Madras School of Economics

(Centre of Excellence in Environmental Economics)

Newsletter

EMCBTAP - ENVIS: Environmental Economics Node

# ENVISAGE

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## From the Director's Desk...

Welcome to the first issue of "ENVISAGE", the newsletter that seeks to enlighten you on the latest developments in the field of environmental economics in India. ENVISAGE makes its debut with an in-depth discussion by Dr. Kavi Kumar on the eighth session of Conference of Parties that took place recently in New Delhi. We also provide excerpts from a speech by Dr. C. Rangarajan, Governor of Andhra Pradesh on the role of the emerging discipline of environmental economics. Besides providing information on recent and forthcoming conferences, ENVISAGE brings snippets of information through a 'Do You Know' series. This issue provides insights on environmental issues relating to the tea industry in Sri Lanka by Dr. G. Mythili based on her experience during a nine month sojourn to that country. The primary purpose of the ENVIS node at MSE is to create a website on environmental economics in India. This issue provides an introduction to the ENVIS website, as well as web links to one thematic area - biodiversity valuation. We hope you enjoy reading ENVISAGE and look forward to your comments and suggestions for improvement.

## ENVIRONMENT AND ECONOMICS

*Excerpts from the inaugural address by **Dr. C. Rangarajan**, Governor of Andhra Pradesh as chief guest at the Environmental Economics Research Committee (EERC) final review workshop organized by IGIDR Mumbai, in association with the University of Hyderabad on august 20, 2002 at DST Auditorium, University of Hyderabad campus, Hyderabad.*

Kenneth Boulding, an eminent economist, once described this earth as a 'plundered planet'. However, we live today in a planet that is both "plundered" and "polluted". The process of plundering has not only reduced the utilizable resources but has also polluted the environment. Clean air and clean water can no longer be taken for granted. According to the living Planet Report 2002, the Living Planet Index, which is an indicator of the state of the world's natural ecosystems, has shown an overall decline of about 37 percent between 1970 and 2000. This index is basically based on the abundance of forest, freshwater and marine species. Another measure that is used to understand environmental deterioration is the ecological footprint, which compares renewable natural resource consumption with nature's biological productive capacity. According to this study, human consumption of natural resources in 1999 is estimated to have overshot the earth's biological capacity by about 20 percent. Since the 1980s humanity has been running an ecological deficit with the earth.

Today, economic growth and environmental preservation are not any more opposing objectives. Environment friendly economic growth has emerged as a necessity. This is both a national problem and an international one.

Some of the problems such as global warming have to be fought at a global level with all countries joining together. The Earth Summit in Rio de Janeiro had formally addressed international concerns over environmental issues and the world leaders committed themselves to the cause of ecological protection. The issue of environmental protection has also an equity consideration. Countries, which have exploited natural resources ruthlessly and have contaminated the atmosphere in the past, must bear a larger burden in the present, giving some leeway to other countries, which form part of the developing world.

Human societies have been altering the face of the earth since the beginning. Use of natural resources for the benefit of human beings did not cause much concern so long as the utilization was within the rejuvenating capacity of nature. What is new and disturbing is the pace and scale of utilization that started about fifty years ago. Population and economies are growing exponentially but the natural resources that support them do not. The days of the frontier economy when abundant resources were available to propel economic growth and raise living standards are over. We have entered an era in which prosperity increasingly depends on using natural resources more efficiently.

## 'Sustainable Development' and its interpretation

"Sustainable development" is a frequently used term in the literature on environmental economics. This concept brings to the fore the long-term relationship between ecology and economic development. The definition of "sustained development" that has gained wide acceptance has been the one given by the Brundtland Commission, which says "sustainable development is development that meets the needs of the present without compromising the ability of the future generations to meet their needs". This description of sustainable development contains an important idea, even if it lacks operational precision. The underlying thought here relates to inter generational responsibilities. Broadly seen, this definition would imply that it is the responsibility of each generation to pass on to the next what it has inherited as a stock of natural resources without any deterioration. Given the fact that natural resources will have to be utilized, Prof. Solow comes up with an alternative approach to sustainability. This approach emphasises that resources are fungible and therefore, what has been destroyed can be substituted by some other resource, tangible or intangible. Solow writes "In making policy decisions we can take advantage of the principle of substitutability, remembering that what we are obligated to leave behind is a generalized capacity to create well-being, not any particular thing or any particular natural resource". This approach to sustainable development assumes that all natural resources are substitutable and the degree of substitution is high. Perhaps this is taking the argument too far. Sustenance of human life on earth will require the availability of certain natural resources and the degree of substitution could be zero in such cases. If the resilience of the eco-system and other natural balances are disturbed, a fundamental damage can be caused. The obligation to preserve the natural resources cannot, therefore, be wished away even if some degree of substitution is possible. The challenge is to redesign the economic system so that it will not destroy the environmental support systems.

