disposal. He has also analyzed the risk factor involved in the selection of sites for solid waste disposal.

Dr. B.P. Lakshmikantha, Scientist, KRSAC, presented a paper on “Change detection of lakes under BBMP using RS and GIS”. The lakes once a source of water for domestic and agricultural use in and around Bangalore city is facing a threat of extinction. As a result, the GoK constituted Lake Development Authority to protect the lakes. Dr. B.P. Lakshmikantha, based on geospatial database of tanks has observed drastic changes in majority of the lakes with reference to size, water spread area, tank bund, encroachment etc., He made use of Cartosat I and LISS IV data of Nov – Dec 2007, and March – April 2008 respectively to detect the changes.

The second technical session on “Planning, monitoring and evaluation using Geo-informatics” was chaired by Dr. V. S. Prakash, Director, Karnataka State National Disaster Management Centre, GoK. Dr. K.Ashoka Reddy, Scientist, KRSAC was the rapporteur.

Dr. B.K. Ranganath, Scientist, ANTRIX Corporation, ISRO presented his paper “Planning, monitoring, evaluation and learning using geo-informatics”. Dr. Ranganath discussed the theme of his presentation with reference to constraints and problems, space inputs used for planning, participatory watershed action plan, preparation, implementation, monitoring and impact assessment of watershed development project of Karnataka, monitoring of bund building activity, form pond implementation and monitoring, monitoring of check dam construction, destiny of tanks, transformation of treated watersheds, afforestation management, impact assessment on Land use / Land cover changes and adaptive management. Visible impacts on crop intensity, crop diversity, biomass, groundwater level, surface water and wasteland have been studied.

Dr. V.S. Prakash, Director, KSNDMC, GoK presented a paper on “Disaster Management” Dr. Prakash discussed in detail about the data on weather parameters on daily / weekly basis, being collected through out Karnataka. Since, agriculture depends on daily weather conditions, he emphasized on the significance of meteorological data collection and of forecasting drought / flood situations.

Shri Vinay Kumar A, Project Scientist, KSRSAC presented his paper on “GIS based crime analysis and report engine”. The presentation is about software ‘G-CARE’ a desktop based Geographic Information System (GIS), developed for State Crime Records Bureau, Karnataka State Police. The component of G-CARE are crime analysis, village analysis, data capture and hot spot analysis. The crime analysis and the village analysis are the two modules of G-CARE. The crime analysis (Crime and its attribute) module is about the external data queried according to the user defined criteria and the results are displayed on the map with the help of graphic. In village analysis the data queried about the location and its sensitivity, which will be displayed on the map with graphics. The data capture is nothing but creation of point data by capturing each and every FIR number on the correct location of the map. Hotspot is to identify the spot of repeated occurrence of a particular crime over a district boundary. The software generated is useful for data management, updation, analyzing trends and patterns of crime.

The third technical session “Natural Resource Management” was chaired by Dr.P.P.Nageswara Rao, Project Director, NRSC-ISRO. Dr.B.P.Lakshmikantha, Scientist, KSRSAC was the rapporteur.

Shri. C.R.Francis, Scientist, KSRSAC presented a paper on ‘Utilization of satellite imageries and GIS for development of Hyderabad Karnataka’. Shri Francis provided a detailed account of utilization of Remote Sensing in the generation and managing the data by appropriate images and GIS software. Optimizing natural resources, higher productivity from Land, Water, Soil and resources utilization are the major issues discussed in the paper. He has shown how technology could be used to analyze bulky data for critical gaps intervention. One of the important observation made is that, spatial data can be easily grasped by people’s representatives and others so that participation will be there and it leads to micro-level plans with transparency. The Hyderabad Karnataka region is benefited by wasteland development, watershed developments, drinking water supply to villages, tank rejuvenation, drip irrigation schemes etc.

Shri Hegde, Senior Geologist, Dept. of Mines and Geology, GoK presented a paper on 'GIS modeling of Palar River basin'. The basin covers an area of about 2,860 sqkm with four catchments. The average rainfall is about 780 mm. Palar river basin is an entity with scanty rainfall, steep decline of ground water level, water rich fluoride and severe drought. The stream flow is almost nil in the basin and dry throughout the year. The available ground water has been over-exploited between 2004 and 2009. The area is drought prone and hence the problem has to be addressed essentially as drought management. The geomorphology, land use/land cover, geology, soil and drainage maps have been generated by using images and other sources. The above and other collateral data have been used to carry out NAM Hydrological and Mike Basin river models, to be used for drought management of the region covered by Palar river basin.

Shri C.S.Harindranath, Consultant, KRSAC, presented a paper "Geospatial database for soil and Land Management". He has demonstrated that how a master soil map could be used to generate several interpretative/thematic maps, such as land capability, land irrigability, soil depth, surface gravelines, status of soil erosion, soil slope, soil salinity, available water capacity etc. Shri Harindranath has used the database of Sujala watershed, for his presentation.

Shri Udayaraj, Scientist/General Manager, RRSC-ISRO presented a paper on 'Geospatial database for Agricultural inventory'. He has demonstrated how, by using multi-temporal images, crop pattern, crop yield, biomass etc could be studied and helps the farmers to pursue scientific agricultural practice.

Shri N.Vijay Kumar, Project Scientist, KRSAC presented a paper on "Geospatial database for forest resources". Shri Vijay Kumar discussed at length the use of Remote Sensing and GIS Technology for managing forest resources. The KRSAC has created a database, keeping forest administrative, revenue administrative boundaries, village maps and 37 forest dimensions as entities of the Karnataka State. To provide tools for analyzing the geographic data and associated forest information, a customized software 'FASE VASANTHA' has

been developed. This is window based desktop GIS application software developed in Microsoft Visual Basic.

Dr.Y.Lingaraju, Professor and Research Head, Dept. of Civil Engineering, Global Academy of Technical Education, Bangalore presented a paper on “Integrated Water Resource Management-Role of GIS”. He presented various aspects of water resources, water budget, investigation of micro watersheds, prioritization of utilization of water resources etc by using GIS technology.

At the end of the technical sessions, a plenary session was held and the session was chaired by Dr.P.P.Nageswara Rao. Dr.D.K.Prabhuraj, Director, KSRSAC, all the chairmen and rapporteurs of the technical sessions, were present in the session. Prof.T.R.Sreedhara Murthy who moderated the technical sessions welcomed the Chairman and others. Dr.Nageswara Rao summarized the presentations and invited delegates to speak. A good number of delegates participated in a lively and fruitful discussion. At the end, the plenary session passed the following recommendations for needful action:

- 1) Each user department should have a geo-informatics cell and strengthen the existing ones.
- 2) Capacity building of human resource development to be encouraged.
- 3) “Cloud sourcing” may be practiced by KSRSAC.
- 4) Teaching staff shortage is one of the constraints – needs collaboration between ISRO Centres and Universities.
- 5) Syllabus should be application oriented/ end-user oriented.
- 6) Training of trainers (College teachers)
- 7) Deputation of few resource persons to KSRSAC for a few appraisal training courses.
- 8) To illustrate the use of geospatial database in exploiting renewable energy resources.
- 9) Training and re-training of the middle level officers is needed.

Prof.T.R.Sreedhara Murthy proposed vote of thanks.