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The Newsletter of the UNEP Collaborating Centre on Energy and Environment

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C2E2 News

In this issue:

The UNEP Collaborating Centre on Energy and Environment (UCCEE) at Risø National Laboratory, Denmark supports the United Nations Environment Programme (UNEP) in pursuing its aim of incorporating environmental aspects into energy planning and policy world-wide, with special emphasis on developing countries. UCCEE works catalytically, encouraging, promoting and supporting research by local research institutions, coordinating projects and disseminating information, as well as carrying out a full in-house research programme in close collaboration with colleagues at Risø National Laboratory - the main public scientific research institute in Denmark.

Support to Climate Policy Development

A Focal Role for the UNEP Centre

Over the last six years the UNEP Centre has gradually expanded its activities in the area of climate change and established a position as a recognised centre of excellence, particularly on mitigation issues. Activities focus on methodology development and application, capacity building in developing countries and facilitation of their active involvement in negotiations concerning the Framework Convention on Climate Change (FCCC).

A large part of the Centre's work in 1998 involved the finalisation of guidelines for national mitigation analysis and the completion of the fifteen national and two regional studies undertaken with support from the Global Environment Facility (GEF) and Danida. The first reports have been published and disseminated, but the bulk of the national and methodological reports will be printed in the first half of 1999.

While the Centre has worked with the Intergovernmental Panel on Climate Change (IPCC) for several years, 1998 represented a significant increase in IPCC related activities. Most significantly the new developing country co-chair of Working Group III under the Third Assessment Report (TAR), Ogunlade Davidson from Sierra Leone, worked at the Centre for ten months as a visiting professor. This led to a strong involvement in the preparation of the TAR. In addition three staff members have been selected as lead authors for the TAR and staff also participate as lead authors in the on-going preparation of two IPCC special reports on Emission Scenarios and Methodological and Technological Issues in Technology Transfer.

The Centre worked jointly with IPCC and UNEP on a report on *Mitigation and Adaptation Cost Assessment – Concepts, Methods and Appropriate Use*. The report was prepared by an international team of experts convened by Centre staff

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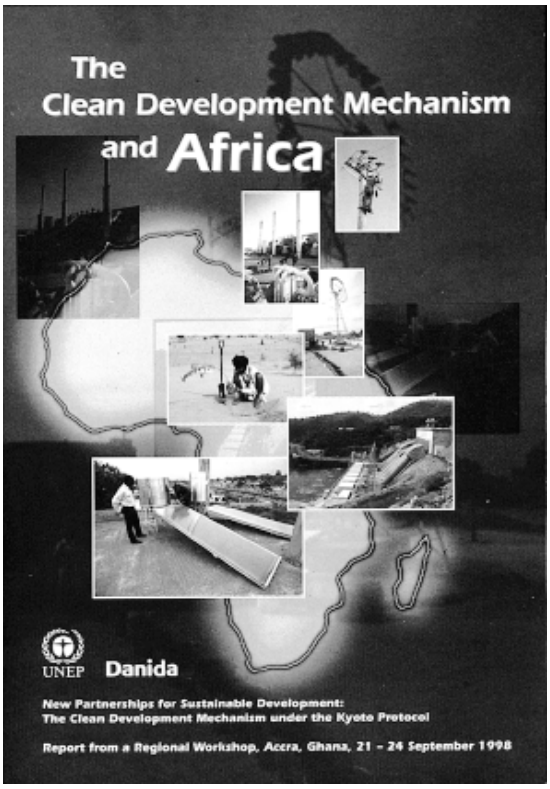

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together with colleagues at the Lawrence Berkeley National Laboratory. A first draft was discussed at an IPCC co-sponsored workshop at Risø in 1997, and the revised version was subject to a full IPCC scientific review in early 1998. After inclusion of the review comments, it was professionally edited with support from Environment Canada and published by UNEP as part of its methodological sub-programme, supported by the Framework Convention's Subsidiary Body on Technological and Scientific Advice (SBSTA). The report was subsequently presented to SBSTA in a session during the fourth meeting of the Conference of Parties (COP IV) in Buenos Aires.

