



MASTER PLAN DRAWN FOR GROUND WATER MANAGEMENT

The Central Ground Water Board had drawn up a master plan for ground water management, rainwater harvesting and artificial replenishment of ground water. Delivering the Prof. C. Karunakaran Endowment Lecture on “Groundwater in India and its projected demand by 2050” at Centre for Earth Science Studies on 1st August 2005 Dr. Salim Romani, Chairman, Central Ground Water Board said that the Rs. 24,500 crore plan would go a long way in stepping up the availability of water which is becoming scarce day by day.

Dr. Romani said that a continuous declining trend in groundwater levels was recorded in more than 370 districts across the country. He called for a people’s movement to create awareness



Dr. Saleem Romani, Chairman, Central Ground Water Board, New Delhi delivering the Sixth Prof. C. Karunakaran Endowment lecture 2005.

among the public on the need for judicious use of water.

The mismanagement of groundwater

resources becomes obvious during floods and the consequent waterlogging in the affected areas, he said. “The lack

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CESS CONDUCTS TRAINING COURSE ON GROUNDWATER MODELLING

A training course on “Numerical Simulation of Groundwater Flow and Mass Transport For Effective Management of Aquifers”, sponsored by the Department of Science and Technology, Govt. of India, under the program of ‘DST schools on mathematical modeling in earth sciences’ was organised by CESS from 1 - 20 August 2005. This training program was meant for groundwater professionals working in Central and State government departments, university teachers and research scholars carrying out groundwater studies.

The training included theory and field work, practicals on Visual Modflow software. Thirtyfive participants from CGWB, Groundwater departments of southern states, various universities, IIT



Dr. D.S. Suresh Babu, Convener, DST-Training program on Ground Water Modelling welcoming the participants at the concluding session in the presence of (L.R) Prof. A.K. Sinha, Head, Dept. of Geology, University of Rajasthan, Dr. M. Baba, Director, CESS, Dr. D.R. Ram, Director, ESS, DST, Dr. M. Thangarajan, Emeritus Scientist, NGRI and Co-convener of the course.

Chennai and Roorkee attended.

Dr. Saleem Romani, Chairman, Central Groundwater Board, Govt. of India

inaugurated the course on 1 August 2005. Dr. D.R. Ram, Director, ESS Division, DST, Govt. of India attended

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From the Director's Desk



With a vision to unravel the mysteries surrounding the earth and its processes for the sustainable development of natural resources, conservation of environment and management of natural hazards, the Centre for Earth Science Studies has formulated its mission for the short term and longterm. A glimpse of the CESS mission for the short term (5 years) are given here. Studies on crustal evolution, weathering and geochemistry of weathering in the context of river basin are proposed to understand the geosystems, landscape and changing trend in geoenvironment. In the area of natural hazards realizing their repetivity and impact it is proposed to prepare hazard zonation maps of Kerala to assist in evolving disaster management strategies. In connection with this detailed study of earthquakes, landslides, lightning and coastal hazards and optimizing mitigation measures are given top priority. On another front along with the various environmental studies CESS is proposing a detailed assessment of the state of environment of Kochi to suggest corrective measures in the background of the large scale developments taking place there. With the increased emphasis on the decentralized planning of resources at the microlevel and with the increased availability of IT tools, it is proposed to develop cadastral level decision support systems for Thiruvananthapuram District. Sophisticated Analytical Facility, Placer Mineral Testing laboratory and Cloud Physics Laboratory are some of the facilities being developed to provide adequate laboratory/analytical support.

Dr. M. BABA



Dr. Saleem Romani planting a Mabagani sapling in CESS campus . Dr. M. Baba, Director, CESS and Prof. K.S. Valdiya, Chairman, CESS Research Council are also seen.

*Continued from p. 1 **MASTER PLAN DRAWN***

of proper understanding of the local groundwater regime behaviour and demand-driven development without scientific planning aggravate the situation". For effective management, it is essential to have full knowledge of hydrogeological controls that govern the yield and behaviour of groundwater levels. There is also a need to create awareness among the different water user groups and work out area-specific plans for sustainable development, he said.

