A report on the IEM workshop

“The rigor and complexity should not be sacrificed in ecosystem model that speak to the policymakers, for simple notions of certainty, just because it is wanted. This is one of the challenges before the experts in this workshop”, with this Gladwin Joseph, Director, ATREE, started his inaugural remarks in the workshop on Integrated Ecosystem Modelling at Bangalore, organized by Ashoka Trust for Research in Ecology and the Environment (ATREE), Land Use Policies and Sustainable Development in Developing Countries (LUPIS) and Indian Society for Ecological Economics (INSEE), 23-24 June, 2010 at Royal Orchid Resorts, Yelahanka, Bangalore. The Objective of the Workshop was to appraise the relevance and importance of Ecosystem modelling for Sustainable Use of Natural resources such as land, water, mangroves, wetlands, forest and wildlife and biodiversity resources.

In the trajectory of evolution of interdisciplinary ecosystem models, tracing from being descriptive to prescriptive to predictive, Joseph advocated for settling with communicable descriptive models. Among the other challenges he identified, included climate change, globalisation, urbanisation and their consequent impact on land-use: and the resulting impact on poor, women and other marginalised sections, food security and ecosystem services that support life on earth.

A presentation titled ‘Prospects of Reversing Biodiversity Losses of Chilika Lake in India’ by Gopal Kadekodi followed, which included the theoretical aspects of ecosystem modelling like Driving Forces-Pressure-State-Impact-Response-Driving Forces (DPSIR) and vulnerability approach along with the developments that have taken place within these frameworks. He illustrated the concepts with his earlier work in Chilika Lake, Orissa based on PASIR [Pressure, Activity, State, Impact, Response] framework, that culminated in opening of a new sea mouth at Satapada to this Asia’s largest and world’s second largest lagoon.

Apart from Kadekodi, nine other INSEE members took part in the workshop. Deepak Malghan, Indira Devi, M Zulfiquar Ali Islam , Nandan Nawn, Narendra Nath Dalei, Rakesh Kumar Sharma, Saudamini Das, Seema Purushothaman [who wore additional hat of being the organiser from ATREE] and Yamini Gupt, all had presented their work, either in progress or in its final form, in the workshop that had participants from Tunisia, Bangladesh, Netherlands, Indonesia, Kenya, Brazil and Germany.

The presentations, resonating the inaugural remarks, focussed on exploring the possibilities of modelling the ecosystem in a descriptive manner, from both theoretical perspective and applications. Theory included looking at relationship between scale, allocation and distribution while applications offered a rich and diverse bouquet: (1)

DPSIR model for assessing land conversion tariff policy, (2) FoPIA [Framework for Participatory Impact Assessment] approach for assessing impacts of land use policies, (3) bio-economic modelling for (a) assessing land-use degradation and (b) assessing GHG emissions on a village level, (4) CGE approach for water policy reform, hydrological model for modelling cropping systems choices and land use change, (5) integrated assessment of land use policies through use of Farming Systems Simulator FSSIM-MP and technical coefficient generator TechnoGIN for reducing nutrient pollution, (6) energy flow approach for evaluation of sustainability of crop production systems, (7) multi-criteria analysis for assessment of (a) impact of climate change in an watershed and (b) land use degradation due to policy of permitting individual land ownership and (8) CompasSus-an assessment model of sustainability performance. Presentations were also made on (a) methods for comparing farming practices for sustainability, (b) exploring farmers rational behaviour in pest management, (c) methods for explaining household behaviour against ecosystem change, (d) roles that indigenous knowledge play in sustainable use of natural resources & the need to integrate them in ecosystem models and (e) role of mangrove forests in offering protection against storm in coastal regions.

Floor Brouwer, Coordinator, LUPIS, Land Institute, Land Economics Institute, The Hague had synthesised the deliberations and offered concluding remarks. Discussions stressed the need for interdisciplinary research as well as acknowledging the necessity of single criterion (energy, water, nitrogen, etc) models as well as multicriteria ones for ecosystems.

INSEE had sponsored five of its life members to participate in the conference. Collaborative interactions of the kind of this workshop are expected to a regular feature of INSEE activity calendar.