

Integrated coastal zone management: a sustainable way to manage the coastal zone*

Coastal areas are one of the vulnerable regions where the land is affected by its proximity to the sea and that part of the ocean is equally affected by the land. It is one of the areas which is most heavily exploited for its rich resources. Around 40% of the world population resides within 100 km of the coastline. Most of the developing countries of the world lack the capacity to manage current coastal population growth in an equitable fashion. It is high time to develop and introduce management plans that will protect the vibrant coastal ecosystems, while permitting economic growth and ensuring a better quality of life for all coastal dwellers. An Indo-European workshop on this issue was recently organized by Nansen Environmental Research Centre India (NERCI). This meeting brought together biologists, earth scientists, meteorologists, sociologists, economists and several policy makers from India and abroad for an in-depth discussion on several issues of the coastal zone. The following topics were covered: oceanographic aspects of coastal zone management (CZM), technological aspects in CZM, economic issues in the coastal zone and CZM and governance. All together there were 77 participants including resource persons from India, The Netherlands, Norway, Spain, France, Montenegro, Yorkshire, Ireland and England.

The welcome address was delivered by K. Ajith Joseph (NERCI) and Ola M. Johannessen (Nansen Environmental and Remote Sensing Center (NERSC), Norway). In his presidential address, T. J. Pandian (Madurai Kamaraj University) spoke about the problems faced by the coastal communities in India. The four-day

workshop was inaugurated by S. S. C. Shenoi (INCOIS, Hyderabad). An introduction of the INDO-MARECLIM project was given by N. R. Menon (NERCI) and Lasse H. Petterson (International Cooperation, Nansen Group). The theme of the first day was oceanographic facets of CZM. There were four invited lectures. N. R. Menon (INDO-MARECLIM, NERCI) spoke on CZM in India, while the issues of The Netherlands were discussed by Eddy Moors (Alterra, Wageningen University and Research Centre, The Netherlands). T. Srinivasa Kumar (INCOIS) explained how remote sensing can be applied for rapidly managing the coastal zones. P. V. Joseph (IMD) gave an overview about the influence of monsoon on the coastal zones. The invited lectures were followed by nine presentations by the participants. These presentations focused on various problems of CZM to be taken care of in the near future. Some of these were to conserve the geo-heritage sites of India, managing the eroded coasts by preparing sea-walls, controlling stochastically the spreading of the invasive species, conflicts of fishing in Palk Bay and mapping the sea grass area along the coastline, which is one of the vulnerable ecosystems. The theme of the second day was possible technological developmental plans in CZM. There were seven invited lectures and eight lectures by the participants. The presentations were mainly on stability of tidal inlets along the coastline, ecosystem-based coastal defence, dredging along the coastal waters in a natural way, applications of geoinformatics, monitoring of Harmful Algal Bloom (HAB) in coastal waters and establishing climate-based fishing steer. Several important aspects, viz. shoreline changes along the Indian coast, storm surge simulations by Delft 3D model, artificial reef building to protect erosion, monitoring mechanisms of coral reef vulnerability, possible coastal livelihood options and the use of remote sensing in ballast water applications along the ports were discussed at length. Various economic issues in the coastal zones were discussed on the third day of the

workshop. E. Vivekanandan (CMFRI, Chennai) gave an overview of enhancing resilience of the fishing communities through several governmental and non-governmental agencies. P. S. Harikumar (CWRDM, Kozhikode) discussed about the drinking water and sanitation problems in the coastal areas and mentioned the on-going pilot projects to cope with these problems. Some of the invited lectures by the European experts discussed how the evaluation of coastlines is prepared and also holistic approaches to manage the ecosystem that can be implemented in our country. Human development on the coasts is increasing day by day and it is urgently required to evaluate the long stretch of coastlines. On the same day in the afternoon, a field trip was organized to the nearby coastal region of Mararikulam to familiarize with the living conditions of the fisherfolk. It was indeed encouraging to see that the spouses of the fishermen were engaged in some self-help groups, which are subsidized by the State Government. Some of them have set up flour mills, coir rope manufacturing units, etc.

The theme on the last day of the workshop was based on various strategies to manage the coastal zones by governing in a proper way. Marianne Jensen (S&T, Royal Norwegian Embassy, New Delhi) spoke about the S&T cooperation between India and Norway. She also emphasized on the possible funding for collaborative research. T. Balasubramanian (CAS in Marine Biology, Annamalai University) delivered a lecture on the coastal bioresources of India and how these can be used for sustainable livelihood promotion for the coastal communities. Anne B. Osland (Norwegian Directorate of Fisheries) expressed her views on coastal zone planning of Norway for three decades. This was followed by a talk by Andries Richter (University of Oslo, Norway) on socio-ecological complexity in the marine governance. Eight lectures were delivered by the participants on the interactive governance during any coastal disaster, empowering local community for a common integrated CZM (ICZM) vision, ICZM-based

*A report on the Indo-European workshop on 'Coastal zone management and its impact on the society' organized by Nansen Environmental Research Centre India during 6-9 October 2014 at Abad Turtle Beach Resort, Alleppey. The event was supported by the European Union via the Seventh Framework programme (INCO-LAB) under the auspices of INDO-MARECLIM project.

developmental policies in small islands, fisheries management in the context of climate change and case-based analysis for stakeholder-friendly appropriation in coastal zone regulations.

