

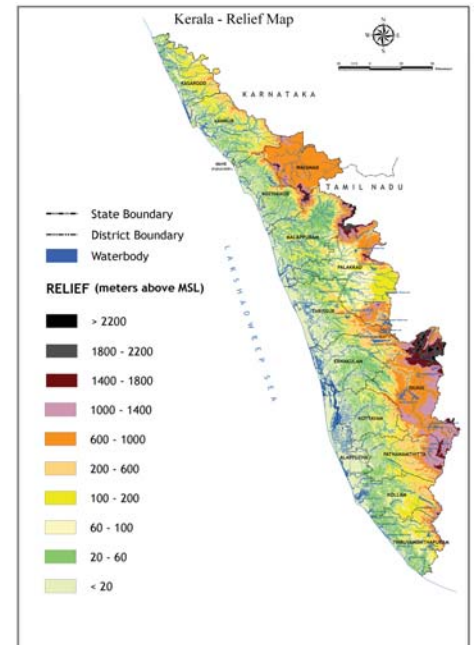


Digital database on natural resources of Kerala

Sustainable economic development of any region depends largely upon the availability and the optimal utilization of natural resources without endangering the environment and ecosystem of that region. A dependable database of the resource availability and an excellent long term resource management plan, thus become imperative for steady progress of the economy. The state of Kerala has been experiencing several issues

related to severe damages of the environment due to improper utilization of natural resources. Lack of a comprehensive database, that is reliable and up to date, is the major lacunae faced by the administrators and planners in this respect. The State has also been experiencing tremendous land use and land cover changes both in the urban and rural sectors due to the uncontrolled and rapid urbanization process.

Kerala is one of the states in the country that has succeeded in setting up a three tier system of Local Self Government (LSGs) institutions for planned economic development. In order to accomplish this task, these institutions and the respective line departments need exhaustive database on the availability of resources, their nature of use, impact of resource utilization and intervention possibilities.



A relief map of Kerala included in the digital atlas

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CM dedicates the Digital Resource Atlas and Database



Sri. V. S. Achuthanandan, Hon'ble Chief Minister of Kerala releasing the digital atlas and database which is being received by Dr. Prabhat Patnaik, Vice Chairman, Kerala State Planning Board, in the presence of Dr. G. Madhavan Nair, Chairman, ISRO and Dr. M. Baba, Director, CESS.

A digital resource database and atlas was brought out for the entire stretch of the Kerala State in 1:12,500 scale, utilizing the high resolution IRS P6 RESOURCESAT satellite data and GIS (Geographic Information System). The Hon'ble Chief Minister of Kerala Sri. V.S. Achuthanandan released the digital resource atlas and database by handing over the copies to Prof. Prabhat Patnaik, Vice Chairman, Planning Board on March 13, 2008 at the Mascot Hotel, Thiruvananthapuram. The function was presided over by Dr. G. Madhavan Nair, Chairman ISRO. Dr. K. Radhakrishnan, Director, VSSC, Dr. E .P. Yesodharan, Executive Vice President, KSCSTE, Sri. Teeka Ram Meena IAS, Secretary, Planning & Economic Affairs and Dr.VJayaraman, ISRO-EOS Director offered felicitations. Dr.M.Baba, Director CESS gave a brief account of the NREDB project. Sri.P.K.Mohanti, IAS, Director, KSREC welcomed the gathering and Dr.M.Samsuddin, Principal Investigator of

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Director Speaks



By the time this issue of CESS News reaches you, it will be time to observe the World Earth Day, which falls on 22nd April. This year's

Earth Day is observed with a call for 'Climate'. This global initiative is to make people call their national leaders on the Earth Day seeking immediate fair action on climate change.

There had been significant changes in earth's climate during the evolution of the earth and its subsequent metamorphism. All these have happened over a period of millions of years. However, the major difference now is that the changes are occurring over shorter periods of a decade or a century. The 0.76° C, increase in the average temperature of the globe over the last 50 years appear to be very small. However, there is clear scientific evidence now to show that the temperature can go up by 4° C by the turn of the century. The mere fact that a small temperature difference of 1° C on the far off Peruvian coastal waters in the Pacific Ocean can alter the onset of the southwest monsoon here in the Indian continent is enough to gauge how severe the impacts of an increase of 4° C in the global temperature can be. The melting of not only the polar ice but also the Himalayan glaciers have been scientifically demonstrated. It has also been demonstrated that the increased sea level rise, more erratic and intensive cyclonic storms/rains, more devastating floods, frequent forest fires, etc. are all occurring due to the impact of climate change. All these can have grave influence on the global disaster proneness, food production and environment, in general. Thus, it is imperative to induct these trends/predictions of climate change in the planning process.