Mr. Romani said the 'flood plains' in the vicinity of rivers are good

repositories of groundwater. A planned management of groundwater in the flood plain aquifers offers excellent scope of its development to meet the additional requirements of water. The development of groundwater in Yamuna flood plain area in Delhi is an example of scientific management of water resources, he said.

Dr. A.E. Muthunayagam, Executive Vice President, Kerala State Council for Science, Technology and Environment presided over the

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Participants of DST-sponsored training course on Ground Water Modelling, with Dr. M. Baba, Director, CESS, Sri. Sudeep, Registrar, CESS and Dr. D.R. Ram, Director, ESS, DST, Govt. of India.

*Continued from p. 1 **CESS CONDUCTS TRAINING***

the Valedictory function on 20 August 2005. Eight working groups were formed among the participants and

each group had submitted separate project reports based on the training course.

Continued from p. 2 **MASTER PLAN**

function. Eminent scientist Dr. K.S. Valdiya Chairman, CESS Research Council paid rich tributes to Prof. C. Karunakaran. Dr. M. Baba, Director, Centre for Earth Science Studies welcomed the gathering and Dr. D.S. Suresh Babu proposed vote of thanks.



TAD MURTY IN CESS

Dr. T. S. Murty, the internationally acclaimed tsunami and storm surge expert, was in CESS from 15 December 2005 to 2 January 2006 in connection with the Coastal Hazards Project for which he is an Advisor.

STUDENT VISITORS

Fifty students and ten teachers of the Padanilam H.S.S., Nooranad visited CESS on 23 December 2005.

Twenty students and two teachers of B.Tech Mineral Engineering (3rd and 4th year), Indian School of Mines, Dhanbad visited CESS on 19 December 2005.

Twenty six students and two teachers of final year Geology, Christ College, Irinjalakuda visited CESS on 25 November 2005.

PUBLICATIONS

Baba, M. (2005) Occurrence of 'Swell Waves' along the Southwest Coast of India from Southern Indian Ocean Storm, Journal of Geological Society of India, Vol. 66, pp.248-249.

Kurian, N.P., Rajith, K., Murali Krishnan, B.T., Kalairasan, P. and Abhilash P. Pillai. (2005) December 2004 Tsunami: Runup Level and Impact along the Kerala Coast. In: Tsunami: The India Context., edited by S.M.Rasmaswami and C.J. Kumanan., pp.121-127.

Spatial and non-spatial database for health surveillance in the Vengannur Grama Panchayat

CESS is carrying out a collaborative programme with the Achutha Menon Centre for Health Science Studies of Sree Chithra Thirunal Institute of



CESS Scientists and faculty AMCHSS having discussion with the volunteers of the Health information mapping at Vengannur PHC.

Medical Science and Technology to understand the spatial components relevant for health surveillance and management in order to provide better health services to the people of Vengannur Panchayat under the Athiyannur Sree Chitra Action Programme (ASA) of SCTIMST.

Prime objective of the programme is to develop a comprehensive, dynamic and integrated spatially-linked Health Information System for planning and integration of services within a sustainable framework and to realize the aims of primary health care by improving the coverage & quality of health services. When implemented, it has great potential in epidemiological research, communicable disease control, health service planning and optimization.

As part of this programme, a week-long training has been imparted to health volunteers in spatial/non-spatial data collection and plotting of the spatial features and attribute data. A comprehensive Health Information System is being developed for surveillance, monitoring and for providing better health services to the people.

Prakash, T.N., Kurian, N.P., Rajith, K., Abilash P. Pillai, Murali Krishnan, B.T., Kalairasan, P. and Tiju Varghese. (2005) December 2004 Tsunami: Some results of field surveys along the Kerala Coast, Proc. National Workshop on Tsunami Effects and Mitigation Measures, 26 December 2005, Allied Publishers, pp.307-320.

Nair, A.S.K., (2005) 'Landforms and Landuse Systems vs Land Resource Management', Proc.National Workshop on Soil Resource Management, organised by Soil Survey Dept., Thiruvananthapuram, pp. 152-160.