The workshop ended with a brainstorming session through a round table discussion pertaining to the oceanographic facets and technological aspects in

CZM, socio-economic issues in the coastal zone and its governance. The major outcomes derived from the discussion are: to develop high-resolution coastal modelling, preparation of coastal atlas, empowering women, creation of alternative income for the fisherfolk, sustainable fisheries, markets as solution like creating cooperatives, ecosystem services

valuation, institution-building and strengthening.

Arindam Chakraborty, Birbal Sahni Institute of Palaeobotany, 53, University Road, Lucknow 226 007, India.
e-mail: flywidari@gmail.com

MEETING REPORT

Perspectives and challenges of Protection of Plant Varieties and Farmers' Rights Act in floriculture*

Floriculture in India is being viewed as a high growth industry and as an important commercial activity. Commercial floriculture has higher potential per unit area than most of the field crops and is therefore a lucrative business. Floriculture being a profitable venture is attracting big investors and at the same time has remained a viable alternative to small and marginal farmers. Indian floriculture industry is expanding. Not only more traditional flowers are being grown, but there is diversification into to cut flowers as well for export purposes. According to the estimate of the National Horticulture Board (NHB), about 242.39 thousand ha area is under floriculture during 2013–14 in the country. During the same period, the country exported 22,485.21 MT of floriculture products valued at Rs 455.90 crores, according to the records of Agricultural and Processed Food Products Export Development Authority (APEDA).

Export-oriented production of cut flowers started with the liberalization of industrial and trade policies of the country. The National Seed Policy–2002 made it feasible to import planting material of international varieties. Cut flower industry started with buy-back agreements from international agencies catering to the export market. Over a period, the domestic market has expanded and the flower cultivation of imported varieties has started catering to the growing

demand of the domestic market. Though these varieties are protected outside the country, in India they are multiplied and flowers traded without payment of any royalty as they are not protected within the country, since there is no provision to do so. With the establishment of Protection of Plant Varieties and Farmers' Rights (PPV&FR) Authority, international breeders have started applying for protection of their varieties in India under the PPV&FR Act and registration of varieties has also begun. With the changing scenario, legal implications of the Act on researchers, nurserymen and growers needed deliberation. An interactive meeting on Protection of Plant Varieties and Farmers' Rights Act was organized recently at the Indian Institute of Horticultural Research, Bangalore involving all the stakeholders of floriculture industry to discuss the challenges and prospects of plant variety protection. Legal experts, researchers, floriculture consultants, growers and exporters, members of the International Floriculture Auction Center, Bangalore (IFAB) and South Indian Floriculture Association (SIFA) participated in the discussion.

Ramakrishna (Centre for Intellectual Property Research and Advocacy, National Law School of India University, Bangalore) opened the deliberations with his presentation on 'PPV&FR Act and its implications on floriculture industry'. Pranav Kumar Mysore (K&S Partners, a company of Intellectual Property Attorneys, Bangalore) provided clarity regarding 'Royalty issues and legal impact on flower crops for domestic and export market'. After the presentation by legal

experts, representatives of the floriculture industry presented their views and the ground realities.

PPV&FR Act of India came into effect in 2001. The Act was implemented with the main objectives to establish an effective system for the protection of plant varieties, to protect the rights of farmers and plant breeders and to encourage the development of new plant varieties. The idea is to ensure the availability of high-quality seeds and planting material to the farmers.

During the initial years of the floriculture industry in India, export-oriented floriculture units paid the royalties and imported new varieties into the country. Once the flowers enter the market, due to inherent ability of the varieties for vegetative propagation, they multiply and face competition by other growers who have not paid the royalties. These varieties are protected under UPOV, but are not protected in India. As long as these varieties are not protected in India, nurseries and growers can take up multiplication, cultivation and trade of these varieties in domestic market as well as in countries where these varieties are not protected. However, once these varieties get protection by PPV&FR Authority in India, multiplication and cultivation need the consent of the breeder and for every plant multiplied and cultivated for commercial production, royalty has to be paid to the concerned breeder. In turn, the breeding programme gets encouragement and new varieties will be available for the growers.

Novel flower varieties get the premium price. The life of a variety in the

*A report on the interactive meeting on 'Protection of Plant Varieties and Farmers' Rights Act', organized by the Indian Institute of Horticultural Research, Bangalore on 22 August 2014.