## Improvement of the Environment

The need for conserving the environment has sunk in the conscience of everyone but awareness is not enough. Awareness must lead to action. Action is required at all levels - international, national and local levels. Action is required to reduce and where necessary prevent pollution, to regenerate degraded resources and to conserve resources. There is a growing literature on policies, which can be used for controlling pollution. Command and control measures which include direct regulatory prescriptions as well as market-based instruments are available. Command and control measures are particularly suitable for products that are hazardous and toxic. However, our experience shows that the administration of such controls has not been that effective. Apart from moving towards market-based instruments, which incorporate polluter-pays-principle, we need to strengthen the administrative machinery available to the various regulatory agencies considerably.

Environmental protection goes very much beyond pollution control, which at best helps to prevent further deterioration of the environment. We need positive steps to extend the forest cover, rejuvenate degraded lands and improve ground water resources. Better harvesting of water through well-designed watershed management programmes can bring about significant changes in the life of the rural people in many areas. There are successful examples of watershed development projects making a big difference. From what was almost a barren area; clusters of fruit bearing trees have come into existence. One major issue in this context has been the development of effective institutions legally empowered to manage common natural resources. Our experience with respect to watershed management as well as afforestation programmes clearly shows that community or group ownership of natural resources is not only feasible but is essential.

Broadly speaking with respect to conservation of resources, the approach has to be:

(a) Renewable resources be used at a rate less than their rates of regeneration. This may not be binding constraint with respect to many renewable resources.

(b) The rate of use of exhaustible resources should depend, among other things on the rate at which they can be substituted by renewable or by technological progress.

(c) Waste generation should not exceed the assimilative capacity of the environment.

The need for utilizing more extensively renewable sources of energy has become urgent. A serious obstacle to greater use of certain renewable has been higher initial investment costs. In a country like India in the sun shining brightly most months, a greater initiative with respect to the use of solar energy is called for.

I am happy to note that EERC is addressing the issue of environment and economics interface which is of vital importance through a capacity building exercise spread across the country with an objective to increase the capacity for the application of economic principles and tools to environmental management in India across the full range of issues such as priority setting, cost-benefit analysis of alternative policies for pollution control, resource management, and biodiversity conservation.

I am extremely happy to note that 54 universities, 8 research institutions and many NGOs are part of this mammoth environmental economics capacity building exercise. This type of grassroots level approach throws up many innovative policy options and answers to the complex issues of balancing development and environment in a sustainable way.

## CLIMATE CHANGE NEGOTIATIONS - 'PROGRESS' AT COP8

Accumulation of trace gases such as carbon dioxide ($CO_2$) in the atmosphere, caused mainly due to anthropogenic activities such as burning of fossil fuels, is believed to be altering the earth's climate system. The third assessment report of Intergovernmental Panel on Climate Change (IPCC) has concluded that "there is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities". The expected changes in climate system could have significant impacts on a number of climate sensitive sectors of the world economy.

Analysis of various pollution abatement strategies is well documented in the field of environmental economics. However, the study of climate change problem poses a special and formidable challenge due to a variety of reasons including the global and inter-disciplinary nature of the problem, long time periods involved, and the associated uncertainties. Also, the differences among world nations in terms of their historic, present and future contributions to greenhouse gas (GHG) emissions, and their respective vulnerabilities to potential changes in the climate makes it a complex problem to resolve.