In addition, the Centre co-organised an IPCC workshop in Zimbabwe on Integrated Assessment in Africa and is assisting the Danish Energy Agency with the organisation of an IPCC workshop on stabilisation scenarios, to take place in mid-1999.

The adoption of the Kyoto Protocol in December 1997 provided a new impetus to climate change mitigation, and the so-called Kyoto Mechanisms- Joint Implementation (JI), emissions trading and the Clean Development Mechanism (CDM)- have opened up new opportunities for the Centre to build on its extensive experience with mitigation issues and expand its activities in the areas of methodology development and capacity building.

The Clean Development Mechanism

The UNEP Centre is currently collaborating with the Zimbabwean Ministry of Transport and Energy and the Southern Centre for Energy and Environment on a project that investigates the potential use of the Clean Development Mechanism for financing development projects in Zimbabwe. It aims to describe how specific projects that have been proposed, but not funded, could be marketed, evaluated, financed and implemented under the CDM, as well as through existing sources, including multi-lateral and bi-lateral agencies and GEF. The purpose of doing this is two-fold: first, to assist the private and public sectors to better understand what may be needed to participate in the CDM, as opposed to existing funding mechanisms, and second, to assist the government in participating in the discussions about the CDM on the global level and to formulate domestic policies related to future participation in it.

Preliminary results of the project were presented at the workshop New Partnerships for Sustainable Development: The Clean Development Mechanism under the Kyoto Protocol, Accra, Ghana, September 21 to 24, 1998. This workshop was one of three IEA/UNEP regional workshops on the CDM. It was organised by the UNEP Centre in collaboration with the Environmental Protection Agency, Ghana, the International Energy Agency (IEA), the United Nations Development Programme (UNDP), the United Nations Conference on Trade and Development (UNCTAD), and the Stockholm Environment Institute (SEI). The workshop report was presented to COP IV in Buenos Aires.

GEF National Communications Support Programme

Another challenging new activity is the Centre's involvement in the National Communications Support Programme, which is being implemented by UNDP and UNEP and funded by GEF together with the EU and several bilateral donors. This programme aims to enhance the capacity of non-Annex I Parties to prepare their initial national communications to the FCCC, improve the quality, comprehensiveness and timeliness of the communications and ensure timely and cost-effective implementation of their GEF climate change enabling activity projects. The Centre provides technical advice to countries in specific areas such as information, tools, analytical support, and scientific assessment studies. It backstops both agencies on the organisation of thematic training and regional exchange workshops plus provides or facilitates direct technical assistance to countries that request support.

The first major activity under the support programme was a workshop on greenhouse gas inventories, held in Nairobi in January 1999. A number of other regional workshops will follow in the coming months.

Renewable Energy Technologies and Energy Planning

The UNEP Centre has a broad set of activities to promote sustainable energy development in support of UNEP's energy programme, which is operationalised through information dissemination and capacity building in the areas of energy efficient technologies, renewable energy resources, energy planning and policy-making. Decision-makers in governments, the private sector and NGOs are target audiences for this. These activities are also linked to the Centre's activities related to climate change mitigation and adaptation policies.

Energy Efficiency

The main Centre activity related to energy efficiency has been the dissemination and application of the manual *Tools and Methods for Integrated Resource Planning: Improving Energy Efficiency and Protecting the Environment,* which was published at the end of 1997. The manual was used as the basis for training in the South African regional workshop on Integrated Resource Planning- Tools and Methods, held in Cape Town in May 1998 and arranged by the Energy and Development Research Centre (EDRC) of the University of Cape Town and Carl Duisberg Gesellschaft (CDG) of Germany. Two of the manual authors associated with the Centre were the lead instructors for the workshop. The manual has been disseminated widely and used as a basis for training of relevant project managers in the World Bank.

On the energy supply, side special efforts were made to promote the increased use of renewable energy resources. In 1998, UCCEE has been active in a number of project activities in this area covering assessment of specific technologies and their potential, analysis of implementation barriers and development of specific policy instruments to overcome some of the barriers.

