



ESEE NEWS

Newsletter of the European Society for Ecological Economics

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ESEE News is published by the European Society for Ecological Economics (ESEE). Its purpose is to inform ESEE members of developments both within the Society and in other areas of potential interest. It is published once or twice a year and is sent free to ESEE members. The views expressed are those of the individual contributors and do not necessarily reflect the views of the Society as a whole.

The European Society for Ecological Economics is a not-for-profit organisation devoted to the development of theory and practice in ecological economics in Europe. Membership is open to all interested individuals working in Europe or in other areas on request. For membership details please contact the Secretariat.

Welcome from the new ESEE President

ESEE is 10 years old! This number of our newsletter celebrates this fact. From the exciting conference in Versailles in 1996 till now a lot has been accomplished. As emphasized in the address from former president Clive Spash on pages 8 and 9, ESEE has played a distinctive role within the ISEE family to emphasize and develop Ecological Economics as something different from neoclassical environmental economics. ESEE has been especially strong on accentuating the political and the socio-economic dimensions. We should be proud of what has been accomplished in that regard.

This endeavour is the result of many people's efforts. Mentioning some will always be felt unfair to all the others. Still, the role of the past presidents – Sylvie Faucheux and Clive Spash (two periods) – and the secretaries Martin O'Connor, Claudia Carter and Wendy Kenyon must be emphasized. I would also like to mention Ben Davies running the newsletter for a substantial part of the period. They have all put tremendous efforts into building ESEE.

In the same vein one must mention the teams standing behind the various biannual congresses ESEE has arranged. In 1996 at the University of Versailles with the team headed by Faucheux and O'Connor; in 1998 at the University of Geneva with the team led by Beat Burgenmeier and Roderick Lawrence; in 2000 at the Vienna University of Economics and Business Administration with the team led by Uwe Schubert, Klaus Kubeckzo and Sigrid Stagl; in 2005 at the New University of Lisbon with a team chaired by Paula Antunes. In between two Frontiers conferences were also arranged: in 2001 at the University of Cambridge with the team led by Spash and Carter; and in 2003 at

the University of La Laguna with the team led by Juan Sanchez and Federico Aguilera Klink.

We have recently completed a round of elections to the board of ESEE. Ten posts have been filled – see pages 2 and 3 in this newsletter. I would first of all welcome all members to the board, both the new and those who take on a new term. As you will see, we have gotten a good mix of new and 'old' names. I am happy that so many wanted to stand for the board and that we are now - for the first time - up to full strength with all 15 posts filled. This shows a level of engagement that is an immense value to the society.

While this is great, we must also emphasize that we have a lot more to do. We need to increase membership. We should also engage in further capacity building to increase our activities. Several ideas are being discussed. At some stage – hopefully not too far into the future – we will be able to arrange more meeting places e.g., smaller conferences/seminars, and regional meetings. Those of you with ideas and interests in getting things going, please come forward and we will support you as much as we can.

But while this is work to come, let us just relax for a minute or two and feel the pride of having come as far as we have.

Arild Vatn

For comments on ESEE at 10 years old see the extended essays from Clive Spash and Joan Martinez Alier inside.

Society Business

*ESEE Administration
and Society
Development and
Planning Matters*

ESEE Administrative Board Members 2006

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ESEE Election Results 2006

The overall ballot

The recent election of vice presidents and ordinary ESEE board members for 2007-9 is now complete. We had thirteen candidates overall and ten have now been elected. 202 ballots were sent out and 55 (27%) returned. This ballot is therefore quorate since over 20% were returned.

Ballot for Vice President

Paula Antunes	41 votes
Sigrid Stagl	47 votes

Sigrid and Paula are both elected as vice presidents of the ESEE

Ballot for ESEE Board Members

Wendy Kenyon	43 votes
Tatiana Kluvankova-Oravska	35 votes
Ines Omann	35 votes
Karen Refsgaard	35 votes
Esther Velazquez	34 votes
Janne Hukkinen	28 votes
Roldan Muradian	27 votes
Unai Pascual	23 votes
Igor Matutinovic	20 votes
Bernd Siebenhuener	20 votes
Maria Nijnik	17 votes

Wendy, Tatiana, Ines, Karen, Esther, Janne, Roldan and Unai are elected as ESEE board members.

Ballot for Constitutional Amendment

Agree	48 votes
Do not agree	3 votes
Abstain	4 votes

The proposed change to the constitution has been agreed.

The constitution now states:

“An election committee is responsible for ensuring the smooth running of the elections and encouraging enough nominees stand to make elections competitive. The board selects the committee. It shall consist of four members, normally two members from the board and two external ESEE members. No person can be a member of the election committee for more than 6 years.

The Secretary administers the elections on behalf of the election committee. Nominations for election to the Board shall be made in writing to the Secretary supported by five Members eligible to vote and must be received at the Administration office no later than the date specified by the board for the receipt of such nominations.”

An introduction to the newly-elected ESEE Administrative Board Members

Board: Who's Who

PAULA ANTUNES

I am a Professor at the Faculty of Sciences and Technology of the New University of Lisbon, where currently I am Head of the Department of Environmental Sciences and Engineering. My research is focused mainly in sustainability issues, namely in the development of participatory approaches in the design of environmental policies, sustainability assessment and ecological-economics modelling. I founded, in 1994, with other colleagues, the Portuguese Ecological Economics and Environmental Management Centre (ECOMAN). I was chair of the organizing committee of ESEE 2005, the 6th International Conference of ESEE, held in Lisbon. I am Associate Editor of the *Ecological Economics* journal and I have been a member of the ISEE board between 2002-2004.

SIGRID STAGL

After studying in the Ecological Economics PhD programme at Rensselaer Polytechnic Institute in Troy, New York, I worked at universities in Vienna (Austria) and Leeds (UK). In Leeds I started the MA Ecological Economics programme and with colleagues built up the Ecological Economics research group. Last year I joined the Energy and Environment Programme at SPRU (Science and Technology Policy Research) at the University of Sussex as Senior Fellow. In 2009 we will host the ESEE Summer School at SPRU. My main research interests are (i) modelling human behaviour and social institutions and (ii) sustainability appraisal.

JANNE HUKKINEN

I am a professor of environmental management at Helsinki University of Technology, Finland, with a focus on environmental strategies and technology assessment. My recent work has been in the areas of knowledge integration, expertise, and participation in environmental and technology issues; sustainability scenarios and indicators; industrial ecology; and reliable environmental governance. I am an editorial board member of the journals *Environmental Sciences* and *International Journal of Learning and Change*; and author of *Institutions in Environmental Management* (Routledge, 1999). I am also an expert environmental counselor of the Supreme Administrative Court of Finland.

WENDY KENYON

I have been involved in teaching and research on ecological economics since 1995 when I taught (and then directed) the MSc in Ecological

Economics at the University of Edinburgh. Simultaneously, I was conducting my PhD research at the University looking at integrating economic methods of environmental valuation with participatory processes. I have also worked in government research in Scotland, working in the Environment and Rural Affairs Department of the Scottish Executive. I am currently on a senior research fellowship held at the Macaulay Institute in Aberdeen in water management research with a focus on flooding.

TATIANA KLUVÁNKOVÁ-ORAVSKÁ

Most of my research in recent years has been on institutional changes such as multi-level governance of biodiversity in the EU. My major focus is on biodiversity in new member states where current decision-making is still affected by post-socialist relations. In my past term in the ESEE board (2003-2006), my commitment concentrated on growing representation of concerns from Central and Eastern European countries. The second of the THEMES summer schools in emerging theories in sustainable research (June 2007) will take place in the largest Slovak National Park High Tatras and will be hosted by my institute.

ROLDAN MURADIAN

BCS Biology (Simon Bolivar University, Venezuela); MSc and PhD Ecological Economics and Environmental Management, (Autonomous University of Barcelona, Spain). Currently I work as research fellow at the Development Research Institute (IVO), Tilburg University, The Netherlands. I am involved in several projects dealing with capacity building, research and international cooperation in the field of ecological and development economics, in a number of Latin American and Asian countries. The main research topics are: environmental and governance aspects of global commodity chains, developmental and environmental effects of trade specialization in Latin America, water supply and sanitation in poor urban areas in Asia, and innovative mechanisms for management of natural resources in developing countries.

INES OMANN

I am currently a senior researcher at the Sustainable Europe Research Institute (SERI), Vienna. I studied economics and environmental systems sciences at the Universities of Graz (Austria) and Lund (Sweden). In 2004 I received a PhD in Economics from University of Graz. After working as a research fellow at Joanneum

Research (1998), Austria, I joined the Wuppertal Institute for Climate, Environment, Energy in Germany (1999) as a member of the working group for Ecological Economics and Environmental Policy. Since 1998 I am also teaching macroeconomics and ecological economics at the University of Graz.

UNAI PASCUAL

BSc Economics (Bilbao), MSc Environmental Economics and Environmental Management (York), PhD Environmental Economics and Environmental Management (York). I am a lecturer of ecological economics at the University of Cambridge (Department of Land Economy since 2003) and among other topics, I research on the links between land use change (e.g. deforestation, biodiversity loss, soil degradation) and development with emphasis on developing economies. Most of my research career has been based in the UK, including past research positions at the University of York, (Environment Department, 1996-2001) and the University of Manchester (School of Economic Studies, 2001-03).

KAREN REFSGAARD

My Masters is in Agricultural Economics from the Royal Veterinary and Agricultural University in Denmark. During my PhD study at the Agricultural University of Norway with Arild Vatn as my supervisor I got into the sphere of natural resources and thermodynamic problems for agricultural systems, while also focusing on the challenges for decision making related to the society's creation of waste. I have just ended a sabbatical at University of Vermont. Currently I am part of a European research project TOP-MARD which focuses on sustainable rural development for remote areas through policies for multifunctional agriculture.

ESTHER VELAZQUEZ

I am currently a Professor of Applied Economics in the Department of Economics at the "Pablo de Olavide" University (UPO) in Seville, Spain. I have 15 years teaching experience in different universities. My research is mainly focused on water economy. Nevertheless, I have researched in other topics as CO₂ emissions, energy, physics flows, etc, from an ecological economics perspective. After many years working in the field, I am completely convinced about the need to reinforce the Ecological Economics teaching and research Agendas, as well as their relationships with European societies.

PROFILE

A fire-side chat with a leading figure in Ecological Economics about life, the universe, and everything

Clive Spash was born in Reading, England, and grew up in the southern English areas of Berkshire/Oxfordshire and Isle of Wight. During his career he was a Research Assistant at UBC, Canada, and an RA/TA at Wyoming, USA; Lecturer, Economics, Stirling, UK; Lecturer Land Economics, Cambridge, UK; Research Professor, Aberdeen, UK; Senior Research Fellow/Science Leader, CSIRO, Australia. Research groups as manager: Stirling Environmental Economics Research Group; Cambridge Research for the Environment; Aberdeen Socio-Economic Research Programme. He has been ESEE Vice President and President, both for 2 terms. He currently lives in Canberra, Australia. Personal website: <http://www.clivespash.org>.

What was your impression of your local environment when you were a child?

Contrasts. Woodlands, rolling hills, old villages, farms and manor houses, on one side of the Thames, and a decaying Victorian industrial town on the other, with modern re-development slowly making it into a concrete jungle for the car and shoppers. Then there was the Isle of Wight which was more of the former and none of the latter: sea, wind, beaches, cliffs, forests, hills, wildlife, sailing and sunny days, storms and the lifeboat launching and a sense of history and times gone by.

Can you identify a point when you realised you wanted to work on environmental problems?