The Kyoto Protocol (KP), agreed at third session of Conference of Parties (COP) in 1997, had for the first time placed quantitative limitations on the greenhouse gas emissions from the developed countries. The Protocol stipulates that the developed countries on average should reduce their GHG emissions by 5.2 percentage points from their 1990 levels during the first commitment

period, 2008-2012. So far, 96 countries - including the European Union, Japan, China, India and Mexico - have ratified the Protocol, including developed countries accounting for 37.4 percent of GHG emissions. With the United States expressing its opposition to ratify the Protocol, its entry into force now hinges on ratification by Russia, which would achieve the necessary threshold of ratification by parties accounting for 55 percent of developed country GHG emissions in 1990.

It is with this background the eighth session of COP to the UN Framework Convention on Climate Change (UNFCCC) took place in New Delhi from October 23 to November 1, 2002. As the overriding objective at the past four sessions of the COPs has been to negotiate implementation of the KP and since most of the contentious issues were resolved at COP7 in Marrakech last year the formal agenda at COP8 included mainly second-order and technical issues. However one expected the conference to pave way for discussion on emission reduction commitments beyond 2012 and adaptation policies, both of which so far have received only limited attention in the climate change negotiations.

One of the main outcomes of the conference has been adoption of the Delhi Ministerial Declaration on Climate Change and Sustainable Development. The declaration was mainly a broad political statement meant to signify the consensus and success of the conference. The declaration was silent about future commitments and largely reiterated the agreed principles of the UNFCCC and themes adopted at the World Summit on Sustainable Development earlier this year in Johannesburg. The draft declaration had no mention about the KP and it lead to strong opposition from EU and other countries. The final declaration merely states 'Parties that have ratified Kyoto strongly urge others to do so in a timely manner'. The US continued its opposition to ratify the Protocol and was largely content with the soft language of the Delhi Declaration. Even though the Russian delegation kept giving conflicting signals about the likely timing of ratification by this key country, the conference ended with optimism that the Protocol would gain legal status sometime in 2003. The Delhi Declaration strengthened this optimism, as lack of political consensus in the form of such declaration at COP8 would have further threatened the progress of climate policy. The US withdrawal from KP has prompted many to wonder about the significance of the KP, as the emission reductions achieved without the US participation may have only limited environmental implications. However, KP should be seen mainly as symbolic action towards emission reduction as its main aim is to galvanize political response to climate change problem.

The New Delhi Conference witnessed a number of hurdles for producing even such apparently weak declaration. The parties were divided along familiar developed / developing country lines, as also along priority between mitigation and adaptation, and development *versus* environment.

The US demand for 'meaningful participation' of at least key developing countries in GHG mitigation efforts has been one of the major stumbling blocks in the previous COPs. Similar demands from the US at the New Delhi conference also were anticipated but the US surprised many by saying that it would be 'unfair' to expect the developing countries to take on emission reduction commitments. Given that the US has expressed its opposition to the Kyoto process this sudden shift in its stand can be seen as an effort to gain broader support for its position. This has resulted in complete silence on future commitments in the final outcome of the conference nullifying efforts by the EU and some small developing countries.

The New Delhi conference also highlighted an important gray area in the climate policy, namely the distinction between mitigation and adaptation. While some viewed them as two sides of the same coin, others stressed that they are separate issues with mitigation applying exclusively to developed countries and adaptation applying to developing countries. At Marrakech three new funds have been established to help developing countries and the developed countries have pledged a total of about $400 million for these funds. The New Delhi conference decided to give GEF the responsibility of managing two of these funds – the least developed countries fund and special climate change fund. On the issue of providing more detailed national communication to FCCC, which

could be useful in identifying the adaptation requirements, some of the developing countries objected, as it is perceived as a step closer to accepting mitigation commitments.

The dichotomy between environment and development haunts almost all the global environmental negotiations and the New Delhi meeting was no exception. If one believed that these differences were resolved at the World Summit on Sustainable Development in August earlier this year it became clear at COP8 that Parties still do not share similar understanding about the concept of sustainable development. The fear about new emission mitigation commitments influenced a large number of developing countries and also the US to stress for development as a pre-requisite for sound environmental management.

Given all these differences the outcome in the form of Delhi Declaration of COP8 can be viewed as a necessary step in the right direction for the climate policy. However, viewed from a more objective perspective New Delhi appears to have missed an opportunity to put forward a forward-looking perspective on climate change policy.

### Useful resources for further reading:

Intergovernmental Panel on Climate Change – for synthesis of literature on science, impacts and mitigation. Third Assessment Reports - 2001, can be viewed on the Internet at **www.ipcc.ch**.