Nair, A.S.K., (2005) 'Water Conservation and Organic Farming', Proc.National Conference on Promotion of Organic Mission, organised by CAPART & Mitranektan, Thiruvananthapuram, pp. 13-17.

Ajaykumar Varma, R., (2005)

"Reservoir Sedimentation in Kerala – need for accelerated catchment area conservation". Proc. National Workshop on Soil Resource Management, Soil Survey Organization, Trivandrum. pp.90-112.

Ajaykumar Varma, R., (2005) "Environment and Natural Resource Management". Proc. Workshop on Forging Strategic Linkages between Local Self Governments, Institutions and R&D institutions, organised by State Planning Board.

Nair, K.N. and Chattopadhyay, S. (2005) Water Resources of Kerala: Issues and Case Studies, KRPLLD, CDS, Trivandrum, 125p.

Chattopadhyay, S, Asa Rani and Sangeetha P Viswan. (2005) Water quality variations as linked to landuse pattern: A case study in Chalakudy river basin, Kerala. Current Science, Vol. 89,

National Brainstorming Workshop on Quantitative Geomorphology

CESS organized a DST, sponsored national brain storming workshop on Quantitative Geomorphology during 28-30 December, 2005. Objectives of this workshop were: (i) to assess the present status of quantitative geomorphological studies in India, (ii) to discuss the scope of revisiting traditional tools and use of modern tools like RS-GIS, GPR, GPS, and Fractal, (iii) to work out future research programme, (iv) to plan for human resource development (training, infrastructural requirement, target group and mode of operation), and (v) to work out a syllabus for the post graduate students. Participants were from various



Prof. S.K. Tandon, Chairman, PAC, ESS, DST addressing the participants of the Workshop

universities and research institutes from different parts of the country.

Some of the programmes emerged through discussion were (i) application of fractal in analysis of river morphology and coast line in Kerala, (ii) evolution of west coast and associated drainage development, (iii) integrated study of rivers- large and small, (iv) geochemical weathering and landscape development and (v) study of glacial geomorphology.

Dr. M Baba, Director, CESS inaugurated the workshop. Prof. S K Tandon, Chairman PAC, ESS and Dr. M Pritviraj, Director, ESS, DST guided the deliberations.

(Convenors: S. Chattopadhyay and Mahamaya Chattopadhyay)

No. 12, pp. 2163-2168.

Chattopadhyay, S. (2004): Landforms in Kerala: An overview. In Centre for Earth Science Studies Silver Jubilee Compendium: Earth System Science and Natural Resources Management. Eds. G R Ravindra Kumar and N Subhash, pp. 211-228.

Chatopadhyay, S., Sasidharan, C.K. and John Mathai. (2004) Panchayat resource mapping: An experiment from Kerala. In Centre for Earth Science Studies Silver Jubilee Compendium: Earth System Science and Natural Resources Management. Eds. G R Ravindra Kumar and N Subhash, pp 401-416.

Shravankumar, V., Sukumar, B. and Ahalya Sukumar. (2004) Identification areas that need water conservation based upon co-efficient of variability of rainfall in Kerala through GIS technique, The Indian Cartographer, Vol.24 , pp.126-131.

Vinod, R.V., Sukumar, B., Ahalya Sukumar, Shravankumar, V. and Devavrathan, S. (2004) Identification and delineation of wasteland for water conservation in Mogral Watershed, Kasaragod District, Kerala, The Indian Cartographer, Vol.24, pp.142-150.

Sukumar, B., Ahalya Sukumar. and Shravankumar, V. (2005) Agricultural Regions of Kerala: A factor Analysis approach, The Indian Geographical Journal 78 (2), pp.121-130.

INVITED TALKS

Dr. N.P. Kurian delivered an invited talk “Coastal erosion and its management with particular reference to Kerala Coast” in the National Seminar on Disaster Management organised by the Swadeshi Science Movement on 19 November 2005.

Dr. Srikumar Chattopadhyay delivered key note address on “Urbanisation and Sustainable Development” during Indian Geography Congress organized by the Department of Geography, Bangalore University, 2 - 4 December 2005.

Dr. A.S.K. Nair delivered an invited lecture on the “Development issues of Thiruvananthapuram District” at the Thiruvananthapuram Press Club Hall organized by the Bhodeswaran Foundation on 10 September 2005.