No point, just a gradual awaking, growing concern and disbelief at mankind's stupidity and destructive power. I was especially concerned by wildlife loss as a child, seemed a big issue at the time, did a fund raiser for "Save the Tiger" around '72, I guess that's an early milestone.

Who were the most influential writers for you when you were a student?

Still studying, learning, looking for influential thinking, but not people. I'm very disenchanted by academic guru stuff; smacks of desperation, egos with answers, hero worship and even individual cults. All seems very divisive and cliquy. People write good and bad stuff, they write one thing and do another; so, as people, they can be disappointing, but ideas should stand or fall on their own. Indeed criticism of ideas is too often confused with people.

I could cite works/contributions that made me think, in specific subject areas, at certain times, in a process of on-going thought, but I'd rather avoid naming people out of context of work, time or place. There really isn't the space to explain here. If we were talking art that's a different matter, far more egotistical, individual expression.

Have your research interests changed since you first started working on environmental issues?

I've changed interests considerably over time. In my formal work I've moved from environmental and resource economics, through natural science studies, such as atmospheric and plant science, in order to understand air pollution problems, into intergenerational ethics and so applied philosophy, and then environmental values and human behaviour and so social psychology. Throw in some political science, history, methodology. My basic drive is the same: how to tread lightly on the planet, live in harmony with and show respect for Nature and others.

Which environmental problems concern you the most at the moment?

Human behaviour, it's the most fundamental there is. Whatever the most recent environmental issue the behavioural cause is the problem. In my professional career we've moved from single point source pollution as "the problem" to acidic deposition to stratospheric ozone depletion to global climate change and biodiversity loss, and who knows what's round the corner? None of these "problems" has been "solved", despite the rhetoric. Too many people, consuming too much and getting very little of anything from it while being told they should want more, the latest, the greatest...; a load of people, consuming very little and getting nowhere fast.

If you had a year off to do whatever you wanted, what would you spend it doing?

I think I'd move to somewhere warm and sunny and do some reading and writing. Y'know, somethin' like being a research fellow in Australia.

Are you generally optimistic or pessimistic about the future? Has your view changed over time?

I try avoiding such generalisations; none too keen on dichotomies either. So take a couple of issues, I thought we'd internalise the externalities of coal fired power generation twenty years ago and now have cleaner technologies in place through capital turnover, it didn't happen; I believe we could've banned all ozone depleting gases globally by now but we haven't, indeed they've

kept on increasing. On most issues I see a way forward, but I despair at the consistent failure of governments to take decisive action and individual humans to act more responsibly. I do what I do because I believe we can change the world, and anyway we'd better try. Of course the continued presence of wars, violence, torture, violation of human rights, trading in humans, absolute poverty and so on ... that's hardly a good record of human conduct or progress now is it?

When you come to modern political economy I think there's a psychological problem. Carl Jung put it something like this: We strive for technologies which generally fail to increase contentment or happiness, but rather, like speedier communications, unpleasantly accelerate the tempo of life and leave us with less time than before. We live more in the future and its chimerical promises of a golden age than in the present, with which our past has not yet caught up; we rush impetuously into novelty, driven by a mounting sense of insufficiency, dissatisfaction, and restlessness; we no longer live on what we have, but on promises, no longer in the light of the present day but in the darkness of the future, which, we expect, will at last bring the proper sunrise.

What sort of local environmental problems are you faced with where you live now?

A "drought", fear of summer fires destroying houses, a suspicion of climate change. Still people use mini-irrigation systems to spray potable water to get green lawns of an imagined England. Living on the driest continent on Earth, in an arid zone, you might expect lifestyles more in touch with environmental boundaries, like growing plants adjusted to the climate. While some strive for just that, many Australians, I get the impression, they're in Boulding's cowboy economy not spaceship earth.

What places (cities, regions, companies) have impressed you with their quality of their environmental management?

I'd like to see an environment which didn't have to be "managed" to maintain its quality, that

LEIPZIG 2007

Outlook to the ESEE conference in 2007



ESEE 2007

Integrating Natural and Social Sciences for Sustainability

The European Society for Ecological Economics (ESEE), in co-operation with the German associations for ecological economics VÖÖ and VÖW, are pleased to invite you to join us at the UFZ-Centre for Environmental Research, Leipzig, Germany for the 7th biennial international conference of the European Society for Ecological Economics: 5-8 June 2007. Visit the conference website: <http://www.esee2007.org>

Keynote speakers will include: Elinor Ostrom, Malte Faber, Dick Norgaard, Inge Røpke, Clive Spash, and Carl Folke.

The conference will explore contemporary scientific approaches for incorporating the concept of Sustainable Development in research and practice, with a particular focus on the bridging of contributions from the natural and social sciences. It will address a broad range of sustainability topics including loss of biodiversity, human vulnerability to global change and water problems on all geographical and institutional levels. The aim of the conference is to contribute to a better understanding of societal and natural processes and their interaction through the integration of different scientific methodologies, in order to overcome shortcomings associated with single- and multi-discipline approaches. Impediments to inter- and trans-disciplinary research will be examined and new research approaches for addressing sustainability questions will be identified.

The calls are closed by now, but you still might be interested to come and discuss with some of the 300-400 participants. While we can't give you details on the presentations, we yet can tell you that more than 20 symposia have already been accepted, dealing e.g. with evolutionary and institutional economics, study of the commons, urban development, use of scenarios in biodiversity research or the role of K. W. Kapp, a very early German ecological economist.

(continued from page 4)

would impress me.

Which figures from the past do you most admire (not just in the environmental field), and why?

The figure zero, because its always perplexed me how to conceptualise nothing. The figure 33 trillion, because it exemplifies scientists' ability to conceptualise something based on nothing.

Do religious beliefs influence your life and work?

They influence my life because there's so many

"religious" people trying to kill each other and succeeding in creating considerable human and environmental misery in the process, let alone paranoia.

Do you think of yourself as a rural or as a city person?

Not really.

How do you relax at the weekend?

I don't.

Do you have a favourite motto or saying

about the environment?

More like anti-mottos. Engineers saying: "dilution is the solution to pollution"; well done boys that was a good one! Or even better, from North America "shoot it if it runs and cut it if it stands".

What is the best piece of advice you've been given?

Some advice from a Mr Thomas of Llandudno, Wales:

"Rage, rage against the dying of the light, do not go gently into that good night."

New species of mammal discovered in Europe

A team of researchers has found a new species of mammal in Europe; *Mus cyriacus*, as its name suggests, is a species of mouse found only on the island of Cyprus. *Mus cyriacus* is characterised by its long tail and bigger head, ears, eyes and teeth relative to other European mice. Analyses revealed that the mouse first arrived on Cyprus thousands of years before man, most likely by drifting there inadvertently on a natural raft. Once there, separated from mainland mouse populations by the Mediterranean Sea, it evolved into a separate species as it adapted to the local environment.

The fact that the species survived the arrival of humans on the island is remarkable. Before people started to colonise the Mediterranean, many of its islands were home to a startling array of species such as pygmy elephants and giant birds. Many of these could only be found on one island, and almost all became extinct soon after humans arrived in the area. In contrast *M. cyriacus* survived this period of upheaval and now lives side by side with the common European house mouse, which was introduced to the island by humans.

Sulphur and nitrogen emissions continue to fall in EU-15

The European Environmental Agency has published an annual inventory report on transboundary air pollution which finds that emissions of nitrogen oxides are down by 30% since the early 1990s, but that data remains incomplete. The report, 'Annual European Community LRTAP Convention emission inventory 1990-2004' also found that emissions of sulphur (SO_x), as reported by Member States, dropped by 70% between 1990 and 2004 within the EU-15.

The emissions reductions took place in many sectors - transport, energy, agriculture and waste. Emission reductions were also recorded for other major air pollutants - carbon monoxide (-50%) ammonia (-8%) and non methane volatile organic compounds (NMVOC) (-45%).

In its conclusions, the authors write that the inventory of total emissions of air pollutants for the EU-25 still suffered from incomplete data from Member States, and called on Member States to increase their submission of data.

In addition, the report recommends a more formal Quality Assurance and Quality Control plan for procedures.

For further information, please visit: http://reports.eea.europa.eu/technical_report_2006_8/en

European Union News from CORDIS

Register of impact of non-industrial pollution published

The European Commission has published an inventory of pollution from non-industrial sources, such as cars, aeroplanes, ships and household appliances. This diffuse pollution is usually excluded from pollution measures, but its inclusion will allow more accurate and targeted policy-making in the future.

'This first inventory of pollution from small or non-industrial sources will contribute to protecting people's health and the environment. With this inventory we will now have a complete picture of the sources and total amounts of pollutants. This in turn will enable us to develop better targeted and thus more effective policies for fighting pollution,' said Environment Commissioner Stavros Dimas.

Once comprehensive data are collected, then the information can be used to compile a European Pollutant Release and Transfer Register (European PRTR). The first results suggest that diffuse pollution is 'substantial', with the greatest emissions are from road transport (for example, copper pollution from car braking systems), domestic heating and agriculture.

Industry launches ambitious paper recycling target for Europe

The paper industry has set a new recycling target of 66 per cent, to be reached by 2010. The signatories will award priority to waste prevention, improving the recyclability of products, and the quality of recycled paper, and will turn to research and development (R&D) in order to meet the target.

A total of 46.6 million tonnes of paper and board were recycled in Europe in 2005, and more than half of the paper used in Europe today is now made from recovered paper. An initial 'European Declaration on Paper Recovery' launched in 2000 pushed Europe's recycling rate to 55.4 per cent. The new declaration raises the

bar to 66 per cent, and covers more European countries and more organisations.

The theoretical maximum recycling rate for paper is 81 per cent rather than 100 per cent on account of paper that cannot be recycled, such as archives and libraries, and papers used in construction materials.

Europe is by far the global leader in paper recycling - the American Forest and Paper Association has set itself a recycling target of 55 per cent for 2012, which includes exports for recycling in Asia.

For further information, please visit: <http://www.paperrecovery.org>

Transport project intent on driving you to emptier roads

A new EU project, CityMobil, plans to make the roads in Europe's cities more efficient - by eliminating the drivers. The €40 million project involves 28 partners in 10 countries, and three trial sites have already been selected - London's Heathrow airport, the new exhibition centre in Rome and the town of Castellón in eastern Spain.

CityMobil envisages driverless public transport systems taking you exactly where you want to go, and when you want to go. 'The on-demand factor is very important, even using a fixed infrastructure, you could arrange, on demand, a vehicle, which could then take you to anywhere you might want to go,' explains project leader Mr van Dijke.

The project, funded under the Sixth Framework Programme (FP6), hopes to make better use of public transport systems, so that there is less congestion, pollution and traffic, building on the FP5 CyberMove and CyberCars projects. The scheme in Heathrow will connect the vast fifth terminal, due to open in 2008, with the car park. Some 18 futuristic looking driverless pods will run along 4.2 km of track. In Rome, special driverless 'cybercars' will take visitors between a new exhibition centre, the car park and nearby railway station. Finally, in Castellón, special buses that can run either with or without a driver, depending on the traffic conditions, will

European Union News from CORDIS

and 2002, the temperature over the north-east peninsular rises by around 5°C. This in turn creates the conditions which allow melt water on the surface of the ice sheets to drain down into crevasses, a process which is implicated in the break up of ice shelves.