Renewable Energy Technologies

A book on wind energy is being written in response to a request by the UN Committee on New and Renewable Sources of Energy and Energy for Development (UNCNRSEED) and will be published in 1999. The book discusses wind energy technology, economics, finance, competitive power markets, environmental impacts, policy, and other issues. A short 16-page report on wind energy prepared by the authors of the book was published by the UN as the report of the United Nations Secretary General in February 1998.

The Centre has participated in a Government of Thailand project entitled "Investigation of Pricing Incentives in a Renewable Energy Strategy". The project was financed by Danced and implemented by the Thai National Energy Policy Organization. UCCEE worked with a number of Danish and Thai institutions and was in charge of analyzing international experiences with pricing incentives to promote Renewable Energy Technologies (RETs) and the use of externality assessment for policy design.

The UNEP Centre is implementing a Danida sponsored UNEP project that seeks to identify barriers to implementation of renewable energy technologies and proposes measures to overcome the identified barriers. The project includes three country case studies (Egypt, Ghana and Zimbabwe) that will be carried out by national institutions in these countries. The country case studies of renewable energy implementation projects will be used to analyse the reasons for success or failure of specific projects or technologies. The study will identify possibilities for "removing" the main barriers and thus promote increased implementation of RETs. The experiences from the case studies will be generalised for dissemination and use in promoting RETs. The project began in November 1998 and is planned to be completed in 18 months. In addition to the direct results of the national studies, the project will provide input to the preparatory process for the ninth session of the Commission for Sustainable Development (CSD) in 2001.

A small Centre project has also been initiated in India on a similar theme. The project is being undertaken in collaboration with the Indira Gandhi Institute of Development Research, Mumbai, and will identify barriers to renewable energy penetration through a case study in the State of Maharashtra, India. Specific measures to remove the barriers will also be identified.

Energy Planning

Since 1997 the Centre, in collaboration with the Danish Energy Agency, has been involved in building capacity in the new Energy Agency in Ouagadougou, Burkina Faso. In addition to capacity building the project will establish an energy database for the country, construct an electricity planning model and produce an electrification plan. At present only about 4% of the population of Burkina Faso has access to electricity. A model was constructed to explore the various development possibilities for the existing electricity infrastructure. The model allows for a choice of supply sources in the future electrification of towns and villages; diesel, solar, small grid, large grid, auto producers and cross-border connection. The model makes projections of the electricity demand and supply structure until 2014. The electrification plan, involving both urban and rural areas, has now been finalised.

The UNEP Centre, along with UNEP, UNDP and other organisations, supported a meeting convened by the Latin American Energy Organisation (OLADE) in October 1998 in Trinidad and Tobago to discuss and approve the Caribbean Energy Action Plan (CEAP) for the Insular Caribbean Nation States, Belize, Guyana and Suriname. The CEAP will be implemented in modules comprising information systems, energy policy, training, legislation, energy efficiency, renewable energy and project formulation and financing.

Sustainable Transportation Initiatives

Motorized transportation plays an essential role in economic and social development. However, ever- increasing motorization, metropolitan growth and land consumption, congestion, air pollution, noise and occupation of public and civic spaces by cars are all symptoms of a crisis in the transport systems of the world's cities. Global climate change is also a mounting threat. The transportation sector alone contributes one quarter of greenhouse gas emissions globally and is the fastest growing energy-consuming sector.

Conciliation between transport, economic growth and the environment requires the implementation of integrated policies for sustainable transportation. Sustainable transportation calls for a holistic approach to policy and investment planning intended to achieve a balanced mix of transport modes and a sensible arrangement of land use that enables conservative use of energy and capital to fulfil the accessibility and mobility needs of passengers and goods. Sustainable transportation requires links between most of transport's critical issues from energy use, to balancing development of urban environments, to addressing global climate change. In the case of developing countries, sustainable transportation includes a concern for social equity and economic sustainability.

UCCEE will actively participate in influencing international developments toward sustainable transportation in developing countries. The two principal transport issues that UCCEE addresses through research and direct collaboration with selected developing countries and other research institutions are global environmental change and sustainable urban passenger ground transportation.

Global environmental change issues in transport are dealt with through direct applied research (i.e. understanding how the Kyoto mechanisms can become important financial options for transport projects and developing guidelines for climate change mitigation in transport).