Dr. M. Baba delivered an invited talk on “Coastal Zone Management in Kerala” and moderated the Technical Session during the Interactive Session on “Coastal Zone Management –

International Experience” organized by the Vizhinjam International Seaport Ltd. at Thiruvananthapuram on 30 September 2005.

Dr. M. Baba chaired a session and presented the theme paper in the one-day workshop on ‘Assessment of Ecological / Environmental Sensitivity of Hill Stations in Kerala’ held in KFRI, Peechi on 10 October 2005.

Dr. M. Baba gave an invited talk on “Coastal disasters and management” in the Indian Fisheries Forum at Bangalore on 10 November 2005.

Dr. M. Baba delivered a lecture on “Disaster Mitigation and Management” in ‘Aryabhateeya-2005 - National Seminar on Disaster Management’ organized by Swadeshi Science Movement at Thiruvananthapuram on 19 November 2005.

Dr. M. Baba delivered a special lecture on “Coastal Zone Management – New Policy Initiatives” in the National Seminar on “Coastal Resources & their Sustainable Management: Issues & Strategies” organized by the Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, West Bengal on 24 November 2005.

Dr. M. Baba Chaired the Session on “Natural Disaster Management” and gave a talk on “Disaster mitigation and management” in the International Conference on Kerala Studies organized by AKG Centre for Research & Studies, Thiruvananthapuram on 10 December 2005.

Dr. M. Baba Chaired the Brain Storming Session on “Natural disaster vis-a-vis stability of coastal ecosystems” and gave a lead talk on “Coastal Hazards and Management” in the 8th National Seminar on Strategies for improved farming and ecological security of coastal region organized by the Indian Society of Coastal Agricultural Research held at CTCRI, Thiruvananthapuram on 23 December 2005.

Dr. M. Baba was the Chief Guest and gave a talk in the Valedictory function of the CSIR Programme for Youth Leadership in Science Programme in RRL, Thiruvananthapuram on 28 December 2005.

CESS EARTH SCIENCE FORUM LECTURES

Prof. V.S. Chandrasekharan, Member, CESS Research Council delivered lecture on “Geotechnical Centrifuge Modelling” on 29 July 2005.

Dr. T.S. Murthy, Department of Civil Engineering, Ottawa University, Canada delivered lecture on “A Scientific post-mortem of the December 2004 Tsunami in the Indian Ocean” on 20 December 2005.

Prof. A.D. Rao, Centre for Atmospheric Sciences, IIT Delhi delivered lecture on “Modelling studies on coastal ocean processes along the east and west coasts of India” on 31 December 2005.

TRAINING PROGRAMMES FOR SCHOOL TEACHERS

Based on a request from District Social

CESS SIGNS MOU FOR ESTABLISHING PRINCE

Dr. M. Baba, Director, CESS and the President, Tirurangadi Block panchayat signed a MOU on 8th August 2005 for establishing a Panchayat Resource Information Centre (PRINCE) at the Tirurangadi Block Panchayat office. Dr. M. Samsuddin, Scientist-in-charge, GML and Dr. K.K. Ramachandran, Scientist, GML also participated. This project has evolved from two projects CESS has carried out viz. (1) High Resolution Remote Sensing for Cadastral Mapping in Tirurangadi block (2) Model master plan for integrated and sustainable development of Tirurangadi block.



Dr. M. Baba, Director, CESS and Smt. U. Raziya, President, Tirurangadi Block panchayat signing a MOU for establishing a Resource information centre at Tirurangadi, Malappuram District.

Science Council, a one-day training programme was organized on 6 September 2005 for 50 teachers of Social studies from Mavelikara Educational District on the topics of Aerial photography, Remote sensing and Geographical Information System.

EMS LEAD AUDITOR

Dr. R. Ajaykumar Varma passed the “EMS Lead Auditor Course” conducted by the National Quality Assurance Ltd, London certificated by the IRCA, Registration Governing Board, England.