For more information, please visit: <http://www.antarctica.ac.uk/>

Catalytic experiments try recycling CO2 into useable fuel

A pioneering study, funded under the European Commission's Sixth Framework Programme (FP6), has uncovered a way to turn waste carbon dioxide (CO2) into useful fuel. The Specific Targeted Research Project (STREP), ELCAT, is a joint venture between the Max Planck Institute in Germany, the Louis Pasteur University in France and the University of Patras in Greece, coordinated by researchers from the University of Messina in Italy. The project is funded under the New and Emerging Science and Technologies (NEST) programme of FP6.

One problem with CO2 is that it is a highly stable gas. Once produced, the chemical bonds in CO2 are extremely difficult to break. The new technique enables special catalysts to break those chemical bonds and create long-chain carbon molecules, which can be easily converted into fuels. Traditionally, the energy needed to break those chemical bonds, even with catalysts, is very high. The researchers used a two-stage approach. First, sunlight was used with a titanium catalyst to split water molecules, releasing free 'protons' (hydrogen ions), electrons and oxygen gas. In the second stage, those free electrons are used to reduce the CO2 and bind the carbon atoms together using platinum and palladium catalysts inside carbon nanotubes.

The research is currently efficient enough to produce molecules of eight or nine long hydrocarbon chains at one per cent efficiency at room temperature. This is already two to three times greater efficiency than any other industrial process. If coupled with 'green' technologies, such as the massive heat generated in solar thermal energy towers, then far greater efficiencies can be achieved.

In a presentation to the American Chemical Society in San Francisco on 13 September, Prof Centi said that viable production of hydrocarbon chains from CO2 could be attained 'within a decade'.

See <http://www.newscientist.com>

News coverage is collected from the European Union Research and Development Information Service (CORDIS)

operate in the town centre.

CityMobil also builds on the FP5 Stardust project, which developed ADAS (Advanced Driver Assistance Systems) technologies, to help both traffic congestion and driver safety. The results were piloted in the Norwegian cities of Lillehammer and Trondheim.

German researchers claim solution to radioactive waste disposal

German physicists claim to have come up with a way of speeding up the decay of nuclear waste. The technique involves embedding the waste in metal and cooling it to ultra-low temperatures. Claus Rolfs of Ruhr University in Bochum, Germany, developed the technique after replicating the fusion reactions that take place in the centre of stars. Fusion is the process by which multiple nuclei join together to form a heavier nucleus. It is accompanied by the release or absorption of energy depending on the masses of the nuclei involved.

Using a particle collider, Dr Rolfs fired protons and deuterons (nuclei containing a proton and a neutron) at various light nuclei. He noticed that nuclear fusion occurred at a greater speed when the atomic nuclei were encased in metal and then cooled. This can be explained by the fact that, due to the lower temperature of the metal, the free electrons get closer to the radioactive nuclei. These electrons accelerate positively charged particles towards the nuclei, thereby increasing the probability of fusion reactions.

Given that radioactive decay involves the exact opposite process to that of fusion, Dr Rolfs also fired radioactive nuclei, encased in metal and cooled, into the collider to see whether the free electrons could accelerate the ejection of positively charged particles from a radioactive nucleus. As expected, he observed that radioactive decay occurred and was accelerated considerably by the presence of the lower temperatures and metal casing. According to Dr Rolfs, the technique could potentially cut radioactive material's half-lives - the time it takes for a given radioactive isotope to lose half of its radioactivity - by a factor of 100 or more.

'We are currently investigating radium-226, a hazardous component of spent nuclear fuel with a half-life of 1,600 years. I calculate that using this technique could reduce the half-life to 100 years. At best, I have calculated that it could be reduced to as little as two years. This would avoid the need to bury nuclear waste in deep repositories - a hugely expensive and difficult process,' explains Dr Rolfs.

'The method we are proposing means that nuclear waste could probably be dealt with entirely within the lifetimes of the people that produce it. We would not have to put it underground and let our great-great-grandchildren pay the price for our high standard of living,' he added.

For more information, visit:

http://www.ruhr-uni-bochum.de/index_en.htm

Study links Larsen ice shelf break-up to human activity

For the first time, a team of researchers has linked the recent dramatic collapse of Antarctic ice shelves to human activity. Temperatures in the Antarctic's central Western peninsular have risen by almost 3°C over the last 50 years, far higher than the global average rise of 0.52°C and possibly higher than anywhere else on Earth.

The most visible consequence of this temperature increase is the break-up of the region's ice shelves; in the last 30 years over 13,500 square kilometres of ice has disintegrated. In 1995 and 2002 the world's attention was drawn to the issue by the sudden collapse of immense chunks of the northern part of the Larsen ice shelf. In the 2002 event, 3,250 square kilometres of ice shelf disintegrated. At the time, questions were raised as to whether these dramatic events were the result of human activity. Now, a team of researchers led by Dr Gareth Marshall of the British Antarctic Survey have found evidence that this is indeed the case.

Global warming has altered the Antarctic's weather patterns. Stronger westerly winds now regularly push warmer air eastward over the 2,000m high mountains on the Antarctic Peninsula. When this happens, as it did in 1995

The State of Ecological Economics: A Decade of European Experience

Clive Spash (ESEE President 1999-2006)

'Ten Years Are Gone'

The subtitle above comes from a song by blues artist John Mayall recounting a decade of turmoil in which he had run numerous bands with some outstanding musicians such as guitarists Eric Clapton and Peter Green. Never quite able to keep a band together Mayall still produced some exciting music and managed to influence a whole generation of rock and jazz-blues fusion artists. His experience might be summarised as being inspired by new ideas, challenging the orthodoxy, fighting record companies and striving for what he believed was important through creative work.

The recent history of Ecological Economics could be written in similar terms. The desire for something new, and excitement over the potential directions, was very palpable at the first ESEE conference in Versailles. By the late 1980s many environmental economists had become dissatisfied with the state of the profession and its increasingly abstract approach to issues and apparent lack of policy relevance. Natural scientists were viewed as discussing issues, such as acidic deposition, without paying attention to the political and economic context. Individuals arguing for the importance of combining economics and ecology were often ostracised from their academic communities or at best marginalised. So why not start a whole new agenda and empower all the disparate academics who were feeling left out in the cold or forced to conform their economic ideas in order to make a living?

The desire for a more radical direction was particularly prevalent in Europe amongst the founding members of the ESEE. As I have argued elsewhere (Spash, 1999 which is basically an apologia for Ecological Economics), a more traditional and conservative approach was pursued by many, especially in North America, and seems quite often to have dominated the Society's journal, particularly the special issues. This movement for moderate change has viewed the field as constituting economics AND ecology with links primarily achieved through combining independent disciplinary models, extending cost-benefit analysis, and indeed doing many things mainstream economists would have no qualms in accepting. This can be contrasted with the more radical European element calling for a total rethink and often a different economic paradigm. Social concern and political economy have been to the fore of this school of thought and remain so.

Recently Inge Ropke has written in the Society's journal explaining some of the history gleaned from a series of interviews she

conducted with leading figures in the development of Ecological Economics (Röpke, 2004; Röpke, 2005). This confirms the division of approaches between "ecology & economics" and "social-ecological-economics". The current political climate in the USA seems set to make such a divide continue as being more radical is made hard for academics and everyone else (Spash, 2006). This has also contributed to a tendency towards the pragmatic justification. For example, at the 2005 USSEE conference defence of ecosystems valuation was conducted almost exclusively on the grounds of belief in political impact as opposed to any theoretical basis for the numbers being produced. This was the "If the politicians and business like it then that's good enough for me.", and "Either you're with us and practical or against us and idealistic" school of thought. The term "fundamentalist" was even used to deride theoretical objections! Lucky I left my turban at home that day.

Of course Europe is not devoid of similarly narrow thinking (see Söderbaum, 2005), but generally awareness of history of thought, political science, applied philosophy, social theory and methodological debate have ameliorated such tendencies. I should note that a concern for theory and methodology has not prevented maintaining close input to practical policy, advising government agencies and generally having an impact. Yet the magic bullet approach seems to be a persistent favourite, with single numbers topping the agenda. As if a big number is all that counts (must be a male thing?).

If there is one lesson we should have learnt by now, open debate and deliberative participation is necessary to address value divides and a healthy society is one which allows, enables, encourages and engages in those debates. Ecological Economics certainly has the diversity of opinion for some good debates, and should aim to spread them to society in general. However, too often the more radical ideas seem swamped by the traditional, tried and tested, the means by which institutions have established power and the structures within which individuals have made their niches.

At the ISEE meeting in Montreal deep concern was expressed from the conference floor over the Boulding Award to two prominent neoclassical thinkers: the resource economist, Partha Dasgupta, and the environmental economist Karl-Göran Mäler. Some people were mystified as to what was the concern (including the award committee) while others were shocked that such conservative economists should be seen as representing a prize in honour of Kenneth Boulding and Ecological Economics. There was clearly a divide between the scientists on the

award committee and the members in the audience. The lesson was clear, there are many, even senior, members of Ecological Economics who have no conception of Ecological Economics as something new and innovative with the potential to radically change economic thought. This was brought home to me again at the 2005 USSEE conference where some delegates interchanged the terms ecological and environmental economics, and when questioned why had no conception of any differences.

In Europe we tried to address this issue head on. At the 1998 Geneva conference there were many unthinking pieces on how to place a price on this that and the other. They were often not very good in their own terms let alone as Ecological Economics. The conference was obviously being treated as a close substitute for environmental and resource economics, and possibly an easier option. In Vienna we took a more structured approach to sessions and much time was spent on informing delegates as to directions of research in which the conference was interested. This was taken a step further using Frontiers I and II where the ESEE conferences were restricted to around 100 delegates and tightly focussed on the development of theoretical and policy insights which would not be found in a typical environmental and resource economics conference. Experimental approaches to conference sessions were also employed to encourage greater thought and discussion than typical. The return to a large format conference in Portugal showed considerable success because the focus of the sessions and majority of the papers remained distinct from the type of work on-going in environmental and resource economics. The positive alternatives were coming through.

While those of us who have been working for the Society over the last decade might have hoped to have gone further we must be proud of what has been achieved in a relatively short time. We do tend to be excessively self critical; as I noted in my address to the Cambridge conference, often we appear like a teenager always looking in the mirror and searching for spots to burst. Two decades ago there were few opportunities for an economist who wanted to study the environment, the posts available tended to be for mainstream economists who might dabble on environmental issues and then they were expected to maintain neoclassical credentials, do mathematical modelling to the exclusion of much else and basically avoid anything looking like other social sciences. Collaboration with natural scientist was seen as more safe because there was no perceived connection with economics. There were no post graduate courses in the area and few undergraduate ones, let alone summer schools. The world has indeed been transformed with the potential to study Ecological Economics through higher education, get a job and achieve professorial status without compromising on interdisciplinary ideals. I'm not saying this is

the easiest option but it is a feasible one, which it was not in the past. You may find yourself in a Geography Department, Business School, Development Studies Institute or some similar abode, where diversity is more openly accepted than in Economics, but you can have a career. In the past you might have wondered if you were the only person in the world who questioned economic orthodoxy due to your concern over environmental problems, but now you can attend regular European and international meetings where you will meet like minded colleagues. This success is in part due to the existence of a professional association and the presence of several journal outlets with editors ready to welcome work in the field, as well as to the dedication and perseverance of colleagues without much thanks and often in the face of adversity.

