

Report on Signing of Memorandum of Understanding Between
Ministry of Environment and Forests, Government of India &
Anna University Chennai
for the establishment of the
National Centre for Sustainable Coastal Management
on 21 June 2010 at Anna University Chennai

A Memorandum of Understanding was signed between the Ministry of Environment and Forests, Government of India and Anna University Chennai to establish a National Centre for Sustainable Coastal Management on Monday, 21st June 2010.

Welcoming the gathering, [Prof. M. Sekar](#), Dean, College of Engineering, Guindy, mentioned that Anna University Chennai had many firsts to its credit such as the University FM Channel and the Centre for Climate Change Adaptation. Prof. Sekar mentioned that the establishment of NCSCM at Anna University assumes national and international importance is of great relevance to the society.

Shri [J.M.Mauskar](#), Additional Secretary, Ministry of Environment and Forests, said that the establishment of the NCSCM is a culmination of work done over the last five years beginning with the first report on the CRZ, presented by Prof. M.S. Swaminathan in 2005. A message from [Shri Jairam Ramesh](#), Hon'ble Minister of State (I/C) was read out by Shri. Mauskar as the Hon'ble Minister was unable to grace the occasion due to his involvement in several meetings of the GoM related to the Bhopal Gas Leak Disaster. The message from the Hon'ble Minister for Environment and Forests is appended to this report as Annexure I.

The Vice Chancellor of Anna University Chennai, [Prof. Mannar Jawahar](#) said that the occasion was to formalize the letter of intent and agree to sign a Memorandum of Understanding between the two institutions. The creation of a National Centre dedicated to coastal issues and livelihood, was an unique venture and the result of the Hon'ble Minister's emphasis and passion for the protection of the coast and its livelihoods. Pointing to the lack of human capacity, especially in coastal areas, he said that Anna University was one of the first to have realized the importance of coastal management with a full time Masters Programme (MTech) in Coastal Management, contributing steadily to enhanced capacity for management of coastal areas.

The Memorandum of Understanding was signed by Prof Mannar Jawahar, Vice Chancellor, Anna University Chennai and Shri J.M. Mauskar, IAS, Additional Secretary, Ministry of Environment and Forests in the presence of Prof. K. Kasturirangan and Prof M.S. Swaminathan and the others on the dais.

[Prof. M.S. Swaminathan](#), Member of Parliament, Rajya Sabha and Chariman, MSSRF, in a Special Address mentioned that five years ago, a number of measures including strengthening of Research and Development and training capacity for coastal management were suggested. One of the major recommendations was towards establishing a Centre for Sustainable Coastal Zone Management. Earlier, only economic sustainability was given emphasis and much later, environmental sustainability was accorded importance. Prime Minister Smt. Indira Gandhi emphasized social sustainability. This centre would deal with all aspects of sustainability and would have to proactively tackle coastal issues especially related to the social issues. Prof. Swaminathan mentioned that with the increase in coastal population, seawater should be seen as a resource, with a strong focus on agri-aqua farming. Ecology and Economics were the two sides of a coin and hence, it is important to consider both simultaneously.

[Prof. K. Kasturirangan](#), Member, Planning Commission, Government of India, regarded commencement of the National Centre for Sustainable Coastal Management as a historic occasion for both Anna University and the MoEF. He said that the NCSCM is created to address larger issues of environment and ecology focusing on coastal areas. and appreciated the initiative by the Anna University Chennai in jointly establishing the Centre with the Ministry. He commended the boldness of the university in going beyond its borders bringing together a number of institutions.

[Prof. Kasturirangan](#) praised the dynamism of the Hon'ble Minister for Environment and Forests and for being a driving force in initiating such nationally important programmes. He mentioned that the NCSCM must lead in scientific innovations by bringing in the best in the field to execute the various projects that has been envisioned by the Centre. He mentioned that similar to the geosynchronous mission planned by ISRO to study the forest fires in the country, a satellite dedicated to the research on coastal zone management would be extremely beneficial. Prof. Kasturirangan recalled a collaboration between Anna University and ISRO in building a satellite about a decade ago, which showed the capacity of the university to synergize and work together with many departments. He referred to Prof. M.S. Swaminathan's statement about the dynamic nature of the coastal zone and felt that a detailed mapping strategy should be planned to

provide precise information. Prof. Kasturirangan was optimistic that the centre would address issues at the grassroots level and geospatial sciences would play a major role in achieving this integration.