CONFERENCE/SEMINAR/ WORKSHOP

The following scientists from CESS presented papers in the ISRS Annual Convention and Symposium held at Mesra, Ranchi during 6 - 9 December 2005,

- Samsuddin, M & Ramachandran, K.K., “Coastal Landforms along the Northern Kerala and its implications on Holocene Sea Level Changes”
- Ramachandran K.K, Sanoj, P, John Mathai, Kannan, M.R, & Rajesh, K., “Dwindling paddy cultivation in

Nannambra Grama Panchayat of Malappuram District”

Dr. Srikumar Chattopadhyay attended the East West Centre Association and Fulbrighter’s South Asia Regional Conference at New Delhi during 15-18 November 2005 and presented a paper “Environmental Change in Kerala and scope of Local Self Government”.

Dr. N.P. Kurian attended the National Workshop on Oceanographic features of the Indian Coastal waters organised by NPOL during 6 - 7 October 2005 and presented a paper “Currents in the innershelf of Chavara, SW coast of India”.

Dr. T.N. Prakash presented a paper “December 2004 Tsunami: Some results of field surveys along the Kerala Coast” at the National Workshop on Tsunami effects and Mitigation measures organised by the Dept. of Ocean Engineering, IIT Madras on 26 December 2005.

Dr. N.P. Kurian co-chaired the Brain Storming Session on Natural disasters vis-à-vis stability of coastal ecosystem in the National Seminar on Strategies for Improved farming and Ecological securities of Coastal Region and

presented an invited talk “Run-up and geomorphological impacts of December 2004 tsunami on the Kerala Coast” on 23 December in CTCRI, Trivandrum.

Dr. A.S.K. Nair was the session convener on ‘Natural Disaster Management’ and presented a paper on “Issues in Disaster Management Bill-2005” in the International Conference on Kerala studies, Organized by AKG Research Centre held at Thiruvananthapuram on 10 December 2005.

Dr. A.S.K. Nair chaired the Technical session on “Environmental Engineering” in the National Conference on Technological Trends organized by the Government College of Engineering at Thiruvananthapuram on 26 November 2005.

Dr. A.S.K. Nair delivered an invited lecture on “Water Conservation and Organic Farming” in the National Conference on Promotion of Organic Farming organized jointly by CAPART and Mitraniketan, held at Mitraniketan on 21 December 2005.

Dr. A.S.K. Nair delivered an invited lecture on “Landform and Landuse Vs Land Resource Management” in the National Workshop on Soil Resource Management, organized by Agriculture Department, Government of Kerala, held at Thiruvananthapuram on 22 December 2005. Also participated as a panelist in the panel discussion held on 23 December 2005.

The following scientists presented papers in the Twentyfifth Indian National Cartographic Association Congress held at Sagar, Madhya Pradesh from 28th November to 1st December 2005,

- Mrs. Ahalya Sukumar: “Spatial Distribution of Sex Ratio and Occupational Structure of Female Population of Kerala”.
- Mr. B. Sukumar: “Delineation of drought prone areas in Palakkad

River Management workshop for Revenue officials

Experts called upon the District collectors, tahasildars, other officials from Revenue, Irrigation and Mining & Geology Department, who were attending the one day workshop held by CESS on 21 July 2005 in CESS to evolve methods for a comprehensive restoration and management program to reverse the impact of sandmining and pollution of the rivers in the state. The workshop called for an action plan for each river integrating the protection of river banks and beds, sand mining regulation, afforestation and utilization of the water resources. Experts

suggested that the District River Management Committees are the appropriate agencies to coordinate the preparation and implementation of the plan. Voluntary agencies, local bodies and general public shall be partners in this process. General guidelines for the preparation of the master plan were provided. The workshop held at the behest of the Revenue Department was inaugurated by Mr. John Mathai, Principal Secretary, Revenue Dept. and addressed by Mr. K.J. Alfons, Land Revenue Commissioner.

district, Kerala using Satellite Imagery”.

Mr. B. Sukumar attended 18th Indian Institute of Geomorphologists Conference on 26 - 28 December 2005 at Manonmaniam Sundaranar University, Tirunelveli and presented a paper “Paleogeomorphic Studies of Tambraparni River mouth using Satellite imagery and GIS”.