Neither should we forget the success in winning research funds, establishing research groups, and conducting a range of major research and networking projects (e.g., VALSE, EVE, FRONTIERS, CIVICS, ADVISOR, PATH to mention just some of those with which I've been involved). The members of ESEE have been particularly active within the European Commission's research programmes. For example, in the mid 1990s Martin O'Connor was particularly successful in this regard and his and Sylvie Faucheux's efforts strongly helped establish important European networks which in turn spawned further research projects. Another success story is that of Fritz Hinterberger who since the mid 90s has run an independent Ecological Economics research institute by consistently winning competitive grants, and in so doing has provided a nurturing ground for many colleagues. There are now numerous clusters of ecological economists around Europe within Universities and research institutes. More generally young researchers have been free to conduct agendas of which one might only dream twenty years ago. The research being produced by all this research also helps offer new directions and alternatives to the tried and tested.

The Next Ten Years

The question we as a Society must ask ourselves now is what should Ecological Economics do next? The membership has changed over the last decade so that some good people who were critical thinkers and active are no longer members, while many young people are interested in the potential the Society seems to express but have little depth of knowledge. For me there are several reasons we have maintained this association:

- (i) fellow feeling,
- (ii) relief at finding like minded individuals,
- (iii) empowerment for those previously isolated who had been forced to adopt (mainly neoclassical) approaches in order to maintain a career or job,
- (iv) the chance to make a real impact on policy,

(v) travelling and meeting people across the globe, (vi) the prospect of making others aware of the diverse bodies of work relevant to economy-environment interactions (from sociology to psychology, from philosophy to soil science).

While these are unifying forces the points also identify some of the greatest challenges. Whereas 15 years ago there were relatively few formal associations in the area, today there are a growing number of professional societies and journals, which include those addressing science and society, integrated assessment, environmental politics, environmental history and the sociology of consumption. In trying to combine all these perspectives the Society finds itself competing for peoples attention relative to their specific interests. The future requires stronger links with other professional societies including those from the natural sciences.

The communication with natural scientists has been made easier in as far as the policy context has changed to favour placing science in a social context. For example the Intergovernmental Panel on Climate Change has moved from a totally scientific assessment to addressing social and economic impacts in a more open fashion. However, there remains a large divide in terms of understanding (Spash, 2002). Natural scientists still far too often see socio-economics as an add on to assuage political needs rather than an essential element in understanding the problem. The use of monetary valuation, the return to accounting approaches of the 1970s, and the prevalence of benefit transfer, all show how simple socio-economics is demanded by natural scientist who would be appalled if their own areas of study were treated in the same simplistic manner. I am still amazed that ecologists who have contributed so many interesting concepts, including the complex adaptive system, expect to skip lightly though the political minefield that is economics and human affairs.

If there is an area of endeavour in which I think Ecological Economics can really make a difference then it is understanding the complexity which constitutes human behaviour. Progress has been made in getting across the message that there are a range of real alternatives to address complex environmental problems. The mainstream economic approach emphasises quantitative models, cost-benefit analysis, capitalist market instruments and static single optimal solutions to decisions. This is seen as in conflict with qualitative models, discursive analysis, offering new institutions and seeing decisions as process based. Certainly Ecological Economics was not established to merely replicate the work being done by environmental and resource economists. However, Ecological Economics has better things to do than enter an argument about choosing one extreme or the other. Instead we should offer understanding as to how choosing specific options leads to specific framings of the world and how all framings limit understanding. We need to show

how the social and natural sciences can be improved through a greater awareness of the political economy in which we live.

However as Ecological Economists we cannot be naive about the role of institutions in restricting and closing down debate and protecting their own interest. We require institutions which can combine different framings to view the world from a different (more holistic) pluralistic perspective. This does place Ecological Economics in opposition to approaches which are monistic, narrow and inward looking.

I believe the most progressive elements of Ecological Economics have moved beyond a preoccupation with mainstream economics and avoid being cornered into debates which try and paint a black and white picture of us and them. This is not to deny the divisions, which are substantive and real, but rather to emphasise the need for developing positive alternatives rather than negative attacks. The future is one where government agencies require a range of options to address environmental problems as scientific and social issues. Positive ways forward are to research and explain the range of policy appraisal techniques and approaches to modelling and understanding the world and to set them within the context of their own assumptions.

The strength of Ecological Economics is in making clear that complexity and strong uncertainty are normal and can be address by better alternatives than we have seen so far. The problems facing the Society, as a microcosm of the world, are that there are no simple answers and open democratic debate requires engaging people who are preoccupied with their own little worlds, careers, problems and egos, and often, despite their own best intentions, fail to protect the social and environmental structures which support them. Ecological economics has a substantial future in aiding better understanding of why humans continue to destroy, often by neglect and apathy, what they say they value.

Röpke, I. (2004) The early history of modern Ecological Economics. *Ecological Economics* 50(3-4): 293-314.

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Spash, C. L. (1999) The development of environmental thinking in economics. *Environmental Values* 8(4): 413-435.

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Research & Education

“Management of Protected Areas” A Master-of-Science Programme Klagenfurt University (Austria)

The Klagenfurt University, Austria, launched a new international postgraduate master programme dealing with the inter- and transdisciplinary issues of establishing and managing **Protected Areas**. The focus is on all aspects of establishing and managing Protected Areas such as national parks, Natura 2000 sites, state parks, RAMSAR sites. The programme includes the ecological, managerial, legal, institutional, economic, cultural and social dimensions of protected areas, and is set up in cooperation with international bodies such as CBD (Convention on Biological Diversity), IUCN (World Conservation Union), WWF, Ramsar convention, PanParks, EuroParks, and prominent Protected Areas in Europe.

The **learning goals** are:

- an excellent and comprehensive understanding of the aims and roles of Protected Areas in relation to the conservation of biodiversity and (integrated) regional development.
- detailed knowledge when applying the full range of tools available for the management of Protected Areas so that they can effectively fulfil their aims.
- an ability to analyse and solve problems encountered when establishing, planning and managing Protected Areas, to conduct inter- and transdisciplinary dialogues with all stakeholders and to develop and implement appropriate integrated solutions.
- the development of hard and soft skills to create mutual benefits of nature conservation on the one hand, and for the local population on the other hand, particularly in peripheral regions as well as in developing countries with the aim of sustainable regional development.

The programme currently involves 20 students from countries such as Switzerland, Austria, Romania, Malta, Armenia, Nepal and Latvia.

The next class starts in **September 2007** – duration of the programme is 4 semesters, closing with a Master of Science in Management of Protected Areas.

Scholarships are available for students from developing countries and from low-income countries in Central and Eastern Europe. The **deadline** for developing countries students applying for admission to the programme and for scholarships is **1 December 2006**. The general deadline for all other applications is 30 June 2007.

Further information:

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Did you know that members of ESEE are eligible for free electronic access to the interdisciplinary philosophical journal *Environmental Values*?
For details visit the ESEE website: <http://www.euroecolecon.org/>

CALL FOR APPLICATIONS

THEMES 2nd Summer School
June 2007

Institutional Analysis of Sustainability Problems

As part of a series of four Marie Curie funded summer schools in Emerging Theories and Methods in Sustainability Research (THEMES) the Institute for Forecasting, Slovak Academy of Sciences will in 18-29 June 2007 host the second summer school titled: ***Institutional Analysis of Sustainability Problems***. Tatiana Kluvánková-Oravská is organizing the event.

This summer school will discuss the role of institutions in governing human use of natural resources, particularly under increasing pressures of global environmental change. Specific objectives include developing deeper insight into the general theory of institutions with specific applications to resource regimes (local and global), methods for the analysis of institutions, and institutional and ecological economics within new member states facilitating dialogue and knowledge exchange amongst the countries in transition from various geographical regions. Keynote speakers are E. Ostrom, D.W. Bromley, J. Jílková and M. Kozova. The event will be arranged in cooperation with The International Human Dimensions Programme for Global Environmental Change.

The summer school is now open for application on www.umb.no/research/themes. This link will also offer you more detailed information about the school. When selecting participants, priority will be given to young researchers

Recent Books

Socioecological Transitions and Global Change. Trajectories of Social Metabolism and Land Use

Edited by Marina Fischer-Kowalski and
Helmut Haberl. With a foreword by Joan
Martinez-Alier.

Cheltenham (Edward Elgar).
Forthcoming May 2007

Das Ende der Flaechе

Sieferle, R.P., F.Krausmann, H.Schandl,
V.Winiwarter,

Zum gesellschaftlichen Stoffwechsel der
Industrialisierung.

Koeln-Weimar-Wien (Boehlau)

EDUCATION REPORT: The First Themes Summer School at the ICTA, Universitat Autònoma de Barcelona

The first of four Marie Curie summer schools on different aspects of Ecological Economics was held at the UAB in June 06 under the general guidance of Arild Vatn and myself, helped by Patrick Nussbaumer. Its focus was on Analysing Complexity. It lasted 11 days. There were forty participants from many different European countries and also from India, China, Latin America. The participants enjoyed the course and also Barcelona, and they wrote excellent papers after the course in groups of three or four.

The lecturers included Silvio Funtowicz, Marina Fischer-Kowalski, Sharad Lele (from

CISED, Bangalore), Mario Giampietro, Kozi Mayumi, Roger Strand, Jeroen van der Sluijs, John Dryzeck, Arild Vatn, and Joan Martinez-Alier.

We also profited from in-house contributions from ICTA-UAB. Rainer Zahn and Antoni Rosell lectured on global change and climate change. Giuseppe Munda and some of his doctoral students lectured on applied multi-criteria analysis. Agusti Lobo explained the use of GIS in the study of oil conflicts in Amazonia.

David Tabara lectured on the social perception of environmental issues, and David Sauri and his doctoral students on the use of Water in

Catalonia. Victoria Reyes, an ethno-ecologist, lectured on her research in Bolivia and Andhra Pradesh on indigenous knowledge.

The course had as a main aim to familiarize the participants with the study of the economy from different perspectives, focusing on different physical and social indicators of sustainability at different scales, and introducing them to multi-criteria assessment. The course also aimed to show examples of the treatment of uncertainty in the framework of "post-normal" science.

For further details on the forthcoming second school see the Call for Applications on page 10.

Joan Martinez-Alier

A new European Research and Training project with central EE participation just started:

“Multi-level Governance of Natural Resources: Tools and Processes for Water and Biodiversity Governance in Europe” (GoverNat)

Characteristics:

- EU Marie Curie Research Training Network with 9 Doctoral students and 3 Post-docs
- Duration: 4 years (10/06 – 9/10)
- Doctoral fellows: 4/07-3/10
- Post-docs: 7/07-1/10
- 10 partners and several praxis affiliates in 9 European countries
- Coordination: UFZ – Centre for Environmental Research (Felix Rauschmayer)
- Participation of several further ESEE board members: Paula Antunes, Sybille van den Hove, Tatiana Kluvánková-Oravská, Jouni Paavola.
- Total contribution of European Commission: 2.4 Mio €
- Links water and biodiversity, participation and decision tools in a governance perspective

Objectives: The overall objective of GoverNat is to develop new solutions for multi-level environmental governance and to facilitate their use by decision makers in an enlarged EU. The central research objective is to test the hypothesis that certain participatory processes and analytical decision tools are particularly useful for improving multi-level environmental governance. Specific research objectives therefore address the enhanced understanding of multi-level governance of natural resources, the development of methods of public and stakeholder participation to be used in such contexts, the effective utilisation of specific analytical decision tools in multi-level governance, and the reflective evaluation of such use. These four tasks are necessarily interdisciplinary. The central training objective is to give 9 doctoral fellows and 3 post-doctoral fellows an interdisciplinary training 1) in research on environmental governance, particularly of biodiversity and water, in Europe, and 2) in designing legitimate and effective solutions for communication between policy makers, scientists and the public in science/policy interfaces. GoverNat brings together a critical mass of excellent partners to attain these objectives and to overcome disciplinary and policy fragmentation.