Hence, this year's Earth Day has to be effectively utilized to bring to the notice of the planners and leaders that any delay in recognizing climate change and its impacts will be very costly.

Dr. M. Baba

Digital database.....

Over the past two decades, satellite remote sensing has been successfully utilized in the country for variety of applications related to land and water resources management, ocean and meteorological applications. A network of facilities has been established across the country to assist the users in interpreting and analyzing satellite data for meeting their resource planning and management requirements. Remarkable developments in Geoinformatics have firmly established its immense potential for mapping and monitoring of various natural resources. Collation of information obtained from remote sensing techniques with other datasets, both in spatial and non-spatial formats, provides tremendous potential for resource characterisation and analysis and forms an important basis for planning and development.

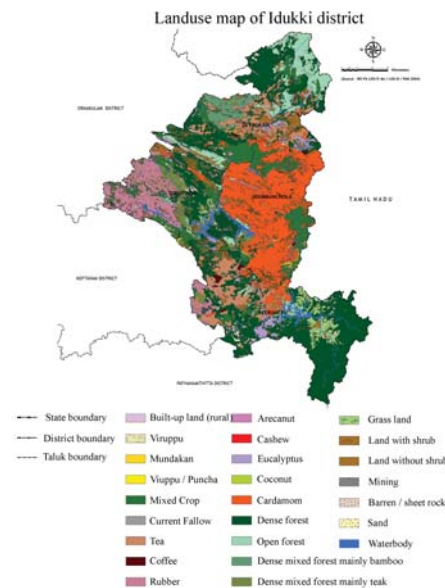
The Geographic Information System (GIS) technique helps to monitor and update the changes in the spectrum of natural resources and can be used to formulate a better understanding of the process of change and the complex interactions between the components of the system. It contributes significantly by allowing presentation of spatial data in the form of maps.

CESS has recently completed the preparation of a micro level digital database for the entire stretch of the state of Kerala that could be readily utilized by the planners, administrators and the people for better utilization of the natural resources, protection of the environment, creation of awareness etc.

The salient features of this very important project completed for the people of Kerala are: (a) preparation of thematic maps of natural resources data base utilizing the remote sensing data, collateral information and field observations, (b) appraisal of geo-environmental conditions to bring out plans for sustainable management of natural resources conformable with terrain characteristics, (c) development of a GIS-based information system, with facilities for periodic updation of data at local level and integration of all information to arrive at specific developmental plans at local level and (d) incorporation of the spatial data into a digital data bank in conformity with NSDI

framework for efficient management and retrieval of desired information.

As part of this project, a comprehensive natural resources digital database has been generated in 1:12,500 scale for the entire stretch of Kerala State. With the financial support from Indian Space Research Organization (ISRO), this project was jointly executed by the Centre for Earth Science



Studies and Kerala State Remote Sensing and Environment Centre under the coordination of the Kerala State Planning Board with inputs from ISRO and Regional Remote Sensing Service Centre, Bangalore. State-level seamless digital layers of administrative boundaries, hill shade, relief, relative relief, slope, rock types, transport network, landform, spatial extent of various landuse categories such as paddy fields, tea/coffee/rubber/coconut plantations, broad settlement zones, hills, plateaus and valleys, watershed, transport network, landslide prone areas, Panchayat-wise spatial distribution of population density, literacy, male-female ratio, occupation structure are generated as part of this database which can be understood by anyone with basic computer knowledge and training.

Digital database being integrated into GIS, periodic changes in the landuse practices, updation of areas of reclamation, transport/drainage network etc. can be performed and analysed with great ease. This spatial database would be highly useful for preparation of

district/block/panchayat level development plans by the local self governments and in identifying priority areas for Science & Technology interventions aimed at improving the livelihood of the common man in Kerala, particularly in rural sector.

The project was funded by the Indian Space Research Organization (ISRO).