Delivering a Keynote Address on the occasion, [Prof Venugopalan Ittekkot](#), Director, Leibniz Institute for Marine Tropical Ecology, Bremen, Germany, traced the development of oceanography in India. He referred to three ingredients that enabled NIO's success: challenging research topic, visionary leadership and political support. He mentioned that nearly 50 years after the establishment of the NIO, the creation of a national centre exclusively for coastal zone management is a unique effort with a larger ambition. He appreciated the enormous support of the Hon'ble Minister, renowned scientists Prof. Swaminathan, Prof. Kasturirangan, the MoEF, Anna University and all the institutions, which are part of this initiative. It is important that the scientific community support each other towards achieving a common goal, as the task was by no means easy. But with the enormous expertise available in the country, this centre could emerge as a world class institution.

Internationally, there appeared to be more information about failures in tackling environmental issues and these should be taken as a warning. One should be alert to challenges and the hazards of using new technologies. He called for involving young men and women in issues of great importance and said that self driven capacity building was possible. He felt that it was essential to develop new strategies for communication with coastal communities and not by merely translating pamphlets from English to the vernacular. He concluded by saying that he came from an institute that works on long term issues in the coastal and marine sector and look forward to building partnerships with the new centre.

[Prof R. Ramesh](#), Director, Institute for Ocean Management, Anna University Chennai, read out the "[Anna University Declaration](#)" (Annexure II of this report). After this, a representative from each of the eleven institutions forming the initial consortium signed the declaration in the presence of Prof. Mannar Jawahar, Prof. M.S. Swaminathan and Prof. K. Kasturirangan.

The inaugural session ended with a vote of thanks proposed by Prof R. Ramesh.

A newly created website of the NCSCM was launched by Prof. K. Kasturirangan, at the Dana Bergh Hall followed by a tree-planting ceremony outside the venue.

Technical Session I

In the first part of the technical session, Prof Ramesh presented the vision, mission, objectives, functions and structure of the NCSCM. He explained that the background to the exercise were the two reports of the Committees chaired by Prof M.S. Swaminathan on the CRZ Notification. The report "Final Frontier" specifically emphasized the need for an Institution for Coastal Research as there was no single institution with an integrated approach to address the various coastal issues and concerns.

Prof. Ramesh mentioned that a detailed skill and capacity gap analysis of institutions/ organizations/ agencies/ Universities were made to understand the expertise available in the country with regard to coastal studies and research. Additionally, a detailed questionnaire was hosted on the website to receive feedback on NCSCM's aim, objectives, vision and mission statements. Response from several experts and general public was received, based on which the vision, mission, and functions of NCSCM was modified and finalized.

The presentation was open for discussion and the salient points are as follows:

1. Shri. Mauskar, Additional Secretary MoEF, informed the Members of the Consortium that the institutions that have signed the declaration is a preliminary list of a larger consortium and based on need of the Centre's projects, more institutions would be drawn into the consortium.
2. Commenting on the aspect of coastal erosion/ accretion, Shri. Mauskar mentioned that an institution working exclusively on this aspect must be identified to strengthen the Consortium
3. Shri. Mauskar emphasized that the data obtained from major national projects such as COMAPS, have to be implemented for action on ground. There is also a need to involve the State/ UT Pollution Control Boards and the State/ UT Coastal Management Authority into the Consortium. The modalities however, have to be suitably worked out.
4. He stressed the importance of orienting scientific research towards developing a public policy through outreach programmes
5. The present vision statement of the NCSCM is "people-centric" and there is a need to include basic and applied scientific research, although this emphasis is clear in the objectives of the various divisions of the NCSCM.
6. Shri. Mauskar advised that the present version of the vision, mission, objectives and the divisions of the centre be uploaded in the NCSCM's newly created website