GoverNat's programme will train nine doctoral fellows to deal with the four challenges from both an insider and an outsider viewpoint. The interdisciplinary consortium will provide the "outsider perspective" for comparative analysis and the evaluation of case studies. The fellows will make internships to praxis affiliates to experience from the "insider perspective" the challenges of making decisions on environmental governance at different spatial scales. Interplay between the partners and praxis affiliates will ensure the feasibility and effectiveness of designed governance solutions. The consortium supports three post-doctoral fellows in economics, politics and law to distil disciplinary lessons from the project. Doctoral fellows will be trained through network-wide events (3 schools, 4 workshops), complemented by individualised training. They will apply and refine their knowledge in case studies in water and biodiversity governance and will have the responsibility for national dissemination of the project results.

www.governat.eu

Between Europe and India: Fragments of a Speech for the Ninth Biennial Conference of ISEE

New Delhi, 16th December 2006

Joan Martinez-Alier (ISEE President)

ICTA, Universitat Autònoma de Barcelona

In the book that came out of our first biennial conference in 1990, Costanza defined our field as *The Science and Management of Sustainability*. The economy is not based on a circular flow of energy and materials. There might be a certain amount of reuse and recycling of materials but the economy is characterized by the uni-directional flow of energy and materials into dissipated heat and material waste such as heavy metals, nuclear waste, mine tailings and waste-water, and the excessive amount of carbon dioxide accumulating in the atmosphere.

Our Society, the ISEE, uses two logos, the sand-dollar (this was A.M. Jansson's idea), and a banner with the planet seen from outer space and our initials. In our textbooks we include a drawing where the economy is embedded in a social system with institutions such as property rights, social inequalities of class, caste, gender, and both economy and society are embedded in a physical system, historically older and wider than human society.

Jacqueline McGlade, the brilliant EEA executive director, said recently (at a ministerial meeting of the European Union) that a natural environment without a human economy existed for a long time but there cannot be a human economy without an environment. The Ministers agreed: an elementary truth. This view of the physically-embedded economy is so important to us that it could become a third logo of our Society.

Chinese ecological economists use the words "circular economy" as an official slogan, expressing a desire for efficiency in the use of materials and energy. Something might be lost in translation from Chinese to English. In any case, the "circular economy" is a misleading description.

Some energy and materials are taken from Nature out of current production. For instance, the biomass produced by current processes of photosynthesis. Other forms of energy and other materials (the fossil fuels, the metals, and building materials) are taken from stocks formed in the Earth through ancient biochemical processes. We deplete stocks both of exhaustible resources (like oil and gas) and of renewable resources (forests, soils, aquifers, fisheries). We also produce waste

such as carbon dioxide at rates higher than Nature can resiliently assimilate. In the industrialized economy there is, if you allow the metaphor, a great consumption of time.

Commodity frontiers and environmental conflicts

The industrialized economy not only "consumes" time. It also occupies new spaces. Raw materials and the fossil fuels are taken from the "commodity frontiers", oil from Amazonian Ecuador or Peru, the Niger Delta or Chad, or from the wilderness in Alaska. Coal, bauxite, uranium from Orissa and Jarkhand, nickel from New Caledonia, gold from Peru or the Congo.

Conflicts with tribal (adivasi) people arise because their use of Nature is slower than that of predatory mining. Even in a democracy like India, there are deaths at the "commodity frontier", in Jadugoda, Maikanch, Kalinga Nagar. While the raw materials come from the "commodity frontiers", the waste is sometimes exported far away. The GHG go to the atmosphere and the oceans. Electronic waste is sent to India, China. The *Clemenceau*, the *Blue Lady* and other ships are sent to the breaking yards of Alang in Gujarat. There will be sessions in this ISEE2006 conference chaired by Peter Utting (UNRISD, Geneva) on Corporate Environmental and Social Accountability. The European Environmental Liability Directive will perhaps be considered together with Superfund and ATCA cases.

The ecological economist K. W. Kapp said that capitalism must be seen as an economy of unpaid costs. Following Kapp, Martin O'Connor and I have written -possibly too often- that "externalities are not market failures but cost-shifting successes".

Coal is our life

What right have rich countries to impose limits to the growth of poor countries in terms of carbon dioxide emissions, nuclear energy production, land use and conservation policies? No right at all.

The growing economic "cake" improves everybody's or most people's chances. However,

although economic growth alleviates economic distribution issues, there remains the question of the composition of the "cake". Do we prefer a continuously growing poisonous "cake" with trickle down effects, or a smaller, more equally distributed "cake"? Therefore, one (Gandhian-inspired) question for all of us as individuals is, how much energy should a person use? Are we strong enough to determine our own structure and level of needs?

Economic growth implies use of more energy. We face peak-oil, climate change, the uncertain risks of nuclear power. Nervousness leads to the notion of "energy security". Perhaps it has no military overtones, and it is analogous to "food security" meaning the objective of ensuring food availability in a country by one's own production or in other cases (as Singapore), by imports.

Whatever the degree of self-sufficiency, "food security" means ensuring 2400 kcal per person/day, equivalent to 10 MJ, i.e. 3.65 GJ per person/year. "Energy security" refers to exosomatic energy use, not to food energy. At which level? At 30 GJ per person/year, at 250 GJ person/year as in the European Union, at 400 GJ per person/year as in the United States? Above a certain threshold, does more energy still contribute to human well-being?

At a rate of growth of 7 per cent per year, similar to the rate of economic growth, it would take only 30 years to increase available electrical power in India to 0.8 kw per capita. Economic growth is welcome, against poverty. Electricity growth must also be welcome. The power available has to grow from the current 125,000 MW to 1,000,000 MW in order to provide 0.8 kw of power per capita. Last July, in Catalonia, my own country, over 1.2 kw per capita was used at peak time. Why not in India?

Nuclear power presents uncertainties. In any case, its contribution would be relatively small, "only" 40,000 or 50,000 MW. Hydroelectricity might provide 70,000 MW extra, at great local socio-political and environmental costs in the North-East and other areas. Natural gas combined cycle power stations will increase very much from different sources including Iran, but the price of gas accompanies the price of oil. Wind and photovoltaic energy will make a great jump but only a small contribution in the next 30

years. Biomass fuel is discussed below.

Coal is the main modern energy source for India, as it is for China. Economic growth will not be stopped by environmental concerns, especially since India is still so far behind in the per capita league of GHG emissions.

Glaciers are receding because of global warming as in Gangotri where the sacred Ganga is born with the name of Bhagirathi before it joins the Alaknanda in Deoprayag. Who is accountable and liable for receding glaciers? There are world distributive conflicts on property rights on the atmosphere and the oceans to dump and capture the GHG. Are there new institutions of international environmental justice? Despite receding glaciers and the threat of sea-level rise the government of India has no climate change policy to offer internationally.

Political debates on climate change should have started in 1900 (when Arrhenius had published his calculations of increased carbon dioxide leading to increased temperatures) while political debates on peak-oil should be by now fifty years old. With Anil Agarwal, founder of the CSE, Sunita Narain authored a booklet in 1991, *Global Warming: a Case of Environmental Colonialism*, proposing a world greenhouse gases regime based on small equal per capita tradable allowances (with population pegged at 1990 levels) while moving towards contraction and convergence, and repayment of the "carbon debt" from North to South. One hears that such ideas are "too radical", "not practical". So, now we have, if we do, the Kyoto grandfathered quotas (and the internal European quotas largely surpassed in some countries like Spain).

Population

Human population increased by a factor of four in the 20th century. Assume optimistically only 3 billion people more in the world by 2050, as human population reaches the maximum in Verhulst's curve. Assume these 3 billion people have a reasonable standard of living and produce only one ton of carbon per year per capita (one fifth of today's USA average). This would increase world emissions by 50% when what is required is a decrease of 50%.

Paul Ehrlich's I=PAT is part of the ecological economists' upbringing, as Neo-Malthusian theorists of the late 20th century. I say this after much rethinking and with some pride. Let me explain before I am called neo-imperialist, World Bank stooge, and partisan of female feticide and infanticide.

India's population has increased three times since Independence sixty years ago. The intellectual Left is still unconcerned by population growth (Mohan Rao, *From Population Control to Reproductive Health: Malthusian Arithmetic*. Sage, New Delhi, 2005).

Governments irresponsibly exhort women to have more children in Europe in order to pay for old-age pensions as one hundred years ago they asked them to produce soldiers for the wars.

They are unsuccessful. Europeans and (some) Americans started to have many less children about one hundred years ago. For instance in Barcelona in 1910 birth rates became lower in working class areas than in bourgeois areas, to the irritation of Church and State. This was a bottom-up irreversible cultural change, as happened later in Brazil in the 1970s against the wishes of the military government. There was in Europe and the United States around 1900 a successful Neo-Malthusian feminist movement (F. Ronsin, *La grève des ventres. Propagande néo-Malthusienne et baisse de la natalité en France, 19-20 siècles*, Aubier-Montaigne, Paris, 1980). The use of the word "Neo-Malthusian" shows also the movement's concern with the balance between population and resources.

Although I am very conscious of the demographic collapse in the Americas and Oceania after the European conquest, and of the plight of some disappearing tribal peoples today, population growth must be brought into our analyses.

Malthus' concern with exponential population growth focused only on food production for humans and associated work animals. Malthus was not worried about the biomass available for the maintenance of other heterotrophs.

In one of the plenaries at ISEE 06, Helmut Haberl will briefly explain his world-wide results on the Human Appropriation of Net Primary Production (together with the Social Metabolism group in Vienna), based on satellite imagery and models. The reasons for the increase in HANPP, are partly demographic, and partly not.

Biomass is the source of food energy, and it was the main source of exosomatic energy for humankind (not counting direct sun warmth). There are now proposals for the use of biofuels for motorized transport. The number of cars and motorcycles is growing faster than population. In India there are plans for plantation of *Jatropha curcas* for biodiesel - and there is talk of Indian investments in the Brazilian sugar cane ethanol industry. Biofuels raise questions on their energy costs (EROI), the land requirements, the water requirements under the name of "virtual water". Moreover, when the additional HANPP from biofuels-for-transport is added to the current HANPP, how much biomass will be left over for other forms of life? This not only in overcrowded Western Europe (Italy, UK, Germany, Belgium, the Netherlands with densities over 300 persons per sq. km) and in India (similar density) but indeed even in Latin America and Africa because of biodiesel and ethanol production and exports?

Conservation Biology and Ecological Economics

Urgent threats to biodiversity from biofuels are added to older ones. The number of tigers has decreased in India in 100 years by a factor of ten.

One major contribution of ecological

economics (together with industrial ecology) is the research on methods for the study of Social Metabolism, as I explained when I started. This is a staple in this ISEE2006 conference. Undoubtedly, another staple is the notion of Ecosystem Services and their Values (G. Daily, R. de Groot, R. Costanza...). I emphasize Values, in the plural.

The plurality and the incommensurability of values is a foundation for ecological economics. For instance, if a territory is flooded by a dam (the Narmada valley, or in Polavaram in Andhra Pradesh displacing 120,000 persons), some analysts might calculate the environmental services lost multiplied by their annual economic value, updated at a given discount rate to yield a NPV. Some would emphasize the benefits of hydroelectricity, irrigation, flooding control, expressed in money values. Some might instead emphasize the loss of livelihoods, the infringement of adivasi territorial rights, the loss of beautiful landscapes, sacred buildings and archaeological patrimony. They are all legitimate arguments. Who has the power to throw everything into the mill of cost-benefit analysis? Who has the power to simplify complexity and impose a particular language of valuation?