Sustainable Urban Transportation issues are tackled through research collaboration, supplementing efforts in countries and other international institutions on sustainable transportation practices. UCCEE's objective is to foster connections between developing country institutions and practitioners of sustainable urban transportation initiatives and the analysis and documentation of those projects classified as "best practices".

Under this theme, the UNEP Centre is planning a meeting for experts from Latin America, to be held in El Salvador in the middle of 1999.

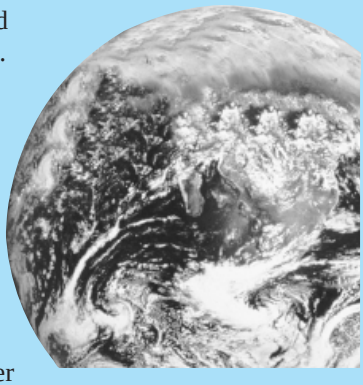
World Bank Climate Change Global Overlays for the Transport Sector

Climate Change Global Overlays are a new analytical concept established by the World Bank to integrate global environmental externalities into economic and sector work. The basic approach can in principle be extended to any sectoral development strategy with significant greenhouse gas (GHG) emissions. The Overlay calculates GHG emissions for a given sector, such as energy, industry, transport, or forestry, and outlines cost-effective GHG abatement options available to the country if it seeks to limit its GHG emissions in a sector.

Global Overlays are an important screening tool for identifying cost-effective investment projects with potentially interesting climate change benefits. The Overlays' focus allows more in-depth analysis of mitigation options than country-level studies, and a closer identification of cost-effective investment opportunities for GHG reduction. The UNEP Centre, in conjunction with World Bank staff, is to extend the Climate Change Global Overlays to the transport sector. The guidelines will be of great use for the inclusion of climate change concerns in transportation projects.

Finalisation of the GEF Project Economics of GHG Limitations

Over the last two years the UNEP Centre has been implementing the UNEP/GEF project "Economics of Greenhouse Gas Limitations". The project has developed methodological guidelines which have been applied and tested in 11 countries (Argentina, Ecuador, Botswana, Mauritius, Senegal, Tanzania, Zambia, Indonesia, Vietnam, Estonia and Hungary). The Global Environmental Facility financed the methodology development and eight of the country studies while Danida provided financial support for the country studies of Botswana, Tanzania and Zambia. Teams in Peru, funded by Danida, and in Egypt, Jordan and Lebanon, funded by UNDP/GEF, have also used the methodological guidelines and have participated in project workshops.



The objectives of the project are to develop national capacity for climate change mitigation studies and to support the development of a methodology, an implementing framework and a reporting system which countries can use in the establishment of national climate change policies and in meeting their likely future reporting obligations under the FCCC.

The methodological guidelines developed in the project cover key economic concepts, scenario building, modelling tools and common assumptions applied to GHG emission reduction policies in the energy, forestry, agriculture, industry and waste management sectors.

In addition to the national studies, the project has also included two sub-regional studies. Although this is a different level of analysis, many aspects of the methodological approach can be applied.

Regional Studies

Climate Change Mitigation studies have hitherto mainly been carried out at the national level. This is a natural consequence of the fact that the signatories to the Climate Convention are sovereign nations. However, cooperation between regional groupings could provide additional or less expensive options for reducing GHG emissions. The two regional studies included in the UNEP/GEF project set out to make an initial attempt to explore these issues and possibilities. Two regions were selected for study: the Andean Group in South America and the SADC (the Southern African Development Community) countries in southern Africa.

This study confirmed that regional options to mitigate climate change do indeed exist in southern Africa. Moreover, not only do these regional options exist, at least some are of significant size in terms of the quantity of carbon dioxide abated, and may also be realisable at a competitive 'price' (when compared with nationally implemented options). Nevertheless there exist considerable barriers, particularly institutional and political ones, which make implementation of such options more difficult.

Capacity building and awareness raising

Strengthening or establishing national capacity for mitigation analysis has, as mentioned above, been one of the main objectives of the project and has been pursued throughout the whole process. This has involved training of the national teams both in-country and through joint workshops for all national teams, which also facilitated experience exchange and cross country links. Teams have, in addition, had access to technical assistance from national, regional or international experts as well as an opportunity for team members to work either at the UNEP Centre or at another relevant international centre of excellence.