- (<http://www.ncscm.org>) to invite comments from experts and general public with a deadline for submission of the feedback - preferably a month from the date of hosting it online
7. Shri. Mauskar mentioned that in the vision statement, prominence must be given to "Science and Technology" and strongly recommended to include "conducting original scientific research" as the first major objective of the NCSCM
 8. As envisioned by the Hon'ble Minister, emphasis of the NCSCM must be on the concept of 'hub and spoke' model and institution networking
 9. Prof Abbasi (Pondicherry University) said that the term "research output" may be replaced by "extension management"
 10. Explicit linkages between the different divisions of the NCSCM must be provided
 11. Shri. Mauskar mentioned that it is important to have deliverables in the form of "targets and timelines" for each project undertaken by the members of the consortium
 12. Prof. Sanjay Deshmukh – suggested that it would be ideal to have flexibility (minor modifications), without deviating from the proposed objectives
 13. Prof. Venu Ittekkot suggested that the members of the consortium need to create a network of institutions within the respective State/ UT, in order to propose projects at a state level rather than at a particular institution or individual level. This would reflect a wider input from other scientists, community based organizations and policy governing institutions
 14. Mr. Tapas Paul indicated that the process of receiving feedback from the national and international experts and general public was a major exercise that was undertaken while preparing the project document for the establishment of the NCSCM.
 15. Shri. Mauskar however felt that the process needed to be repeated in order to strengthen the present mandate of the NCSCM
 16. Prof. Ramesh indicated that the website of the MoEF could be linked to the NCSCM for wider publicity and feedback
 17. Shri. Mauskar mentioned that it is important to utilize the expertise of the members of the consortium at a larger level than is currently planned. He said that each of the expert members need to specify their field of research specialization so that the work undertaken by them could be used for the country's entire coast rather than focusing narrowly at the local or state level.
 18. Dr. K.V. Thomas pointed out that a large number of original research is currently ongoing in the country and it is important not to duplicate efforts
 19. Dr. Selvam emphasized the need for stronger linkages between research institutions, government and non-governmental organizations to enable effective inter-sectoral planning and information sharing

Afternoon Session

It was generally agreed by the Members of the Consortium that the NCSCM must be an institution to provide scientifically-informed input for the better management of the coast and their associated ecosystems. NCSCM's mandate to provide highest quality scientific research to underpin sustainable coastal management and that applied research will be the major thrust was appreciated. The consortium of the NCSCM will facilitate and promote multi-disciplinary research into all aspects of coastal science by bringing together natural and social scientists from academic institutions, governmental and non-governmental research institutions. This will help improve coastal management by aiding in decision-making within governmental and non-governmental institutions and other related organisations in India.

Presentation by Members of the Consortium

The afternoon session continued with the presentations by all the 11 members of the Consortium on the major coastal issues of the concerned States/ Union Territories, their research priorities and the proposed nature of collaboration with the NCSCM. Prof. Abbasi, Pondicherry University emphasized the need to create public awareness and research that focuses on coastal pollution. He informed that the *Centre for Pollution Control & Energy Technology, Pondicherry University*, would like to involve with the NCSCM in the following research areas:

1. Providing energy security based on renewable systems
2. Pollution impacts and coastal health monitoring
3. Coastal livelihood and demography
4. Traditional knowledge
5. Coastal community, health culture and heritage
6. Coastal ecosystem economics
7. Coastal environmental impact assessment
8. Social impact assessment including gender issues

Prof. Parthasarathy, *Department of Ecology & Environmental Science, Pondicherry University*, mentioned that possible areas of research collaboration between the department and NCSCM particularly on strengthening research - based on current coastal issues include:

1. Integrated coastal watershed management
2. Sustainable management of coastal solid wastes
3. Ecological land/water use planning for sustainable tourism/ industrial ecological approaches towards ICZM
4. Co-management for coastal biodiversity conservation and sustainable livelihoods

Dr. Maitree Bhattacharya from the *University of Calcutta* in her presentation outlined the critical coastal issues specific to the State of West Bengal. In particular her presentation focused on the protection and conservation of the Sunderban mangrove, the sea level issues of Sagar Island and the coastal livelihood of the villages around the Sunderban Forest Reserve.