Many papers at ISEE2006 (in sessions led by Jouni Paavola, Ron Janssen, Giuseppe Munda) deal with Participatory Methods for understanding environmental conflicts, and with Multi-Criteria Methods able to cope with incommensurable values achieving an integrated assessment of investment projects or policies. Funtowicz and Ravetz wrote in *Ecological Economics* in 1994 a famous article against Nordhaus' attempt at cost-benefit analysis of climate change policies. They concluded that, the issue was not whether it is only the market place that can determine economic value, for economists have invented methods for the valuation of ecosystem services and environmental damages. The true issue is whether in any ecological distribution conflict (from global climate change to local mining conflicts) all valuations should be reduced to a single valuation standard.

The subsidy from Nature and from unpaid (female) work

I have read estimates that the products collected in rural areas in India outside the market (leaves and grass, fuelwood, water, edible fruits), usually in common property lands (a theme studied by N. S. Jodha, Kanchan Chopra, Gopal Kadekodi), if converted into money value would reach 4% or 5 % of GDP. However, the money-value of such resources is not the main or only point. Their livelihood value is a point. And it is threatened in India and elsewhere by new mines, plantations, hydroelectric projects, public infrastructures.

For instance, when mangrove forests are uprooted, and their environmental and livelihood services are destroyed to the benefit of export shrimp farming as in Ecuador, Honduras,

Colombia, some areas of Brazil, Thailand, Philippines, Bangladesh, how could this be evaluated?

The direct contribution to human well-being, in other words the livelihood values, are the food that the mangroves produce, the crabs, the oysters, fish, also the wood for charcoal or building huts, and the honey which is collected as I have seen in the Sunderbans.

The mangroves also give indirect contributions to human well-being by protecting the coast against the trend of sea-level rise, and against hurricanes and cyclones. They even give some protection against a large tsunami. The list of environmental services is still longer, when we add carbon uptake through photosynthesis, and the availability for the future of the genetic wealth in the biodiversity of the mangroves.

How much are the mangrove services worth, per hectare and per year? Perhaps US\$ 2,000, or 10,000, or 13,000. These are values cited in papers on coastal management in this ISEE06 conference. Coastal protection may be counted as avoided damages, or as the cost of the alternative technology (building a wall), and this is the main item in such economic valuation exercises.

Should we make an economic argument for mangrove conservation against the shrimp export industry? Sometimes I hear that the Finance or Trade Ministers or the head of the Planning Commission will only understand arguments expressed in money. I disagree. Ministers are open to other considerations – political gain, distributive issues, even, perhaps, the beauty of the mangroves and the existence of some sacred mangroves.

Ministers understand realities. In India, it is a reality that one 14 kg cylinder of (subsidized) LPG costs about 300 rupees, while the daily rural wage is about 60 to 70 rupees (a little above one euro). Nearly one week of work is needed to buy one cylinder of LPG. Women and men who are poor largely depend therefore on the subsidy from Nature for domestic fuel needs. I am truly looking forward over the next twenty years, as the Indian economy grows fourfold, to see the ratio “Rural daily wage / LPG cylinder price” grow despite the immediacy of peak-oil in the Hubbert curve.

The ratio “Rural daily wage / Price of one liter of bottled water” will also increase. But right now, with a rural daily wage of 60 to 70 rupees, and even with the help of the Rural Employment Guarantee Act when it works effectively, since the price of a bottle of water is 15 rupees, a working mother could only buy drinking water for herself and family, nothing else. She needs safe water from rivers, tanks or wells or from a cheap public system.

For many reasons, no politician in India would survive politically if he would say, “if you have no good drinking water in the village or the basti, buy Bisleri” (let alone Pepsi).

The feminist critique of National Income accounting pointed out that GDP “forgets” the

unpaid human social services provided inside the home and outside the market for the care of families, and also the voluntary work in society. The Green critique of GDP points out that it does not count environmental damages, and considers only those services from Nature that have been brought into the measuring rod of money. Marilyn Waring brought both critiques together in 1988, in her book *Counting for Nothing*. Hence, the synthesis of eco-feminist economics, as will be explained in Ariel Salleh’s symposium.

Forests

Forests provide timber and non-timber products, carbon uptake, biodiversity maintenance, soil conservation, water retention and flood prevention services. Such services can be counted and translated into money values. Pushpam Kumar (the main organizer of the ISEE2006 conference), Haripriya Gundimedia and others have done such calculations for India, where the debate on the multi-functionality of forests goes back 150 years.

Dietrich Brandis, the German forest scientist who became the Inspector General of Forests between 1864 and 1883, favoured State forests managed by appropriate rotations for maximum sustainable yield (as modified by Faustman’s rule). He was hired to be in favour of this! But he became aware of the natural and social complexity of forests in India. He wrote with much feeling in praise of “sacred groves”. *Wälder sind nicht Forsts*, he could have said. A mutiny of villagers would threaten the regiments of plantation trees.

Brandis wrote that village forests should provide “the following items free of charge to villagers: firewood for home consumption or for sale by poor people with headloads; wood for agricultural implements and the making or repairing of carts; wood, bamboo, and grass for thatching, flooring and fencing; leaves and branches for manure; and grazing except in areas closed for forest regeneration” (Ramachandra Guha, *How much should a person consume?*, Permanent Black, Delhi, 2006, pp. 206-7).

Payment for Environmental Services (PES)

One question naturally arises. Multi-functional forests provide timber and non-timber products and also water retention, biodiversity maintenance, carbon uptake. Should not the beneficiaries compensate the providers? Indeed, there are many papers on Payment for Environmental Services (PES) at ISEE 2006.

So, money valuation of environmental services is not only a way of calling the attention of public opinion and government to the fact that we all depend on the subsidy from Nature. It becomes an actual price in a new market for environmental services - and it may also provide estimates for compensation in court cases, as the Supreme Court has asked for in India.

So, we must consider Douglas J. McCaley’s views, when he writes: “Probably the most important trend in conservation science at the moment is ‘ecosystem services’, typically seen as economic benefits provided by natural ecosystems. They form the basis of most market-oriented mechanisms for conservation. The underlying assumption is that if scientists can identify ecosystem services, quantify their economic value... then decision-makers will recognize the folly of environmental destruction and work to safeguard nature. But market-based mechanisms for conservation are not a panacea for our current conservation ills. If we mean to make significant and long-lasting gains in conservation, we must strongly assert the primacy of ethics and aesthetics in conservation” (*Nature*, 443, 7 Sept. 06).

Such ethics (and aesthetics) should include not only respect for other species but also for human livelihoods and human rights including collective territorial rights.

Trends and Surprises

I am one of those in ecological economics who has promoted biophysical approaches for decades now. Counting and modelling the “metabolic flows” is, in my view, a broader and more important task than the economic valuation of ecosystem services (which many outside here wrongly see as the predominant activity of ecological economists).

To study the metabolism of society means to quantify the flows of energy and materials in the economy. Then, an economy is described as providing 240 GJ of energy per person/year, with material flows of 21 tons per person/year of which 5 are fossil fuels; of the material flows, 6 tons are imports and only 2 tons are exports. The HANPP is 25%, income per capita is 34,000 US\$. This country perhaps occupies 9th place in the HDI.

Of another country, we conclude that it has only 2,400 US\$ per capita/year (at purchasing power parity), it provides 32 GJ per capita/year, it uses 3.5 tons of material flows – mostly biomass. Its HANPP could perhaps be 50%. A poor and densely populated country, isn’t it? Perhaps it occupies place 150th in the HDI.

Add if you wish the water statistics, and the GHG statistics of both countries. They must be congruent with the rest. All these are non-redundant and non-equivalent descriptions (as Giampietro emphasizes). For instance, HANPP may go down as fossil fuel imports go up and also GHG production grows, while both HDI and GDP per capita improve. Is the country doing better?

How to measure the trends, especially when taking into account several dimensions of sustainability? Some composite indices will be deconstructed here, while asking ourselves how to achieve integrated assessments. Enrico Giovannini, OECD chief statistician, sent an interesting paper asking why non-official indices

are so widely used in civil society, as if the OECD were slightly envious of the glittering success of the “ecological footprint”.

Now, Ecological Economics, whose birth was simultaneous with the birth of the Precautionary Principle and Post-Normal Science, deals not only with trends but also with surprises. A successful call for papers by Mohan Munasinghe has brought many authors to this conference to discuss extreme events such as the Tsunami of 2004, caused by an earthquake the effects of which were socially amplified. Why was prevention absent? What kind of assistance was later given? Other extreme events are presumably linked to climate change. “Natural” and “social” go often together.

The sessions on Science for Policy will consider nuclear energy, GMOs, nano-technology emphasizing that adoption takes place before ignorance and uncertainties are translated (if they ever are) into probabilistic risks and damage functions. The same applies in retrospect to DDT, asbestos, and to the history of the enhanced greenhouse effect and to the history of nuclear power.

One of the first ecological economists’ meetings was in Sweden in 1986 one week after Chernobyl, a surprise that helped change the trends of use of nuclear energy and hastened the demise of the Soviet Union. Are there liability rules for the nuclear industry? The Price-Anderson Act in the United States is an example of the “Polluters don’t Pay” principle. Investors were not willing or able to cover the uncertain risks of nuclear energy, and were granted limitations on their liability.

Bhopal in 1984 was also an extreme event, one of the worst industrial accidents in history. In Bhopal the victims were all of them local. They were not properly counted because they were poor. In Chernobyl, apart from the deaths of “liquidators” and those who lived nearby, the deaths cannot be easily counted. They appear over a very large area as small increases over cancer rates, themselves variable. Tens, perhaps hundreds of thousands of deaths. (J.P. Dupuy, *Retour de Tchernobyl. Journal d’un homme en colère*, Seuil, Paris, 2006). The head of the Atomic Commission Authority in India is on record minimizing the deaths from Chernobyl and stating that the risk is acceptable.

If you travel from Pondicherry to Chennai in Tamil Nadu, you will see between the road and the sea the Kalpakkam nuclear energy sites, including the project for a 500 MW plutonium breeder reactor which is perhaps the main emerging temple of India, to which God I am not sure.

In my book *Ecological Economics* (1987), I explained Frederick Soddy’s appraisal of nuclear energy at the end of his life. He had worked with Rutherford, was a Nobel Prize professor of chemistry in Oxford, and a pioneer of ecological economics insisting that growth of debts required the economy to grow and grow, while “real wealth”, the fossil fuels, was being

depleted. For decades, Soddy placed great hopes on nuclear energy, a subject he knew well, but towards the end of his life he saw the horror of Hiroshima, and as regards “civilian” use he realized “the virtual impossibility of preventing the use of the non-fission products of the pile, such a plutonium, for war purposes” (F. Soddy, *Atomic energy for the future*. Constitutional Research Association, London, 1947, p. 12).

No lessons were drawn for public policy from such early warnings on the lack of safe methods for the disposal of nuclear waste and the dangers of “proliferation”. The Atomium in Brussels was erected for the 1958 world exhibition, a monument to the misperception of risk.

I have now a question for the theorists and practitioners of post-normal science. Could you explain the poverty of the nuclear debate in democratic India?

Nobel Prizes

We have come a long way since the time of Nicholas Georgescu-Roegen, Kenneth Boulding, K. W. Kapp, H. T. Odum... Ecological Economics as an organized field of study, as a scientific society, as the holding of conferences, the refereeing of journal articles, the writing of textbooks, and (if I may say so) as a cultural movement, is about twenty years old.

We were active before Ms. Brundtland’s report of 1987, before Rio de Janeiro 1992. We have no daughters or sons but we have some dear sisters, Ecological Anthropology, Agro-Ecology, Industrial Ecology, Environmental History, Human Ecology, so-called Sustainability Science.