The final three-day workshop was held in Denmark in April 1998. At this, the third project workshop, members of all participating country teams (both the UNEP/GEF project and the parallel studies) presented their draft final reports and discussed results and methodological issues with the project team from the UNEP Centre and the Lawrence Berkely National Laboratory.

As a means to disseminate results and experiences the UNEP Centre organised four regional workshops (Africa, Asia, Latin America and Eastern Europe) in May 1998. The regional conferences were attended by representatives of the participating national teams, searchers and climate practitioners. The teams had an opportunity to present their final results and discuss these and related issues in a wider context.

Lessons learned

The project has been successful in conducting a very valuable dialogue between national and international experts about methodological issues related to the application of the guidelines in the various geographical, economic, scientific, and political settings that were represented by the parties involved in the project. A general consensus about analytical structure, concepts and critical assumptions has been established and this provides an important basis for enabling cross-cutting international discussions. Another result is that many of the people involved in the project are now using important parts of the resulting material in international fora such as the IPCC and the Conference of the Parties.

Staff Developments at the Centre

Cassandra Brooke
Cassandra Brooke comes from Australia where her previous research concerned marine pollution control and integrated coastal zone management. Her interests and activities at the Centre, which she joined in April 1997, include the CDM, and adaptation and vulnerability to climate change. She is due to begin collaboration with the University of Oxford's Environmental Change Unit on a PhD project examining adaptation to El Niño events and future climate change, with selected case studies in the Asia/Pacific region.

Fanny Missfeldt
Before coming to the UNEP Centre in September 1998, Fanny Missfeldt was a research fellow at the Royal Institute of International Affairs in London, where her work focused on environmental and energy related issues in the economies in transition. She has also been working as a consultant to the UNFCCC Secretariat. Her PhD in environmental economics examined possible strategies to reduce the risk of a nuclear accident in Eastern Europe. At the Centre she concentrates on the CDM and emissions trading, while keeping a regional focus on the formerly Communist countries.

Anne Olhoff
Anne Olhoff joined the Centre in March 1997 and is conducting research towards a PhD in association with Roskilde University. The project is investigating market, environment and deregulation in developing countries. The overall focus is on environmental and welfare implications of economy-wide policies in developing countries. More specifically, Anne works with the applicability of the theory of the second-best to environmental problems and barrier removal and the costs associated with project implementation.

Jyoti Painuly
Jyoti Painuly, who joined UCCEE in September 1997, was an Associate Professor at Indira Gandhi Institute of Development Research (IGIDR), Mumbai, an advanced research and teaching institute in India. At IGIDR Jyoti worked in the area of energy and environment on several projects sponsored by national and international agencies. He taught courses on energy and environment to PhD students of the Institute and was Dean of Academic Programmes from 1996 onwards. He also taught at the Graduate School of Management, Unversity of Utara, Malaysia for a year as a visiting Professor. Jyoti's areas of interest include energy economics and energy modelling, technology assessment, renewables, environmental economics and climate change.

Norbert Wolgemuth
Norbert Wohlgemuth comes from the University of Klagenfurt, Austria, where he was Assistant Professor in the Department of Economics. He was project manager and scientific advisor for Verbundplan, the engineering arm of Austria's biggest electricity producer. From 1992 to 1996 Norbert was employed with the International Energy Agency and was a member of a group preparing the Agency's World Energy Outlook publication. He was also responsible for electricity generation modelling, transport sector developments and aspects of the global oil refining industry. Norbert's current work focuses primarily on renewable energy supply options and institutional changes in the energy industry. He started work at the UNEP Centre in September 1998.

Juan Zak
Juan Zak joined UCCEE in August 1998. He has extensive experience in project management, policy assessment, and technical and economic evaluation in energy efficiency and sustainable energy development. Juan was previously employed with the Latin American Energy Organisation (OLADE) as a consultant on greenhouse gas reduction issues, demand side management in the electricity sector and energy efficiency. He has undertaken research for UNDP and the Dutch Ministry of Foreign Affairs in the areas of energy efficiency and sustainable energy development. Prior to his work with OLADE, Juan acted as Chief of the Energy Conservation Division at the National Energy Institute of Ecuador.