UNFCCC – for official texts of all Conventions and Protocols. Can be viewed on the Internet at **www.unfccc.int**.

***K. S. Kavi Kumar***

## RECENT CONFERENCES

### "Effective Environmental Management in Petroleum Industries" : ONGC

The Oil and Natural Gas Commission (ONGC) conducted an Environmental Management Programme on "Effective Environment Management at Petroleum Industry" from November 11-16, 2002 at Chennai. The Programme included lectures on various aspects of environmental management including environmental legislation, ISO-14000, environmental auditing and reporting, environmental risk assessment and environmental economics. Faculty from Madras School of Economics – Prof. U. Sankar and Prof. Paul P. Appasamy gave lectures on environmental policy, economic instruments for environmental management, valuation and extended cost-benefit analysis. Participants were mainly senior engineers / managers from ONGC and related industries. Dr. J. P. N. Giri, Superintending Chemist, Regional Training Institute was the coordinator .The participants also had to give group presentations on different aspects of environmental management in the petroleum industry. They expressed special interest in the valuation of environmental damages, since ONGC is often asked to provide compensation to farmers and others affected by their exploration activities.

### "Indian and German Perspectives on Climate Change": The inaugural conference of the Indo-German Forum on International Environmental Governance

The Indo-German Forum a decentralized network of experts on environmental policy and on the human dimensions of global environmental change held its inaugural conference during 25-27 september, 2002 at the Potsdam Institute for Climate Impact Research in Potsdam, Germany, under the overall conference theme "Indian and German Perspectives on Climate Change". The meeting was organized by the Global Governance Project of PIK in close collaboration with the Madras School of Economics. The conference was held in co-operation with, and generously supported by, the Heinrich Böll Foundation.The conference was co-convened by Dr. Frank Bierman, PIK and Dr. Kavi Kumar, MSE while Mr. Hans-Dieter Sohn, PIK coordinated the program.

The two-day conference consisted two public podium discussions and several panels dealing with various aspects of climate change problem. The public discussions – participated among others by Mr. Suresh Prabhu, Member of Lok Sabha; Dr. Enno Harders, German Ministry for the Environment, Nature Conservation and Nuclear Safety; Prof. Dilip Ahuja, National Institute for Advanced Studies; Mr. Hans-Josef Fell, Member of German Bundestag; and Ms.

Sunita Narian, Centre for Science and Environment – focused on issues before Conference of Parties in New Delhi and potential for Indo-German cooperation.

The panels presented a variety of perspectives and research results from both Indian and German leading experts on climate change and climate negotiations. The range of issues covered included vulnerability, mitigation and adaptation as policy options, flexibility mechanisms of the Kyoto Protocol, north-south equity, and sustainable development with special focus on renewable energy sources. The participants included Prof. A. P. Mitra of National Physical Laboratory in New Delhi, Prof. Jyoti Parikh of Indira Gandhi Institute of Development Research, Prof. P. S. Ramakrishnan and Prof. Amitabh Kundu of JNU, Prof. Anand Patwardhan of IIT Mumbai, Dr. Lilibeth Acosta-Michlik and Dr. Marian Leimbach of PIK, Prof. Richard Tol of Hamburg University, Dr. Klaus Voll of the World Food Programme and Freie University Berlin, and Prof. Michael von Hauff of Kaiserslautern University.

*Participants at the Workshop on Economics of Environmental Management for Indian Industry held at the Madras School of Economics,Chennai during December 2-4, 2002.*

## FORTHCOMING CONFERENCES, SEMINARS, WORKSHOPS AND TRAINING PROGRAMS

Training programme in urban environmental management, Indira Gandhi Institute of Development Research, Mumbai, India,

December 2-7, 2002. **More details: http://www.igidr.ac.in/eee.advt.htm**

International symposium on resource and environmental monitoring, Hyderabad, India December 3, 2002. **More details: http://www.isrsindia.org/**

International conference on the environmental history of Asia, New Delhi, India, December 4-7, 2002.

**More details: envhistasia@hotmail.com**

Sustainable agriculture, water resources development, and Earth care policies, New Delhi, India, December 18 –20, 2002.