GUEST LECTURES

Dr. A.S.K. Nair delivered the following lectures:

- “Wetlands of Kerala: Resource Conservation through People’s Participation” to the participants of the Training Programme on “Wetlands”, organized by the Dept. of Geology, University of Kerala, on 6 October.
- “Coastal Zone Management and Role of Pachayathi Raj Institutions” to the training program for elected representatives and secretaries of Pachayathi Raj Institutions organized by Extension Training Centre, Kottarakara on 7 December.
- “Satellite Remote Sensing for Resource Inventory” in the UGC-Academic Staff College of the University of Kerala at Kariyavattom on 25 July.

- “Resource Mapping – Techniques and Tools” to the participants of induction program of IMG, Thiruvananthapuram for Agricultural Officers on 20 October.
- “Wetlands- Geology and Applications” to the Post Graduate Students of Dept. of Geology, Government College, Kottayam.

Dr. R. Ajaykumar Varma delivered the following lectures:

- ‘EIA’ in the two-day Regional Seminar on ‘Environmental Conservation’ organised by CPR Environmental Education Centre, Chennai on 23 June at NSS College, Pandalam.
- ‘Industrial & Municipal Waste Management’ in the Refresher Course on Environment organized by the Kerala University on 19 July.
- “Characteristics of Island Aquifers” in the Groundwater Training programme of DST at CESS on 10 August.
- “Environmental issues of Keala” in ‘Spectrum 2005’ organised by SN College, Trivandrum on 15 November.

NOMINATIONS

Dr. M. Baba has been nominated as a member in the following committees:

- ‘Steering Committee for projects on

Snow / Glacier Studies and Coastal / Mangroves / Coral Reef Studies' (being coordinated by SAC, Ahmedabad), constituted by the Ministry of Environment & Forests, Government of India.

- 'Reconstituted Kerala and Lakshadweep Coastal Zone Management Authorities, constituted by the Ministry of Environment & Forests, Government of India.
- 'State Tourism Conservation and Preservation Committee, for the Conservation, Preservation and Integrated Planned Development of the Special Tourism Zones', constituted by the Tourism Department, Government of Kerala.
- 'Reconstituted Governing Council of the Attappady Hills Area Development Society', constituted by the Government of Kerala.
- Task Force for the implementation of the Management Action Plan for Ashtamudi and Shasthamkotta wetlands by STED, Government of Kerala.
- Editorial Committee to bring out a Tsunami Volume by Department of Science & Technology, Government of India.

Dr. R. Ajaykumar Varma is nominated as a member in following Committees.

- State Level Committee of Experts on Management of Chemical Accidents.
- Project Management Committee on Environment and Earth System Sciences by KSCSTE.
- Evaluation Committee for Kovalam Waste Management Project constituted by the Department of Tourism.
- Board of Studies in Environmental Science of the Kerala University.

CESS conducts workshop to discuss the scientific aspects of the development of Kochi



Panel discussion in progress

CESS organised a two day brainstorming workshop sponsored by KSCSTE at Kochi during 19-20 September 2005 to discuss the recommendations of the Carrying Capacity Study of Greater Kochi Region carried out by CESS, CWRDM, KFRI, KSSP, KSPCB and CUSAT under the coordination of NEERI to examine how the suggestions from the study can be used for preparing appropriate intervention plans for the Kochi region. Stakeholders including

the workshop. Shri Babu Jacob IAS, Advisor to Govt. of Kerala (Urban Development) delivered the key note address. The salient features of the study was presented by Dr.C.V.Chalapathi Rao, Dy.Director, NEERI. The workshop brought out various recommendations in areas of Water supply, Drainage& Sanitation, Transportation & Communication, Fisheries & Biodiversity, Housing & Building Materials, Industrial Pollution Control, Nature, Culture & Tourism,



A view of participants

planners, administrators, decision makers and resource persons who were associated with Carrying Capacity Study participated.

Dr.A.E.Muthunayagam, Executive Vice President, KSCSTE presided over the function and Dr.P.K.Abdul Aziz, Vice Chancellor, CUSAT inaugurated

Agriculture & irrigation and Drainage & Sanitation. The KSCSTE will integrate the scientific inputs required for these projects either from its R&D Centres or by outsourcing to appropriate agencies.