Arturo Villavicencio
Arturo went back to Equador in December 1997, but continued to work as a consultant to the Centre. Arturo will re-join UCCEE in April 1999.

Pramod Deo
Pramod returned to India in September 1998 and is working with energy and environment issues at the Maharashtra State Electricity Board.

Gordon Mackenzie
Gordon will be taking a leave of absence from the UNEP Centre for three years from March 1999 to work in Lesotho. He will be based at the Department of Energy in Maseru, as team leader for a DANCED (Danish Co-operation for Environment and Development) project aimed at capacity building and sustainable development in the energy sector.

Steffen Nielsen
Steffen has completed his PhD project entitled *Climate Change Mitigation and Land-Use in Developing Countries* and is now based at the Danish Energy Agency.

Robert Redlinger
In November 1998 Bob moved back to San Francisco where he is working as an energy consultant. He remains involved in Centre projects.

Ian Rowlands
Ian has returned to Canada in November 1997 and is now Associate Professor at the Department of Environment and Resource Studies, University of Waterloo.

Recent UNEP Centre Reports

Swisher, J.N., Jannuzzi, G. and Redlinger, R.Y. (1997) ***Integrated Resource Planning: Improving Energy Efficiency and Protecting the Environment*****. UNEP Collaborating Centre on Energy and Environment, Denmark.**

This book addresses tools and methods for integrated resource planning with particular attention toward improving energy efficiency in developing countries. It discusses IRP (Integrated Resource Planning), DSM (Demand-Side Management), environmental externalities, the competitiveness of renewables, and barriers to energy efficiency.

Christensen, J., Halsnæs, K., and Sathaye, J. (eds.) (1998) ***Mitigation and Adaptation Cost Assessment: Concepts, Methods and Appropriate Use.*** **UNEP Collaborating Centre on Energy and Environment, Denmark.**

The IPCC workshop Mitigation and Adaptation Cost Assessment: Concepts, Methods and Appropriate Use took place at the UNEP Centre in June 1997. The paper presented at the workshop has since undergone a full IPCC scientific review. The publication defines and clarifies cost concepts for use in the field of climate change and is intended for practitioners in the field, including climate change negotiators, technical experts from various disciplines, policy-makers, and other interested groups.

Rowlands, I. (ed.) (1998) ***Climate Change Cooperation in Southern Africa.*** **Contributions from I. Rowlands, R.S. Maya, N. Nziramasanga, B. Bathidzirai, P. Zhou and G.A. Mackenzie. Earthscan, London.**

The book shows how co-ordinated action among neighbouring countries could reduce greenhouse gas emissions in ways that are environmentally, economically and socially beneficial. It presents a general framework for analysing regional mitigation options among developing countries and examines particular proposals for southern Africa. Many of the options involve greater use of the region's hydropower resources and gas reserves; other options involving transport, renewable energy and energy efficiency are also studied.

Markandya, A. (1998) ***The Indirect Costs and Benefits of Greenhouse Gas Limitation.*** **Handbook Series, UNEP Collaborating Centre on Energy and Environment, Denmark.**

Although cost is a key component in the selection of greenhouse gas emission reduction projects, it is not the only consideration. Other important factors may include the impacts of policies on different social groups, particularly vulnerable groups, the benefits of GHG reduction in other spheres, such as reduced air pollution, and the impacts of the policies on broader concerns such as sustainability. In many developing countries these aspects are often more important than those related to climate change. The purpose of this report is to evaluate GHG limitation issues in a broader context which incorporates the concerns of developing countries, and to provide advice on a decision-making framework to bring together these dimensions.

Mackenzie, G.A., Turkson, J.K. and Davidson, O.R. (eds.) (1998) ***Climate Change Mitigation in Africa.*** **Proceedings of an International Conference, Victoria Falls, Zimbabwe, 18 – 20 May 1998. UNEP Collaborating Centre on Energy and Environment, Denmark.**

The African regional conference was organised jointly by UCCEE and the Southern Centre for Energy and Environment, based in Harare. The conference addressed issues related to climate change mitigation in African countries and sub-regions. Specifically it provided an opportunity to present and discuss the results of the climate change mitigation country studies conducted over the past two years and coordinated by UCCEE. The conference was attended by a total of 63 people, representing 22 African countries as well as international organisations.