**More details: http://www.bhoovikas.nic.in/**

Faculty upgradation programme, in environmental economics , Indira Gandhi Institute of Development Research, Mumbai, India, February 3- 28, 2003. **More details: http://www.igidr.ac.in/eee/facupg.htm**

Delhi Sustainable Development Summit (DSDS) February 6-9, 2003.

**More details: http://www.teriin.org/dsds/index.htm**

South Asia regional conference on transition

towards sustainable development, India habitat center, New Delhi , February 10-11, 2003. **More details: http://www.teriin.org/events/docs/**

IFDC-International workshop on the impact of environmental issues on fertilizers use and production, Brazil , November 18-22, 2002. **More details: http://www.ifdc.org**

SUSTAIN 2003-The world sustainable energy exhibition and conference, Netherlands , May 13-15, 2003. **More details: http://www.sustain2003.com**

The impacts of extreme events on natural resource management – The XIV global warming international conference & expo (GWXIV), Cambridge, UK , May 27-29, 2003. **More details: http://www.globalwarming.net/**

Energy and the environment 2003, Kassandra, Greece , May 14-16, 2003. **More details: http://www.wessex.ac.uk/conferences/2003/energy03/index.html**

## DO YOU KNOW...

Sri Lankan tea is reputed to be one of the cleanest teas in the world markets. Analysis shows that residue levels of pesticides and weedicides etc. are minimum. Countries such as Germany impose strict standards and the quality of Sri Lankan tea is within such standards. The view was also endorsed by the Chairman of the European Tea Technical Committee at the meeting of the Technical Committee on Tea of the International Standards Organization. Another aspect to be noted is that the quantity of methyl bromide which is an ozone depleting substance, used as a fumigant by the sector is very limited.

However Sri Lanka, being a large producer and exporter of tea faces a few environmental problems in tea production. More than 75% of the tea plantations are located in the hill country and even in the low country, located on sloping lands. The areas where replantation is done on a steep slope are prone to soil erosion, if not maintained well. The broader issue of soil conservation and particularly soil degradation due to erosion had been addressed by the Sectoral Environmental Assessment (SEA) and as a result, replanting of tea in high elevations with steep slopes exceeding 45 degrees has been prohibited.

The growing health concern among international consumers of using conventional tea has encouraged organic tea production in Sri Lanka because it fetches premium prices in the international market. Though at present the organic tea production and export is limited due to various constraints. Organic tea production highly benefits local biodiversity.

*G. Mythili*

## USEFUL WEBLINKS ON BIODIVERSITY VALUATION

**http://biodiversityeconomics.org/valuation/**
- for compendium on biodiversity valuation.

**http://www.ecosystemvaluation.org/**
- for a non-technical description of economic theory of ecosystem valuation.

**http://ideas.repec.org/p/dgr/uvatin/20000100.html**
- for ecological - economic analysis of biodiversity valuation.

**http://www.conservation.org/web/fieldact/ccprog/policy/biovalue.htm**
- for discussion on potential of biodiversity in biotechnology and pharmaceutical industries.