Prof. Ittekkot mentioned that it is important to address cross-country collaboration with Bangladesh, since pollution, the socio-scientific and sea level rise issues in the Sunderban mangrove region is common to both India and Bangladesh.

In response to this comment, **Dr. Senthil Vel**, mentioned that such issues are dealt with under the South Asian Association for Regional Cooperation (SAARC) by the SAARC Regional Coastal Zone Management Centre, Malé, Maldives. With the exception of Bhutan and Nepal, maritime countries such as Bangladesh, Maldives, Pakistan, India and Sri Lanka, are involved in the management of coastal resources for their sustainable use and coastal management is a critically important issue for the SAARC region. India is leading this initiative by providing financial support and technical expertise.

While explaining the critical areas of coastal concern in Tamil Nadu, **Dr. V. Selvam** from the MS Swaminathan Research Foundation, Chennai, mentioned that most of the problems along the coast of India are common, barring a few key issue-specific concerns. He mentioned however, it was important that the NCSCM venture into newer research areas such as:

- Newer crop varieties for saline waters
- Integrated seawater farming system
- Knowledge management system
- Social aspects of community based management
- Institutional mechanisms and
- Improving traditional knowledge through scientific inputs

As an addition to the above suggestions, it was mentioned that the Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar, has been undertaking significant research to generate the knowledge and innovation required for utilization of our coastal wastelands, sea water, marine algae and biotechnology. In addition, institutions such as the Tamil Nadu Agricultural University (TNAU) have concentrated on research to evolve crop varieties and technologies best suited for salt affected soils.

Prof. Rajendra Prasad from the Centre for Studies on the Bay of Bengal, *Andhra University* highlighted the centre's research on the critically eroding Kakinada – Uppada

coast. In his presentation, emphasis was made on the need for creating a “Spatial Data Repository” to encompass the existing data and a Standard Data Model with a standard format to create a National Data Repository.

One of the important suggestions made by members of the consortium was for NCSCM to create a coastal database repository and more importantly to maintain uniformity in units of data. It was also emphasized that the data be adopted from refereed journals providing proper citation.

The role of Environmental Economics in integrated coastal zone management was highlighted by **Prof. Kavikumar** of the *Madras School of Economics*. He mentioned that the MSE could collaborate with the NCSCM with regard to research on:

- User charges in fishing
- Vulnerability and adaptive capacity using the indicator governance framework and
- Application and dissemination of adaptive strategies

Prof. P.K. Mohanty from *Berhampur University* highlighted the need for stronger disaster management research at the NCSCM. He mentioned that the coast of Orissa is frequently ravaged by cyclonic storms and associated flood causing colossal loss of life and property almost every year. Additionally, significant beach erosion along Gopalpur, Konark, Puri, Paradeep, Pentha and Satbhaya- threat to life and livelihood of the coastal inhabitants. Several other coastal issues such as turtle nesting areas, changing dynamics of the Chilika lake bar mouth and issues relating to coastal livelihood were highlighted. Dr. Mohanty mentioned that his centre could collaborate effectively in the following ways with the NCSCM:

- Climatology of natural hazards including cyclones, floods, tsunamis etc.
- Storm surge modelling and coastal inundation mapping
- Vulnerability assessment/mapping due to cyclones, floods and sea level rise
- Regional Coastal processes studies including estuaries and associated data
- Impacts of ports and harbours on shoreline change, modeling shoreline changes and geomorphology along the coast
- Oil spills monitoring and modelling etc
- Resource management strategies with public participation
- Risk assessment studies
- Socio-economic analysis of impact of development activities & remedies like alternate source of livelihood opportunities
- Biodiversity conservation and management along with a database on all aspects of biodiversity especially endangered species
- Coastal pollution and water quality studies
- Landuse and land-cover study including Forest, mangrove cover
- Education and Public awareness programmes

Explaining how the Centre for Life Sciences, *University of Mumbai* would collaborate with the NCSCM, **Prof. Sanjay Deshmukh** mentioned the importance of mapping islands along mainland India, especially those along the coast of Maharashtra. He explained with examples that his centre had the capability to associate itself with all the divisions of the NCSCM. Further, he suggested that a "Special Paper Series" highlighting the coastal issues from each of the coastal states could be published for a comprehensive understanding of coastal issues in each State/ UT. Dr. Deshmukh mentioned undertaking research on *Transgenic Resources* - with a specific example of isolating candidate genes from mangroves, and that the MSSRF could lead the nation in this effort.