Dr. M. Samsuddin

Members of Chinese Academy of Science visit CESS

Prof. Yufei Wang, Prof. Li Chengsen, Prof. Yi Teng Yao and Prof. Yang Jian from the Chinese Academy of Science along with three



The visiting professors from the Chinese Academy of Sciences and Dr. K. P. N. Kumaran of the Agarkar Research Institute, Pune were having discussions with the Director and scientists of CESS

Chinese students and Dr. K. P. N. Kumaran, Senior Scientist, Agarkar Research Institute, Pune visited CESS on March 4, 2008. The team's visit, sponsored by INSA, was to study the palaeoclimate of the west coast of India. The visiting scientists held discussions with the Director and senior scientists of CESS. Dr. K. M. Nair former Director of CESS and Dr. D. Padmalal, Scientist, CESS accompanied the visiting delegation during their field trips in southern Kerala.

Publications

K. P. Black, N. P. Kurian, J. Mathew and M. Baba (2008) Open coast monsoonal beach dynamics, *Journal of Coastal Research*, 24 (1), pp 1-12.

T. S. Murty, N. P. Kurian and M. Baba (2008) Roles of reflection, energy trapping and secondary undulations in the tsunami on Kerala coast, *International Journal of Ecology and Development*, 10 (S08), pp. 100-114.

Shiny S.T., Mallia R.J., Mini J., and Subhash N., (2007) Investigation of in vitro dental erosion by optical techniques, *Lasers in Medical Science*, DOI 10.1007/s10103-007-0489-z.

Project Reports

Environmental impact assessment of proposed Airport at Minicoy Island, Union Territory of Lakshadweep, 2008. Report No. CESS - PR- 01- 2008, submitted to the Administrator, UTL, Kavaratti. (Dr . R. Ajayakumar Varma, Dr. C. N. Mohanan, Dr. K. V. Thomas, Dr. S. Muralidas, Dr.M. N. M.Nair, Mr. K. R. Unnikrishnan and Dr. P. V. S. S. K.Vinayak.)

Environmental Impacts of Hard rock quarry and crusher unit at Attani, Narippara in Padinjarethara GP, Wayanad District, 2008. Report submitted to the Department of Local Self Government, Government of Kerala. (Sri. G. Sankar, Dr. R. Ajayakumar Varma and Dr. C. N. Mohanan)

Environmental impact assessment of proposed Airport at Minicoy Island, Union Territory of Lakshadweep, 2008. Technical Report No.CESS - PR- 01- 2008, submitted to the Administrator, Lakshadweep Islands. (Dr .R. Ajayakumar Varma, Dr. C. N. Mohanan, Dr. K. V. Thomas, Dr. S. Muralidas, Dr. M. N. M. Nair, Mr. K. R. Unnikrishnan and Dr. P. V. S. S. K. Vinayak)

Coastal engineering strategy for shore protection for Kerala - a pilot project, (2008). Final Project Report submitted to ICMAM, Ministry of Earth Sciences, Government of India. (Dr. M. Baba, Dr. N. P. Kurian, Dr. K. V. Thomas, Dr. T. S. Shahul Hameed, Dr. T. N. Prakash, Ms. Sheela Nair)

Nominations

Dr. M. Baba has been nominated as a Member of the Expert Team constituted by the Ministry of Home Affairs, Government of India to prepare an Action Plan for mitigating the impact of natural disasters along Tuticorin-Kanyakumari coast.

Dr. R. Ajayakumar Varma was nominated by Government of Kerala as member of the multi-disciplinary study team for investigating the recurrent phenomenon of discoloration of Periyar river.

Dr. M. Baba has been nominated as a member of the Panel of Experts 2007-2009 for 'Dissemination of Information' by NISCAIR Research Council, CSIR, New Delhi.

Seminar / Meeting / Workshop

Dr. M. Baba chaired a session on 'Coastal Protection' and gave a talk on the subject in the SAARC Workshop on 'Coastal and Marine Risk Management Plan for South Asia' held at Goa during 27-28 March 2008.

Dr. M. Baba chaired the workshop on 'Coastal Vulnerability Mapping' organised in India International Centre, New Delhi by MoEF on March 18, 2008.

Dr. R. Ajayakumar Varma represented Director, CESS in the National Workshop on 'Status Protection of Coral Reefs in India' (STAPCOR) held at Kadamat, Union Territory of Lakshadweep from January 21-23, 2008 and made a presentation on "Environmental Monitoring of Lakshadweep Island – A decade of input from CESS"

Dr. M. Baba, Dr. S. Sampath, Dr. P. P. Ouseph and Dr. R. Ajayakumar Varma chaired sessions Earth System Sciences, Physical Sciences, Chemical Sciences & Technology and Environmental Sciences respectively during the 20th Kerala Science Congress 2008 held at Thiruvananthapuram.