**http://www.teriin.org/biodiv/**
- for biodiversity casestudies in India.

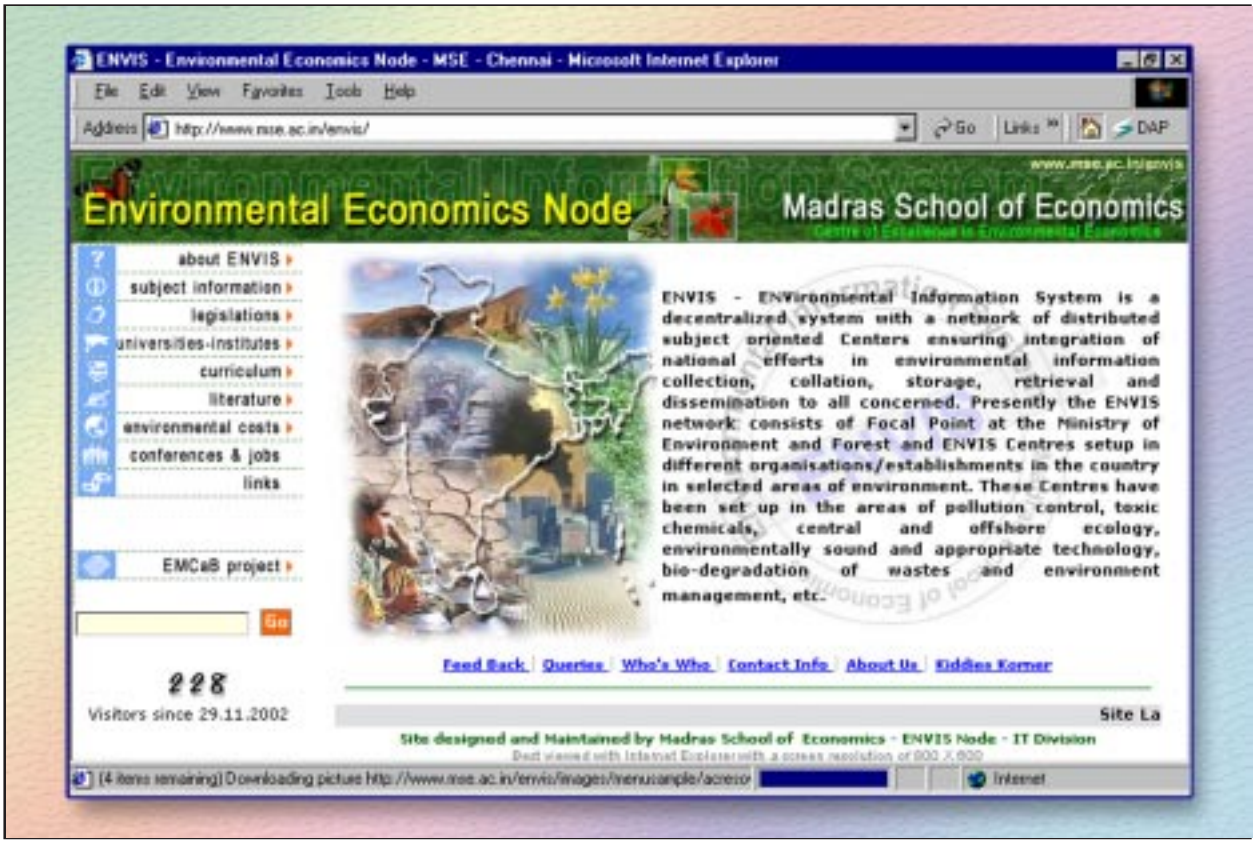
### Documents

**http://www.oecd.org/publications/e-bbok/9701151e.pdf**
- selected studies on biodiversity valuation.

**http://www.oecd.org/pdf/M00029000/M00029259.pdf**
- Handbook of biodiversity valuation and a guide for policy makers.

**http://www.iucn.org/themes/ramsar/lib val e index.htm#table**
- Economic valuation of wetlands and a guide for policy makers and planners.

# ENVIS: ENVIRONMENTAL ECONOMICS NODE WEBSITE




**http://www.mse.ac.in/envis**

## Contents

### About ENVIS

Provides a brief introduction to the Environmental Information System with information on the EMCaB-ENVIS nodes across the country.

### Subject Information

Provides information on the subject matter of environmental economics, discusses some of the relevant policy issues and also provides a glossary.

### Legislations

Describes the background of the environmental legislations in India and lists out various acts and laws laid down by the Ministry of Environment and Forest along with Environmental Impact Assessment . Also provides discussion on some of the recent projects under environmental controversy.

### Universities-Institutes

Provides information on the academic resources in the field of environmental economics in India as per a survey conducted in 1998.

### Curriculum

Provides curriculum that could be followed for a two-semester course in environmental economics, along with that for a short-term training program.

### Literature

Provides information on the Books / Journals / Reports and other reading materials available on the subject matter of environmental economics at the MSE library, along with journal articles categorized under specific themes.

### Environmental Costs

Provides information on India specific case studies and presents estimates on various environmental compliance and damage costs.

The website also provides details about ongoing Environmental Management Capacity Building project. A database of experts working in the field of environmental economics is maintained at the website. The website contains information on conferences / jobs and provides links to various universities / institutes / organizations. Along with features such as feedback, queries and search, the website plans to develop a kiddies corner for explaining the concepts of environmental economics in nontechnical manner.

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*Electronic version of the Newsletter can be accessed from* ***http://www.mse.ac.in/envis/newsletter***