Dr. G.N. Nayak from the *University of Goa*, mentioned that the most important concern for the coast of Goa is pressure from domestic and international Tourism. Some of the factors contributing to these pressures can be due to demographic settings and population growth, rapid urbanization, mining, migration, recreation and tourism activities, fishery activities, transportation problems, socio-economic shift and transformation in occupation like, fishing, tourism, trade, salt industry; wetlands conversion, degradation of agriculture land and fallow lands. He mentioned that in order to ensure ecosystems stability, and maintain their ecological, productive and natural functions, a detailed *coastal zone resource information system* is a prerequisite. All this could be achieved through the mechanism of a comprehensive Coastal Zone Management Plan. Dr. Nayak mentioned that it is essential to prioritize research issues for the NCSCM and that a time series data that is available at his centre for coastal pollution in Goa will be made available to the NCSCM.

The problems of the coastal zone of Kerala, are extremely unique- described **Dr. K.V. Thomas**, *Centre for Earth Science Studies*, Trivandrum. This is because of the high density of population, loss of land due to coastal erosion, mining of beach sand for industrial purposes, drastic morphological and shoreline changes due to on-shore structures such as harbour breakwaters. Also among the coastal problems are destruction and reclamation of wetlands including mangroves, saline intrusion into groundwater, decreasing fish catch, development related degradation of the environment and violation of the provisions of CRZ. Dr. Thomas mentioned that almost all the studies are conducted periodically by CESS and that expertise is available to collaborate with the NCSCM on all research aspects. He also mentioned that CESS was the only institution undertaking detailed research in Lakshadweep Islands, with special reference to increasing tourism, sea level rise and other related aspects.

Dr. I.R. Gadhvi from the *Bhavnagar University*, highlighted that the greatest coastal concern for the State of Gujarat is from the Ship Breaking Industry. The world's largest ship recycling yard at Alang, District Bhavnagar on the coast of Gulf of Khambhat and the second-largest shipbreaking unit in Gujarat is located at Sachana. There are many environmental problems associated with increased port development and maritime activity, including tanker spills and accidents, as well as sediment deposition on corals due to deep-sea dredging activities. The accelerated development of ports and harbours will also greatly increase the problems that fishing communities face, further restricting their fishing grounds and depleting the availability of fish. He mentioned that his Centre could collaborate with the following divisions of the NCSCM:

- Coastal Impact Assessment
- Conservation of Coastal and Marine Resources
- Knowledge, Governance and Policy

Presenting the coastal issues of the coast of Karnataka, **Prof. H.R.V. Reddy**, *College of Fisheries*, Mangalore, mentioned that the coastal zone of Karnataka is one of the better-developed geographical areas of the State with high degree of economic development and density of population. He mentioned that the issues are similar to those of the other coastal states of India's west coast and that the expertise of his institution is on climate change and plankton related studies. In addition, the institution could contribute to studies on social security and livelihood. The National Institute of Technology Karnataka (NITK) at Surathkal will collaborate with the College of Fisheries, Mangalore in research pertaining to Coastal Engineering and Marine Geotechnical Engineering. **Dr. G.S. Dwarakish** representing NITK Surathkal mentioned that his Centre has undertaken several ICZM related projects and could contribute effectively to the NCSCM.