Invited Talk

Dr. R. Ajayakumar Varma delivered the key note address on 'Ground Water Scenario of Kerala with special reference to Pathanamthitta District' in the seminar on Ground Water Regulation Act 2002, organized by the State Groundwater Department, Pathanamthitta on January 10, 2008.

Retirements



Dr. S. Sampath
Head, ASD



Dr. V. Sasikumar
Scientist



Sri. G. Balakrishnan
Skilled Assistant



Sri. R. Sudhakaran
Helper



The Research Council of CESS in session during its biennial meeting at CESS during January 9-11, 2008. Sitting from left to right are Dr.M. Baba, Director, CESS, Dr. Prasanna Kumar, Head, Dept. of Geology, University of Kerala, Dr. Prithvish Nag, Director, NATMO, Dr. Shailesh Nayak, Director, INCOIS (Chairman), Prof. V. Sundar, Dept. of Ocean Engineering, IIT, Madras and Dr. P. V. Joseph, Visiting Scientist, CUSAT.

CESS Research Council meets

The eighth meeting of the Research Council of CESS was held during January 9-11, 2008. The Committee reviewed the progress of various R&D projects under Plan scheme and the externally funded / sponsored projects. The new and revised proposals were also examined. The Heads of Divisions and the scientists made detailed presentations on the progress of work. The members, being experts in different fields, made very valuable suggestions with respect to the projects. The Committee expressed satisfaction over the general progress. The RC made a special sitting with the scientists to discuss about future R&D programmes with special emphasis on studies related to climate change. The general consensus arrived at the meeting was to include the component of climate change in all relevant R&D programmes in the future. The three day meeting ended with a note of satisfaction over the activities of CESS during the period under review.

CESS is allotted Rs.1.76 crores by Ministry of Earth Sciences

CESS has been allotted Rs.1.76 crores by the Ministry of Earth Sciences, Government of India to undertake an R&D project to prepare a 'Shoreline Management Plan for Kerala Coast'. The project aims to assess vulnerability of different coastal locations to erosion and to develop shoreline development plans for these locations. The work of this four year project has already been initiated.

National Science Day

CESS observed the National Science Day 2008 with the focal theme 'Understanding Planet Earth' by organizing lectures, filmshow, laboratory visits. Post Graduate students invited from various colleges of Thiruvananthapuram participated. The talks were on 'Integrated



Students interacting with scientists at the Remote Sensing and aerial photo interpretation lab. of CESS on the National Science Day 2008.

Water Management', 'A Geo-environmental Journey through Kerala' and on 'Placer Minerals of Kerala'. 'A scar in the mountains' a documentary film made by CESS on landslides in the Western Ghats of Kerala was also shown. After the laboratory visits, Dr. M. Baba, Director, CESS addressed the students. Earlier, Sri. G. K. Suchindan, Head Training and Extension Division, introduced the focal theme to the gathering.

CM dedicates the Digital Resource Atlas..

the project proposed the vote of thanks. State level and district level planning officers participated in the half-day workshop held as part of the programme.. Dr. M. Baba, Director, CESS, Dr. M. Samsuddin, Scientist -in-Charge, Geomatics Laboratory, CESS, Sri. P. G. Diwakar, Head, RRSSC Bangalore and Sri. A. Nizamuddin, Asst. Director, Landuse Board made presentations on digital database generation and utilization. The session was chaired by Dr. V. S. Hegde, Deputy Director, EOS-ISRO, Bangalore.

National symposium on geodynamics and evolution of Indian shield through time and space

CESS will hold a National symposium during September 18-19, 2008 to commemorate the golden jubilee of the Geological Society of India. Abstracts of not more than 500 words are invited to reach the Convener Golden Jubilee Symposium, Centre for Earth Science Studies, Trivandrum 695 031 before July 20, 2008.

E-mail: goldjubilee@gmail.com

Ph: 0471-2511619 (O); 9447019416 (M); Fax: 0471-2442280.

For more details please visit the website: <http://www.cessind.org>

Exhibitions

CESS participated in exhibitions organised by Malabar Botanical Gardens, Kozhikode, the Kerala University Students Union, Thiruvananthapuram and the 20th Kerala Science Congress 2008 at Thiruvananthapuram respectively during January-March 2008 period.



The exhibition stall of CESS at the venue of the 20th Kerala Science Congress 2008 held at Thiruvananthapuram.