Our fortunes depend, I believe, on two main factors. First, the rigor and relevance of our analyses. Second, the ebbs and flows of the social perception of the clash between the scale of the human economy and the environment, focusing on both alarming trends and nasty surprises.

Among the ecological economists who published already in the 1960s and are still active, there are two main names:

Robert U. Ayres, from his famous article with Allen Kneese (“Production, Consumption and Externalities”, *American Economic Review* 59(3): 282-296, 1969) showing why the economy necessarily produces waste (call it “externalities”), to his notion of Industrial Metabolism in 1989 as a founder of the field of Industrial Ecology, to his most recent work on energy and the economy (R.U. Ayres and B. Warr, “Accounting for growth: the role of physical work”, *Structural Change and Economic Dynamics* 16(2): 181-209, 2005). He was a recipient of the ISEE’s Kenneth Boulding Award in 2002.

Herman Daly, a founder of the ISEE, also obtained the Kenneth Boulding Award and many other honours. He worked with Nicholas Georgescu-Roegen, and is the author of the early article, “Economics as a Life Science”, *Journal*

of Political Economy, 76: 392-406, 1968, where many of our ideas were contained. Herman Daly has been working for 40 years in ecological economics, including the publication of several well-known books. His spirited debates with Stiglitz and Solow on weak and strong conceptions of sustainability, and with Jagdish Baghwati on trade and environment, have defined main research lines in ecological economics.

When an author makes a contribution in a leading journal in the 1960s which in retrospect proves decisive for the growth of a whole new field of enquiry, when such an author is still alive and has been making further important contributions for forty years, he should be a candidate for the Nobel Prize in Economics that was denied to Georgescu-Roegen and Boulding.

Therefore, I make the certainly self-serving proposal, that the ISEE mobilize the resources needed in order to submit the candidacies of Robert U. Ayres and Herman Daly for Nobel Prizes in Economics.

This is a shortened version of Joan Martinez Alier’s Presidential Address being delivered at the Ninth ISEE International Conference, New Delhi, 16th December 2006. The full text is available on the conference proceedings CD-ROM.

2007 International Society for Industrial Ecology Conference

June 17-20 2007

University of Toronto, Toronto

Key themes:

Sustainable Social Metabolism,
Infrastructure for Sustainable Cities;
Industrial Ecology for Developing
Countries;
Transitions to Sustainability in a Complex
World

www.is4ie.org

The 2007 ISIE Conference will be hosted at the University of Toronto, as collaboration between The Department of Civil Engineering, the Centre for the Environment, the Joint Program in Transportation, and the Faculty of Applied Science and Engineering’s Division of the Environment and Professional Development Centre.

CALENDAR EVENTS

January

January 5-7, 2007

AFEA Annual Meeting

Chicago, Illinois

AFEA - African Finance and Economics Association

<http://www.afea.org/meetings.htm>

January 5-7, 2007

2007 ASSA Annual Meeting

Chicago, Illinois

Organised by IAFFE - International Association for Feminist Economics

<http://www.iaffe.org/conferences/details.phtml?id=15>

January 5-7, 2007

2007 ASSA Annual Meeting: current research in heterodox economics.

Chicago, Illinois

Organised by URPE - Union for Radical Political Economists

<http://www.urpe.org/urpeassa.html>

January 5-7, 2007

Annual Meeting: Contributions of Institutional Economics to Public Policy Debates: Past and Present

Chicago, Illinois

Organised by AFEE - Association for Evolutionary Economics

<http://www.orgs.bucknell.edu/afee/AFEE%20Call%20For%20Papers%202007.pdf>

January 12-14, 2007

7th Annual Bi-annual Pacific Rim Conference

Beijing, China

Organised by WEAI - Western Economic Association International

<http://www.weainternational.org/2007CFP-Beijing.pdf>

January 19-20, 2007

2nd Annual Workshop: The Unit of Analysis and the Micro-Level Dynamics of Violent Conflict

Antwerp, Belgium

<http://www.hicn.org/papers/callforpapersJan07.pdf>

January 30- 31, 2007

Urban Planning and Environment: Strategies and Challenges

Mumbai, India

Organised by: Elphinstone College, Mumbai, India

<http://www.elphinstonecollege.ac.in/conference/conf.html>

February

February 5-6, 2007

Roads and the Environment

Geneva, Switzerland

Organised by the International Road Federation

<http://www.irfnet.org>

February 7-10, 2007

3rd International Ground Water Conference

Coimbatore, Tamil Nadu, India

Organised by Tamil Nadu Agricultural University

<http://tnau.ac.in/spl/train.html>

February 11-14, 2007

The Arabian Seas International Conference on Science and Technology of Aquaculture, Fisheries and Oceanography

Kuwait

Organised by Kuwait Institute for Scientific Research

<http://www.kisr.edu.kw/stafa>

February 12-15, 2007

Agricultural Greenhouse Gas Emissions, Special Session

Los Angeles, California, United States

Organised by: The International Scientific Forum Aims for Future of Engineering Science (AFES)

<http://ghg.afes.info>

February 15-16, 2007

Regional Ministers Conference 'European Regions as Champions for Biodiversity 2010' - Europe meets Brabant, Brabant meets Europe

Hertogenbosch, The Netherlands

<http://www.biodiversitybrabant.nl>

February 15-17, 2007

18th Annual Teaching Economics: Instructions and Classroom Based Research

Pittsburgh, Pennsylvania

Organised by McGraw Hill/Irwin and Robert

Morris University

[http://www.rmu.edu/OnTheMove/](http://www.rmu.edu/OnTheMove/findoutmore.open_page?iCalledBy=findoutmore)

[findoutmore.open_page?iCalledBy=findoutmore](http://www.rmu.edu/OnTheMove/findoutmore.open_page?iCalledBy=findoutmore)

[&iPage=66474&iT=&](http://www.rmu.edu/OnTheMove/findoutmore.open_page?iCalledBy=findoutmore)

[iattr=&ivisitor=0&ichap=econconf](http://www.rmu.edu/OnTheMove/findoutmore.open_page?iCalledBy=findoutmore)

February 19-24, 2007

The International Conference on the Environment: Survival and Sustainability

Nicosia, Northern Cyprus, Cyprus

Organised by Near East University

<http://www.neuconference.org/>

February 22-24, 2007

International Conference on Sustainable Regional Development: Status, Challenges, Visions - From the perspective of Northeast India

Gangtok, Sikkim, India

Organised by: Sikkim Manipal Institute of Technology

<http://smuhmts.edu/smit>

February 26-27, 2007

The Frontiers of Environmental Economics

Washington D.C., USA

Organised by : Resources for the Future

www.rff.org/rff/Events/Frontiers-of-Environmental-Economics.cfm

March

March 1-3, 2007

3rd International Globalization, Diversity and Education Conference

Spokane, Washington, United States

Organised by Washington State University

<http://emmps.wsu.edu/globalization/>

March 7-9, 2007

INTED2007 International Technology, Education and Development Conference

Valencia, Spain

Sponsored by: IATED (International

CALENDAR EVENTS

Association for Technology, Education and Development)
<http://www.iated.org>

March 8-10, 2007

International Marketing and International Trade of Quality Food Products

Bologna, Italy

Organised by: Dept. of Agricultural Economics and Engineering - 105th Seminar of the European Association of Agricultural Economists

<http://www.bean-quorum.net/EAAE>

March 12 – 14, 2007

Water Status Monitoring under the WFD (Water Framework Directive)

Lille, France

<http://www.wfdlille2007.org>

March 12-14, 2007

International Conference on Water and Flood Management

Dhaka, Bangladesh

Organised by: Bangladesh University of Engineering and Technology (BUET)

<http://www.buet.ac.bd/icwfm/>

March 14-16

6th International Conference: Corruption, Trade, Investment, Macroeconomic management: Labour, Growth, Stabilization

policies, political economy of policy reforms of relevance to the analysis of the economies of the Middle East and North Africa (MENA) region

Zayed University, Dubai

Organised by MEEA - Middle East Economic Association

<http://meeaweb.org/>

March 14-18, 2007

63rd International Atlantic Economic Conference

Madrid, Spain

Organised by IAES - International Atlantic Economic Society

http://www.iaes.org/conferences/future/madrid_63/index.htm

March 22-23, 2007

Scientific Practice as Ordinary Action: An International Workshop on Scientists at Work
Fribourg, Switzerland

Organised by Department of Social Sciences, University of Fribourg, Switzerland
<http://www.unifr.ch/dss-dgw/scientificpractice/>

March 26-28., 2007

Living on the margins conference

Cape Town, South Africa

Conference Organising Committee: PLAAS, UWC, University of KwaZulu-Natal / WIEGO, IDPM, University of Manchester, IDS, IDPM, PLAAS, UWC, Isandla Institute, Cape Town)

<http://www.livingonthemargins.org/home/>

March 27-28, 2007

Opening and Innovation on Financial Emerging Markets

Beijing, China

Organised by the Center of International Economics and Finance

http://www.univ-cefi.fr/article.php?id_article=1364

March 28, 2007

4th Interim Conference of the ESA Research Network Sociology for the Arts: Creativity, Support and Sustainability

Lueneburg and Hamburg, Germany

Organised by New Frontiers in Arts Sociology

<http://www.new-arts-frontiers.eu/live/index.php>

March 29-April 1, 2007

2007 World Meeting : Public Choice

Amsterdam, The Netherlands

EPCS - European Public Choice Society

<http://www.creedexperiment.nl/pc2007/index.html>

March 30-31, 2007

2nd Otago Workshop in International Trade

Dunedin, New Zealand

Organised by The Department of Economics at the University of Otago

<http://www.business.otago.ac.nz/econ/workshop.html>

April 2-5, 2007

1st Workshop of the ESF research networking programme PGPPE

Marseille, France

Organised by Public Goods, Public Projects, Externalities

<http://www.pgppe.cnrs.fr/>

April 8-10, 2007

32nd International Conference: Liberty in a Global Economy: Issues, Risks, and Challenges

Cancun, Mexico

Organised by APEE - Association of Private Enterprise Education <http://www.apee.org/apee-conferences-awards.html>

April 11-13, 2007

2007 RES Annual Conference

University of Warwick, Warwick, England

Organised by RES - Royal Economic Society

<http://www.warwick.ac.uk/fac/soc/Economics/res2007/>

April 12-14, 2007

BSA Annual Conference 2007 - Social Connections: Identities, Technologies, Relationships

London, United Kingdom

Organised by: British Sociological Association

<http://www.britisoc.co.uk>

April 13-14, 2007

Advances in Tourism Economics 2007

Vila Nova de Sto André, Lisboa, Portugal

Organised by Instituto Piaget

<http://www.ate2007.com>

April 16-17, 2007

The 18th Chinese Economics Association (UK) Annual Conference

Nottingham, United Kingdom

Organised by University of Nottingham,

Leverhulme Centre for Research on Globalisation and Economic Policy

http://www.ceauk.org.uk/Annual_conference.htm

April 17-21, 2007

Association of American Geographers 2007 Annual Meeting

San Francisco, United States

<http://www.aag.org>

April

CALENDAR EVENTS

April 18-20, 2007

International Peace and Development Conferences

Istanbul, Turkey

Organised by: International Knowledge Societies (www.knowledgesocieties.org)
http://www.knowledgesocieties.org/peace_conferences/

April 19-22, 2007

The Bois Energie 2007

Orléans, Région Centre, France

Organised by: BioEnergy Events and Services
<http://www.boisenergie.com>

April 25-27, 2007

Sustainable Development & Planning

Algarve, Portugal

Organised by Wessex Institute of Technology, UK and University of Thessaly, Greece
<http://www.wessex.ac.uk/conferences/2007/sustain2007/2.html>

27-28 April, 2007

Lancut Economic Forum on "New Europe"

Lancut, Rzeszow, Poland

Organised by Lancut Economic Forum
<http://www.lancutforum.com/>

April 30-May 5, 2007

2007 International Tourism Biennial: Lessons from the Past. Directions for the Future

Canakkale, Turkey

Organised by Dept. of Tourism, Canakkale Onsekiz Mart University
<http://turizm.comu.edu.tr/conference/>

May

May 2-7 ,2007

Greenhouse Gas Emissions, Special Session

Hong Kong, Hong Kong

Organised by: 8th International Scientific Forum Aims for Future of Engineering Science (AFES2007)
<http://ghg.afes.info>

May 3-6, 2007

Exploring Cultural Perspectives in Education

Glasgow, United Kingdom

Organised by: University of Strathclyde and International Cultural Research Network
http://www.icrn.ca/abstract_glasgow.asp

May 15-August 15, 2007

13th International Conference on Computing in Economics and Finance

HEC, Montreal, Canada

Organised by SCE - Society for Computational Economics
<http://comp-econ.org>

May 22 – 27, 2007

EcoSummit 2007 – Ecological Complexity and Sustainability: Challenges and Opportunities for 21st Century's Ecology.