After the presentations made by the members of the consortium, Mr. Tapas Paul, Senior Environment Specialist of the World Bank indicated the Bank's guiding principles towards preparing a project proposal for submission to the NCSCM. The outline of the guiding principles are given below:

- Need for the work
- Unique research expertise that is available with the particular institution to work for larger area of the country
- Grant distribution will be based on targets
- Accounting and procurements to be followed will be based on the guidelines developed by the NCSCM
- All data must be made available in the public domain, after obtaining prior permission from the Ministry of Environment and Forests

- Interdependence with the NCSCM is vital and the concerned State/ UT institution must involve scientists from the NCSCM in their projects
- Overheads will not be provided as a part of the financial grant (*this issue was debated at length, as the concerned Institutions mentioned that overheads is charged by the universities for operation and maintenance of accounts*)
- All institutions must enter into an agreement on "performance indicators" which is demonstrated through publications in international refereed journals, patents etc.
- Peer review will be undertaken for all the data sent to the NCSCM

Way Forward

The Members of the Consortium were requested to consult various other related institutions in their State/ UT, to derive a consensus on the coastal problems to be focused as a national project of the NCSCM. They were also asked to provide the feedback of such discussions and a report may be submitted to the NCSCM with the exchange of information. It was suggested to develop high quality degree programme in Coastal Management, including exchange of students and professors from the consortium.

The NCSCM will in turn provide to the members of the consortium a detailed time table of action for the next 6 months to one year. The NCSCM was directed by Shri. Mauskar, Additional Secretary to provide the aim, vision, mission and objective statements of the NCSCM online in order to receive feedback from all concerned. The website of the NCSCM will be linked to the Ministry of Environment and Forests to receive wider feedback from both the members of the consortium and others. It was decided that feedback must be received within a month from it being hosting on the website.

Points of immediate action include:

- Members of the consortium to form a network of institutions at the state level to address common coastal problems
- collate all published data relevant to coastal research and contribute to the coastal data repository to be created at the NCSCM
- Send feedback on the aim, vision, mission and objectives of the NCSCM to suitably adapt into the overall mandate of the NCSCM for which it has been established

The meeting concluded with Prof. R. Ramesh thanking all the participants for their valuable suggestions, comments and for their participation.

A complete list of participants is given as Annexure III

Message from

Shri. JAIRAM RAMESH

Hon'ble Minister for Environment and Forests, Government of India

MESSAGE

I regret my inability to be present in Chennai this morning on account of urgent work related to the GoM on Bhopal Gas Leak Disaster.

We are taking a very important step forward today by creating a National Centre for Sustainable Coastal Zone Management that will function in a Consortium mode. The anchor of this Consortium will be at Anna University, Chennai. There are 11 other participating institutions from all coastal states in the Consortium. In the context of climate change and the undisputable evidence now available on rise in mean sea levels, sustainable coastal zone management assumes special significance. By November this year, the Indian Network for Comprehensive Climate Change Assessment (INCCA) which has been set up by the Ministry of Environment & Forests (MoE&F) will come out with its first assessment of the impact of climate change on the coastal areas of our country.

We are spending a substantial amount of money to create this Consortium. The total investment is around Rs.166 crore. I want this expenditure to focus on capacity building, human resource development and actual research programmes with an outreach component to coastal communities. We should keep expenditure on buildings to the barest minimum. The linkage with coastal communities is especially important because too often in our country research is divorced from field-level conditions and challenges. The Consortium should also link up with the best institutions in the world and train a whole new generation of researchers in this area. India has extended a grant of \$ 1 million to the SAARC Coastal Zone Management Centre at Male in Maldives. The Consortium should also build close links with this Centre.

After an extensive process of public consultations and feedback, the MoE&F is now finalising the Coastal Regulation Zone Notification, 2010. We are also launching three integrated coastal zone management projects in West Bengal (Rs.300 crore), Orissa (Rs.200 crore) and Gujarat (Rs.300 crore). Similar projects in other coastal states will be taken up as we go along. For the first time, the Survey of India has also been tasked with the responsibility of delineating a hazard line along 7500 kms of India's coast, a task that will be completed in two years at a total cost of Rs 200 crore. The MoE&F has also moved decisively to protect coastal areas like Goa and the Western Ghats from further environmental degradation.

I send my best wishes to the National Consortium for Sustainable Coastal Zone Management.

Jairam Ramesh

MOS(I/C) E&F

June 20th, 2010