(Conveners: Dr. R. Ajaykumar Varma and Dr. C.N. Mohanan)

- Committee constituted by Emakulam District Administration to study and report the Environmental consequences of blast in Poabs quarry at Ayyampuzha, Angamali.

Dr. A.S.K. Nair was nominated as a member to the Thiruvananthapuram District Level Coordination Committee of Western Ghat Development Programme.

OTHERS

A talk on 'Landslides – instant graveyards' of Dr. A.S.K. Nair was broadcasted on 30 October 2005 in Harithavani, program of All India Radio, Thiruvananthapuram.

Sri. B.K. Jayaprasad was involved in framing syllabus for a module on "Spatial database and geographic information system" for the Master of Public Health degree in Achutha Menon Centre for Health Science Studies, Sree Chithira Tirunal Institute for Medical Sciences and Technology, Trivandrum.

Mr. B. Sukumar, Scientist, Centre for Earth Science Studies, Thiruvananthapuram received a citation from Centre for Land Use Management for his contributions in the field of applications of Remote Sensing and GIS in resource management and extending its use at Regional level at National Conference on Space Science & Technology for Geographical Research and Applications (SSTGRA) held on 16 - 18 September, 2005 at Hyderabad.

FINAL REPORTS SUBMITTED

Ajaykumar Varma et al. "Rapid Environmental Impact Assessment Study of the proposed Breakwater (Stage-III) at Andrott Island, Union Territory of Lakshadweep", CESS-PR-15-2005.

Ajaykumar Varma et al. "Rapid Environmental Impact Assessment of Mill Development Plan (MDP)", CESS-PR-09-2005.

Mahamaya Chattopadhyay et al "Stream characteristics and water quality parameters of a forested watershed in upper Kall Ar. Region, Trivandrum",

CESS-PR-17-2005.

D. Padmalal, et al. "River Sandmining and management":

- Kollam district, CESS-PR-19-2005.
- Trivandrum district, CESS-PR-21-2005.
- Alappuzha district, CESS-PR-22-2005.
- Kasargod district, CESS-PR-23-2005.

Singh, H.N. et al. "GIS based Seismic Hazard Microzonation of Kochi city using ground shaking site effects data", submitted to KSCSTE, CESS-PR-18-2005.

John Mathai et al. "Assessment of Groundwater potential and Hydrogeological studies for selection of sources, parappanangadi panchayat, Malappuram", submitted to Jananidhi, CESS-PR-20-2005.

K.V. Thomas et al.

- "Demarcation of High Tide line and Low Tide Line for terminal locations for passenger water transport along West Coast of Mumbai", CESS-CRZ-02-2005.
- "Delineation of HTL, LTL and CRZ boundaries for a development site bearing CTS No. A/755 in village Bandra, Mumbai, Maharashtra",

CESS-CRZ-03-2005.

- "Coastal Regulation Zone status report for the proposed construction of administrative and accomodation complex at Vizhinjam", CESS-CRZ-04-2005.
- "CRZ Report for the proposed mining sites along the Kayamkulam-Thottappally coast for KREML, Aluva", CESS-CRZ-05-2005.
- "Demarcation of High Tide Line and Coastal Regulation Zone for 'Vallarpadam-Kalamassery New Cochin Port connectivity road", CESS-CRZ-06-2005.
- "High Tide Line and Coastal Regulation Zone for the proposed fishery harbour at Kasaragod", CESS-CRZ-07-2005.
- "Demarcation of HTL, LTL and CRZ Vengurla Muncipal Council, Sindhudurg, Maharashtra", CESS-CRZ-08-2005.
- "Delineation of HTL, LTL and CRZ Boundaries for Salt Project at Khochiwada, Vasai, Maharashtra", CESS-CRZ-09-2005.

ONAM CELEBRATIONS



One of the Pookalams



A scene from a skit presented on the occasion

In connection with the Onam celebrations a Pookalam competition was organised by the CESS Recreation Club on 6 September 2005. Variety emtertainments by the staff members were an added attraction

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