Shukla, P.R. and Deo, P. (eds.) (1998) ***Climate Change Mitigation in Asia and Financing Mechanisms.*** **Proceedings of a Regional Conference, Goa, India, 4-6 May 1998. UNEP Collaborating Centre on Energy and Environment, Denmark.**

The report of this workshop, organised by the UNEP Centre in conjunction with the Environment Department of the World Bank, contains country papers and presentations from 11 Asian developing countries, and various contributions by UNEP, the UNFCCC, the World Bank and invited experts. In addition to sharing the GHG mitigation experiences of participating countries, the workshop discussed the role and efficacy of financial mechanisms, with particular focus on the Prototype Carbon Fund of the World Bank.

The Clean Development Mechanism and Africa- New Partnerships for Sustainable Development: The Clean Development Mechanism under the Kyoto Protocol. **Report from a Regional Workshop, Accra, Ghana, September 21 to 24, 1998. UNEP Collaborating Centre on Energy and Environment, Denmark.**

This workshop was organised by

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the UNEP Centre in collaboration with the Environmental Protection Agency, Ghana, the International Energy Agency (IEA), the United Nations Development Programme (UNDP), the United Nations Conference on Trade and Development (UNCTAD), and the Stockholm Environment Institute (SEI). Over the four-day period 80 experts, officials from universities, research institutions, industries and NGOs, climate change negotiators from Africa and experts from other global regions and international organisations discussed various aspects of the Clean Development Mechanism.

Halsnæs, K., Callaway, J.M. and Meyer, H.M. (1998) ***Economics of Greenhouse Gas Limitations: Methodological Guidelines.*** **Contributions from J. Fenhann, J. Painuly, R. Redlinger and J. Turkson. UNEP Collaborating Centre on Energy and Environment, Denmark.**

The guidelines are an output of the UNEP/GEF project "Economics of Greenhouse Gas Limitations". The methodological guidelines presented have been applied and tested by the UNEP Centre in 11 countries and cover key economic concepts, scenario building, modelling tools and common assumptions applied to GHG emissions reduction policies in the energy, forestry, agriculture, industry and waste management sectors.

Nielsen, S.R. (1998) ***Climate Change Mitigation and Land Use in Developing Countries. Methodological Framework for the Assessment of the Economic and Environmental Impact connected to Land Use activities in Tropical Forest Areas: An Ecuadorian Amazon case study.*** **Ph.D dissertation, Department of Social Sciences, Roskilde University.**

Steffen's Ph.D research contributes to the methodological evolution of climate change mitigation analysis. It presents a methodological framework for the assessment of greenhouse gas abatement options that meet current development needs in developing countries, and creates a model that links land use change to carbon inventories and economic analysis. Case studies in provincial and community areas of the Ecuadorian Amazon are used to analyse the economic and environmental impact from alternative land use activities in relation to climate change mitigation.

Redlinger, R.Y., Andersen, P.D. and Morthorst, P.E. ***Report of the United Nations Secretary General: In Depth Report on Wind Energy for the UN Committee on New and Renewable Sources of Energy and on Energy for Development.*** **(In prep.)**

The Committee on New and Renewable Sources of Energy and on Energy for Development (CNRSEED) requested the Secretary-General to prepare a report on new and renewable sources of energy, with special emphasis on wind energy. This report summarises the progress of wind energy to date and discusses the resource, technological, economic, environmental and sociological aspects of wind power today. It also summarises the policy options available to stimulate the adoption of wind energy and provides brief case studies of five countries which accounted for 85 % of world-wide installed wind capacity in 1996. The authors provide recommendations for critical policy options.

Futher publications and papers are available on the Centre's webpage.

c_2e_2 *news* provides up-to-date information on the activities of the UNEP Centre, UNEP and related events and developments. Information on forthcoming conferences, reports, studies, etc. are welcome. The views expressed in this newsletter do not necessarily represent those of the United Nations Environment Programme, Risø National Laboratory or Danida.

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