Beijing, China

Organised by: Elsevier in Association with the Ecological Society of China
<http://www.ecosummit2007.elsevier.com>

May 23-25, 2007

Fourth International conference on River Basin Management

Kos, Greece

Organised by: Wessex Institute of Technology
<http://www.wessex.ac.uk/conferences/2007/rm07/index.html>

June

June 1-2, 2007

Economics, ecology and approaches for the resolution of ecological conflicts in Argentina, Chile & Uruguay

Tucumán, Argentina

Organised by ASAUEE
<http://educatuc.org/asauuee2007>

June 1-2, 2007

2007 Conference: Regional and Urban Modeling

Brussels, Belgium

Organised by EcoMod
<http://www.ecomod.org>

June 5-8, 2007 *****

Ecological Economics: Integrating natural and social sciences for sustainability

Leipzig, Germany

Organised by ESEE
www.esee-leipzig2007.org

June 8-10, 2007

12th World Congress of Social Economics: "Social Values and Economic Life"

Amsterdam, The Netherlands

Organised by ASE - Association for Social Economics
www.socialeconomics.org/callMay30.htm

June 17-20, 2007

2007 International Society for Industrial Ecology Conference

University of Toronto, Canada

www.is4ie.org

June 21-24, 2007

Architecture in the space of flows: buildings - spaces - cultures

Newcastle-Upon-Tyne, UK

Organised by: Tectonic Cultures Research Group, School of Architecture, Planning & Landscape and Culture Lab
<http://www.apl.ncl.ac.uk/flows/>

June 23-27, 2007

Creating Sustainability Within Our Midst: Challenge for the 21st Century

New York, USA

Organised by United States Society for Ecological Economics (USSEE)
<http://www.ussee.org/conference.htm>

June 24-28, 2007

First Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE)

Skiathos Island, Greece

Organised by: Department of Planning and Regional Development, University of Thessaly, Greece
<http://www.cemepe.prd.uth.gr>

June 27-29, 2007

International Conference on Whole Life Urban Sustainability and its Assessment

Glasgow, United Kingdom

<http://www.sue-mot.org.uk/content/view/86/89/>

CALENDAR EVENTS

June 28-July 1, 2007

15th Annual Conference of European Association of Environmental and Resource Economists (EAERE).

Thessaloniki, Greece

Organised by the European Association of Environmental and Resource Economists (EAERE)

http://www.eaere.org/eaere_conf.html

June 28-July 1, 2007

2007 ESA World Meeting

Rome, Italy

Organised by ESA - Economic Science Association

<http://www.luiss.it/fur2006/esa2007/homepage.php>

June 28-30, 2007

3rd International Conference on Economics and Management of Networks – EMNet

Rotterdam, The Netherlands

Organised by ISNIE - International Society for New Institutional Economics

http://www.isnie.org/pages/other_conferences.htm

June 28-30, 2007

2007 SED Annual Meeting

Prague, Czech Republic

SED - Society for Economic Dynamics <http://www.economicdynamics.org/sed2007.htm>

July

July 1-5, 2007

21st Annual Meeting of the Society for the Conservation Biology

Port Elizabeth, Eastern Cape, South Africa

Organised by: Society for Conservation Biology

<http://www.conbio.org/2007>

July 2-6, 2007

16th International Input-Output Conference

Istanbul, Turkey

Organised by International Input-Output Association (IIOA)

<http://www.io2007.itu.edu.tr/>

July 3-5, 2007

The European Slave Trade: Character, Causes, Challenges

Trinity College, Dublin, Ireland

Organised by Irish School of Ecumenics

Trinity College Dublin

<http://www.europeanslavery.com>

July 3-6, 2007

Turning Diversity into Prosperity

Amsterdam, North Holland, Netherlands

Organised by: Common Ground / SEBA

<http://diversity-conference.com> OR

www.diversityweek2007.com

July 4-7, 2007

APFA 6 – Applications of Physics in Financial Analysis Conference

Lisbon, Portugal

Organised by Department of Quantitative Methods, IBS - ISCTE Business School,

ISCTE (Instituto Superior de Ciências de

Trabalho e da Empresa) Lisbon

<http://apfa6.dmqg.iscte.pt>

July 5-7, 2007

2007 Annual ESHET Meeting Strasbourg: Justice in Economic Thought.

Strasbourg, France

Organised by ESHET - European Society for the History of Economic Thought

<http://www.eshet.net/>

July 8-10, 2007

6th iHEA World Congress

Copenhagen, Denmark

Organised by IHEA - International Health

Economics Association [http://](http://healthconomics.org/conferences/2007/07/08/explorations-in-health.html)

healthconomics.org/conferences/2007/07/08/explorations-in-health.html

July 11-13, 2007

EcoMod 2007: Policy Modeling

Organised by EcoMod

<http://www.ecomod.org/>

July 26-28, 2007

CANSEE 2007: Sustaining Communities and Development in the Face of Environmental Challenges

Halifax, Nova Scotia

Organised by the Canadian Society for Ecological Economics (CANSEE)

[http://www.ecoeco.org/Documents/](http://www.ecoeco.org/Documents/CANSEE_2007_First_Call_for_Papers_Oct_1.pdf)

[CANSEE_2007_First_Call_for_Papers_Oct_1.pdf](http://www.ecoeco.org/Documents/CANSEE_2007_First_Call_for_Papers_Oct_1.pdf)

August

August 5-8, 2007

Second International Conference on Environmental Planning and Management

Berlin, Germany

Organised by: Technical University of Berlin

<http://www.urbenvironcongress.com>

September

September 5-7, 2007

10th International Conference on Environmental Science and Technology

Cos Island, Greece

Organised by: Global Network for

Environmental Science and Technology

(Global NEST) and University of the Aegean

<http://www.gnest.org/cest>

September 6, 2007

Conservation and Development for the Developing World; Africa in the Spotlight

Kampala, Uganda

Organised by: Centre for Conservation and Development Alternatives

[http://www.conferencealerts.com/](http://www.conferencealerts.com/seeconf.mv?q=ca1ai8hs)

[seeconf.mv?q=ca1ai8hs](http://www.conferencealerts.com/seeconf.mv?q=ca1ai8hs)

September 8-15, 2007

Dissertations Initiative for the Advancement of Climate Change Research (DISCCRS) III Symposium

Hawaii, USA

Organised by DISCCRS

<http://www.aslo.org/phd/discrsposter.pdf>

September 9-12, 2007

22nd Annual WateReuse Symposium

Tampa, Florida, United States

Organised by: WateReuse Association,

American Water Works Association, Water

Environment Federation

<http://www.watereuse.org/>

Take Note

Call for Papers CANSEE 2007

7th Biennial Conference

“Sustaining Communities and Development in the Face of Environmental Challenges”

July 26-28, 2007
Halifax, Nova Scotia

The 7th Biennial Conference of the Canadian Society for Ecological Economics (CANSEE) will reflect the focus of CANSEE in fostering transdisciplinary research activities and dialogue among natural and social scientists, government, the private sector and civil society, to deepen our understanding of the interactions between humans and nature, and to inform the sustainable stewardship of our natural resources and the environment.

These goals are particularly important in Canada given our rich endowment of natural capital, including forests, oceans, fish and wildlife species, biodiversity, productive soil, minerals, oil and gas, and freshwater. Our economy depends significantly on the use of these resources and society benefits greatly from the ecological services they provide. Stewardship of our environment and resources is needed to maintain the quality of life of Canadians and to support the people, economies and communities that depend on those resources for their livelihoods. Often, when the environment has already been degraded we are faced with difficult challenges of rebuilding ecosystems, while sustaining communities and economies.

The 7th Biennial Conference of CANSEE will provide a major forum to apply ecological economics in defining best approaches to achieve sustainability, in helping to address the myriad of environmental challenges we face, and in examining key issues of development both within Canada and internationally.

Conference sessions will focus on the contribution of ecological economics to the following:

- Management of **marine and coastal environments** and sustaining **coastal communities**
- Management of **forest environments** and sustaining **forest-dependent communities**
- Assessment and design of **recovery strategies** for **species at risk**
- Ethics, values and preferences for **rehabilitation of biodiversity**
- Social **equity of environmental conservation** (urban vs. rural, developing vs. developed nations)
- **Accounting for natural capital** in the measurement of regional and national welfare
- Recent advances in **sustainability indicators** and **monitoring** systems to support adaptive management
- Understanding the impacts of **climate change** and design of effective strategies for **adaptation**
- Project design in **international development** in support of **poverty alleviation**
- The role of Canadian institutions in **education** and **capacity building** for international development
- The **engagement of society** in the evolution and advancement of ecological economics

Conference sessions, papers and posters will directly address how an ecological economic approach can help society meet these challenges. Government, academics, NGOs, the private sector and the public are encouraged to attend.

All participants are invited to submit abstracts for presentation of papers or posters on any of the conference themes, or for workshop discussion sessions. The combined length of the abstract body may not exceed 350 words. Include the name, title and affiliation of each author in addition to the mailing address, phone and fax numbers, and email of the primary contact. Abstracts and proposals for special topic sessions must be received no later than March 1, 2007.

Abstract must be submitted via e-mail to cansee2007@cansee.org, or on-line at www.cansee.org/2007/. Abstracts

Food for Thought: Mahatma Gandhi

The things that will destroy us are: politics without principle; pleasure without conscience; wealth without work; knowledge without character; business without morality; science without humanity; and worship without sacrifice.

Honest disagreement is often a good sign of progress.

Be the change you want to see in the world.

It is unwise to be too sure of one's own wisdom. It is healthy to be reminded that the strongest might weaken and the wisest might err.

Happiness is when what you think, what you say, and what you do are in harmony.

There is more to life than simply increasing its speed.

They cannot take away our self-respect if we do not give it to them.

Satisfaction lies in the effort, not in the attainment, full effort is full victory.

The best way to find yourself is to lose yourself in the service of others.

Be the change you want to see in the world.

An eye for an eye makes the whole world blind.

My grandfather once told me that there were two kinds of people: those who do the work and those who take the credit. He told me to try to be in the first group; there was much less competition.

Indira Gandhi

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